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The Interplay of Paradoxical Tensions in Ambidexterity

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Abstract

Exploitation oriented incumbent companies often struggle to become ambidextrous. When faced with uncertain futures and technological change, managers need to reconcile conflicting organizational demands to make exploitation and exploration walk hand in hand. In this study we explore a case of a multi-unit incumbent company, which successfully established a unit for exploring new business opportunities, but failed to sustain the efforts. Within a six-year period, from 2008 to 2013, the company established, operated and dissolved a unit for new business development. We explore how paradoxical tensions in the ambidextrous context interact with each other and highlight organizational paradoxes that call for managerial attention.

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Abstract

We conduct a longitudinal study to examine how a traditional incumbent managed exploration and exploitation through analyzing the development of its new business development unit. Within a six-year period, from 2008 to 2013, the unit was established, operative and dissolved. Using a learning from failure perspective, we describe what was done well and what should have been improved when implementing ambidexterity. The interplay of paradoxical tensions in the ambidextrous context is explored at multiple levels.

INTRODUCTION

Innovation and exploration of new business become inevitable activities for companies nowadays; regardless they are conservative or operating in the traditional industries. Change process maybe more difficult for incumbents which are heavily regulated in a traditional energy industry. Any innovation activity will need time to become fruitful, yet the owners are not patient for initial loss, especially when energy price is going down at the current time. How these organizations deal with the change process and exploration activities is an interesting research question for innovation researchers.

Exploitation and exploration have been discussed extensively since March's seminal work (1991) on organizational learning. This framework has been used as an essential lens to explain organizational behaviors and actions. Exploitation is defined as "refinement, choice, production, efficiency, selection, implementation and execution", while exploration is define by "search, variation, risk-taking, experimentation, play, flexibility, discovery, and innovation" (March, 1991, p. 71). Another way to generalize these concepts is to refer exploitation to organizational focus, experience, and variance reduction, and exploration to organizational diversity, diversification, and variations (Lavie, Stettner, & Tushman, 2010). The definitions pointed out the opposing nature of these two activities, thus trade-off between them is inherent when discussing about resource allocation, organizational inertia and desirable organizational outcomes (Lavie et al., 2010). Exploitation focus may crowd out exploration activities and vice versa (March, 1991; Tushman & O'Reilly, 1996). Given the importance of these two activities, maintaining a balance between them is vital for organizational survival and prosperity (March, 1991). How traditional incumbents manage and balance both of them is another important question for organizational study.

Ambidexterity is an important approach to balance exploration and exploitation (need reference). Being ambidextrous means managing exploration and exploitation at the same time, however, it entails paradoxes. These two activities are contradictory, yet organizations have to perform both of them in order to be successful (Lavie et al., 2010). Exploration units require their own autonomy to act, yet they also need support from other exploitation units to function properly. Stakeholders want the company to develop sustainably, yet they ask for immediate profit and show intolerance of loss projects. These paradoxical tensions have been explored in many studies (Gaim & Wåhlin, 2016; Lewis, 2000; Smith & Lewis, 2011) in different settings: hybrid organizations (Jay, 2013), ambidextrous firms (Andriopoulos & Lewis, 2009), justice agencies (Stoltzfus, Stohl, & Seibold, 2011); and at different levels:

individual (Leonardi, 2009), group or project team (Stohl & Cheney, 2001), top management team (Smith & Tushman, 2005), organizational (Andriopoulos & Lewis, 2010). Nevertheless, there are not many studies analyzing paradoxical tensions at multiple levels in organizations.

Our paper aims to contribute to the literature of ambidexterity and paradox by describing how paradoxical tensions at multilevel interact with each other. Our research context is a Norwegian energy company who created an ambidextrous structure for doing both core businesses and new business development. The paper analyzes how organization fails to manage ambidexterity and how paradoxical tension interacted at multiple levels. This study responds to several calls for more empirical research on the implications of organizational (in)effective management of paradox (Smith & Lewis, 2011), and the need to capture ambidexterity across multiple level of analysis (Raisch, Birkinshaw, Probst, & Tushman, 2009) as well as the cost and challenges associated with organizational ambidextrous effort (Lavie et al., 2010).

We start by reviewing the literature on ambidexterity and paradox as well as organizational learning from experience. We then describe our research context at NorEn, an energy company that has recently closed down its new business development unit and shift its strategy to focusing on core businesses. Building on data of NorEn, we describe a process model of how ambidexterity was implemented in this company and how paradoxical tensions happen and interact between different levels. We share our reflection on organizational learning and conclude by suggesting general approaches to resolves those tensions.

BALANCING EXPLOITATION AND EXPLORATION BY AMBIDEXTERITY

Literature reviews on balancing exploitation and exploration and on ambidexterity have summarized important issues on this topic: definition of exploration, exploitation and ambidexterity, their measurement, balancing modes, antecedents, outcomes, moderators and tensions (Birkinshaw & Gupta, 2013; Lavie et al., 2010; O'Reilly & Tushman, 2013; Raisch & Birkinshaw, 2008; Raisch et al., 2009). Regarding the definition of exploration and exploitation, we conform to Lavie et al.'s (2010) suggestion to relate to March's (1991) original definition. In the context of knowledge, exploitation is associated with building on the existing technological trajectory while exploration entails a shift away from current knowledge base and skills (Lavie et al., 2010). Regarding the definition of ambidexterity, we notice the wide variety of application for this term in many phenomena such as strategy, networks, new product development, technology, software development, intellectual capital, and thus "the research moves away from the original phenomenon and loses its meaning"

(O'Reilly & Tushman, 2013, p. 331). Therefore, we follow O'Reilly & Tushman's (2013, p. 324) advice to define ambidexterity by focusing on the problem March identified: "ambidexterity refers to the ability of an organization to both explore and exploit" in order to compete in the current technologies and markets as well as to compete in new technologies and markets.

Regarding approaches to achieve balance between these activities, there are at least two different ways to categorize them as describe in table 1. While Lavie et al. (2010) refers ambidexterity quite narrowly to contextual ambidexterity and organizational separation, O'Reilly and Tushman (2013) consider ambidexterity as a general term for describing balance between exploration and exploitation. However, they both refer to the same three approaches albeit of different labeling: contextual ambidexterity, structural ambidexterity and temporal separation. Lavie et al. (2010) mentioned the fourth way to achieve balance by using domain separation, but there has been not much research on this approach so far.

Table 1: Ways to achieve balance between exploration and exploitation

	Lavie et al, 2010: MODES OF BALANCING	O'Reilly III & Tushman, 2013: APPROACHES TO AMBIDEXTERITY
1)	Contextual ambidexterity (no separation)	Contextual ambidexterity
Explanation	"Contextual ambidexterity resolves the tension between exploration and exploitation by suggesting that these activities are maintained simultaneously at any given organizational level" (p. 129)	"the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit", "a supportive organizational context that encourages individuals to make their own judgments as to how to best divide their time between the conflicting demands for alignment and adaptability"(p.328)
Original reference	Gibson and Birkinshaw (2004)	Gibson and Birkinshaw (2004)
2)	Organizational separation	Simultaneous or structural ambidexterity
Explanation	"Organizational separation is a form of spatial buffering, whereby exploration and exploitation occur simultaneously but are situated within distinct organizational units" (p.129)	"simultaneous pursuit of both using separate subunits", "this entails not only separate structural units for exploration and exploitation but also different competencies, systems, incentives, processes, and cultures—each internally aligned" (p.328)
Original reference	Tushman and O'Reilly (1996)	Tushman and O'Reilly (1996)

<p>3)</p> <p>Explanation</p> <p>Original reference</p>	<p>Temporal separation</p> <p>"With temporal separation, exploration and exploitation coexist in the same organizational unit but at different points in time, so that organizations switch between exploration and exploitation." (p. 129)</p> <p>Duncan (1976)</p>	<p>Sequential ambidexterity</p> <p>"firms can realign their structures to reflect changed environmental conditions or strategies", "firms shift structures between exploitative and exploratory modes" (p. 327)</p> <p>Duncan (1976)</p>
<p>4)</p> <p>Explanation</p> <p>Original reference</p>	<p>Domain separation</p> <p>"Domain separation suggests that organizations specialize in either exploration or exploitation in particular organizational domains while balancing these activities across domains. Unlike organizational separation, which buffers exploration from exploitation across organizational units, domain separation may involve the same unit that simultaneously explores in one domain and exploits in another" (p. 129)</p> <p>Lavie and Rosenkopf (2006)</p>	<p>n/a</p>

In our paper, we use ambidexterity and balancing exploitation-exploration interchangeably. Organizations balance both activities by being ambidextrous and ambidexterity is an ability to exploit and explore at the same time with the purpose of staying competitive in the current market as well as the new potential market.

There are four interrelated central tensions in ambidexterity research: (1) whether differentiation and integration as alternative or complementary pathways to ambidexterity; (2) whether ambidexterity manifests itself at the individual or organizational level; (3) whether perspectives on ambidexterity should be static or dynamic; and (4) whether ambidexterity should be internal or external. Our paper will touch upon the first two tensions. In our study, we analyze how tensions evolve from differentiation, that is “the subdivision of tasks into distinct organizational units and tend to develop appropriate contexts for exploitation and exploration” (Raisch et al., 2009, p. 686) without integration mechanism, that is “the behavioral mechanisms that enable organizations to address exploitation and exploration activities within the same unit” (p. 686). We will also discuss how organizational

ambidexterity creates tensions at the organizational, unit and individual level and how these tensions affect the ambidexterity ability.

PARADOXICAL TENSIONS IN AN AMBIDEXTROUS ORGANIZATION

Being ambidextrous requires performing both contradicting job, exploit and explore, at the same time. The simultaneous implementation of two conflicting activities has been characterized as paradox. Paradox denotes “contradictory yet interrelated elements -elements that seem logical in isolation but absurd and irrational when appearing simultaneously” (Lewis, 2000, p. 76). There are many types of tensions occurred within organizations, to name a few, the competing demands between collaboration and control (Sundaramurthy & Lewis, 2003), or between individual and collective (Murnighan & Conlon, 1991), or between exploration and exploitation (Smith & Tushman, 2005). These might be labeled under different notions such as trade-offs, dilemmas, dialectics, dualities, or paradoxes. Dilemmas describe an either-or situation in which one option must be chosen over the other when they have equally beneficial elements. Similarly, trade-offs refer to a decision is made in favor of one demand over the other. Paradoxes are different in the way that the two conflicting yet interrelated elements need to be sustained at the same time. This is the case of exploitation and exploration, where “there is a constant pressure to engage both demands regardless of how competing they are” (Gaim & Wåhlin, 2016, p. 35).

There are several studies categorizing paradoxes in organizations. Stohl and Cheney’s (2001) framework of paradoxes, which are derived from the definition of participation, includes four broad categories: Paradoxes of structure, paradoxes of agency, paradoxes of identity and paradoxes of power. Taking a different approach, Smith and Lewis (2011) categorize organizational paradoxes based on core activities and elements of organizations: learning paradoxes, belonging paradoxes, organizing paradoxes and performing paradoxes. These paradoxes create tensions within the organization and these tensions maybe nested, cascading across levels: individual leaders and senior teams (Smith & Tushman, 2005), middle managers (Huy, 2002), and individual employees (Gibson & Birkinshaw, 2004). Our research examines this nested characteristic of paradoxical tensions in the context of ambidextrous organization, and explores empirically how they are evolves and interact with each other. In our study, we use the phrase paradox and paradoxical tension interchangeably which are defined as “contradictory, yet interrelated elements that exist simultaneously and persist over time (Smith & Lewis, 2011, p. 382).

RESEARCH CONTEXT AND METHOD

Research context

NorEn – a Norwegian energy company

The context we choose to study is an incumbent multilevel company named NorEn. NorEn was chosen for this study since it fulfills two important criteria; first, it is a company with experience of ambidexterity, and second, there are presences of paradoxical tensions at multiple levels. The company operates in a traditional industry, the Norwegian electric power, at the edge of radical technological change. NorEn is a utility incumbent that is vertically integrated. This company offers a particularly interesting site for research as it recently has experienced both the rise and fall of substantial efforts of structural ambidexterity. During a five-year period, the company launched, operated and dissolved an explorative unit. The unit had an exclusive exploratory mission, contrary to the company's traditional business areas. The organization has a complex structure with multiple smaller units in which we observe internal diversity and tension. Operations, competence, regulations, success criteria, and culture vary from unit to unit.

From previous research, we know that technological change trigger the need for organizations to become ambidextrous (e.g., Gibson & Birkinshaw, 2004; Tushman & O'Reilly, 1996), and that organizational paradoxes tend to surface and intensify during such subversive times (Lewis, 2000; Smith & Lewis, 2011). Old and successful companies bear the liabilities of structural and cultural inertia which can be double-edged sword as it can be linked to both success and failure (Tushman & O'Reilly, 1996). Extensive research has documented organizations' need for becoming ambidextrous, especially in times of technological change. The inherent tension between exploration and exploitation is well recognized (e.g., Benner & Tushman, 2002; Smith & Tushman, 2005). NorEn saw the need of exploring new business opportunity and went through an internal change in structure to address that need. However, as a complex organization, the change entailed paradoxical tensions at multiple levels and we hypothesize that a wider range of organizational tensions influences organizational ability to achieve ambidexterity. Such tensions resulted in the unsolvable conflicts between explorative and exploration unit, the ambidexterity structure did not work out like desired. Through detailed examination of this particular case, we aim to expand knowledge on ambidexterity by combining perspectives on ambidexterity with perspectives on paradoxes.

The electric power industry

The Norwegian electric power industry is traditional and used to stable and predictable environments. Producing predominantly hydropower, the Norwegian electric power industry has experienced decades of political and technological stability. The first Norwegian hydropower plants were established during the last decades of the 19th century, and many of today's utility companies have roots that go back to this era. The new Energy Act liberalized the Norwegian electricity markets from 1991. Essentially, energy production and distribution became structurally separated by regulating distribution as monopolistic activities, and exposing production and trade to competition.

Currently, the industry faces significant uncertainty due to major environmental and regulatory changes, as well as technological shifts and digitalization. Consequently, the industry in general experiences high uncertainty and increasingly recognizes the need for innovation and business development to meet future demands. Some companies are more conscious about exploring new opportunities, as well as paying attention to technological change and new and unexpected sources of competition.

Despite scattered attempts to find and enter new business areas, most companies consist of three traditional business areas: production, distribution and trade. Figure 1 depicts the total number and distribution of companies engaged in production, distribution and trade by 2014. NorEn is among the 59 companies engaged in all three business areas. Regulations has strong influence in this industry. Distribution units are regulated as monopolies, while the upstream production units and the downstream market units operate on the free market.

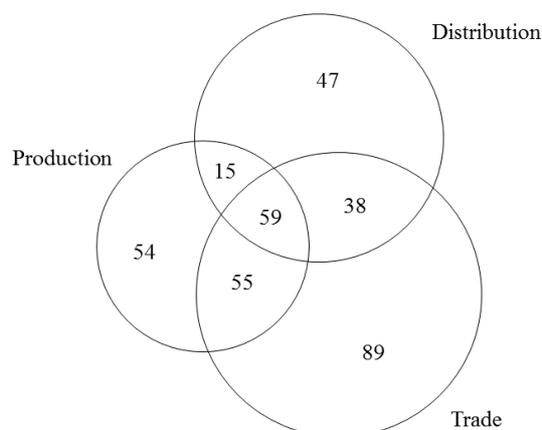


Figure 1. Distribution of companies engaged in production, distribution and trade of electric energy in Norway. Adapted from “Fakta 2015: Energi og vannressurser i Norge”, by The Norwegian Ministry of Petroleum and Energy, 2014, Oslo, Norway.

NorEn's position in the industry

NorEn is a top ten vertically integrated¹ company within the Norwegian electric power industry. It is organized as a corporation with one parent company and three wholly owned subsidiary companies (“business units”), which in total employs approximately 650 people. The business units are responsible for each of the three core business areas: production, distribution and market activities. The company produces exclusively renewable energy, for the most part hydropower from 25 wholly owned and 4 partly owned hydropower plants, but also a small share of wind power. All production takes place in the company’s region, in which the grid company operate, maintain and develop the distribution grid. Current technological processes within power production and distribution require for example technological expertise, ranging from electricians working in the field to doctoral engineers at the headquarter. Current market activities require for example expertise within finance and trade, telecom, electric installation, marketing and customer service. The company is traditional with strong formal structures.

Regional government established the company approximately a century ago. Despite regulatory and structural changes throughout the history, including separation of ownership and company administration, the regional government still privately owns the company. The company has a very strong position in its region.

Data gathering

To study how paradoxical tensions develop and interact inside NorEn when it implemented ambidexterity strategy, we conduct a longitudinal ethnographic field study. Since the interplay of paradoxes in multiple level is still a new subject of research, we deploy an inductive, theory-building strategy from qualitative data (Edmondson & Mcmanus, 2007). Our data was collected based on three sources: observation, semi-structured interviews and archival data analysis.

Observation. One of the authors has been working in NorEn for three and a half year. Throughout this period, she has the opportunity to capture the intangible characteristics related to organizational culture and work environment. She understands the formal and informal work processes, both within and across companies, physical structures, as well as formal and informal separation of the business areas.

Archival data analysis. In addition to information from observation and interviews, we collected data from public annual reports, and historical articles about the company from a

¹ Vertically integrated companies have activities within power distribution and power production and/or trade.

variety of media. Additionally, we had access to internal documents, including board documents. We used public annual reports as a starting point, but actively searched for or requested further archival data sources as we obtained more information we wanted to explore or confirm. The company granted all our requests for archival documents.

Table 2: Data sources

<i>Data Sources</i>	Number ²
Interviewees	8
Previously at NorEn	4
Currently at NorEn	4
Currently or previously member of NorEn's top management team	4
Currently or previously employed by parent company	7
Currently or previously employed by subsidiary company	2
Archival records	
Public annual reports	4
Other company reports	1
Internal documents for the board of directors	2
Internal online source of historical data	1
Public online source of historical data	3
Observations	
Informal observations of working environment	Sporadically over 3,5 years
Working days present at company HQ	Appr. 120
Project meetings, incl. unit meetings. Face to face or by phone	Appr. 250

Semistructured interviews. Semistructured interviews were our most important means of inquiry. To ensure heterogeneity and varied perspectives from multiple levels of the organization, we thoroughly selected interviewees based on a number of criteria. All interviewees share one characteristic, they either worked *at* the exploration department, *with* the exploration department, like participated in projects ran by the department, or for some other reason were particular familiar with either the establishment of the unit, the operations of the unit, or the dissolution of the unit, or all of the phases mentioned. This was necessary in order to get relevant information about the particular event we wanted to study. However, it is worth noting that among our interviewees, there is great variation in how close they were to the unit. The requirement somewhat limited the number of relevant interview objects. We have interviewed eight people face-to-face. Of the eight, four do and four do not work within the company anymore. Five of our interviewees formally belonged to the exploration unit and

² The total number of interviewees was 8. All interviewees appear in more than one category.

together, they cover the entire process from the unit's very beginning until after it was dissolved.

The unit was organized in the parent company; therefore, it was important to talk to people from the parent company. Seven of our interviewees were affiliated with the parent company. An essential part of our study was to examine tensions at different organizational levels. Therefore, we were particularly careful to cover all levels involved in working in or with the unit, from associate to CEO.

Given that the phenomenon of interest occurred fairly recently, we had the advantage of getting access to sources who both possessed and remembered accurate and detailed information. Our interview questions are exploratory since we try to understand the phenomenon. Our questions explore how contextual factors, historical factors, internal and external factors influence the corporate strategy, including the decision of establishing and dissolving the exploratory unit. We also handed out a small survey to collect interviewee demographic data, including age, gender, education, experience and the position within NorEn.

Analytic Methods

By the interviewees' permission, we recorded each of the interviews. Following we transcribed the interviews in a two-step process: first word by word, thereafter we wrote the final copy in which the sentences had been made sense by the researchers. By brainstorming and discussing based on the data, we identify two important topics to focus: (1) the establishment, the operation or the dissolution of the new business development unit (NBD unit); (2) the ambidexterity mechanisms that NorEn employed; and (3) the paradoxical tensions within the company. The NBD unit plays an important role in our study since it is the strong evidence of ambidextrous strategy. We look at its relation to corporate strategy, top management team, board of directors and owners, how activities were organized, the control and governance of explorative and exploitative efforts, resources, image and culture, etc. Understanding the development of this unit helps us explain what triggered the ambidexterity and how it was implemented within NorEn. We are also interested in the mechanisms that the company use to become ambidextrous. For doing this, we coded the data based on the framework of Turner, Swart, and Maylor (2013) which categorizes the mechanisms for achieving ambidexterity. This framework helps us understand which mechanisms NorEn has utilized and has not. Missing elements in the multi-level mechanisms for ambidexterity will

be analyzed in connection with the paradoxical tensions. These three topics will be described in details in the narrative below.

FINDINGS

(1) Three Phases of Ambidextrous Efforts

We describe the ambidexterity implementation efforts of NorEn through development of NBD unit. Within a six-year period, between 2008 and 2013, the unit was established, operative and dissolved.

Establishing an Explorative Unit

After a corporate strategy process, in 2008 the company included *business development* as its fourth corporate pillar next to the other three traditional pillars, *energy production, energy distribution and market activities*. Business development had never before been an area of particular attention and anchored in the corporate strategy. The traditional business areas were developing incrementally and profitably in stable markets. Expecting technological change, the CEO desired to explore new opportunities and decided to create a new unit that dedicated for new business development. By doing so, the company gave business development equal status as the existing core business areas.

Background. Electricity prices were fortunately good, and previous energy investments were profitable at that time. The company was in a favorable financial position to think further and expand business. The CEO at the time wanted to coordinate business development across the entire corporation, in order to prevent suboptimal solutions driven by the different business units. The background for the increased focus on business development was to find new business opportunities.

Organization. The company created an explorative unit in the parent company called NBD, which responsible for business development at the overarching company level. The CEO had previously sketched a new organizational chart that the board later approved. The new executive, who was assigned as Head of NBD, entered the top management team, responsible for strategy and business development.

The NBD unit operated with two objectives: developing the exploration activities internally, and expanding the company's external network. Activities within business development were at the time limited, and the CEO gave the new executive, together with NBD, free rein to explore new opportunities, build knowledge networks with the overarching goal is to expand current business and generate new profitable revenue streams.

Operational Phase

The first employees came to the unit shortly after establishment, and the last employees came to the unit the fall of 2012. The explorative unit quickly began to seek out to external parties and to some extent became the company's front towards academic and research institutions. The unit strategically targeted environments with technological and research competence to create networks.

The NBD unit received substantial funding from the company. Its funding had creasing from the establishment in 2008 until 2011. It slowed down and started to decrease at the end of 2011. In 2012, NorEn had a new CEO who initiated the move towards a core business strategy. During the fall of 2012, many of the employees at the unit started to hand in their resignations, some left for opportunities outside the company, while others found new positions within NorEn.

Dissolving the Unit

By 2013, the top management team dissolved the NBD unit. The corporation decided to focus again on the three traditional business areas; production, distribution and market activities.

The structural ambidextrous strategy started with establishing the NBD unit and terminated together with the dissolvent of NBD unit. Being a clear-cut example of an organizational attempt to achieve structural ambidexterity, this case offers us an in-depth examination to uncover why the attempt did not work out as intended. We will analyze the ambidexterity mechanisms implemented within NorEn to understand why this strategy failed.

(2) Mechanisms to achieve ambidexterity

In order to analyze the rise and fall of NorEn's efforts in becoming ambidextrous, we use the framework of Turner et al. (2013). We analyze the mechanisms of ambidexterity at multiple levels: organizational (company), group (explorative unit, three traditional business units, top management team), and individual. How these mechanisms manifested within NorEn, across three categories of intellectual capital resources: organizational capital, social capital and human capital, are summarized in Table 3.

Table 3: How Ambidexterity Mechanisms Manifested Within NorEn

Adapted from Turner et al. (2013, p. 322)

INTELLECTUAL CAPITAL RESOURCES		
Organizational capital (OC)	Social capital (SC)	Human capital (HC)
1) Organizational level		
<p>Structural configuration and separation.</p> <ul style="list-style-type: none"> - Using structural ambidexterity approach. - In 2008 NorEn established a structurally separated unit for exploration with a dual purpose; increase exploration internally, and expand NorEn's external network. 	<p>Knowledge-sharing relationships with new and existing external parties.</p> <ul style="list-style-type: none"> - Increased knowledge-sharing with external parties. - NorEn participated in creating an industry alliance and entered a formal partnership with professor which also gave access to international network. 	<p>Individuals reconcile and coordinate exploitative and exploratory functions.</p> <ul style="list-style-type: none"> - Clear distribution of explorative and exploitative responsibilities. - No individuals at the company level in charge of reconciling both exploitation and exploration, except the CEO's formal responsibility for all business units.
<p>Development and maintenance of inter-organizational relationships.</p> <ul style="list-style-type: none"> - Established inter-organizational relationships. - Expanded its inter-organizational network substantially. The unit reached out to several new organization, including universities and research institutions. 	<p>HR practices supportive of ambidexterity.</p> <ul style="list-style-type: none"> - Predominantly focused on hard company resources. - No particular HR practices supported ambidexterity at the company level. 	<p>Management ability to reconfigure organizational assets.</p> <ul style="list-style-type: none"> - Organizational reconfiguration of hard assets. - Demonstrated by the top management team when they sketched the new organization and included business development in the corporate strategy.
<p>Coexistence of formal and informal structures.</p> <ul style="list-style-type: none"> - Predominantly formal structures. - Lack of informal structures 		<p>TMT behavioral integration and complexity.</p> <ul style="list-style-type: none"> - Clear division of activities among the top managers. - Nothing indicates particular behavioral integration from the top management team.
2) Group level		
<p>Reward systems to support ambidexterity.</p> <ul style="list-style-type: none"> - Strong activity focus in the explorative unit. - No reward systems to support ambidexterity at the group level. 	<p>Complex network of strong and weak ties for effective knowledge sharing, supported by formal and informal behaviors.</p> <ul style="list-style-type: none"> - Limited previous relations within the company. - Limited informal ties between the explorative unit and other business units. Skepticism hindered formal ties. 	<p>Strong, compelling vision.</p> <ul style="list-style-type: none"> - Vision not anchored in traditional business units. - Although the top management team and the explorative unit team had accepted the vision, it became apparent that the rest of the company had not.

<p>Processes for creating dense social relationships and informal coordination.</p> <ul style="list-style-type: none"> - Unfavorable structures for creating social relationships. - No processes at the group level. 	<p>Relationships supportive of ambidexterity.</p> <ul style="list-style-type: none"> - Different expertise. - Lack of supportive relationships between groups. 	<p>Participation in cross-functional interfaces.</p> <ul style="list-style-type: none"> - Cultural distance between traditional and the new business unit prevented cross-functional collaboration. - Distances between the new and existing made it difficult to establish cross-functional interfaces.
<p>Formal and informal managerial integration and control mechanisms.</p> <p>Established system for formal control mechanisms.</p>	<p>Shared values and goals.</p> <ul style="list-style-type: none"> - Different ways of working. <p>There was a cultural clash between the existing and the new, and people further down the company, in the traditional business units did not share the formally established goals and values of the new unit.</p>	<p>Transformational leadership.</p> <ul style="list-style-type: none"> - Focus on generating ideas hindered project conclusions and transformation. - A managerial willingness to transform stagnated projects before they reached conclusions, due to a high level of activity.
<p>3) Individual level</p>		
<p>Multiple cross-functional interfaces to accommodate formal and informal coordination.</p> <p>Challenging coordination among managers due to tensions between wings of the company.</p>	<p>Individuals creating and supporting the context for ambidexterity.</p> <ul style="list-style-type: none"> - Positive effects on recruitment. - Diverse backgrounds among employees created a new environment for exploration in addition to the prevailing exploitation. 	<p>Taking the initiative; cooperative behavior; multitasking; brokering.</p> <p>The explorative unit team was rich in initiatives and resourceful. They created arenas for collaboration and initiated a variety of projects, also across business units.</p>
<p>Use of both 'best-practice' and local managerial discretion and judgement.</p> <p>The explorative unit manager was able to guide activities by both 'best-practice' and personal judgement.</p>	<p>Both relational- and task-focused leadership.</p> <ul style="list-style-type: none"> - Management emphasizing tasks over relations. - Far bigger focus on managing tasks than managing relations. - Few guidelines and an intense hunt for projects, created a culture that underestimated the power of relations and cultural tensions. Lack of internal support. 	

In the following part, we describe in details what NorEn had done well in building ambidexterity mechanisms:

a) Organizational level

Structural configuration and separation: By establishing explorative NBD unit and giving it equal status the traditional exploitative units, NorEn exhibited its effort of creating

structural ambidexterity which separated two activities exploration and exploitation by structure. This NBD unit located directly under the parent company and the head of NBD reported straight to the CEO. The structure remained unchanged until the company dissolved the unit in 2013.

Development and maintenance of inter-organizational relationships: Shortly after its establishment, NBD unit began to seek out to external parties on the company's behalf. NorEn belongs to a group of vertically integrated companies owned by the region county. The competition between the companies is moderate, and they have both formal and informal relationships. However, before NBD established, NorEn had fewer inter-organizational relationships, especially the network outside its industry. NBD helped NorEn to reach out to several new external organizations, including companies, universities, research institutions and international research programs, It also helped NorEn to form alliance with a university and a financial institution. The unit entered several formal inter-organizational relationships, also engaged with actors from different industries. NorEn. Such inter-organizational relationships provided NorEn with external knowledge and network that served as a fundamental background for developing new business opportunity.

Knowledge-sharing relationships with external parties: The NBD unit entered many knowledge-sharing relationships, applying the open innovation concept. Its member participated in creating an industry alliance to build an arena for open discussion and knowledge sharing. Additionally, the company entered a formal partnership with a professor who helped the company guide the direction for NBD unit. This partnership included access to an international network of sharing of knowledge and experience.

b) Group level:

Reward systems to support ambidexterity: The CEO gave full autonomy and freedom for the head of NBD unit to operate exploration activities. Ideas and initiatives came from this unit received full support from the CEO. This exclusive treatment encouraged NBD unit to search for innovative idea and business opportunities.

c) Individual level:

Use of both 'best-practice' and local managerial discretion and judgment: With extensive experience with business development and analysis, NorEn has established work processes within the company. The NBD unit relied on these established best practices at work. Additionally, the unit manager used discretion and judgment in different cases since there was a higher tolerance for risk in this particular unit compared to the rest of the company.

Individuals creating and supporting the context for ambidexterity: The recruitment department managed to bring people with diverse backgrounds to the NDB unit. Some had years of experience from business development and entrepreneurship, while others were newly graduated with business and engineering background. NorEn's outward orientation and commitment to innovation and business development also made the company attractive to groups of people that previously would not have been interested in working in that particular industry. Consequently, the decision to establish the NBD unit eventually gave the company a group of highly qualified people with backgrounds normally not attractive for the company.

Taking the initiative; cooperative behavior; multitasking; brokering: The NBD unit team was resourceful and rich in initiatives. They created arenas for collaboration and initiated a variety of projects, internally and across business units. The manager was experienced and ambitious, established a unit with a skilled team and worked towards the corporate goals.

However, there were many drawbacks when implementing ambidexterity that NorEn faced with. The company lacked of below ambidexterity mechanisms, which resulted in their failure:

a) Organizational level:

Lack of informal structure, only formal structures predominant. Despite the company's efforts in becoming more open and establishing both formal and informal relationships, structures within the company were still formal. Long traditions, well-established processes developed over years of environmental stability has led to formal structures within the company. Although the NBD unit to some extent was more informally than the prevailing culture, it was still organized with formal structures. For example, it had a fixed physical location where all employees at the unit were co-located.

Lack of HR practices supportive of ambidexterity: We found that NorEn was oriented towards formal processes, for example, distributing responsibilities, establishing systems and processes, and passing decisions at the right authorities. Even though NorEn allocated resources and created structures to support ambidextrous behavior, there were no specific HR practices supporting ambidexterity, neither in the explorative unit nor in the exploitative units.

Lack of individuals reconcile and coordinate exploitative and exploratory functions: The head of NBD unit was only in charge of exploration at the company level and needed the other business units to grant him resources when the new business required support from traditional business. The managing directors of the other business units were at the time

Table 4: Summary of ambidexterity mechanisms implementation at NorEn

Adapted from Turner et al. (2013, p. 322)

Level of analysis	Intellectual capital resources					
	Organizational capital (OC)	NorEn	Social capital (SC)	NorEn	Human capital (HC)	NorEn
Organization	<i>Structural configuration and separation.</i>	Yes	<i>Knowledge-sharing relationships with new and existing external parties.</i>	Yes	<i>Individuals reconcile and coordinate exploitative and exploratory functions.</i>	<i>No</i>
	<i>Development and maintenance of inter-organizational relationships.</i>	Yes	<i>HR practices supportive of ambidexterity.</i>	<i>No</i>	<i>Management ability to reconfigure organizational assets.</i>	Yes
	<i>Coexistence of formal and informal structures.</i>	<i>No</i>			<i>TMT behavioral integration and complexity.</i>	<i>No</i>
Group	<i>Reward systems to support ambidexterity.</i>	Partial	<i>Complex network of strong and weak ties for effective knowledge sharing, supported by formal and informal behaviors.</i>	<i>No</i>	<i>Strong, compelling vision.</i>	<i>No</i>
	<i>Processes for creating dense social relationships and informal coordination.</i>	<i>No</i>	<i>Relationships supportive of ambidexterity.</i>	<i>No</i>	<i>Participation in cross-functional interfaces.</i>	<i>No</i>
	<i>Formal and informal managerial integration and control mechanisms.</i>	<i>No</i>	<i>Shared values and goals.</i>	<i>No</i>	<i>Transformational leadership.</i>	<i>No</i>
Individual	<i>Multiple cross-functional interfaces to accommodate formal and informal coordination.</i>	<i>No</i>	<i>Individuals creating and supporting the context for ambidexterity.</i>	Yes	<i>Taking the initiative; cooperative behavior; multitasking; brokering.</i>	Yes
	<i>Use of both 'best-practice' and local managerial discretion and judgement.</i>	Yes	<i>Both relational- and task-focused leadership.</i>	<i>No</i>		

mostly engaged in exploitative activities. There were no individual in charge of reconciling and coordinating exploitative and exploratory functions.

Lack of management ability to reconfigure organizational assets: The top management team, led by the CEO, demonstrated that they were able to reconfigure organizational assets when sketching the new organization and included business development in the corporate strategy. They even identified existing resources “with innovative expertise” in NorEn at the time of establishing NBD unit. Nevertheless, those resources remained in their original business units, while the company recruited external resources to the new unit.

Lack of TMT behavioral integration and complexity: There are clear borders between the business units in NorEn. Although the top management team stood behind the decision to commit to business development, two proponents were more enthusiastic than the rest. Not surprisingly these were the CEO, who originally had the idea, and the head of NBD unit, who was hired to do the job. Most executives were preoccupied with their own areas of responsibility.

b) Group level

Lack of reward systems to support ambidexterity: The unit focused on its activities, including new business ideas and inter-organizational research projects. In the beginning, NorEn advertised vacancies in the explorative unit without having concrete projects or a need for more resources. Later on, the unit took on a lot of responsibilities and projects, so much that they had to hire external resources to fulfill their commitments. The unit focused on having many projects in the pipeline at the expense of establishing systems to support ambidexterity. At other units, there was no reward systems to support the NBD unit. One said: “They are silos. They are totally independent business units. They are measured solely on their own business. They have no incentives for collaboration.”

Lack of processes for creating dense social relationships and informal coordination: In addition to clear boundaries between the business units, physical separation made socializing even more difficult. all business units including the exploratory unit were all physically separated. Although in the same building, they were located at different floors and wings. Physical separation made it more difficult coordinate informally or create social ties across the units.

Lack of formal and informal managerial integration and control mechanisms:

Although the explorative unit operated independently with an open mandate, it was still subject to corporate governance like formal decision gates and internal audit.

Lack of complex network of strong and weak ties for effective knowledge sharing, supported by formal and informal behaviors: People at the new unit had limited previous relations within the company. The majority of the people working at NBD unit had never worked at NorEn before. Coming from the outside, they had not established any ties to people at other business units before they started at NorEn. One of the previous employees at the explorative unit explains: “I normally get along well with people. I also did at NorEn. But many people were reluctant to what we were doing.” They experienced to be a unit outside the rest of the company, and did not feel included in the family. Even after trying to establish relations by internally marketing their mandate and the work process, they experienced low expectations and that other business units looked upon them as something strange. The rest of the company had an impression that they were doing their own thing. Not even everybody knew what they were doing. In other words, there were no informal ties between the new and existing units. Skepticism and lack of relations hindered formal ties like collaboration on projects. Knowledge-sharing and dialogue across business units were difficult.

Lack of relationships supportive of ambidexterity: The NBD unit had a different kind of expertise than the other business units. We observe a tension between the prevailing valued expertise in NorEn, and the expertise brought in through the NBD unit. Throughout history, the company has put a lot of pride into its technological competence. Yet the new NBD unit members had a different expertise, for example, business and non-technical field. Therefore, the relationship between these units were very weak and not able to support ambidexterity. One says: “It is hard to blame anybody. With their experience, they just didn’t get comfortable.”

Lack of shared values and goals: The new and existing units had different ways of working. There was a stark contrast between the traditional way of doing business, and what the explorative unit represented. Establishing the explorative unit and the strategic assessment behind the decision was made according to formal business processes. The idea came from the top management team, but both the board of directors and the owner were involved in the process. People working at the NBD unit were clear about their own mission; their unit should take lead on business development and innovation projects in the company, they should involve people from the other business units, and accelerate idea generation and business development projects, small and large. However, from the very beginning, they experienced

that people from the other business units were unaccustomed to such discussions. There was a cultural clash between the existing and the new, and people further down the company, in the traditional business units did not share the formally established goals and values of the new unit.

Lack of strong, compelling vision: Vision is not anchored in traditional business units. We observe great variation in how the company in general adopted, and was aware of, the vision of the explorative unit. The top management team, particularly the CEO, were familiar with the rationale for creating the unit. Tied to corporate strategy, the company had committed to prioritize innovation and business development, and the unit was an essential piece of that puzzle. Although the top management team and the NBD unit team had accepted the vision, it became apparent that the rest of the company had not. The underlying idea was not anchored in the existing business units, another obstacle for company progress within innovation and business development.

Lack of participation in cross-functional interfaces: There were cultural distance between traditional and the new business unit prevented cross-functional collaboration. Distances between the new and existing made it difficult to establish cross-functional interfaces. Both limited knowledge about the explorative unit and its operations, and limited support led to more challenges for the explorative unit team. The distance between the existing and the new did not become smaller with time. Consequently, cross-functional interfaces were few. One example illustrates the distance between the companies: a team within the NBD unit had a business idea, which they wanted to develop together with one of the traditional business units. They offered it to one of the existing traditional business units as “it was the natural place to put the ownership”, and sought that unit’s attention several times. That business unit was never interested, accordingly because the distance between the two units made it impossible for them to adopt the ownership.

Lack of transformational leadership: The unit leader focused on generating ideas hindered project conclusions and transformation. Managers’ personal abilities obviously influences smooth balancing of exploration and exploitation. The unit manager was ambitious and eager to develop ideas. At the other side of the coin, while the unit was brimming with good ideas and opportunities, resources and support could not match the enthusiasm. Processes tended to stagnate before. There were no solutions for such problems from the group leaders.

c) Individual level:

Lack of multiple cross-functional interfaces to accommodate formal and informal coordination: Although the top management team met regularly, and other formally organized cross-functional interfaces existed, coordination was challenging. The cultural distances complicated coordination.

Management emphasizing tasks over relations: It seems like there was a far bigger focus on managing tasks than managing relations in NorEn's explorative efforts. Few guidelines and an intense hunt for projects, both internally and externally, created a working culture that underestimated the power of relations. The cultural tensions and little collaboration between the business units called for relation management. The contrast between the new and the old were not bridged by good relations, and the distance between them became even bigger. The rest of the company did not support the explorative efforts, as they were not anchored in the rest of the company.

Table 4 summarizes which mechanisms NorEn successfully designed and which mechanisms it failed to implement.

(3) The interplay of paradoxical tensions

Based on the analysis according to Turner et al.'s (2013) framework above, we identify fifteen mechanisms for ambidexterity, which NorEn did not pay sufficient attention to, given its situation.

At the company level, we found predominantly formal structures, an emphasis on hard resources (no particular HR practices supporting ambidexterity), and a clear division of activities among the top managers. At the group level, we found a strong activity focus in the explorative unit, unfavorable structures for creating social relationships, and an emphasis on systems for formal control mechanisms. Further, we discovered that there were no previous social relations between the explorative unit team and other business units, and there were tensions between traditional and newly acquired expertise, and between traditional and new working processes. We found that the vision that was not anchored in the traditional business units, there was a cultural distance between the new and traditional business units, and an idea generating focus that hindered project conclusions and transformation. At the individual level, we found that it was challenging coordination between managers due to tensions between wings of the company, and last but not least a management that emphasized tasks over relations.

NorEn is a multilevel company with a formal structure of partly autonomous business units. The findings above illustrate a complex web of interrelated paradoxical tensions that appeared when NorEn worked towards becoming ambidextrous. The paradoxical tensions are created by tensions between “contradictory yet interrelated elements” (Lewis, 2000, p. 76), contradictions that need to coexist. In the years after NorEn decided to commit to business development, organizational paradoxes surfaced and limited ambidexterity.

The autonomy paradox: The business units need autonomy while at the same time being subject to central governance. The balance between autonomy and governance influences business units at several levels; from top managers striving to keep their business unit’s autonomy to business units’ employees working on centrally administered projects. A key challenge for NorEn is to find the optimal balance between the business units’ need for autonomy and the company’s need for central governance. The autonomy-governance trade-off also applies to the challenge of creating an ambidextrous company. To make the entire company ambidextrous, should each company be in charge of exploring in addition to current exploiting? Or should the responsibility be at the company level, providing resources to help the business units explore? NorEn chose the third approach, which let the traditional units focus on their current exploitative businesses and created another unit dedicated for exploration. The corporate strategy aimed for specialization of each unit, but it also required the collaboration between them when needed. However, the latent autonomy-governance tension became explicit and challenged the new strategy. People noticed this tension: “The challenge was that the [business unit] lived in its own world, and did not need to be part of a corporate strategy”. Lacking of mechanism for integrating and collaborating, the autonomy-governance tensions were increasing and backfiring at the end.

The relations paradox: A mechanism for achieving ambidexterity is both formal and informal social ties. NorEn hired mainly external people to the NBD unit who did not have networking relationship with traditional business unit. During the period between 2008 and 2013, the atmosphere between the explorative unit and the other business units became more and more tense. The other business units were in general skeptical towards the explorative unit. The tensions appeared in different ways. It was difficult to get people from other business units to collaborate. Other business units met them with low expectations, viewing the unit as a foreign body in the company. On the one hand, NBD unit needed to be separated from other units. On the other hand, they needed to leverage the resources from traditional units when developing new business opportunity. The formal social ties work well in most of the cases, but will not help NBD unit much when asking for resources. Without establishing

strong informal social ties and maintaining them, the collaboration is challenging. Since NBD unit and traditional units had different goals, values and practices, the formal social ties created the barriers for informal social ties while they need to be maintained at the same time. This created the relations paradox in NorEn.

The expertise paradox: Because of their long-lasting and stable business areas, NorEn is a company that highly values technological competence, especially within energy. Highly qualified energy engineers have been at the center of the company's continued success for many decades. Business development required a different expertise. In becoming ambidextrous, NorEn needed the two poles of expertise to coexist and integrate. However, the tensions between NBD unit and other units created challenge for NorEn to integrate these two expertise. The company even lost the newly acquired competence in 2012, when people with business development expertise started to quit.

We cannot treat the paradoxes in isolation. They work together, and influence each other at different organizational levels. For example, the relations paradox and the expertise paradox reinforce each other. Not only was there a group of new people that worked together with no previous experience from the company, they also had other competencies, different from what the company traditionally valued. When ideas surfaced from the traditional business units, the traditional business units wanted to retain ownership. They could not trust the new business unit to adequately administer the technological aspects. At the same time, the relations paradox reinforces the autonomy-governance paradox. The weak relationship among units and between units and the parent company can not help balance the conflict between autonomy and corporate governance. Until one point, each unit became isolated and no collaboration could happen. The corporate had no choice than terminating the NBD unit and came back to its old strategy, focusing on the core traditional business only.

DISCUSSION

Literature has discussed four approaches to deal with organizational tensions: repression (Lewis, 2000), suppression (Jarzabkowski, Lê, & Van de Ven, 2013), separation (Poole & Van de Ven, 1989), and synthesis (Gaim & Wåhlin, 2016). NorEn initial strategy was using spatial separation, i.e. structural ambidexterity, to manage the paradoxical tension between exploration and exploitation. By using the framework from Turner and his colleagues (2013) which describes multi-level categorization of ambidexterity mechanism, we identify what NorEn had successfully fulfilled and what had been missed. Lacking of such elements in implementation led to excessive tensions in the whole organization and within the new

business development unit. Such tensions have been accumulated in five years and finally, the new management team of NorEn chose to solve the tensions by using suppressive approach, which involves a response that favors one elements in the expense of the other (Jarzabkowski et al., 2013). The company closed down the new business development unit and implemented the new strategy called “return to the core”. This strategy focuses on core businesses that have been the strength of NorEn in terms of both income and expertise.

The theoretical stance for suppression response is a contingency approach that based on choice (Clegg, da Cunha, & e Cunha, 2002). Contingency theory has been used since 1960s, considering alignment within the internal system and with the external environment. This alignment requires tensions to be recognized and to be solved based on choosing the most effective element of tensions (Smith & Lewis, 2011). In the case of exploration and exploitation, such approach would be detrimental to the long-term performance of organization. These two elements, regardless of how competing they are, need to be engaged simultaneously. The alternative approach to make this happened is paradoxical approach, which presumes that tensions are integral to complex systems and organizations need to attend the conflicting yet interrelated demands simultaneously (Smith & Lewis, 2011). Managing paradox, instead of solving tension, becomes crucial for ambidextrous companies.

There are extensive literature discuss about managing paradox (Eisenhardt, 2000; Gaim & Wåhlin, 2016; Lewis, 2000; Smith & Lewis, 2011). Especially, managing paradox in ambidextrous context has been studied carefully in the studies of Andriopoulos and Lewis (2010; 2009). We want to contribute to the field of ambidexterity and paradox by illustrating how failure of managing paradoxical tensions can entail to the failure of organizational ambidexterity. Learning from failure is the important mechanism for organizational change and adaptation. Being ambidextrous can help firms perform better (O'Reilly & Tushman, 2004), however, it can backfire if organization fails to manage paradoxes. There are several reasons explaining the failure of NorEn’s ambidextrous design: First, they failed to manage the key tensions in ambidexterity as they focused mainly on differentiation without designing integration mechanism. The CEO separated exploratory unit and exploitative unit, each has differentiated activities and responsibility. However, they did not pay attention to creating the integration mechanism across differentiated units. Several studies have pointed to the need of top management team in designing such mechanisms (Smith & Tushman, 2005; Tushman & O'Reilly, 1996). NorEn should have identified the synergies between different units and potential linkage to utilize such synergies. Secondly, there was no incentive system (Ambos,

Mäkelä, Birkinshaw, & D'Este, 2008; Chang, Yang, & Chen, 2009) supporting the context for ambidexterity. The incentive system includes several factors: the rewards system for coordinating between units, human resource practices that are supportive for ambidexterity, informal networking that across units. Thirdly, we found no intellectual capital resources, which include organizational capital, social capital and human capital, available at NBD unit level (Table 4). This implies that being ambidextrous was not a deliberate strategy but only an exploratory move when having too much slack resource. Lastly, organizational members have no understanding about paradoxical approach, what the purpose for having an exploratory unit is, why maintaining both core business and new business development is important, and how to coordinate with each other. Lacking of paradoxical cognition, which is frame and process that recognize and embrace contradiction (Smith & Tushman, 2005), demotivates individuals who involve in the paradoxical tension, creates confusion inside the organization and refrains coordination across units.

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