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Unraveling the routine dynamics of interfunctional coordination: Solving “ad-hoc” customer problems in a high-tech industrial enterprise

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ABSTRACT

The interfunctional coordination involved in adequately responding to immediate customer needs and problems is central in business marketing theory and practice. However, the literature on interfunctional coordination has so far focused on the design of organizational coordination mechanism and performance. Hence, how interfunctional coordination occurs in spontaneous ways from the perspective of situated organizational members has not been well examined. We studied the dynamics and micro processes of interfunctional coordination in a High Tech Industrial company located in the Netherlands in response to the event of addressing ad-hoc customer field problems. In each of the eight events we studied, we analyzed the enactment strategies of the customer problem by members into the organization, how they caused breakdowns in the otherwise stable customer field problem solving routine, and how they set up a temporary coordination structure to solve the problem. We identified three distinct modes of interfunctional coordination and underlying routine dynamics: routine coordination, balanced coordination and ad-hoc coordination. This paper demonstrates that interfunctional coordination can occur programmed as well as spontaneous depending on the nature of the customer problem and how members enact the problem and are able to depart from existing routines to adequately respond to customer problems. We also contribute to the literature on organizational routines by showing how and when routines are malleable and to some extent uncover its temporal dynamics.

INTRODUCTION

Responding adequately to customer needs and changing environmental conditions lies at the core of marketing. To achieve this, scholars were early to note the importance of a right fit between market and organization, also called interfunctional coordination which is considered as an important source of competitive advantage and sustainable value creation (e.g., Day, 1994; Narver & Slater, 1990;1995; Gulati, 2007). Interfunctional coordination refers to the business' coordinated efforts to utilize company resources and align internal processes and departments to adequately respond to the changing needs of customers and markets (Kohli & Jaworski, 1990; Narver & Slater, 1990; Ruekert, 1992). Important as it seems, interfunctional coordination is difficult to manage because its success depends largely on the coordinated efforts of many and how well organizational departments are able to collaborate (Narver & Slater, 1990). Indeed, scholars have pointed to the managerial complexity and multifaceted characteristics of interfunctional coordination including the cross-departmental conflicts and the dynamics that can arise from that (Agarwal, Erramilli, Dev, 2003; Auh & Menguc, 2005; Day, 1994; Kohli & Jaworksi, 1990; Narver & Slater, 1993). To remedy, scholars proposed establishing so-called boundary spanning interfaces between functional departments in order to bust "silo's" (Gulati, 2007), suggest enhancing the information sharing between departments (Becker & Knudson, 2005; McNaughton, Quickenden, Mataer, & Gray, 1999; Whang, 1995) or through the strategic use of modular organizational architectures (Sanchez, 1999). However, despite recipes on how interfunctional coordination can best be achieved, we know little about the dynamics and micro processes involved in interfunctional coordination from the perspective of situated actors.

This paper is devoted to exploring that gap in the literature on interfunctional coordination. In doing so, we examined the efforts of members of a Customer Support department in a High-Tech industrial organization and how they respond to ad-hoc customer field problems. We observed that these members enacted distinct repertoires of interfunctional coordination ranging from programmed ones to spontaneous ways to find solutions to ad-hoc field problems by causing breakdowns in the usual customer problem solving routines by setting up ad-hoc structures to solve the problem.

In theorizing this way of looking at interfunctional coordination, we draw on the literature interested in the routine dynamics of coordination (D'adderio, 2014; Dönmez, Grote & Brusoni, 2015; Spee, Jarzabkowski, & Smets, 2016), the involvement of customers in

addressing issues of balancing ostensive as and performative aspects (Turner & Rindova, 2012) with an analytical focus on the internal dynamics of routines (Feldman, 2000). Such a view presupposes that coordinating mechanisms emerge through interdependent organizational activities in programmed but also spontaneous ways rather than viewing coordination as a fixed entity (Okhuysen & Bechky, 2009). Consistent with Kremser and Schreyögg's (2016) notion of the cluster level of interrelated routines, we argue that interfunctional coordination involves by definition a set of cluster of complementary routines while each one contributing to a partial result to the accomplishment of a common task. Furthermore, we draw on Staudenmayer, Tyre and Perlow's (2002) notion of triggering temporal shifts in work rhythm to understand how members enact various ways of interfunctional coordination to find solutions for ad-hoc customer field problems.

This paper attempts to answer two research questions. First, what do actors do to initiate actions in response to ad-hoc customer field problems? Second, through which coordinated efforts and temporary problem solving arrangements are these problems addressed?

We examined eight so-called critical customer field problems within a single case (Miles & Huberman, 1994). Metal-Tech Ltd is the name that we gave to the case company we studied. This company is located in the Eastern part of the Netherlands and develops, produces and delivers state of the art metal processes technology throughout the world. We used ethnographic data collected in a time frame of six months based on a full-time engagement. Our empirical focus started with the members of the Customer Support department who take care of field problems and from there expanded to the members involved in various organizational routines such as production, quality, R&D, sales & marketing and even top management. We mainly draw on in-depth interviews with multiple members of this organization and relied on unobtrusive data collection techniques as well (Visconti, 2010) such as shadowing (Czarniawska, 2004). This technique was useful to follow the "events", that is the various ad-hoc customer problems that needed to be solved.

In analyzing the eight events, we observed three distinct modes of interfunctional coordination: routine coordination, balanced coordination and ad-hoc coordination. Each mode is characterized by specific enactment strategies to address the customer problem in the wider organization and the need for deliberate attempts that allow members to depart from the usual problem solving routine setting up a temporary structure to solution to the problem. We elaborate on each one and use illustrations from the case to support our observations that lead to this refined understanding of interfunctional coordination by examining its routine dynamics.

Based on these results, this paper aims to make the following contributions. First, we

provide an in-depth understanding of the dynamics involved in interfunctional coordination especially when they run against the organizational current which apply to a great deal of ad-hoc customer problems. By looking at the micro processes of interfunctional coordination from the viewpoint of situated actors, we arrived at a refined understanding of what it means for organizational members to link ad-hoc customer problems to specific responses with certain strategies and coordinated efforts. Moreover, while the literature on organization coordination suggests an unified fit between organization and market somewhere on a continuum between rigid and flexible, we suggest that three distinct modes of interfunctional coordination with each having its own routine dynamics. Our research thus suggests to consider interfunctional coordination as a cluster of routines in which various strategies and coordinated efforts can take place with the same set of organizational routines on which coordination is dependent. Furthermore, this paper contributes to the literature on routine dynamics by not only looking at the coordinated efforts to realize change or stability, but to draw attention to the strategies of organizational members to create multiple temporary structures to coordinate the solution of ad-hoc customer problems across interdependent organizational routines.

The remainder of the paper is structured as follows. First, existing literature on interfunctional coordination and routine dynamics is reviewed and from which we develop our research approach. After that, the methodology is described including the case study object and the process and techniques used for data collection and analysis. Hereafter, the results are presented. Lastly, the paper ends with concluding remarks, some limitations and directions for future research.

LITERATURE BACKGROUND

In this section, we first discuss how existing literature views interfunctional coordination as the organizational efforts to sustain a fit between organization and environment. After that, we argue how the literature on routine dynamics can be helpful in understanding interfunctional coordination as a dynamic routine that involves the coordination of multiple and interdependent organizational activities which are effortful coordinated by responsible members usually to accomplish customer needs and also problems. Our primary goal is to understand the different patterns or certain repertoires underlying such effortful accomplishments.

Interfunctional coordination as a source of competitive advantage

A central task for management is to align all business activities with the needs and wants of target customers and satisfying these needs more effectively than its competitors, also called interfunctional coordination (Day & Wind, 1980; Grönroos, 1989; Kotler, 1997; Slater & Narver, 1998). Hence, marketing is not just a sole function concerned about the creation of customer value, but a principle that spreads throughout the whole organization (e.g., McKenna, 1999; Gulati, 1999; Han, Kim, & Srivastava, 1998). Accordingly, organizations collect information on their customers and competitors, disseminate this information throughout the organization and adequately respond to these calls (Kohli & Jaworski, 1990; Narver & Slater, 1990; Shapiro, 1988). Ideally, *all* employees are therefore or should be committed to the continuous creation of superior value for customers (Day, 1994; Kohli & Jaworski, 1990; Narver & Slater, 1990). Besides the importance of employee commitment, interfunctional coordination is generally concerned with the coordination and integration of value creation processes and its alignment with those of the customers in the target market(s) of the company (Jaworski & Kohli, 1996; Narver, Slater, & Tietje, 1998). As such, interfunctional coordination is central to market-driven organizing which is increasingly complicated by environments becoming more complex, volatile, and uncertain (Narver, Slater, & MacLachlan, 2004; Xaio & Faraj, 2006).

Coordinating interfunctional coordination

Consistent with contingency theoretical approaches (see Ruekert, Walker & Roering, 1985; Drazin & Van de Ven, 1985) traditional literature on interfunctional coordination generally propose to adopt an approach on a continuum between flexible and a rigid way of coordinating contingent upon the market dynamics and customer needs. However, recent studies propose the use of hybrid coordination modes, for instance combining tight formal and flexible structures at the same time which are especially appropriate in high-velocity environments (Bigley & Roberts, 2001; Fredericks, 2005; Menguc & Auh, 2006). Although the need for flexible or alternative ways of coordination is acknowledged, much of the literature conceptualizes interfunctional coordination as a programmed way of organizing rather than spontaneous (Georgopoulos & Cooke, 1979). This implies that any contingency and subsequent coordinated response is already somehow being anticipated. Although the notion of formal and improvised coordination mechanisms is stressed to some extent (Xaio & Faraj, 2006) less is known about how coordination occurs when not programmed, that is, through improvisation,

let alone from the perspective of situated members. This observation is in line with scholars who argue that by emphasizing formal coordination only limits the understanding of its dynamic and processual characteristics (Rico, Sanchez-Manzanares, Gil, & Gibson, 2008; Banks, Pollack & Seers, 2016). Gittell (2002) for instance, argues that such a perspective requires a focus on the relational coordination interactions and communication among members of departments in their effort to solve market related problems.

Routine Dynamics and coordination

We too depart from the assumption that not all organizing is anticipated (Weick, 1979; Weick & Roberts, 1993) and that un-programmed, ad-hoc coordination is just another important part of everyday organizing and one that paradoxically depends on more stable modes of programmed coordination. The literature on organizational routines is particularly helpful in this regard since it understands organizational routines as sources of flexibility and change as well as stability (Feldman, 2003; Feldman & Pentland, 2004) instead of sources of inertia only (Gersick & Hackman, 1990; Gilbert, 2005;). As Feldman (2000:626) notes “*routines are not inert, but are as full of life as other aspects of organizations*”. Carrying on Giddens’s (1984) notion of duality of structure and action and Actor-Network-Theory (Latour, 1986), Feldman & Pentland (2003) developed a concept of organizational routines entailing ostensive and performative aspects. Ostensive aspects refer to “*the ideal of schematic form a routine*” (2003:101) embodied in for instance standard operating procedures (SOP’s), guidelines or taken-for-granted norms held by those involved in a routine and work as a guide in terms of what actions to be taken (D’Adderio, 2008; Pentland & Feldman, 2005). Performative aspects in turn, are the effortful accomplishments of routine participants to “*construct routines from a repertoire of possibilities*” and therefore can be understood “*as inherently improvisational*” (Feldman & Pentland, 2003:102). Although changeable, ostensive aspects tend to be more stable over time (Howard-Grenville, 2005) whereas performative aspects are more open to change because it is here where a routine is enacted by reflective individuals carrying out a routine (Feldman, 2000). Ostensive and performative aspects of routines work synergistically, that is, they presuppose rather than oppose each other (Feldman & Pentland, 2003; Farjoun 2010).

On this basis, many researchers have sought to understand how issues of change and stability are produced by the coordination of interdependent organizational routines. For instance, in a Newspaper–Printing factory, Aroles & McLean (2016) studied how standard

routines to solve problems usually considered as bringing a sense of order into chaos can also be viewed as source of organizational problems through a process of difference and repetition. Dönmez et al. (2016) explored how product development teams balance stability and flexibility by the simultaneous implementation of software packages in interdependent organizational routines. In their study, it was found that interdependencies among routines are coordinated by members who manipulate the level of ‘protection’ of each routine whereas less protection creates flexibility and protection more stability. Both ostensive and performative aspects can be the focus of protection. D’Adderio (2014) investigated the difficulties that organizational members encounter when simultaneously striving for exact replication and innovation and thus realizing stability and change at the same time. This study showed how contextual ambidexterity was achieved by establishing two sets of ostensive patterns (Big Rules, Golden Standards, Models,) and enacting them in different proportions. Deken et al. (2016) examined how multiple actors accomplish interdependent routine performances aiming for novel outcomes and how this affects routine dynamics over time. They found that change of interdependencies across routines involves breakdowns produced and resolved by “*routine work*”. Routine work refers to flexing, stretching, and inventing, identified as three distinct processes that lead to the production of breakdowns in routines as well as novel outcomes and change. Likewise, Spee, Jarzabkowski, and Smets (2016) observed how the coordination of standardization and flexibility of interdependences between multiple intersecting routines is performed by professionals who carefully balance the ostensive patterns of these routines through skill and judgment. In another study, Turner & Rindvola (2012) addressed how organizational members balance pressures for consistency in the face of change by simultaneously establishing ostensive patterns of consistency and flexibility. When it comes to the implementation of a new system in organization routines, Berente, Lyytinen, Yoo, and King (2016) showed how integrative flexibility of local work practices function as “*shock absorbers*” that helped the coordination of implementing an enterprise software system into co-existing organizational routines. Howard-Grenville (2005) direct the focus to agency and context by showing how the degree of embeddedness of a routine in the organizational structure and the primary temporal orientation of actors (Emirbayer & Mische, 1998) influences stability or change of routines.

Theorizing the Routine Dynamics of programmed and un-programmed interfunctional coordination

The interest of this paper lies in the “dynamic nature of coordinating” (Jarzabkowski, Lê, & Feldman 2012:908) of programmed and spontaneous interfunctional coordination from the perspective of situated actors with the focus on the strategies (if necessary) to create temporary structures to collectively solve customer problems. The various approaches to the study of change and stability of interdependent organizational routines as just discussed indicate the complexities of coordination performances. Our focus here is not so much the coordinated efforts of change per se but the actions of organizational members to temporarily change the rhythm of ongoing organizational routines depending on the impact and priority of solving customer problems and the judgment of the coordinated efforts deemed necessary for this task. In this regard, we were inspired by Staudenmayer’s et al. (2002) idea of temporal shifts as enablers of changing work rhythms in organizations following from unexpected problems that triggers a realization that existing routines are insufficient by members. By temporal shifts is implied “*changing the way people experience time*” after some event which changes the accustomed daily rhythms of work (Staudenmayer et al., 2002:583). In our study, we strive to disclose how such temporal shifts cause alternative repertoires to interfunctional coordination as they are enacted by organizational members and the characteristics of the coordination efforts that follow to solve problems. In doing so, we aim to identify the routine dynamics of interfunctional coordination and reveal various potential modes of interfunctional coordination. By modes is implied that routines may produce different outcomes depending on the choices made by those performing a routine (Feldman, 2000; Feldman & Pentland, 2003; Pentland & Ruekert, 1994) in the face of immediate contingencies. In identifying such repertoires, we now turn to the next section in which we start describing how we examined the strategies of organizational members to enact temporary structures to solve customer problems.

METHODS

We examined how solving ad-hoc customer field problems occurred at Metal-Tech Ltd (henceforth MTL and used as a synonym for sake of confidentiality). MTL is a midsize and privately owned industrial company located in the Eastern part of the Netherlands. Starting as a locally operating small company, nowadays, MTL designs, develops, manufactures, distributes and provides services for steel fabrication machinery in plate and beam processing industries across the world. The majority of their customers are demanding in a sense that they cannot risk a standstill of their production process and therefore require 24/7 service and quick response time in case of occurrences. Due to its growth in the last 10 years,

this organization increasingly relies on functional organizational design to govern daily business. For instance, At MTL, the Support department is responsible for turning around customer problems. As specialist, these members usually know what to do and whom to involve when customers report immediate field problems. Our research started here where we observed how these members enact distinctive customer problems (that we call events) and set in motion the “solution search process” into the wider organization and across departments. We further interviewed key members from Product Management, Research & Development, Customer Field Service, and Sales Management and even top management when problems escalated and were considered as highly impacting MTL.

Our full time fieldwork lasted for three months in the spring of 2016 and is characterized as an organizational ethnographic research (Van Maanen, 1982). Following Emerson, Fretz, and Shaw (2011), carrying out ethnography in the field consist of two distinct activities. Firstly, the researcher enters a social setting, referred to as “the field” and gets to know the people involved in it by participating in the daily routines of this setting also known as immersion (Visconti, 2010). For us (second author), this implied becoming familiar with the work practices and personal interest of employees and managers. The second one concerns the actual field work by collecting the data grounded in the commitment to obtain first-hand experience. In doing so we relied on in-depth interviews, ad-hoc conversations but also observations during the several meetings that we joined or just by sitting and drinking coffee in the departments. We recorded the in-depth interviews and transcribed them verbatim for data analysis. To follow the actions and controversies at MTL, we made use of shadowing techniques as promoted by Czarniawska (2004) as a well-established way to obtain data across time and space. In total, we studied 8 customer problems. In table 1, we provide a basic description of each problem and the turnaround time in which a solution was offered to the customer.

Basic description	Turnaround time for reaching the solution +/-
Event 1: Broken wire of a valve	1 day
Event 2: A broken valve	2 days
Event 3: Software problems of infeed roller conveyer	1 week
Event 4: Integration problem of a new drilling and saw system	1 week
Event 5: Problems with plasma Center Marking	2 weeks
Event 6: Problems with applying countersunk holes	6 weeks
Event 7: Problems with applying countersunk Nib Holes for bolts.	5 weeks

Event 8: Problems with the wrong values for bevel cutting	8 weeks
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Table 1: Short problem description and turnaround time

To analyze the data, we first went through the transcripts linked to each event and started to categorize those parts of the transcripts that are related to enactment strategies to convey the problem in the organization, responses of other organizational members to the problems followed by the actions to develop an ad-hoc structure for solving the problem if applicable. After that, we could start our coding procedure. Initially we started to categorize the events in programmed or spontaneous coordination. Subsequently, we continued our data analysis to uncover further distinctions between programmed and spontaneous coordination, which indeed was the case for the spontaneous ones. We relied on Eisenhardt (1989) to triangulate the data. We did so by comparing our end result of the interviews with our earlier observations documented in the field notes per event.

FINDINGS

In table 2, we describe each event in terms of enactment strategies, if and how members caused breakdowns in ongoing organization routines and if and how a temporary arrangement emerged to solve customer problems. Although we are still in the process of analyzing the data more deeply, we share our key observations so far and some illustrative quotes that lead into the development of three distinct modes of interfunctional coordination. Apart from routine coordination, which is seemingly related to a programmed way of dealing with even ad-hoc customer field problems, we found in several other events that solving customer problems innately requires efforts of organizational members to slightly or forcefully disrupt the normal flow of operations. Each of them entail distinct customer problem enactment strategies and efforts to cause a breakdown of ongoing routines across various departments which then lead to the emergence of a temporary structure solve the problem in a more or less ad-hoc fashion. We termed the two spontaneous modes of interfunctional coordination balanced and ad-hoc coordination. Balanced implied that members balance between usual procedures to solve ad-hoc customer problems and idiosyncratic improvisations to deal with the problem. Ad-hoc coordination implied a total yet temporary departure from existing routines to solve problem. Ad-hoc coordination is characterized by creatively working around existing routines and even implied the involvement of top management to ensure priority that the problem will be solved as soon as possible.

	Event 1: Broken wire of valve	Event 2: Broken valve	Event 3: Software problems of infeed roller conveyers	Event 4: Integration of draw and sawing system	Event 5: Plasma center marking functionality	Event 6: Plasma countersunk nib holes functionality	Event 7: Plasma countersunk holes functionality	Event 8: Plasma bevel cutting functionality
<i>Case description</i>	A customer called the Customer Support Department and had issues with a valve	A customer called the Customer Support Department and had issues with valves of a cutting table	A Field Service Engineer called the Customer Support Department as he encountered problems with infeed of material	A customer requested a quotation for an integration of a draw and sawing system into his other existing system	A customer wanted to be able to make plasma center marking cuts	A customer wanted to cut countersunk plasma holes with a nib	A customer asked for a plasma countersunk holes functionality	A customer wanted to be able to do certain types of bevel cuts (i.e., angled cuts)
<i>Enactment strategies</i>	<ul style="list-style-type: none"> The Support Engineer issued a task for the Field Service Coordinator in the ERP system, subsequently mailed and called him to inform him about the need for scheduling a Field Service Engineer 	<ul style="list-style-type: none"> The Support Engineer issued a task in the ERP system for R&D Plates department to find article numbers. The Support Engineer called the Field Service Coordinator if he could find the article numbers The Support Engineer called a Mechanical Lead Engineer of R&D Plates to see if he could find the physical component itself 	<ul style="list-style-type: none"> The Support Engineer issued a task for a Software Engineer in the ERP system and subsequently called him to inform about the situation 	<ul style="list-style-type: none"> The Product Manager Beams proposed questions via mail to Product Support of R&D Beams department indicating the high priority of issue The Product Manager scheduled an ad-hoc meeting with a Software Engineer of R&D Beams department 	<ul style="list-style-type: none"> Initial Project Leader scheduled an ad-hoc meeting with R&D Plates department New Project Leader addressed the issue by stopping by the department to schedule an ad-hoc meeting with two expert R&D Plates employees 	<ul style="list-style-type: none"> Initially addressed by Project Leader by means of a punch list in an ad-hoc meeting with an expert R&D employee Further addressing by scheduling an ad-hoc group meeting with R&D department and Product Manager 	<ul style="list-style-type: none"> Initially addressed by Support Engineer and re-directed to Product Manager Plates via a phone call. Product Manager further addressed via an ad-hoc meeting by with R&D Plates department New technical issue in the process was articulated by the Product Manager to R&D department Other emerging technical issue and the customer not willing to pay addressed by Top Management in ad-hoc meeting to R&D employees and Product Manager 	<ul style="list-style-type: none"> Project Leader scheduled an ad-hoc meeting with two expert R&D Plates employees and Product Manager Plates to construct proposal Emerging issue with scarce R&D capacity and subsequent concerns addressed by R&D employees in weekly routine meeting with R&D department and Project Leader Emerging issue shared with Top Management by Manager R&D through a formal meeting
<i>A breakdown into the existing coordination routine?</i>	No breakdown of routines – Field Service Coordinator responded calmly as existing routines were sufficient	No breakdown of routines – The R&D department had not picked up the inquiry. The Field Service Coordinator and Mechanical Lead Engineer responded peacefully as existing routines were sufficient	No breakdown of routines – Software Engineer remained calm as existing routines were sufficient	Mild breakdown of routines – immediate efforts of Product Support and the Software Engineer were required	Mild breakdown of routines – immediate efforts of R&D employees were required	Mild breakdown of routines – immediate efforts of R&D employees were required	Large breakdown of routines – all scheduled activities of R&D were put on hold to serve the problem	Large breakdown of routines – all scheduled activities of R&D were put on hold to serve the problem

<i>Temporary arrangement to solve the problem?</i>	No temporary arrangement emerged – coordination through acknowledged SOP's	No temporary arrangement emerged – coordination through acknowledged SOP's	No temporary arrangement emerged – coordination through acknowledged SOP's	Temporary arrangement through ad-hoc meeting and involvement of Sales Manager and Dealer by regular checkups	Temporary arrangement through ad-hoc meeting, and subsequent coordination by a punch list and regular checkups by Project Leader	Temporary arrangement through ad-hoc meetings, and subsequent coordination by a punch list and regular checkups by Project Leader and close involvement of Product Manager	Temporary arrangement through ad-hoc meetings, and subsequent coordination by involvement of Top Management	Temporary arrangement through ad-hoc meetings, and subsequent coordination by involvement of Top Management
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Table 2: Event analysis.

Routine coordination (event 1-3)

We observed how organizational members of the Customer Support department perceived incoming problems to be routine questions and as such, could rely on SOP's to construct a solution for the problem. In reply to our question if the situation at hand happened more frequently, a Support Engineer (event 1) remarked:

He [the customer] immediately wants to have an engineering on-site to solve his problem without having to pay of course" [smiles]... "However", he continued "these are not special things. That the switching wire is broken, happens quite often".

Occurrences of frequent issues imply undertaking of actions that are predefined and guided by acknowledged procedures. Indeed, a Support Engineer (event 2) clearly indicated his route of actions:

"If I can't solve it, I have to go to the Mechanical Lead Engineer [R&D Beams] or someone else of R&D Beams. (...) They normally also have contact with suppliers [of parts].

Another Support Engineer (event 3), also explicitly relied on SOP's as he explained:

"I've issued a task for that [problem]. Now he [Software Engineer] received an email from SAP [ERP system] that a task has been issued for him."

As the problems were addressed by organizational members, it seemed that the enactment of these customer problems did not lead to breakdowns of existing routines. For instance, a Software Engineer in event 3 responded calmly as he sought to reproduce the solution to the problem via a simulation function in the machines operating software, which helped him before. In the construction of a solution, organizational members used the corporate ERP-system. We noticed that these systems were well-suited to solve such recurrent problems of this kind. Since existing routines and its supportive systems were sufficiently enough to solve the customer problem under investigation, no temporary arrangement was deemed necessary. As such, coordination for the ad-hoc customer problems in these events were mostly achieved by relying on the customary way of handling field problems, regardless of the urgency that customers assigned to their problem.

Balanced coordination (event 4 - 6)

Although usually customer problems arrive via Customer Support, in events, 4, 5, and 6 we observed how customers even directly approached members of Product Management and Projects and thereby bypassing the Customer Support department. Hence, it seems that customers avoided Customer Support, demanding an immediate solution.

The Product Manager in event 4, who was approached by the customer, responded as follows:

“There are still a few glitches in the design that this customer works with, related to mechanically and electrically functions. So, I’m going to propose those questions [via mail] to Product Support of the R&D Beams department.” He further explained: *“I will wait until this afternoon for a response from Product Support, but if this is not before 15:00 o’clock I will call them”. Because this is always... this often has a higher priority because the customer is just waiting for our solution.”*

In event 5, the customer contacted a Project Leader, in which he promptly reacted:

“I constructed a punch list and stopped by the R&D Plates department to talk to them [Mechanical Lead Engineer and a Test Engineer].”

As immediate efforts were required, members started to think about how to deal with this problem and cope with the necessary to complete their other duties. A R&D employee (event 5) mentioned:

“Tension, at that moment... Everyone is busy with other things and then, all of a sudden, that immediately has to come in between. So, that suits no one.”

Problematic as it seemed, members of the Product Management department started to find a quick solution themselves and in a way, circumvent the usual procedure. As one member in of Product Management department explained in event 5:

“We did a quick fix again, tested it, and built it in the software.”

Although improvisations by working around usual procedures seemed to prevail here, we also witnessed how members stayed calm and determined in their response as they began to see the problem can be dealt with to a large extent within the usual problem solving procedures by mainly relying on previous knowledge.

For instance, the Product Manager in event 5, recalled:

“There you really have the feeling, even before working on it, that the solution will be there. So, you approximately know what to do, you only need to install it.”

In a similar vein, a R&D employee in event 6 responded reasonably calm as he explained that he could solve the problem based on another solution for a customer problem in the past:

“This customer wants something that resembles the cuts we already are able to do.”

In all of these events we observed that the Customer Service department was not immediately involved in the customer field problem which is otherwise a part of the standard operating procedures. Apparently, customers found an entry point themselves which they deemed more helpful to the problem at hand. Members immediately acted on these problems and taking care of the problem themselves rather than giving the responsibility to the Customer Support department first. In their endeavor to find a solution, they largely still relied on existing procedures and systems routines but at the same time were creating a space for finding novel solutions themselves, mostly through improvisation and experience. Ad-hoc meetings were set up to coordinate the solution to the problem and to ensure that the checkups are right. Rather than using the phone or communicated by e-mails, members preferred face-to-face meetings to make sure that everyone is on the same page. For instance, the Project Leader in event 5 expressed his concern about the need for face to face discussion as follows:

“(…) So, I get off my seat and not send an email, but stop by [the R&D employees] and ask: what's the status?; how are you doing?; let's see the test results?; are you sure?”

Likewise, a Sales Manager (event 4) checked the progress of the solution with the Product Manager:

“Is there something special with the drawing? Can you send it to me and I will send it over to

the customer for verification”

Ad-hoc coordination (event 7-8)

Customer problems in these events were highly complex and demanded large concerted efforts of multiple members. In one event, (event 8) a customer once again circumvented the Customer Support department to call for immediate action. This customer approached the Project Leader directly. In event 7, a customer did directly approach the Customer Support Engineer in which he redirected the problem to a Product Manager via a phone call. Regardless of the entry point chosen, the enactment strategies varied in significant ways from balanced coordination. For instance, The Project Leader in event 8, explained how he scheduled an ad-hoc meeting with a R&D employee and Product Manager Plates:

“We just had a brief meeting. We discussed outlines for a possible solution, also in consultation with Product Management, in which we could all agree on and really do something about it.

The Product Manager Plates in event 7 mentioned how he promptly consulted with members of R&D to come up with a solution:

“I was at that department [R&D Plates] and consulted with them on how to tackle the situation.”

Prompt action was undertaken in both events. Yet, common procedures once more were circumvented by R&D employees resulting in a “quick and dirty solution” as the Product Manager in event 7 recalled:

“There was no control factor. He [R&D tester] delivered the algorithms for them [R&D] to build it into the software. And then everyone went on with the next development. So, no one has verified: is this what we want or does this meet the quality?”

We noticed how the urgency of these events clearly disturbed the everyday affairs of R&D employees. A R&D employee in event 7 explained:

“Customer problems like these have to be done in between [while working on the developments on the roadmap], it happens ad-hoc as it is already too late, it is not scheduled.”

Likewise, in event 8, involved members started to become aware of disruptions in their daily routines and its related concerns. A R&D employee in event 8 remarked during a weekly routine meeting:

“I don’t think we will be able to achieve this [deadline], even if we place these points of development for the customer forward [on the roadmap]. I think it’s better to make this issue [scarce R&D capacity] clear with management so that they can decide on what to do.”

As such, we witnessed how Top Management got involved in these events to make sure that the involved members could properly work on solutions for the customer problems. For instance, The Product Manager Plates in event 7, recalls in an ad-hoc meeting with Top Management:

“The Director Operations clearly stated that he would prefer for us to properly test a functionality for a week long, so we know that it is adequate. There was pressure.”

It seems that when organizational members perceive that current routines are not sufficient to solve the problem, they direct the customer problem into higher levels of the organization to share their responsibility and also to use the power of the top management to intervene. This was helpful because ongoing activities were put on hold to work on the solution and caused substantial breakdowns in existing routines. The temporary arrangements here are characterized by ad-hoc meetings, which were supervised by Top Management to ensure that all attention and resources of members involved can be directed towards working on a solution regardless of what otherwise needs to be done.

DISCUSSION

We studied the routine dynamics of interfunctional coordination by examining how organizational members found solutions to customer field problems. We identified three distinct modes of interfunctional coordination from the case which we will shortly summarize.

Routine coordination implied that members of the Customer Support department routinely enact the problem into the wider organization by relying on existing procedures and ways of dealing with customer problems. Although some flexibility was needed to respond to the urgent need of the customers, members largely relied on their accustomed coordinated actions and procedures.

Balanced coordination entailed improvisations and work arounds to explore a solution for a particular customer problem but also to some extent the coordinated efforts that we found in routine coordination. This idea of balancing consistency and flexibility is in line with Turner and Rindova, (2012) who showed how ostensive patterns of consistency are combined with flexibility in the face of ongoing change. However, balanced coordination in our study also implied that members were flexible in finding solutions themselves first before a more accustomed way of coordination began to take over. These coordinated efforts were however still different from routine coordination as they involved more time pressure and check-ups before the solutions were offered to the customer. In addition, we found that the entry point of where routine performances are triggered matters. For instance, some customers managed to circumvent the Customer Support department by approaching the knowledgeable person themselves. Thus, rather than seeing customers' demands as only triggering a routine, our research shows that they can as well be active agents who are able to influence how a problem is enacted in the organization and acted upon by members.

Ad-hoc coordination implied that the customer problems related to this entered the organization with more force irrespective of the entry point. Different from the experimentations and improvisations that we observed in balanced coordination, we witnessed in these events that members first establish a temporary problem solving arrangement consisting of ad-hoc meetings in which the top management is involved which was then used as the temporary coordination mechanism. Thus, rather than taking personal responsibility first and later through collective coordination of the solution, here members began to see the customer problem as a collective responsibility involving many departments and functional areas. The involvement of top management was necessary to make the problem a special case which deserves specific attention and for monitoring the solution process.

Our research suggests that there are multiple ways to deal with customer problems of which some of the events we studied take the character of spontaneous responses. While interfunctional coordination is commonly presented as a programmed way of organizing customer needs, we showed how interfunctional coordination can also successfully occur in spontaneous ways. Moreover, we showed that several modes of interfunctional coordination can co-exist in a single organization. Thus, rather than striving for unified conceptualizations of interfunctional coordination as in previous literature (Day, 1994; Kohli & Jaworski, 1990; Narver & Slater, 1990; Ruekert, 1992) our study shows that the coordination work we studied entails a certain degree of plasticity, meaning that there are different possible repertoires of coordination even when spontaneous. In doing so, we contributed to the literature interested in the micro dynamics of programmed and spontaneous interfunctional coordination (Banks et al., 2015; Gittell, 2000; Rico et al., 2008) and particularly, how ad-hoc customers problems can effectively be solved by understanding its routines dynamics and possible modes of coordination.

This study also attempts to contribute to the literature on routine dynamics (Deken et al. 2016; Jarzabkowski et al., 2012; Turner & Rindova, 2012). We showed that routines are flexible in a way that they can be temporary stretched to a large extent by members who departing from otherwise stable ostensive patterns. Hence, rather than aiming to change a routine, we found that members involved in a routine seem to fall back the ostensive patterns and performances that they are used to and thus to accustomed programmed interfunctional coordination. It thus seems that routines have malleable features depending on the external or internal pressures organizational members are facing (Turner & Rindova, 2012). This observation also relates to a neglected aspect of the role of temporality in organizational routines (Turner, 2014) or practices (Orlikowski & Yates, 2002). Our research give rise to the idea that routines are temporal structures in a sense that time is objectively present in ostensive patterns (i.e. the duration of a handling a customer problem, response time from department to department following the procedures) and also in the subjective experience of time (the flexible interpretation of time) by organizational members that changes when dealing with problems. In our study, we observed how objective and subjective notions of time are to a certain extent aligned and might even give stable qualities to a routine. We highlighted in this research how changes in this balance occurred through temporal shifts that essentially altered work rhythms, not permanently (see Staudenmayer, et al. 2002), but temporary.

It was clear that when exposed to time pressure, which can be considered as a temporal shift, the subjective experience of time changes and led members to temporary ignore the otherwise

guiding notions of objective time in favor of finding solutions to problems. In addition, we showed the actual minutiae of what Deken et al (2016) refer to as “*routine work*” by producing breakdowns in routine coordination that essentially helped to solve the customer problem in alternative ways. Finally, our research give rise to question to what extend external actors are part of the routine performances. An important observation that we made is that customers are not only triggers of routines but can be considered as active members who shape the actions within the organization by framing their problem in the right proportion to the right person.

CONCLUSION

Based on an ethnographic study that allowed us to study in greater detail how members struggled with finding solutions to customer problems in customary and also idiosyncratic ways we were able to address the routine dynamics of interfunctional coordination. We found three distinct modes of coordination with each of them presenting distinct routine dynamics. In doing so, we attempt to further our understanding of interfunctional coordination by viewing it a dynamic way of programmed and spontaneous way of addressing customer needs and problems. In addition, by looking at the actions and coordination efforts of organizational members, we contributed to the literature on routine dynamics by showing how and when routines are malleable without the need for change. In doing so, we highlight the temporary qualities of routine performances achieved by routine work. The limitations of this study are that we studied eight events that formed the basis of our analysis. More events and variations in the nature of the customer problems and organizational members take care of them would give a stronger basis to analyze the dynamics of interfunctional coordination and thereby advance theory development of its routine dynamics.

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