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Business Paradoxes, Black Boxes, and Big Data: Beyond Organizational Ambidexterity: Essays on Ambidexterity as a Multilevel Concept

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Tor Bøe-Lillegraven

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BEYOND ORGANIZATIONAL AMBIDEXTERITY

The PhD School of Economics and Management

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CBS  **COPENHAGEN BUSINESS SCHOOL**
HANDELSHØJSKOLEN

**BUSINESS PARADOXES,
BLACK BOXES, AND BIG DATA:
BEYOND ORGANIZATIONAL AMBIDEXTERITY**

Essays on ambidexterity as a multilevel concept

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FOREWORD

Today, March 8th 2015, is the International Women's day, so it is only fitting that I start by thanking the women that have made this Ph.D. project possible. First and foremost, to my dear wife Siri, who gently suggested that an industrial Ph.D. might be a good idea, and supported me through the long days and short nights; to Iris, for coming into this world and helping me set my priorities straight; to Marie Louise Mors, who agreed to supervise me at a most critical time and being instrumental in bringing this project to a successful completion; to Dana for sorting out the politics; to Lone for helping with all the practicalities; to Signe for some valuable lessons; and to Anette, for supporting me beyond "the call of duty." Also, in the spirit of gender equality, I would like to thank a few good men: CBP for believing in this project, even if you did not get a chance to see it though; CJC for words of wisdom and steady mentoring; Dr. Erik Wilberg for his unfaltering support, enthusiasm and real-world perspective. Also many thanks to Anker Brink Lund for helping scope the project, and to Michael Tushman, who graciously took the time to read an early versions of Chapter 4; To John Parm Ulhøi for his support at a critical stage in the project; to Lars Fredriksen for insightful discussions; To Mohamed and Andy for graciously inviting me to Cambridge; and finally, my son Brage August, who will no doubt grow up to be ambidextrous one day. As for myself, I would say that this Ph.D. project has made me quite an expert on ambidexterity. By that I don't necessarily mean that I am particularly good at it – nor a notable scholar in the area – rather, I have in-depth first-hand experience with the pains of doing two incompatible things at once. This project has been an Industrial Ph.D., which requires the researcher to balance the conflicting needs of academia (in this case CBS) and business (in this case the project host company). Given the theoretical framework, it is perhaps fitting that this dual role has resulted in a string of seemingly irresolvable conflicts in allocating my time, focus and efforts over the past three years. It is no secret that both academic and business progress has suffered at times. But as I write the conclusion of this thesis, I look back at these discomforts as growing pains as one learns to do new things. After all, I think it is fair that any Ph.D. doctorate should be prepared to take their own medicine – in this case by purposely risk destroying the old in order to create something new, just as the theory suggests.

Tor Bøe-Lillegraven

Cambridge, UK, March 2015

ABSTRACT

This is a study of the conflicts involved when firms try to do new things. Try too little, and you risk being left behind as new competition realigns the playing field around you. Try hard, and you risk cannibalizing and slowly eroding away your legacy business. This story has been told in many forms. The focus of this thesis is ambidexterity - the ability for a firm to exploit mature skills and existing business paradigms while simultaneously exploring technological innovations and new market opportunities. This study sets out to obtain a multi-level understanding of the individual, firm, and industry-level tensions between new and old business. The main research questions revolve around how the conflicts between exploration and exploitation are managed, both within as well as beyond the organizational boundaries, and what the performance implications are. The dissertation consists of an introduction, a conclusion, and in between four empirical papers, which address specific research gaps in current ambidexterity literature.

Chapter two examines ambidexterity as a multi-level concept and outlines implications over time for inter-firm, organizational, and individual levels of analysis. Based on a review of the literature, I use grounded theory-building methods to develop a set of research propositions in regards to how ambidexterity develops over time and across domains. My contribution to the ambidexterity literature is three-fold: Most of the ambidexterity research to date has focused on legacy firms embarking on explorative ventures. This study gives insights into how a start-up firm may mature into ambidexterity. Secondly, I expand our understanding of the interfaces between the structural and contextual modes of ambidexterity and how firms shift between these over time. And lastly, I consider how the explore/exploit tensions are resolved at different levels across industry and firm as well as the individual level of analysis. This paper provides a theoretical foundation for the rest of the thesis, and identifies some areas for future studies, which I examine further in the subsequent chapters.

In **chapter three**, I review existing research on firm performance in the newspaper industry in order to identify the main causal factors in a single industrial context. By incorporating variables and arguments from theories of media convergence, organizational ambidexterity, and business model innovation into a basic performance model, I develop a multi-dimensional conceptual framework of explore and exploit value chains. The chapter concludes with a discussion of how the recent advances in big data analytics – the process of

collecting, organizing, and analyzing large sets of data to discover patterns and other useful information – may hold the power to untangle explore-exploit complexities, providing firms with real-time insights into the trade-offs between pursuing new and old business, and potentially reduce the risks and uncertainties involved in exploring dynamic business environments in particular.

In **chapter four**, I confront the ambidexterity theory with the case study of a legacy newspaper firm that has been pursuing integration strategies consistent with the idea of contextual ambidexterity. Despite hundreds of studies over the past 15 years, organizational ambidexterity remains largely a *black box*—a closed system in which little is known of the inner mechanisms—in particular the individual implications of such organizational strategies. A set of theory-based hypotheses are developed and tested using a methodological triangulation where I use multiple data sources to further our understanding of how individuals divide their time, attention and efforts between conflicting tasks, and what the implications are for performance. I propose that individual ambidexterity may involve both cognitive and activity aspects, finding that even given an organizational context that enables individuals to decide for themselves how to best divide their time between firm-level explorative and exploitative task environments, most individuals tend to focus on exploiting existing skills, rather than exploring new alternatives. I suggest that this may be due to cognitive strain, limitations of attention and the coordination costs involved in switching between conflicting tasks. The empirical data suggests individual ambidexterity is quite rare, but may be linked to top performance.

Chapter five examines the leadership role in managing strategic paradoxes. Through an analysis of data from a survey of media executives, this study links ambidexterity and strategic planning, suggesting that suggesting that the complexities of navigating in explorative ventures require more strategy work than navigation the old certainties of the legacy business by identifying and discussing the inherent paradoxes in 22 industry-specific strategies. In the given empirical context, growth in explorative digital product/market domains comes at the cost of steep declines in overall profitability across the industry since the financial crisis of 2008. The outlook towards 2017 is further decline. Still, newspaper leaders have probably no choice but to continue their relentless digital exploration even if it slowly erodes their legacy print business. This is just one of the inherent paradoxes in ambidexterity strategies.

Taken together, these chapters provide a multi-level understanding of how the explore/exploit tensions are managed, as well as when the benefits of ambidexterity outweigh the costs. In a nutshell, this study suggests that ambidexterity is quite rare, in the sense that few do it successfully. From a theoretical point of view, this seems to make sense, because what happens to the proposed competitive edge if everyone is ambidextrous? I would argue that the scarcity of ambidexterity might be what links it to superior performance. And although theoretically appealing, a deeper investigation into the ambidexterity concept reveals a number of inconsistencies, paradoxes and conflicting ideas. But this is perhaps fitting, given that the framing only mirrors the complexities modern firms face. Simultaneously competing in mature and new market with dueling products, technologies and business models puts considerable strain on individuals, firms and industries. Faced the complex business realities of the digital era, firms have to tackle conflict, inconsistencies and even consciously risk killing off the existing business risk to survive.

My study suggests that discomforts of these ambidexterity paradoxes should be seen as growing pains, as firms learn to do new things. To stand out and stand the test of time, you must be willing to break the norms and purposely risk destroying the old in order to meet the new. However, such appetite for destruction is an acquired taste, and not for everyone.

DANISH ABSTRACT

Denne afhandling undersøger den kompleksitet der opstår når virksomheder forsøger at gøre nye ting. Gør man for lidt, risikerer man at tabe når nye konkurrenter ændrer spillereglerne. Gør man for meget, kan man komme til at selv underminere den eksisterende forretning. Fokus for denne afhandling er *ambidexterity* – i hvor stor grad en virksomhed formår at udnytte eksisterende kompetencer i det marked, hvor de befinder sig lige nu (exploitation), samtidigt som de udforsker teknologiske innovationer og nye markedsmuligheder (exploration). Målet med denne studie er at forstå udfordringer knyttet til ambidexterity på flere forskellige niveauer indenfor såvel som udenfor organisatoriske rammer, og hvordan det virker ind på virksomhedernes resultater. Afhandlingen er bygget op med introduktion, konklusion, samt fire empiriske kapitler der hver adresserer specifikke spørgsmål, identificeret efter en gennemgang af den nuværende litteratur om ambidexterity.

I det første empiriske kapitel to diskuteres to centrale ideer i forhold til konceptet ambidexterity; at konflikterne og grænserne mellem udforskning og udnyttelse kan ændre sig med tiden, samt at ambidexterity-konceptet involverer konflikter indenfor og ud over de organisatoriske grænser - altså at der er tale om et multi-niveau koncept med implikationer for individer, organisationer samt hele industrier. For at løse ambidexterity dilemmaet kan forskere og praktikere derfor blive nødt til at flytte fokus fra organisatorisk konflikter og løsninger, til at gøre bedre rede også for konflikter der involverer (men sandsynligvis ikke er begrænset til) teknologi, konkurrerende produkter, forskellige markedssegmenter og modstridende forretningsmodeller.

I kapitel tre ses der nærmere på relationen mellem ambidexterity og performance, indenfor en enkelt industriel kontekst. Eksisterende forskning der undersøger firmaers resultater i avisindustrien eftergås, med henblik på at identificere de vigtigste årsagsfaktorer. Der udvikles så en flerdimensional konceptuel model der beskriver verdikæder for ny og gammel forretning, ved at trække på variabler og argumenter fra teorier om mediekonvergens, organisatorisk ambidexterity og forretningsmodel-innovation. Kapitlet afsluttes med en diskussion af, hvordan den sidste udvikling inden Big data analytics - processen med at indsamle, organisere og analysere store mængder data - kan hjælpe virksomheder med at balancere ny og gammel forretning.

Kapitel fire er en historisk casestudie af en veletableret virksomhed, der har valgt organisationsløsninger der samsvarer med det teoretiske koncept *contextual*

ambidexterity. Et sæt teori-baserede hypoteser udvikles og testes ved hjælp af en metodisk triangulering, hvor flere typer data (observationer, interviews, indholdsanalyse, arkivalier, syn og objektiv gennemførelse data) benyttes for at forstå hvordan individer deler sin tid, opmærksomhed og indsats mellem modstridende opgaver og hvad konsekvenserne er for performance. Der foreslås konkret, at ambidexterity på individ-niveau forstås bedst ved hjælp af et kognitivt aspekt og et adfærdsrelateret aspekt. Et centralt fund er, at selv i en organisatorisk kontekst, hvor individet har frihed til selv at fordele sin tid mellem opgaver relateret til udnyttelse af gammel forretning og udforskning af ny forretning, så har de fleste en tendens til at koncentrere sig om det de kan i forvejen. Der foreslås, at dette kan skyldes kognitiv belastning, begrænsninger af opmærksomhed og splid af tid ved skifte mellem modstridende opgaver. Selv om det i den empiriske kontekst ser ud til at individuel ambidexterity sjældent opnås, viser undersøgelsen en sammenhæng mellem høj performance på individ-niveau og evne til at balancere udnyttelse og udvikling.

Kapitel fem fokuserer på strategiske paradokser. Med grundlag i data fra en nordisk spørgeundersøgelse udsendt til medieledere, indikerer denne undersøgelse en sammenhæng mellem ambidexterity og strategisk planlægning. Gennem at identificere og diskutere de iboende paradokser i 22 branchespecifikke strategier, bekræftes der, at kompleksiteten i at navigere i digitale forretningsområder kræver mere strategiarbejde end opretholdelse af den etablerede forretning. I den aktuelle empiriske kontekst, er der skabt vækst i digitale produkter og markeder, samtidigt som industriens samlede rentabilitet er faldet. Til trods for at udsigterne mod de næste par år er yderligere fald, har avisernes ledere formentlig ikke andet valg end at fortsætte den ubønhørlige digitale udforskning der langsomt tager livet af den etablerede forretning med papiraviser. Det er blot et af de iboende paradokser, man skal forholde sig til, ved ambidexterity-strategier.

Tilsammen giver disse kapitler en forståelse af, hvordan ambidexterity forvaltes på flere niveauer, samt bud på hvornår fordelene ved ambidexterity opvejer omkostningerne. Dette studiet tyder på, at ambidexterity er ret sjældent; det vil sige, at få gør det med succes. Den indsigt synes at give god mening fra et teoretisk ståsted, for hvad sker der med den konkurrencefordel, der lovedes for de virksomheder der er ambidextrous, hvis "alle" er ambidextrous? Jeg vil hævde, at lige det, at man er alene eller én af få, der magter at være ambidextrous, er med på at forklare hvorfor ambidexterity knyttes til bedre performance. Ydermere; selv om konceptet er teoretisk tiltalende, afslører et dybere studie en række

uoverensstemmelser, paradokser og modstridende ideer i litteraturen. Det er alligevel måske passende, hvis man ser på teorien som en afspejling af den kompleksitet som moderne virksomheder står overfor. Det at forsøge at opnå ambidexterity medfører en stor belastning for enkeltpersoner, virksomheder og industrier. Givet de komplekse forretningsmæssige realiteter i den digitale tidsalder, tvinges virksomhederne til at forholde sig til konstante konflikter og paradokser, der i mange tilfælde kan kannibalisere den eksisterende forretning. Denne afhandling viser, at disse besværligheder med at håndtere ambidexterity bør ses på som voksesmerter, der opstår når virksomhederne skal gøre nye ting. For at udmærke sig skal man være villig til at bryde rådende normer og risikere at ødelægge det etablerede for at bygge det "nye".

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Chapter 1

INTRODUCTION

THE PHENOMENON STUDIED

Across the globe, something dramatic is happening to the news business. It used to be that the newspaper would be delivered to your doorstep every morning, updating the whole family with the news deemed most important by trusted journalists and editors. All that has changed in the digital era. Today, news is no longer a scarce commodity. Information-hungry readers can access the latest updates on multiple devices for free around the clock. Technologies such as the Internet have enabled the merger of various different types of media (e.g., text, video, audio) into rich new media platforms. The traditional newspaper pales in comparison with literally having a world of news, information, and entertainment available at your fingertips on an iPad. New technologies present a world of opportunities to consumers, but the digital era also brings deep structural changes to the media business as a whole, and newspaper companies in particular. The good news is that digital technologies present new business opportunities. Ever since the advent of the first online news sites in the mid-1990s, newspapers across the globe have experimented with new technologies and digital offerings to reach new audiences and tap into fresh revenue streams to expand their holdings beyond their original core print products. The bad news for legacy newspaper firms is that even as their online news sites generate traffic and new advertising revenues, they have failed to generate anywhere near the same levels of revenue as the old print newspapers. Accordingly, over the past decade, newspaper revenues have plummeted as readers migrate to Facebook, Google, Twitter and other digital offerings. Faced with massive drops in profits, and mounting pressure from stockholders and investors, cash-strapped newspaper publishers have increasingly resorted to implementing deep cuts in expenses, staffing, and print product portfolios to trim their print operations and buttress profitability as much as possible.

In the digital era, shifting consumer habits and environmental change present the newspaper industry with a profound dilemma: How can newspaper firms sustain their legacy business while simultaneously growing new markets and seizing digital opportunities?

THEORETICAL MOTIVATION FOR THE STUDY

The dilemma facing the newspaper industry is by no means unique, and can be framed as one of balancing exploitative and explorative activities:

Exploitation is the refinement and extension of existing competences with returns that are predictable, close and positive (March, 1991, p. 74). For the newspaper business, exploitation of the current print business is attractive simply because it is an extension of existing competences, technologies and paradigms, with returns that are positive, proximate and predictable. Incrementally improving current operations is also a necessity as print sales decline and profit margins erode away.

Exploration is the experimentation with new alternatives with uncertain, distant and possibly negative outcomes (March, 1991, p. 74). For the newspaper business, exploration of new digital media offers uncertain, distant and sometimes negative outcomes. One key concern is for example that new digital ventures cannibalize existing print sales further by offering for free the news that you used to pay for reading in the newspaper.

The idea that firms must explore and exploit to survive over time has been one of the most enduring ideas in organization literature over the past 20 years. Balancing exploitative and explorative activities is seen as crucial for firm survival, but competition for attention and resources still means that explicit and implicit choices have to be made between the two, as “exploration of new

Table 1: The ambidexterity paradox (adapted from Tushman and O'Reilly, 1996)

| | Exploitative activities | Exploratory activities |
|-------------------------|--|---|
| <i>Strategic intent</i> | Cost control, profit | Innovation, growth |
| Critical tasks | Operations, efficiency, incremental innovation | Adaptability, new products, breakthrough innovation |
| Competencies | Operational | Entrepreneurial |
| Structure | Formal, mechanistic | Adaptive, loose |
| Controls, reward | Margins, productivity | Milestones, growth |
| Culture | Efficiency, low risk, quality, customers | Risk taking, speed, flexibility, experimentation |
| Leadership role | Authoritative, top down | Visionary, involved |

alternatives reduces the speed with which skills at existing ones are improved” (March, 1991, p. 72).

Building on March, more recent research introduces the notion of the ambidextrous organization: on one hand, adept at exploiting practiced skills—how can we run our current operations faster, cheaper, and more efficiently? On the other hand, constantly exploring new opportunities, taking risks and building new business. The ambidextrous firm is able to compete in both mature and emerging markets, balancing different strategic foci, management styles, structures, tasks, competencies, processes, and cultures. The payoff is superior performance and firm survival over time (Tushman & O’Reilly, 1996). In theory, ambidexterity is an alluring concept. But it raises a number of real-world questions, as organizations have to reconcile and align seemingly irresolvable internal tensions and conflicting demands to become ambidextrous (see Table 1). The practical application implies that leaders are authoritative and visionary, organizations are simultaneously low-risk and risk-taking, structures are formal and adaptive.

State of strategic management research on ambidexterity

The paradoxical nature of the construct may be part of its appeal to researchers, and a number of different literature streams, including organizational theories (organizational adaption, organizational learning and organizational design), strategic management, and theories of innovation have all contributed to the research on ambidexterity, for example: applying the term to strategies (Ebben & Johnson, 2005; Han, Mary, & Celly, 2008; Jansen, Tempelaar, Van den Bosch, & Volberda, 2009; O'Reilly & Tushman, 2008), networks (Lee, Lee, & Lee, 2003; Rogan & Mors, 2014), product development (Holmquist, 2004; Katila, Ritta, & Ahuja, 2002; Yang & Atuahene-Gima, 2007) and technology (Lai & Weng, 2010). This increased interest has broadened and deepened our understanding of the concept, but also brought confusion as to the specific meanings, implications, measures, operationalization, and effects of ambidexterity (Raisch & Birkinshaw, 2009; Tushman et al., 2009; Tushman & O'Reilly, 2011). As Birkinshaw and Gupta (2013) note, most of the important things that happen in organizations involve choices where one objective is given priority before another. Thus, any organizational issue or phenomenon could potentially be framed as an ambidextrous situation if the researcher so chooses. This flexibility may come at the cost of analytic clarity or power (p. 296). In summary, the research on ambidexterity has become increasingly disconnected, fragmented, and complex. Several important issues still remain ambiguous or conceptually vague, including the following research gaps, which I aim to address though this Ph.D. project:

Definitional and conceptual Issues. A review of the literature suggests that over the past 15 years, three broad approaches to achieve organizational ambidexterity have been extensively investigated: (1) sequential separation through shifts between exploration and exploitation over time; (2) structural separation by creating different sub-units responsible for exploration and

exploitation; and (3) contextual facilitation by enabling individuals to divide their time between exploration and exploitation in an integrated business unit setting. Although these approaches are conceptually distinct in the current literature, what is less clear is the appropriate timing for when these different approaches are more or less useful. A research gap remains in regard to how organizations transition between states of exploitation, exploration, and ambidexterity over time (Zimmermann et al., 2015). Future studies could also benefit from moving beyond the organization as a unit of analysis, to also considering the larger eco-system in which a firm resides and does business (O'Reilly & Tushman, 2013). This also calls for a need for more multi-level analyses (see below).

The Ambidexterity-Performance Linkage. One of the key propositions of the ambidexterity concept is that it leads to superior firm performance, but there is still much we do not know about the ambidexterity-performance linkage. Junni et al. (2013), in their systematic examination of 69 empirical studies, found that the ambidexterity-performance relationship is to a large extent moderated by contextual factors such as industry dynamics and methodological choices. The authors suggest that further studies into the role of industry dynamics in particular would be useful to move the research from *whether* ambidexterity influences performance toward *when* and *how* exploration and exploitation influence multiple, fine-grained performance measures. Also, as noted by Markides (2013), there is much we do not know about the performance implications of competing with two conflicting business models simultaneously.

Multi-Level studies. Most ambidexterity studies to date have focused on the firm or the business unit, but as March (1991) suggested, finding the appropriate balance between exploration and exploitation is particularly difficult because the same issues occur at the individual level, the organizational level, and

the social system level. As Birkinshaw and Gupta (2013) point out, resolving the ambidexterity dilemma at one level may create a new set of dilemmas one level down. Accordingly, future studies should explicitly consider two or more levels of analysis simultaneously and in particular tackle the issue of individual ambidexterity. Previous research indicates that individual exploration and exploitation may enable firm-level ambidexterity and that organizational solutions (such as structural or contextual ambidexterity) may in turn affect individual behavior (Raisch et al., 2009). However, a research gap remains in understanding the relationships between individual ambidextrous behavior and the firm's or business unit's level of ambidexterity (Mom et al., 2009).

The Leader's Role. Another critically important aspect of the ambidexterity concept is the role of leaders in attending to the contradictory demands of exploration and exploitation. Smith et al. (2005; 2010; 2011) note the difficulties and challenges associated with managing strategic paradoxes; O'Reilly and Tushman (2013) note that on a high level of abstraction, it is easy to claim that leaders must orchestrate the allocation of resources between the old and new business domains, yet a research gap remains in regard to how leaders plan and execute paradoxical strategic intent. Further research is needed to clarify how managers tackle both the operational and more long-term conflicts embedded in ambidexterity strategies, and embrace paradox (Andriopoulos & Lewis, 2009; Birkinshaw & Gupta, 2013).

Central Constructs

The following gives an overview of key constructs and definitions used in this thesis. These will be further elaborated upon in the next chapter.

Table 2: Central constructs

| Construct | Definition |
|---------------------|--|
| Exploration | Exploration is the experimentation with new alternatives with uncertain, distant, and possibly negative outcomes (March, 1991). Exploration is captured by such terms as <i>experimentation</i> , <i>flexibility</i> , and <i>change</i> . Exploration has also been defined as <i>change</i> or a search for knowledge, novelty, experimentation, innovation, radical change, and creation of new products, processes, and services (O'Reilly & Tushman, 2008). |
| Exploitation | Exploitation is the refinement and extension of existing competences with returns that are predictable, close, and positive (March, 1991, p. 74). Exploitation is captured by such terms as <i>refinement</i> , <i>consistency</i> , and <i>experience</i> . Exploitation has also been defined as <i>consistency-refinement</i> , and incremental improvements of current products, processes, and services (O'Reilly & Tushman, 2008). |

Ambidexterity Ambidexterity has been defined as the ability of an organization to balance short- and long-term objectives (Duncan, 1976), explore new opportunities while simultaneously exploiting existing business (March 1991), pursue both explorative (discontinuous) and exploitative (incremental) innovation (O'Reilly & Tushman, 1996; 2004; 2013), simultaneously pursue incremental and radical innovations (He & Wong, 2004), adapt to changing business environments while aligning current operations (Gibson & Birkinshaw, 2004), explore and exploit product and market domains (Voss & Voss, 2012), compete with dual business models in one industry (Markides, 2013), simultaneously pursue mature and new technologies and markets (O'Reilly & Tushman, 2013), and the capacity to manage two inconsistent objectives equally well (Birkinshaw & Gupta, 2013).

RESEARCH QUESTION, OBJECTIVES, AND THEORETICAL CONTRIBUTION

In this Ph.D. project, I apply the ambidexterity perspective to characterize how firms allocate attention and resources in response to rapidly changing business environments to examine the following overarching research question:

How are the conflicts between exploration and exploitation managed within and beyond the organizational boundaries, and what are the resulting performance implications?

My ambition is not to explicitly test the merits of the ambidexterity premise, which implies that there is an optimal balance between exploration and exploitation just waiting to be found. Rather, my aim is rather to further our specific understanding of how the trade-offs between the new and the old business can be managed for firm prosperity over time in dynamic and frequently hostile business environments. I aim to contribute to our understanding of the challenges of this balancing act by focusing on the four previously discussed research gaps in regard to the exploration vs. exploitation and ambidexterity framings. Specifically, the main research question is divided into the following four underlying questions:

- *How does ambidexterity develop over time across multiple levels of analysis?*
- *How do exploration and exploitation influence multiple firm performance measures, and what is the role of industry dynamics?*
- *By which measures can individuals be ambidextrous, and what are the performance implications?*
- *What is the leader's role in planning and executing strategic paradoxes?*

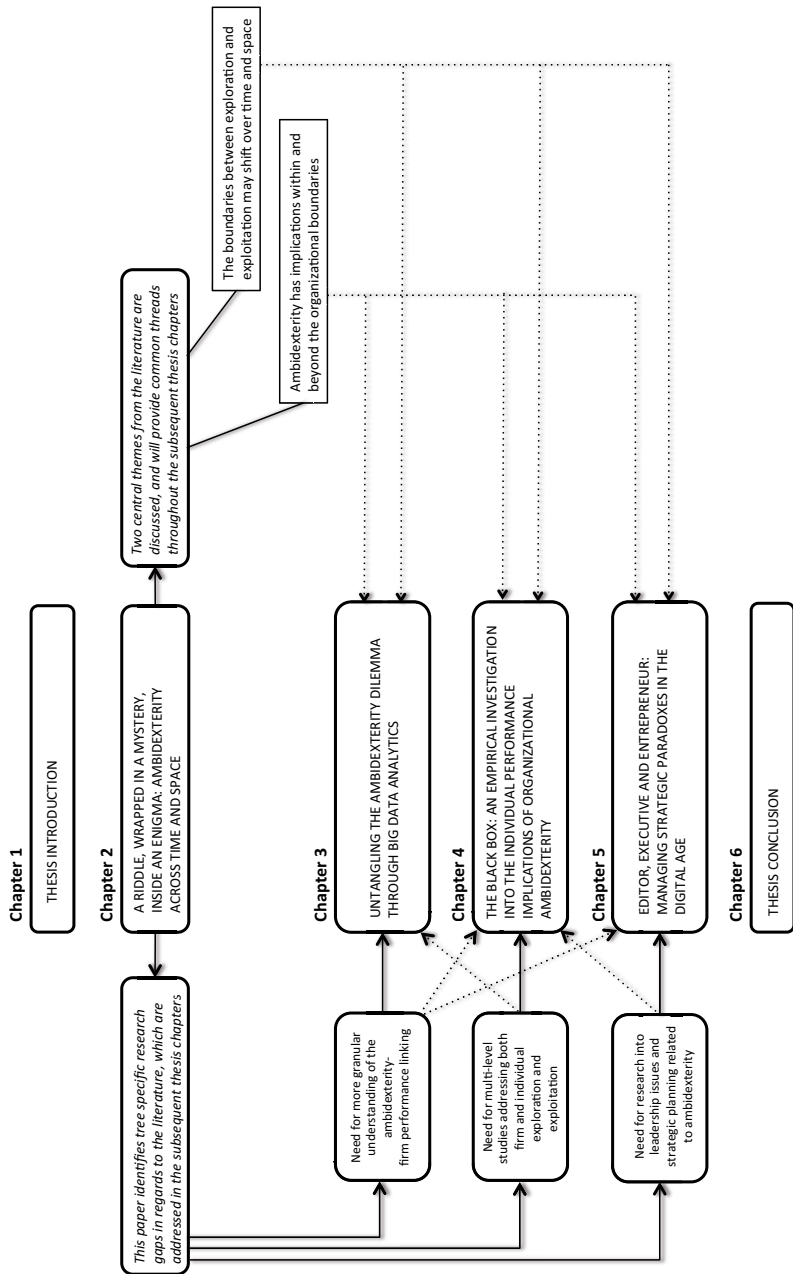
The different chapters address specific research gaps in the current literature and provide a multi-level understanding of how the explore/exploit tension is managed as well as when the benefits of ambidexterity outweigh the costs. To this effect, the structure of the thesis is as follows:

STRUCTURE OF THE THESIS

Chapter 2 examines ambidexterity as a multi-level concept and outlines implications over time for inter-firm, organizational, and individual levels of analysis. I use grounded theory-building methods to develop a set of research propositions in regards to how ambidexterity develops over time and across domains. My contribution to the ambidexterity literature is three-fold: Most of the ambidexterity research to date has focused on legacy firms embarking on explorative ventures. This study gives insights into how a start-up firm may mature into ambidexterity. Secondly, I expand our understanding of the interfaces between the structural and contextual modes of ambidexterity and how firms shift between these over time. And lastly, I consider how the explore/exploit tensions are resolved at different levels across industry and firm as well as the individual level of analysis. This paper provides a theoretical foundation for the rest of the thesis, and identifies some areas for future studies, which I will examine further in the subsequent chapters.

In **Chapter 3**, I address the linkage between ambidexterity and firm performance by reviewing the research on firm performance in the context of the newspaper industry over the past 20 years. I integrate research streams of ambidexterity, business model innovation, and convergence to develop a multilevel model that considers multiple performance measures including productivity, market penetration, revenues, and profits. I discuss the inherent conflicts in these, as well as make suggestions for how this performance model can be operationalized using some recent advances in big data analytics.

Figure 1: Thesis structure and the relationship between the research chapters.



In **Chapter 4**, I confront ambidexterity theory with the longitudinal case study of a legacy newspaper firm that over the past 15 years has been pursuing integration strategies consistent with the idea of contextual ambidexterity—that is, individual employees resolving the explore/exploit tension of their own accord. The purpose of this study is to further our understanding of *when* and *how* such individual ambidexterity can help improve individual as well as firm performance through the examination of a historical case study. I deploy a methodological approach where I triangulate multiple data sources (observations, interviews, content analysis, archival records, surveys, and performance data), to further our understanding of how individuals divide their time, attention, and efforts between conflicting tasks of exploration and exploitation, and what the implications are for both firm and individual performance. I propose that individual ambidexterity may involve both cognitive and activity aspects. I find that even given an organizational context that supposedly facilitates ambidexterity by enabling individuals to decide for themselves how to best divide their time between conflicting tasks of exploration and exploitation, most individuals tend to focus their efforts, rather than attending to both explorative and exploitation. I suggest that this may be due to cognitive strain, limitations of attention, and the coordination costs involved in switching between conflicting tasks. The empirical evidence suggests that individual ambidexterity is quite rare.

The fourth sub-question relates to how managers make choices and trade-offs among competing and often incompatible strategic demands. In **Chapter 5**, I examine the leadership role in managing ambidexterity and strategic paradoxes by analyzing data from a Nordic survey of top management respondents on strategic priorities in response to environmental and internal pressures for change. The article points to a link between ambidexterity and strategic planning, suggesting that the complexities of navigating in explorative ventures require more strategy

work than navigating the old certainties of the legacy business by identifying and discussing the inherent paradoxes in 22 industry-specific strategies.

In **Chapter 6**, I return to the introductory questions of the thesis and discuss what has been accomplished through the research process. I point to avenues for future research as well as implications for practitioners.

Figure 1 summarizes the main research themes, as well as the structure of the thesis and the relationship between the different research papers in chapters 2, 3, 4, and 5.

THE CONTEXT AND LOCATION OF THE STUDY

The newspaper industry provides a rich empirical context for the study of how firms struggle to engage in explorative ventures while simultaneously exploiting legacy operations (Singer, 2004; Quinn, 2005; Gilbert, 2005; Lawson-Bordes, 2006; Tameling & Broersma, 2013; O'Reilly & Tushman, 2013). Several ambidexterity studies have used case studies from the newspaper industry that define legacy print activities as exploitation, and emerging online ventures as exploration (Tushman et al., 2002; Gilbert, 2002, 2005; Smith et al., 2010; O'Reilly & Tushman, 2004, 2013; Boumgarden et al., 2012). It is also worth noting that in current literature, the most frequently used example of an ambidextrous organization is *USA Today*, a legacy newspaper firm that to date is still struggling with the digital transition of the legacy print business. See Chapter 2 for more on this. I will discuss and elaborate upon this industry-specific application of the explore/exploit framing throughout the thesis, and more specifically in a conceptual analysis in Chapter 2, as it is critical to be clear on the definitions and connotations of these key terminologies—in particular in reference to their implications in a longitudinal perspective. It is, for example, entirely conceivable that even though the first online ventures on which newspapers embarked in the mid-90s were of a risky and experimental nature, the exact same

online activities may today no longer involve the same level of uncertainty, experimentation, discovery, risk, taking, etc. This suggests that explorative activities over time may mature to take on exploitative characteristics such as refinement, efficiency and productivity, with returns that are more positive, proximate, and more predictable than at inception. This leaves the questions of whether the ambidexterity concept is still applicable. This idea will be further explored throughout the thesis. My review of research into the newspaper industry as preparation for this project suggests that, as of 2012, there was still no agreement on a general successful strategy for how news organizations can best balance exploration of the legacy print business and exploration of new digital ventures. The isolated and accumulated effect of pursuing the two simultaneously is still in question, as the general economic decline of the newspaper industry actually accelerates. Faced with massive drops in profits and mounting pressure from Wall Street, management strategies for news organizations today are to a large extent driven by economic considerations. Today, media researchers have recognized that there is no steady-state one-size-fits-all ambidexterity-like formula that will work for all news organizations (Lawson, 2006, p. 167). At the end of the day, money will to a large degree determine where things are going. Given these harsh economic realities, a better understanding of how the tensions between exploration and exploitation can be resolved for firms' long-term survival is of paramount importance and relevance to both managers and scholars.

The location of this study is the news business in northern Europe, a region particularly well suited for examining how the tensions between online exploration and print exploitation are resolved. Several studies have shown that ambidexterity may be more beneficial in dynamic environments with high uncertainty and technological change (Sidhu, Volberda, & Commandeur, 2004; Auh & Menguc, 2005; Siggelkow & Rivkin, 2005; Jansen et al., 2005; Yang & Atuahene-Gima, 2007; Bierly & Daly, 2007; Uotila et al., 2008; Wang & Li, 2008; Jansen, Vera, &

Crossan, 2009; Geerts et al., 2010; Tempelaar & Van De Vrande, 2012). As of 2011, at the start of the project, Norway, Denmark, Sweden, and Finland were at the forefront of the digital transformation, reflecting Scandinavia's traditional consumer enthusiasm for the Internet and digital media.¹ As the numbers in Figure 2 show, Norway and Denmark have a high penetration of new media technologies, including digital platforms that represent new business opportunities for media companies.¹ In fact, as of 2012, Norway was a world leader in this regard, due to the high penetration of smartphones and a rapid adaption of tablet devices.

The flip side of this transformation is that newspapers in the Nordic region are also among the hardest hit in the world in terms of declining print readership and sales. Figure 3 shows the decline in print newspaper circulation for some selected countries for the period 2007–2011 (in %). This suggests print newspapers in Denmark and Norway have been among the hardest hit in the world, with a decline in circulation of around 20% between 2007 and 2011. Given these harsh realities, the prudent Norwegian newspaper manager would be well-advised to pursue a strategy of keeping the declining print business healthy for as long as possible, while aggressively pursuing new digital opportunities. This dual strategic intent is confirmed by several studies showing that most legacy newspaper companies in the Nordic region indeed pursue both explorative print and exploitative online activities: For example, in a 2010 survey of 6,564 newspaper managers across Scandinavia (N= 552), 87% of Norwegian respondents said that their goal was to have a structurally integrated organization capable of simultaneously pursuing both print and online activities. This suggests that a longitudinal quantitative study of the Norwegian newspaper industry, combined with in-depth qualitative case studies from selected firms, should give insights into the main research question of this thesis.

¹ <http://www.zenithoptimedia.com/zenith/zenithoptimedia-publishes-new-media-forecasts/>

Figure 2: New media penetration (*general population adaption of tablets, “smart” phones, and smart TVs*) in selected countries as of 2012.

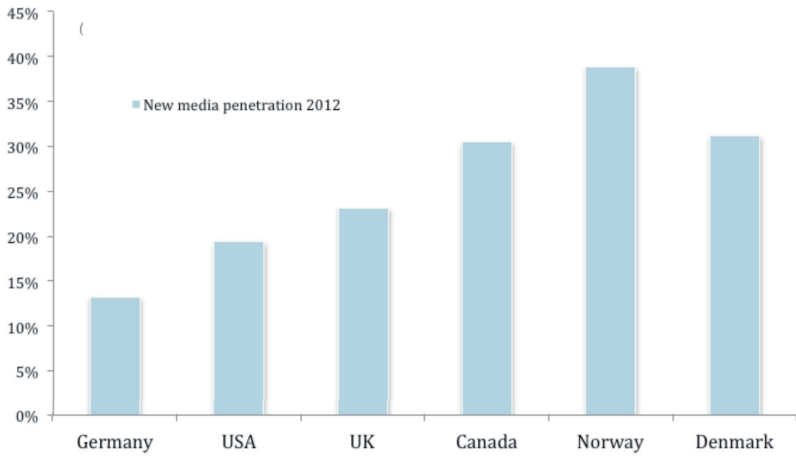
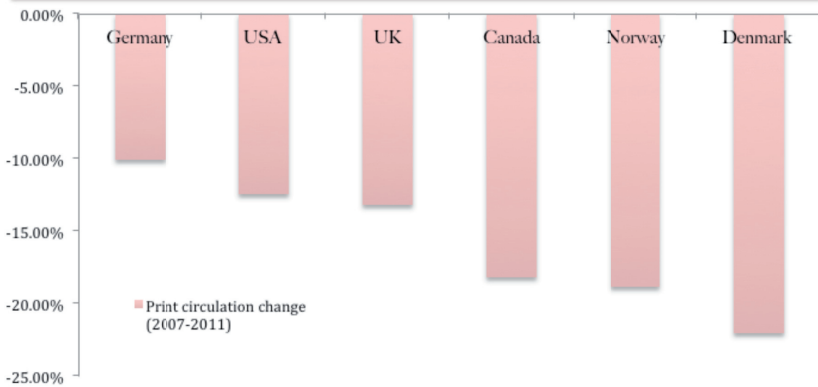


Figure 3: Print circulation change over the period 2007-2011 in selected countries



Sources: Zenith Optimedia/Publicis Groupe agency's New Media Forecasts report (February 11th 2013). WAN/IFRA World Press Trends Report 2012

METHODOLOGY

First, a note on the philosophy of science: In this study, I take a critical realism perspective, in the sense that my basic worldview is that our own presence as researchers influences what we are trying to identify and measure, but that there also is an objective reality out there.² Critical realists retain an ontological realism, in the sense that there is a “real world” that exists independently of theories and constructions, while accepting a form of epistemological constructivism; thus, our *understanding* of this world is inevitably a construction from our own perspectives (Maxwell, 2012). This suggests there is no possibility of attaining a single, “correct” understanding of the world. I rather consider research to be an ongoing process to improve concepts that scholars use to understand the mechanisms that we study.

To illustrate the critical realist position, consider Newton’s famous apple as it falls from the tree and hits him squarely in the head. As the history goes, what pops into his head next is the Universal Law of Gravity. As a critical realist, I would argue that the apple does indeed fall from the tree and that Newton also indeed experiences it as falling and feels the pain of it hitting him; however, in addition to the real world and our subjective experience of it, mechanisms such as gravity, wind, etc. also are present that guide the fall of the apple and Newton’s experience of it. In this context, the Universal Law of Gravity is a theory that scholars use to describe the mechanisms at play. Critical realism is usually associated with the writings of Bhaskar (1978; 1979; 1998), who suggests that there are three domains of social reality: the Empirical, which is observable by human beings; Events, which exist in time and space and occur even if we are might not be aware of them; and the Real, which consist of deep structures and

² The purpose of this section is not to engage in an extensive discussion of philosophy of science or the critical realist view, but rather to clarify some basic assumptions of my research approach.

mechanisms that produce these events. To illustrate the differences between these three domains, and sticking with trees, consider the following famous Zen riddle:

“If a tree falls in the forest and no one is around to hear it, does it make a sound?”

In the empirical domain of social reality, the falling of the tree is an event that can be observed. But it is also entirely conceivable that the event could happen even if we are not aware of it—e.g., the tree actually falls and actually makes a sound even if no one is around to hear it. And regardless of the empirical domain and the event, the critical realist would argue that there are real structures and mechanisms that produce the event of the tree (or and apple) falling and the sound it makes. In critical realist thought, reality has “depth,” i.e., it cannot be understood by empirical observation alone. So beyond the event and the empirical perspective is the real—powers that are unobserved. It has been pointed out that “real” is semantically confusing, as all three domains—empirical, event, and real—arguably can be seen as “real.” Fleetwood (2004) introduced the term “deep” to limit confusion in regard to the semantics and connotations of the term “real,” arguing that “deep” also captures a sense of difficulty in accessing and observing a phenomenon.

Research Design

Critical realism has emerged as one of the most powerful new directions in the philosophy of science and social science, as researchers in the field of organization and management studies recognize the value of the philosophy of critical realism as an alternative to scientism, positivism, postmodernism, and post-structuralism (Archer et al., 1998; Fleetwood, 2004). However, as Ackroyd (in Danemark et al., 2012) noted, discussions about research methodology in

management and organizational studies specifically are often shaped by an underlying assumption that a particular methodological approach is superior and ought to be used invariably. As a critical realist, I take a rather pragmatic approach and agree with Ackroyd that research should not necessarily feature prior commitment to particular methods, but should be thought of as types of tools (Kindle: location 3935 of 10460). Critical realist studies typically involve mixed-method approaches, for example by using statistical analysis to ascertain patterns in large data sets, and then qualitative inquiry, such as case studies, to probe for deeper explanations (Kazi, 2003; Oliver, 2011). This is in line with the critical realist principle that any knowledge claims should be submitted to a wide critical examination in order to achieve the best understanding (Cohen & Crabtree, 2006).

Accordingly, in this study, I have deployed a flexible research design with a methodological triangulation, applying Denzin's "between-method" of triangulation, where contrasting research methods, multiple levels of analysis, and various data sources are used to reduce the uncertainty of measurement (Denzin, 1987; 2005). More specifically, over the course of the project, I deployed a research strategy using both qualitative and quantitative methods already well established within ambidexterity research, including surveys, interviews, observations, review of various archival data, and statistical and performance analyses. The purpose of this data triangulation was to ensure the credibility of the results by minimizing the moderating effect of research methods and the likelihood of common method variance. This is in line with Junni et al. (2013), who in their review of 67 ambidexterity studies found a strong presence of moderators such as methodological choices. The authors emphasized the importance of increasing clarity in the measurement of ambidexterity, recommending that future studies consider multiple performance measures and respondents, as well as focus on multiple levels of ambidexterity simultaneously in order to specify how linkages between ambidexterity at different levels contribute

to performance. So how did this triangulation work in practice? Ideally, three or more independent sources of data should point to the same fact. For example, in one specific example from my study, I made the following note under observations in a newsroom:

Print and online is like oil and water. Management keeps wanting to mix them up, but their molecular structure is basically incompatible, causing them to invariably move apart as time passes. (Researcher note, 2012)

This observation (which should not be taken literally) was supported by a second data source—that of comments made by employees about the challenges of working both online and in print:

- The biggest challenge today is that it is up to individuals to choose if they want to work online or not. This leads to differences in workloads and speed. (Individual survey response, 2012)
- Management should define the same demands for everyone. (Individual survey response, 2012)
- Time—there is too much work to be done by too few people. (Individual survey response, 2012)
- If you want to publish online, priorities mean that it comes at the cost of making better content for the printed newspaper. (Individual survey response, 2012)
- Doing both at the same time offers problems. Besides, it is difficult to know how to work online when one does not know how they work, and what the routines are. (Individual survey response, 2012)

As a third source, the product review further supported the difficulties in producing content for both print and online outlets. My analysis of all articles published online and in the print newspaper showed that only about 20% of reporters actually had published stories on both platforms. So, these different data sources give three perspectives about the challenges involved for employees who at their own discretion engage in both online and print reporting. This triangulation thus prompts greater confidence about concluding what had transpired than had I relied on a single source. The combination of qualitative and quantitative methods should ideally yield more valid and precise representations of the phenomena at hand. By adopting a strategy of triangulation, it is possible to improve the capture of a particular phenomenon and reduce the bias associated with any one method. This research design is compatible with the realist ontology and grounded in the presumed existence of an objective empirical reality independent of human cognition (Burrell & Morgan, 1979; Morgan & Smircich, 1980). But our *understanding* of this world is inevitably a construction from our own perspectives (Maxwell, 2012).

Sampling Strategy and Case Study

As part of the initial research for the thesis, I started out in 2012 by gathering data on organizational structure as well as firm performance from all newspaper firms (N=228) in Norway. Interestingly enough, the data suggested that most firms were pursuing strategies of integrating print and online operations. Given previous studies that have linked ambidextrous capacity to firm size,³ I narrowed my analytical focus on the top 15 newspaper firms, which all had more than 80 employees as of 2012. This subset yielded several cases that were deemed

³ See for example Cao et al., (2009), who found that ambidexterity may negatively affect performance for smaller firms. The authors found that combining exploration and exploitation only had a positive effect on firm performance in an organization size of 87 employees and over. This finding is consistent with the notion that the simultaneous pursuit of high levels of exploration and exploitation severely taxes a firm's resource base, and that among smaller firms; the available pool of resources is often insufficient to adequately support both exploration and exploitation (p. 22)

of particular interest and relevance to this study.⁴ The choice of Adresseavisen as a case study was theoretically motivated, given that previous research suggested that it is the most integrated newspaper firm in the industry,⁵ but also one of the oldest newspaper firms still in business. This purposive sampling strategy identified a case study that allowed for a longitudinal perspective on how the tensions, transitions, and interfaces between the new and the old business are managed and reconciled in organizational practice. My industry and performance analysis also identified one firm that was of particular interest, namely Nettavisen, an online start-up that has competed with legacy newspaper firms since 1996. Thus, I used an embedded or “nested” case study design (Yin, 1994; Miles & Huberman, 1994) where I examine two distinct and contrasting cases in the newspaper industry in Norway. This research design is in line with the thesis research objectives, allowing for the study of “a contemporary phenomenon within its real life context” (Yin, 1994, p. 13). For more on the sampling strategy and choice of case study, see chapters 2 and 4, as well as the closing notes.

Levels and Units of Analysis

The embedded case study design involves multiple levels and sub-units of analysis, in this case ranging from the industry context to the level of the individual employees, and is particularly well suited when the contextual conditions and dynamics of the situation are pertinent to the phenomenon of the inquiry (Yin, 1994; Dobson, 2001). The context of the case study should allow for

⁴ Initially, I had also hoped to identify a case where print and online operations had remained separated within one organizational context—i.e., structural ambidexterity. However, I found no clear-cut examples of this in my research. It should be noted that over the three-year duration of this project, several firms have embarked on organizational restructuring, but the tendency has overwhelmingly been toward closer integration of print and online operations. One interesting trend became apparent late in 2013, however, when two of the leading newspaper firms decided to create spin-off organizations for mobile and Web-TV operations respectively. However, these were completely separate firms, and as such were not part of an ambidextrous organizational design. But future studies should investigate what happens with these units over time. Will they be allowed to follow their own trajectory, or will they be integrated into the parent company at some point in time?

⁵ In this particular case, there are also some particular issues in regard to my conflicting role as both researcher and consultant to Adresseavisen. This will be clarified and discussed later in this chapter.

a more detailed understanding of the deeper processes involved as the context is controlled. This makes the case study approach well suited for the study of ambidexterity, as it is a “nested” construct (March, 1991; Birkinshaw et al., 2009; O’Reilly & Tushman, 2013; Birkinshaw & Gupta, 2013). In this thesis, I have considered multiple levels, which is in line with the critical realist approach, but also is appropriate as both the explore/exploit and ambidexterity issues transpire on multiple levels. It is imperative to consider the larger structural context in which firms or individuals operate. More specifically, in this study I consider 1) the industry level, 2) the alliance (inter-firm) level, 3) the firm level, and 4) the individual level. The primary unit of analysis is the firm level. The implications of such multi-level research design will be further discussed in chapters 2, 3, and 4, as well as in the closing notes.

Data Sources

The primary data were collected during 2012, with additional data collected in 2013–2014. The study used 1) original survey data from the previously discussed case study (N=133) as well as a survey of top-level executives (N=143) in Finland, Norway, Denmark ,and Sweden; 2) about 25 semi-structured interviews with current and previous managers in the selected case studies as well as other industry professional for points of reference; 3) observation, in which I visited news organizations on multiple occasions to observe daily operations; 4) product (content) sampling and analyses, which were conducted to assess the extent to which exploration and exploitation were operationalized in daily organizational practices; and 5) archival data—I had access to rich archival data, including yearly reports, strategy documents, and other studies conducted during the period between 2001 and 2012. One apparent benefit of using the newspaper industry as the context of the project is that the press loves to write about itself. This means that both for the case study and the industry context, an abundance of

Table 3: Data Sources

| <i>Level of analysis</i> | <i>Data</i> | <i>Sources</i> |
|--------------------------|---|--|
| <i>Industry</i> | <i>Statistical data, archival documents, survey</i> | <i>Financial data from Brønnøysundregisterene. Certified readership and print circulation from MBL. Employee tenure data from NJ. Statistical data from SSB pending. Interviews with industry specialist and top-level executives. Strategy documents; newspaper articles; previous studies.</i> |
| <i>Firm</i> | <i>Interviews, survey, archival documents</i> | <i>Site visits to firms, field notes, interview notes, and recordings. Annual reports, internal strategy documents, and press clippings. Survey data. Analyses of print and online publications.</i> |
| <i>Individual</i> | <i>Observations, Interviews, surveys</i> | <i>Interview notes and recordings, survey responses, and productivity analyses.</i> |

press clippings was available to offer further insights into involved in making the digital transformation. For several firms of interest, rich timelines were created detailing major events such as innovation events, significant shifts in leadership, new product launches, organizational restructuring, major process improvements, investments, and so forth. Table 3 summarizes the nature of data on the different levels of the study design.

Interviews. The face-to-face interviews were conducted with managers at two case firms, and primarily served to identify key issues and themes connected to the research questions, in addition to helping supplement other empirical data. Interviews allow a researcher to go beyond mere observation to enter into another person’s perspective and inform us about things we cannot directly observe (Patton, 2002). The purpose of the interviews was to understand how managers manage the tensions between exploration and exploitation both on a strategic and an operational level. The interviews typically lasted for about an hour, and were carried out in Norwegian. The first batch of interviews was conducted at one of the case firms in early 2012. During these interviews, I took notes, but I did not

record the conversations. Care was taken to make these sessions informal, as I was sensitive to my role as a consultant at this particular point in time. Upon reviewing these notes, I identified key issues and themes that were used as input for the subsequent organizational survey. For the subsequent interview sessions conducted in 2014, I prepared a semi-structured interview guide that was divided into three parts: Firstly, I asked about the professional background of the manager. Secondly, I asked about the nature of their work and their views about both the firm and the business context in which it operates. Thirdly, I focused on relevant themes regarding the main and sub-research questions of this thesis. The questions were kept open-ended, and the conversations were recorded. Over the course of the Ph.D. project, I have also had the opportunity to conduct workshops with management groups from India, Germany, the United States, Canada, France, Belgium, Holland, Denmark, Norway, Sweden, Finland, and Holland. These sessions gave rich insights into themes and issues in relation to the digital transformation of the news industry. Data from some of these sessions were used for the article on the leadership role in managing strategic paradoxes.

Surveys. For the purpose of this study, I designed a survey that initially was used on two separate case studies (Adresseavisen N=133 and Nettavisen N=58) and was sent out to all (800+) newspaper executives in the Nordic countries Finland, Sweden, Denmark, and Norway, yielding N=143 responses. The survey was piloted and tested prior to being deployed. The survey was a modification of an existing media industry survey that has been used in the Nordic countries since 2005. Some items were modified between the case studies and the executive respondents. This will be addressed in the individual articles. The survey included measures to capture exploration, exploitation, and ambidexterity. Previous studies have shown high reliability for similar constructs (He & Wong, 2004; Jansen et al., 2005; Lubatkin et al., 2006; Smith & Tushman, 2005; Cantarell et al. 2011; Popadiuk 2011; Martini et al., 2012). To further our understanding of these

concepts, I have also included several theory-based original items in the surveys. The survey was used to gather data from individuals to assess unit-level characteristics presumed to be shared within a unit, but also about themselves and other individuals in their organizations. For more details on the survey, see chapters 4 and 5. The use of surveys in ambidexterity studies is well established, and I agree with Gibson and Birkinshaw (2004), who argue that the survey is appropriate research methodology for studying ambidexterity, given that individual employees are most familiar with the extent to which their business units exhibit certain attributes of an organizational and an ambidexterity context. Survey research is sometimes regarded as an easy research approach. I rather take a pragmatic approach, as there are distinct advantages to using a questionnaire vs. an interview methodology: questionnaires are less expensive and easier to administer than personal interviews; they lend themselves to group administration; and they allow confidentiality to be assured (Leary, 1995). A key issue using surveys is that the data produced may lack details or depth on the topic being investigated. The significance of the data can also become neglected if the researcher focuses too much on the range of coverage and excludes an adequate account of the implications of those data for relevant issues, problems, or theories (Kelley et al., 2003). For this study, I have deployed methodological triangulation to systematically avoid this method bias.

Archival data. As noted earlier, I had rich access to secondary sources such as archival documents, annual financial reports, internal documents, statistical data, previous research, etc. These data proved invaluable in establishing the industry context, but also in giving a longitudinal perspective on how individual firms balance exploration and exploitation. Particularly useful were the numerous press clippings (newspaper stories) that the news industry published about their own struggles in making the digital transition. One surprising finding was how

persistent these challenges have been, a point that will be addressed throughout the different chapters in this thesis.

Observation. Having worked inside several newspaper organizations over the period from 2000–2010, I have extensive experience with the daily operations in a newsroom. Over the course of this Ph.D. project, I have also had the opportunity to not only spend time in the newsrooms of the firms studied, but also visit newsrooms all over the world. One striking insight has been how similar the inner workings of newspaper organizations are, and how slowly things change. For the purpose of this project, I have focused on observations of integration mechanism, i.e., the practical aspects of integrating print and online operations. This was most relevant for one of the case studies included in this thesis. The observations are meant to supplement other empirical data.

Performance data. The context of this study is the newspaper industry in the Nordic region. To examine the relationship between ambidexterity and firm performance in Norwegian media companies, I examined detailed performance data for all legacy newspapers in Norway over the period from 2001–2012. One benefit to choosing the Norwegian newspaper industry for the study is that most newspaper firms report their financial statements, and rich information in regard to performance metrics such as market penetration in both print and online product domains is available. The initial aim of my analysis was to examine how mixing print and online activities affects firm performance over time, and as noted earlier, earlier studies have found that exploration and exploitation were linked to *different* performance measures. For example, Auh and Menguc (2005) found that exploitation of existing businesses led to sales growth, profit, and increased market share. On the other hand, exploration of new business was linked to return on investments, sales, and assets. This suggests that deploying one-sided indicators of firm performance may produce biased conclusions as to integration's

effect on overall firm performance. Accordingly, I have considered multiple performance metrics, including:

- Newspaper sales
- Advertising sales in print
- Advertising sales online
- Total revenues
- Total costs
- Salary costs
- Profit margins
- Productivity
- Print market penetration metrics (readership; circulation)
- Online market penetration metrics (page views; unique visitors)
- Combined market penetration online + print

Another possible bias is considering only absolute firm performance and not fully considering the environment. A newspaper with an accumulated sales growth of 2% may be coded as successfully employing an integration strategy. But what if the growth in the rest of the market was 10% the same year? In relative terms, the newspaper in such a situation has a less-than-superior performance. To avoid performance bias, the performance data for each individual newspaper company I examined was to the extent possible referenced against total industry performance. In other words, not only were isolated changes in individual firm performance considered, but also performance relative to the competitive environment was considered. While this rich data did provide great insights into the effects of mixing exploration and exploitation, I wanted to expand our understanding of the short-term and long-term performance implications by using a dynamic perspective. Taking into account March's (1991) argument that benefits from explorative activities only become apparent in the long run, this study also deploys

a longitudinal view to assess how integration contributes to firms' long-term growth and survival. This was done by examining performance data over a 10-year period from 2001–2011 for the newspaper industry in Norway. I will further discuss the different data sources in the individual chapters of this thesis.

Robustness of Study and Findings

A key challenge for ambidexterity research has been the consistency and trustworthiness of the methodological approach, as well as the interpretation of findings (Junni et al., 2013; Birkinshaw & Gupta, 2013; O'Reilly & Tushman, 2013). Miles and Huberman (1994) proposed four broad approaches to improve the quality and validity of research work: confirmability, credibility, transferability, and dependability.

Confirmability: A key measure to ensure that study findings can be confirmed by others is simply keeping records of all documents that were used in the study, for example by a project database that includes all empirical data such as records of documents, notes, audio recordings, etc. Another way of ensuring confirmability is to validate both the data and findings by using inter-coder checks, i.e. having other researchers (or the project supervisor) verifying the findings.

Credibility: As previously discussed, triangulating multiple sources of data is a good way to enhance the robustness of findings. Methodological pragmatism is no excuse for sloppy research design. In this study, I have used multiple data sources, including observations, interviews, surveys, archival sources, and statistical and performance data. This allows for the crosschecking of facts. One example of this was in one of the case studies, where qualitative data both from previous studies and management interviews suggested that most employees were writing for both print and online operations. The results of the product analysis,

however, showed that in fact only about 25% of reporters were doing so over the period sampled.

Transferability: Although I started out examining all newspaper firms in Norway as of 2012, the case samples in this study are not meant to be representative of all newspaper firms. Thus, my research aims at analytic generalization in contrast to statistical generalization (Yin, 1994). The sampling of this study allows for further insights into the main research question, as well as when ambidexterity is a more or less useful strategy. The results are not necessarily generalizable to the wider population, but should offer some insights on a conceptual level. To further ensure transferability, I used theoretical replication logic where I, for example, used the same survey on multiple cases to challenge the ambidexterity construct and to present contrasting results.

Dependability: If research is to be useful, it has to be dependable. The research methods and procedures should be consistent with the study design as well as the research questions. The researcher should pay particular attention to “bumps in the road” and how the researcher accounts for changing conditions in the phenomena (Bradley, 1993). To increase dependability (confirmability), data should be recoded and kept for future reference.

Industrial Ph.D.: Ethical Issues

As this Ph.D. project is funded through means from the Danish Innovation Fund and the Stibo Group, there are some ethical research issues that should be clarified. Easterby-Smith et al. (2012) noted that there is a growing interaction between companies and universities, and one consideration is whether research done for corporations may become “contaminated” because of the funding relationship. In this particular Ph.D. project, one of the case studies, Adresseavisen, has been a long-time client of the Stibo Group, the firm that also in

sponsors my Ph.D. project. However, the Stibo Group also provides services to a number of the top 20 newspaper firms in Norway, as well as a number of media firms across the globe (including *USA Today*). Hence, neither personal nor professional relations per se motivated the choice of Adresseavisen as a case study, but rather the theoretical motivations described in Chapter 4. However, given that I did engage professionally with Adresseavisen (as well as a great number of other firms) during my Ph.D. project, there are some practical aspects of the data gathering for the case study that warrant further explanation. Over the 2011–2014 period, I had the opportunity to engage with both senior and middle management at Adresseavisen on multiple occasions through conversations, semi-structured interviews, and three more formalized workshops that I hosted throughout 2012. The insights gained from these experiences led me to suggest to Adresseavisen management that I use Adresseavisen as a case study for my Ph.D. project and that I would like to conduct an organizational survey to collect further data that could be used as part of the empirical basis for my research. This survey was conducted during the fall of 2012, and a management report of the results was prepared. Adresseavisen paid the Stibo Group for some separate consultancy services that I provided, but not the organizational survey, nor any part of my research for this project. As a researcher and consultant, I am very sensitive to mixing roles, in particular when there is funding involved. In this case, I did not receive any monetary compensation from Adresseavisen for any part of my research. Still, Easterby-Smith et al. (2012) noted that although corporate sponsors may influence (contaminate) the direction of the research, this is the case with all funded research. Another type of contamination may come from individuals who have their own political agenda. In this specific case, I may be seen by some as a representative of the Stibo Group rather than as a researcher, and individuals may feed information into my project to, for example, undermine the status of the technology platforms in place at Adresseavisen. But this same thing could happen

in any organization, whether or not there is a funding relationship. I agree with Easterby-Smith et al.—these contaminants are best dealt with by being explicitly incorporated into the reports of the research process. Accordingly, I have throughout this thesis made explicit mention of any instances where there was a conflict of roles or where I saw political factors come into play. Researchers must reflect critically on all influences on their research and make these thoughts available to others. This reflexivity should increase the credibility of the results of the study (Kindle Location 2194). In addition to my engagement with Adresseavisen over the 2012–2014 period, I was also involved in a consolidation project that involved Adresseavisen and four other newspaper firms over the 2007–2010 period. I was at the time representing one of the other newspaper firms and had the opportunity to engage with senior management from Adresseavisen on multiple opportunities. In this setting, I was representing the interests of one of the parties of the negotiations, and accordingly, my interaction with Adresseavisen was at times adversarial and at times consolatory. This introduces a potential bias on my part, and I have therefore chosen not to use any records of the negotiations as direct sources for this study. However, I will in the discussion section of the Adresseavisen case study briefly touch upon how the findings of this study relate to my personal experiences in dealing with Adresseavisen as an external researcher.

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Chapter 2

A RIDDLE, WRAPPED IN A MYSTERY, INSIDE AN ENIGMA: AMBIDEXTERITY ACROSS TIME AND SPACE

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Abstract: This study examines ambidexterity as a multi-level concept and outlines the implications over time for inter-firm and organizational as well as individual levels of analysis. This is done through case studies of a legacy firm that shifts between modes of ambidexterity over time, as well as an online start-up that, over a 20-year period, has matured into an ambidextrous organization. My contribution to the ambidexterity literature is three-fold: Most of the ambidexterity research to date has focused on legacy firms embarking on explorative ventures. This study goes beyond these to give insights into how a start-up firm may mature into ambidexterity. Secondly, I expand our understanding of the interfaces between the structural and contextual modes of ambidexterity and how firms shift between these over time. And lastly, I consider how the explore/exploit tensions are resolved at different levels across industry, firm, and individual levels. Suggestions for future avenues of research are also provided.

Keywords: Ambidexterity, explore and exploit, multilevel studies, start-ups

Author Note: A previous version of this chapter is forthcoming as a SAGE Business Case: “A Transition Towards a Data-Driven Business Model (DDBM): A Case Study of *Netavisen* Online Newspaper Publishing.”

INTRODUCTION

Consider the following two innovation episodes from the early days of the Internet in the 1990s:

- In 1995, *USA Today*, a legacy US newspaper firm, was under pressure from increasing printing costs, national rivalry, and emerging competition from free, Web-based news sources. The CEO decided to launch an independent online news site operated by a separate staff dedicated to instantaneous online news, but with strategic linkages to the parent company. *USAToday.com* quickly gained a large online market share, but was never profitable, and in 2000, online operations were merged back into the parent company.
- In 1996, three entrepreneurs established *Nettavisen* as the first independent online news site in Norway, competing with online news sites established by large, established newspapers and broadcasters. *Nettavisen* was a pure start-up, growing from nothing to the second-largest news site in Norway by early 1998. The firm was an attractive investment object, being bought and sold a number of times before the dot-com bubble finally burst in 2001. *Nettavisen* was eventually sold off cheaply and integrated into a large broadcasting company to help grow their online operations.

The examples above illustrate some of the challenges involved when firms try to do new things. Try too hard, and they run the risk of suffering the cost of experimentation with new technologies and business ideas without gaining any of the benefits. Alternatively, firms risk being left behind as the competition reinvents the playing field around them. As March (1991) predicted, this story has been told in many forms. The idea that organizations need to balance the

exploration of new opportunities with exploiting existing business has become almost a truism in academic research as scholars in a diverse range of academic fields such as strategic management, innovation, business model innovation, organization design, organizational adaptation, organizational learning, and competitive advantage have contributed to our understanding of how the explore/exploit dilemma can be resolved in organizational practice.

One central stream of literature revolves around the concept of “ambidexterity,” which refers to the ability of an organization “to compete in mature technologies and markets where efficiency, control, and incremental improvement are prized and to also compete in new technologies and markets where flexibility, autonomy, and experimentation are needed” (O’Reilly & Tushman, 2013, p. 324). Over the past 15 years, there has been an explosion of interest in ambidexterity, and the current literature suggests organizational ambidexterity can be achieved through at least three conceptually distinct approaches: through a structural solution where separate, distinct subunits responsible for exploration and exploitation are created; through a contextual solution where individuals in one integrated business unit decide themselves how to best divide their time between the conflicting tasks of exploration and exploitation; or even through a temporal approach, where firms shift between periods of exploration and exploitation over time in response to environmental change. But as the research base widens, there is also a growing ambiguity as to precisely what ambidexterity is and what it is not.

Part of the problem may, ironically enough, be the versatility of the concept: If ambidexterity can be achieved through structural separation as well as through various levels of integration—and even by shifting relative focus between exploration and exploitation over time—this leads to the observation that the concept could in theory be used as a generic framing for basically any issue in organizational and management research. As Birkinshaw and Gupta (2013) note,

most of the important things that happen within organizations could (if the researcher so chooses) be positioned as potentially ambidextrous situations. “If ambidexterity is everything, then it is nothing” (p. 291).

To illustrate this conceptual versatility and ambiguity, revisit the innovation episodes above, and ask yourself: Is this exploration or exploitation? Are these ambidextrous organizations? While it is easy to say that these firms are doing new things, it is less evident if these are examples of the exploration of radical new possibilities and/or really just exploitation of existing business, and if these firms are by some definition ambidextrous. The ambidexterity concept remains, in the famous idiomatic expression, “a riddle, wrapped in a mystery, inside an enigma.”

The aim of this study, which can best be described as a grounded inductive case study, is to further our conceptual understanding of what makes a firm ambidextrous by confronting theory with the empirical context of these two case studies over a period from 1995–2015 to shed light on two central issues of the ambidexterity framing that have received insufficient theoretical as well as empirical attention: (1) how ambidexterity develops over time, and (2) the idea that ambidexterity is a nested concept where the explore/exploit tensions can be found on multiple levels from the individual to the organization as well as the larger industry context in which a firm does business.

Ambidexterity across Time. Arguably, ambidexterity is all about timing: “What is good in the long run is not always good in the short run. What is good at a particular historical moment is not always good at another time” (March, 1991, p. 73). Firms must balance exploitation, which offers a short-term payoff today, with exploration of uncertain alternatives that may improve future returns in a distant tomorrow. However, it seems reasonable to argue that if an organization does choose to explore new opportunities today, over time it may acquire new knowledge and proficiency at these, making these once-explorative activities more

predictable, proximate, and so forth.⁶ From this follows the idea that explorative activities may mature into exploitation over time, while the exploration frontier may keep constantly moving in new directions. This may have some important implications for the ambidexterity concept, as the boundaries between exploration and exploitation may shift over time, and accordingly a firm that is ambidextrous at one point in time by some definition may not be so (at least not by the same definition) at a different point in time. For example, the canonical *USA Today* case is in the literature positioned as an example of the structural solution to the ambidexterity dilemma, but later empirical data from 2005 describe a full integration of digital and print operations at *USA Today*, more in line with ideas from contextual ambidexterity (See, for example, Boumgarden et al., 2012). But perhaps even more interestingly, in 2015, the legacy print business was actually spun out from the *USA Today* parent company to protect its digital businesses from the continued decline in print products and markets. But this also leaves the question of whether this is best described as another case of structural ambidexterity—albeit the roles of print and online have been reversed over the past 20 years.

Ambidexterity across Domains. Choices about how to resolve the explore/exploit tensions at one level of analysis (for example, the organizational-level) may be resolved one level down by creating two distinct organizational units responsible for exploration and exploitation, respectively (Raisch & Birkinshaw, 2008). The same logic could then be applied to the next level up, across industry sectors. For example, it seems reasonable that given that the *Nettavisen* start-up had no legacy business to protect, the ambidexterity may not

⁶ In theory, such initial exploration could also be undertaken by other firms, thereby reducing risks for later adopters of alternative approaches. I will discuss the idea of distributed innovation in an industry section later in the paper.

be very useful to explain the challenges the firm initially faced. But could *Nettavisen* be considered an explorer relative to legacy newspaper firms, pushing innovations into the market, enabling inter-firm ambidexterity through alliances and partnerships? And what happens over time as the firm is sold off and integrated into other organizations? Do they become ambidextrous through acquisitions? Does this online start-up mature into becoming an ambidextrous organization by some definition at some point in time?

My contribution to the ambidexterity literature is three-fold: Firstly, I revisit the often-used case of *USA Today* to give some insights into how organizational ambidexterity develops over time, expanding our understanding of the interfaces between the structural and contextual modes of ambidexterity and how firms shift between these over time. Secondly, through the case study of *Nettavisen*, I go beyond organizational ambidexterity to give some unique insights into how a start-up firm may “become” ambidextrous over time through alliances and acquisitions. Thirdly, I also consider how the explore/exploit tensions are resolved at different levels across industry, firm, and individual levels.

In the following I start by briefly outlining the methodology of this study before I review the existing literature on ambidexterity. Next, I use the *USA Today* case to elaborate on how organizational ambidexterity develops over time. Next, I use the *Nettavisen* case to gain further insights into ambidexterity as a multilevel, nested concept. I conclude the paper with implications for research and practice.

METHODS

In this study, I use grounded theory-building methods (Eisenhardt, 1989; Strauss & Corbin, 1990; Graebner 2004) to develop a set of research propositions in regards to how ambidexterity develops over time across domains. The theory-building process occurs via recursive cycling among data from two case studies,

emerging theory, and existing literature (Eisenhardt & Graebner, 2007). The cases are thus used to develop theory inductively; theory is situated in and developed by recognizing patterns of relationships among constructs within and across cases as well as their underlying logical arguments. In line with previous inductive research, I took the following steps in this study: First, I studied exploration and exploitation in two case firms. Secondly, I conducted an extensive review of the literature on organizational ambidexterity to help guide the third step, which was the development of a set of research propositions in regards to how ambidexterity develops across time and domains. Choosing *USA Today* and *Nettavisen* as case studies was motivated by theoretical and practical considerations. Given that the purpose of the paper is to develop theory, rather than test it, theoretical sampling is appropriate, and the two cases were chosen because they are unusually revelatory in regards to ambidexterity (Yin, 1994). *USA Today* has frequently been used in the literature as an example of an ambidextrous firm, which meant that for practical purposes, rich secondary empirical data was available. From a theoretical point of view, *USA Today* has been framed as an example of structural ambidexterity, but I was interested in examining what happens over time as the firm pursued integration strategies in line with ideas from contextual ambidexterity. *Nettavisen* is interesting as a case study because it is an Internet start-up that, over a 20-year period, has competed in a mature industry with legacy firms. From a theoretical point of view, this allows for a deeper understanding of how ambidexterity develops over time not only through organizational solutions but also through inter-firm networks. From a practical point of view, rich secondary as well as primary data were available, enabling this study to consider multiple levels of analysis. For the *USA Today* case, I relied on secondary data from multiple sources. These included previous studies, historical records, press clippings, and yearly reports. For the *Nettavisen* case, I used secondary data as well as primary data from a 10-month study in which I visited the firm on multiple

Table 1: Interviewees and their association with *Nettavisen*

| Interview # | Association with <i>Nettavisen</i> in 2014 (except as stated) | Date | Duration |
|-------------|---|----------|-----------------|
| 1 | Chief Executive Officer | 06/12/13 | 58 mins |
| 2 | Chief Executive Officer | 06/01/14 | 1 hour 34 mins |
| 3 | CEO at <i>Dagsavisen</i> - an alliance partner | 06/01/14 | 1 hour, 12 mins |
| 4 | Chief Executive Officer | 27/01/14 | 44 mins |
| 5 | Sales director | 28/01/14 | 52 mins |
| 6 | Innovation manager | 28/01/14 | 50 mins |
| 7 | CEO at <i>Dagsavisen</i> - an alliance partner | 28/01/14 | 45 mins |
| 8 | CFO at <i>Dagsavisen</i> - an alliance partner | 28/01/14 | 48 mins |
| 9 | Editor-in-Chief at <i>Dagsavisen</i> - an alliance partner | 29/01/14 | 1 hour, 9 mins |
| 10 | Editor | 10/03/14 | 45 mins |
| 11 | Editor at <i>Dagsavisen</i> - an alliance partner | 11/03/14 | 45 mins |
| 12 | CEO at <i>Dagsavisen</i> - an alliance partner | 12/05/14 | 1 hour |
| 13 | Chief Executive Officer | 14/05/14 | 30 mins |
| 14 | Chair of the Board of Directors, <i>Nettavisen</i> | 14/05/14 | 45 mins |
| 15 | Member of Board of Directors, <i>Nettavisen</i> | 14/05/14 | 45 mins |
| 16 | Member of Board of Directors, <i>Nettavisen</i> | 14/05/14 | 46 mins |
| 17 | Chief Executive Officer | 24/04/15 | 30 mins |

occasions and conducted interviews with the management team as well as other industry experts to triangulate my findings. I also conducted a number of visits and interviews at *Dagsavisen* prior to the alliance with *Nettavisen*. I used qualitative techniques to analyze the data, informed by the broad and deep research into ambidexterity. One benefit of using multiple cases is that they may create a more robust theory, given that the propositions are more deeply grounded in varied empirical evidence. In line with suggestions from Eisenhardt and Graebner (2007), the overarching organizing frame of this paper is thus theory, and each part of the theory is developed in sections by distinct propositions in such a way that each is supported by empirical evidence.

THEORETICAL FOUNDATIONS: ORGANIZATIONAL AMBIDEXTERITY—A SOLUTION TO THE EXPLORE/EXPLOIT DILEMMA?

In the strategy, management, and organizational literature, ambidexterity is broadly used to refer to the idea that organizations must balance dual needs—e.g., short- and long-term objectives (Duncan, 1976); exploring new opportunities while simultaneously exploiting existing business (March, 1991); simultaneously pursuing incremental and radical innovations (Tushman & O’Reilly, 1996; He & Wong, 2004); adapting to changing business environments while aligning current operations (Gibson & Birkinshaw, 2004); exploration and exploitation in product and market domains (Voss & Voss, 2012); competing with dual business models in one industry (Markides, 2013); and simultaneously pursuing mature and new technologies, markets, and offerings (O’Reilly & Tushman 2013). Even if the precise meaning of these different framings may be ambiguous (Is exploitation the same as alignment and incremental innovations in the examples above? Conversely, are radical innovations, adaptability, and exploration really synonyms?), what these framings arguably all have in common is that they point to the conflicting nature of the construct: Ambidexterity is the capacity for organizations to address to inconsistent—or even directly incompatible—objectives equally well (Birkinshaw & Gupta, 2013; See Table 2).

The concept is today perhaps most commonly attributed to Tushman and O’Reilly (1996), who proposed that the ambidextrous organization could pursue evolutionary and revolutionary change simultaneously by structurally separating exploratory units from exploitative units, allowing for contradictory processes, structures, and cultures to live side by side and prosper within one firm. Since then, the ambidexterity concept has been expanded upon to include at least three conceptually distinct solutions to the explore/exploit problem on firm level:

Table 2: Conflict framings in the ambidexterity literature

| Ambidexterity conflict | | Studies making use of this framing | Definition of ambidextrous firm |
|---|------------------------------------|--|--|
| Evolutionary change | Revolutionary change | <i>Tushman and O'Reilly (1996)</i> | Ambidextrous organizations are those able to implement both evolutionary and revolutionary change |
| Incremental innovation | Radical innovation | <i>O'Reilly and Tushman (2004); Van Looy, Martens, and Debackere (2005); Andriopoulos and Lewis (2009)</i> | Ambidextrous organizations are those that manage both exploration and exploitation activities, accomplishing both incremental and radical innovation |
| Alignment | Adaptability | <i>Gibson and Birkinshaw (2004)</i> | Ambidextrous organizations are those where individuals have the capability to simultaneously demonstrate alignment and adaptability across an entire business unit |
| Exploitative activities | Explorative activities | <i>Smith and Tushman (2005); Mom et al. (2007); O'Reilly et al. (2009); Mom, Van Den Bosch, and Volberda (2009)</i> | Ambidextrous organizations build internally inconsistent architectures and cultures into different, separate business units so that the firm can both explore and exploit |
| Exploit existing competences | Explore new competences | <i>Lubatkin et al. (2006); Carmeli and Halevi (2009); Turner, Swart, and Maylor (2013); Nemanich, Keller, and Vera (2007)</i> | Ambidexterity is the ability to jointly exploit existing competencies as well as explore new ones. These two facets of organizational learning are considered inseparable |
| Exploit existing product-marked domains | Explore new product-marked domains | <i>He and Wong (2004); Judge and Blocker (2008); Cao et al. (2009); Voss and Voss (2012); Patel, Messersmith, and Lepak (2013)</i> | Ambidexterity is the firm's innovation orientation, with respect to the introduction of new products/markets (exploration) and the improvement of existing products/markets (exploitation) |
| Dual business model in one industry context | | <i>Markides and Oyon (2010); Markides (2014) Bøe-Lillegraven (2014)</i> | An ambidextrous organization is capable of competing with dual business models in the same industry |

Temporal/Sequential Ambidexterity

The temporal/sequential view suggests that firms become ambidextrous by rhythmically shifting their relative emphasis on exploration and exploitation over time in response to environmental changes—disruptions—but will invariably gravitate to a state of equilibrium and stable, predictable performance (Tushman and Romanelli, 1985; Brown and Eisenhart, 1997; Siggelkow and Levinthal, 2003; Boumgarden et al. 2012; Goosen et al. 2012). In this view, a disruptive event (such as a new technological paradigm) may trigger a short, turbulent period of radical innovation, but experimentation and exploration will invariably over time mature into exploitation—i.e., the new loses its novelty over time, and aligns with the old paradigms either by complementing or replacing these. Firms will always tend to seek a state of equilibrium and keep doing what they do well already—exploit current knowledge, technologies and product/market domains (Carroll and Teo, 1996; Christensen & Bower, 1996; Tripsaas 1997; Christensen 1997; Audia et al. 2000; Foster & Kaplan, 2001). A potential problem with this need for consistency and stability is that companies can become trapped in suboptimal stable equilibria, which may be self-destructive in the long run (March 1991). This sequential model may be useful to describe firms in stable, slower-moving environments, but may be less effective in more dynamic environments, where there is a need for fast-paced change and a stable equilibrium cannot be found. Accordingly, this somewhat static model was further developed by a series of studies in the 90s that investigated the implications of a continuously changing organization. For example Brown and Eisenhart (1997) suggested that firms in dynamic environments may use organizational semi-structures, which are flexible enough to allow for change, but also provides enough structure to prevent chaos. These firms go through sequenced steps—where the relative emphasis on exploration and/or exploitation shifts over time as individual managers vacillate between organizational structures to achieve high levels of exploration and exploitation—

albeit with inconsistent balance (Siggelkow & Levinthal, 2003; Gulati & Puranam, 2009; Boumgarden et al. 2012).

Structural ambidexterity

Tushman and O'Reilly (1996) suggested that firms might find superior performance through an ambidextrous organizational design, where competing and inconsistent structures live side-by-side in an organizational form that matches the complexities of the firm's environment. The authors used an innovation framing for the explore/exploit tensions, introducing the idea of *explorative innovation* (experimenting with new products, markets and technologies) and *exploitative innovation* (improving existing products, markets and technologies). Since then, a number of studies have used this innovation framing (Adler, Goldoftas & Levine, 1999; McGrath, 2001; Katila & Ahuja, 2002; Rothaermel & Deeds, 2004; Yang & Atuahene-Gima, 2007; Rothaermel & Alexandre, 2008; Burgers, Jansen, Van den Bosch & Volberda, 2009; Sarkees & Hulland, 2009; Tushman, Smith, Wood, Westerman & O'Reilly, 2010; Phene, Tallman & Almeida, 2012). In this view, a separate organizational spin-off unit may be created for exploration, allowing the parent organization to devote her attention and resources to exploitation—honing practiced skills to run the existing business faster, cheaper and more efficiently. Meanwhile, the spin-off organizational unit is given resources and the autonomy to follow its own trajectory; explore new possibilities even if they have distant or uncertain outcomes. In this view, the ambidextrous firm does not switch between periods of exploration and exploitation, but engage in both simultaneously through the means of structural separation fundamentally different organizational units, which may be linked through targeted integration and senior management. “These internally inconsistent architectures are physically, culturally, and structurally distinct from each other” (Tushman et al., 2002, p. 8). This structural separation may allow explorative and exploitative units to adapt to the specific needs of their

respective task environments (Burns and Stalker, 1961; Lawrence & Lorsch, 1967). Exploitative units are built for efficiency, whereas the exploratory units improvise and experiment with new opportunities.

Contextual Ambidexterity

This structural view of ambidexterity has later been challenged, as organizational scholars have shifted focus from seeing exploration and exploitation as contradictory tensions that require a trade-off (either/or) to paradoxical (both/and) thinking. Gibson and Birkinshaw (2004) suggest processes and systems can be put in place to balance the contrasting demands of exploration and exploitation, and introduce the concept of contextual ambidexterity, which the authors define as *the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit*. Ambidexterity is achieved not through the creation of dual structures (as in structural ambidexterity), but by managers empowering lower-level individuals to make their own judgments about how to divide their time between conflicting demands for exploration and exploitation. In this perspective, superior firm performance depends not on formal structures, but by building a carefully selected set of systems and processes that collectively promotes trust, discipline, stretch, and support to allow the meta-capabilities of alignment and adaptability to flourish, sustaining business-unit performance. Contextual ambidexterity is seen as a characteristic of a business unit as a whole, but “manifests itself in the specific actions of individuals throughout the organization” (p. 211). When contextual ambidexterity has been achieved, every individual in a unit can deliver value to existing customers in his or her own functional area, but at the same time pay attention to changes in the task environment, and acts accordingly. Gibson and Birkinshaw (2004) argue that this is a more sustainable model than structural differentiation because the contextual concept entails ambidexterity across the whole organization—i.e.,

everybody's doing it. The authors argue that contextual ambidexterity should thus be a key driver of business-unit performance over the long term.

HOW DOES AMBIDEXTERITY DEVELOP OVER TIME?

Even if the temporal, structural and contextual approaches to ambidexterity are positioned as conceptually distinct, several studies have suggested that these approaches may not be mutually exclusive ways of dealing with the explore/exploit problem. Rather, firms may use combinations of these over time (Laplume & Dass, 2009; Raisch, 2008; O'Reilly, Harreld & Tushman, 2009; Kappillua 2010; Boumgarden et al. 2012; Goosen, et al., 2012). For example, a structural separation may enable organizational spinouts to explore new opportunities relatively free of the inertial forces of the parent company. Over time, firms may switch to more integrated structures to leverage resources and synergies across units in line with ideas from contextual ambidexterity. When the next wave of technological disruption appears, firms may once again decide to spin out new exploratory units and so forth. This line of argument is supported for example by Siggelkow and Levinthal (2003) who challenged the idea of a lasting structural solution to the ambidexterity dilemma, suggesting exploration and exploitation is not achieved simultaneously through permanently distinct organizational features, but rather sequentially by firms adopting different organizational structures that match the firm's current business environment. The authors found that if explorative and exploitative activities are closely interconnected, neither a centralized nor permanently decentralized organizational structure leads to high performance. Rather, a temporary decentralization of exploratory activities, enabled by an appropriate organizational structure, followed by refinement and coordination, enabled by a different structure, followed by reintegration, yields the highest long-term performance. In other words, to

preserve diversity as well as to permit the transfer of best performing ideas throughout the organization, units may shift between structural and contextual ambidexterity. Thus the arguments from the literature lead me to suggest:

Research proposition 1: Firm-level ambidexterity solutions suggested by the literature may not offer a lasting resolution to the explore/exploit dilemma.

To illustrate how ambidexterity develops over time, consider the case study of *USA Today*, which has become an archetype of the ambidextrous organization (See Tushman et al., 2002; O'Reilly and Tushman 2004; Smith et.al 2010; Boumgarden et al. 2012; O'Reilly and Tushman 2013).

Exploration and exploitation at *USA Today*

Established in 1983, *USA Today* had quickly grown into one of the most popular and profitable newspapers in the USA. However, by the mid-1990s, the firm was faced with increased competition from Web-based news sources. In 1995, an independent online unit was spun out, free to explore digital opportunities. The online manager build a distinct organization physically separate from the parent firm with staff hired from outside, building a fundamentally different set of structures, roles, incentive and culture all dedicated to instantaneous news that might or might not come from the newspaper. The well-documented case provides rich insights into the conflicts involved when the online manager, over the five-year period from 1996 to 2001, increasingly pushed for complete independence from the parent newspaper to be free to fully explore the possibilities offered by the emerging digital technologies.

However, by 2000 the head of the parent print company, Tom Curley, saw things differently, wanting to leverage resources across print and online operations as he felt the online market was similar to the newspaper, and “separateness equals

death” (Tushman et al., 2001a, p. 13). Curley decided to replace the online manager (along with 40% of other existing managers) with a senior team that fully supported his own network strategy which included a series of integration efforts to help facilitate senior leadership cooperation, training, shared incentives and re-allocation of resources. Online operations were integrated into the parent organization, but allowed to remain a distinct online unit within *USA Today*—albeit with a fundamentally different set of structures, roles, incentives and cultures. This case is used as an example of how structural ambidexterity resolves the explore/exploit conflict by putting in place dual operational units, and that this ambidextrous organizational design in turn may be linked to improved firm performance (Tushman et al. 2002).

But one part of this story that is rarely told is that by 2001, *USA Today* print sales were down for the first time in the 20-year history of the firm. The decline continued into 2002, with Curley quitting early in 2003. So even if the structural solution had at one point in time addressed the ambidexterity dilemma on an organizational level (at least from the viewpoint of senior executives or even the researchers), it seems as though there still remained some fundamental conflict between the legacy print and emerging online business. Integration efforts continued over the next years, culminating with a structural merger of online and print operations in 2005, eliminating any remaining autonomy between the two groups. By 2005, the opportunities to exploit cost savings through integration simply overwhelmed any gains from separation (Boumgarden et al., 2012). *USA Today* print and online had become a single integrated unit with no separate structures of any form. Over the next decade, print and online would continue to work together, with the print side of the business steadily declining (failing to show year-over-year growth after 2006) while the digital product portfolio of *USA Today* continued to grow to include both mobile and tablet products. In 2015, it was announced that print operations would be spun out to protect its digital

businesses from the decline in print advertising. In effect, the online spin-out had matured to overtake the parent company.

Shifts Between Structural and Contextual Ambidexterity over Time

Building on the empirical evidence from the *USA Today* case, Boumgarden et al., (2012) suggest firms go through brief episodes of structural ambidexterity (where managers achieve high performance by deliberately emphasizing a structural separation that promotes simultaneous exploration and exploitation), which are contained within broader patterns of organizational vacillation, where managers achieve high performance by sequentially alternating between organizational structures that promote *either* exploration or exploitation. In this view, *USA Today* was only ambidextrous for a few short years between 2000 and 2005, sandwiched between periods with relative emphasis on exploration or exploitation respectively: The period from 1995–2000 was characterized by decentralization and online exploration; the period from 2005 onwards was characterized by integration and exploitation across print and online domains. The authors also argue that structural ambidexterity, as originally conceptualized by Tushman and O’Reilly in 1996, is not sustainable over time, failing to deliver high performance (Boumgarden et al., 2012).

An alternate framing of *USA Today* post-2005 is contextual ambidexterity, which suggests superior performance may be achieved by integrating for example print and online resources across one business unit. The key difference from structural or temporal ambidexterity is that contextual ambidexterity is achieved by enabling and encouraging individuals to make their own judgments as to how best divide their time between the conflicting demands for exploration and exploitation within one integrated business unit. “When such contextual ambidexterity has been achieved, every individual in a unit can deliver value to existing customers in his or her own functional area, but at the same time every

individual is on the lookout for changes in the task environment, and acts accordingly” (Gibson and Birkinshaw, 2004, p. 221). The authors argue that this is a more effective solution than structural separation because it eliminates coordination costs, but also enhances firm performance. So in the *USA Today* case post-2005, individual reporters in an integrated newsroom could for example work exploit their skills at making stories for the print newspaper, but also explore digital opportunities created by new digital technologies such as tablets and so forth.

The conflicting arguments above leaves the question of whether *USA Today* through the complete integration of print and online operations in 2005 shifted from ambidexterity to a period of centralized exploitation (Boumgarden et al., 2012), or if the firm rather shifted from firm-level structural ambidexterity to contextual ambidexterity (Gibson and Birkinshaw, 2004). To help shed some light on this question, it is helpful to go back to the original conceptualization of ambidexterity, defined as the ability of a firm to address conflicting objectives, and more specifically “to compete in mature technologies and markets where efficiency, control, and incremental improvement are prized and to also compete in new technologies and markets where flexibility, autonomy, and experimentation are needed” (O’Reilly and Tushman, 2013, p. 324). The key word here is *conflict*—implying that when firms choose to explore new business, then the old business suffers, and vice versa. This suggests that the ambidextrous firm must live with conflict and inconsistencies; accept and embrace uncertainty; and manage (not necessarily do away with) the tensions that exist between contradictory or inconsistent products, markets, technology and their associated resources, which both may be necessary for long-term organizational success. No conflict, no ambidexterity. By this definition, I would argue *USA Today* remains an ambidextrous firm to this date. Here is why.

Conflicting technologies. As noted, Internet technologies represented a paradigm shift in the mid-1990s, igniting a period of frantic online exploration. As documented by the USA Today case study, by 2000 the newspaper industry was starting to feel the disruptive effects (Christensen, 1997) of digital technologies, and since then there have been several “waves” of potentially disruptive technologies that keep eroding the legacy printed newspaper business, including laptops (portable PCs), smart phones, tablet devices, and more recently wearables, as well as smart-TVs. These impact at the industry, corporate, business unit as well as individual levels. So while the technologies involved in making the printed newspaper have mostly evolved through incremental innovations over the past 20 years, the innovation frontier in the digital space has been constantly moving. This technological conflict is still ongoing, and as Lewis (2011) points out, the ambidexterity tensions may increase in complex settings with overlapping technological paradigms. A particular challenge for the newspaper industry in the digital age is the ongoing shift from manufacturing to a technology/service-oriented business logic, where previous studies have shown that organizational ambidexterity is important for firm performance (Junni et al., 2013).

Conflicting products/markets. The newspaper industry is particularly illustrative of the dilemmas involved (For other studies into product/market conflicts, see for example Cao et al. 2009; Judge and Blocker 2008; Patel, Messersmith, and Lepak, 2013; Voss and Voss, 2013) when introducing and branding new digital products that could potentially replace existing products. For example, it seems that newspaper firms must make some tough choices in regards to having print and online products be complementary, mutually exclusive, or even directly competing duplicates. The same issues also appeared more recently when considering product strategies across online, mobile and tablet products. As Tushman et al. (2004) noted, the potential cannibalization of the existing print

newspaper products by the exploratory innovations can lead to active resistance to exploration. The choices made about the new products will also in turn have implications for which market segments they should target. Simply put: should the digital product portfolio be offered existing market segments, or aimed at new markets and consumer segments? .

Conflicting business models. The challenges in balancing dual, conflicting business models have been well documented (See for example Markides 2013; Markides & Charitou, 2004; Markides & Oyon, 2010; Bøe-Lillegraven, 2014). In the case of the newspaper industry, online news sites offer instantaneous, free news, while you have to pay to read yesterday's news in the print newspaper, which is distributed to your doorstep. Also, online business may enjoy healthier profit margins than the print business (mostly due to not suffering printing and distribution costs), but the online turnover is still nowhere near the cash flow from the print side of the business. More recently, a trend of online paywalls; i.e., subscription-based digital products have been introduced by a number of newspaper companies probably in an effort to resolve the conflicts of balancing dual business models.

Resource conflicts. The *USA Today* case is in the literature framed as a conflict involving the allocation of editorial resources between print and online operations responsible for putting out the products. However, the discussion above suggests that this conflict was also played out in other parts of the organization. For example, it seems highly likely that the *USA Today* marketing department was also experiencing a conflict between print and online advertising. Should this be resolved by a structural separation of sales resources responsible for print and online respectively, or should these be integrated, in line with ideas from contextual ambidexterity? Similarly, the technology department was probably also

facing a dilemma in regards to putting in place shared technology platforms across print and online versus creating more specialized IT tools for each publication platform. As noted, the industry is shifting towards a high tech/service orientation, and IT resources must also be allocated accordingly. Should the technology be bought or developed in-house? And finally, it also seems likely that the dual business models could create quite some dilemmas for the business side of operations. After all, the continued survival of any firm is dependent on financial viability, which in turn affects future resource investment.

I further agree with Markides (2013), who argues that without explicitly accounting for such conflicts and inherent paradoxes, the concept of ambidexterity loses all meaning. This implies that empirical research into dualities where such profound conflicts are absent (for example where researchers found that firms could pursue high levels of two activities concurrently rather than managing trade-offs between them)⁷ may in fact be studying anything but ambidexterity. Rather, firms trying to balance old and new business over time face a series of difficult choices, and the firm-level ambidexterity solutions suggested by the current literature may not offer lasting resolution to the explore/exploit dilemma, but rather offer temporary relief at one particular point in time while conflict is slowly brewing somewhere. This suggests:

Research proposition 2a: The firm motivation for structural integration to achieve ambidexterity changes over time.

Research proposition 2b: If the organization is able to remain ambidextrous over time it will continue to consolidate structurally. If not, the solution will be structural separation

⁷ Beckman, 2006; Jansen, Van Den Bosch, & Volberda, 2006; Lavie & Rosenkopf, 2006; Lubatkin, Simsek, Ling, & Veiga, 2006.

The recent spin-out of the print operations at *USA Today* support this proposition, suggesting that even after 20 years of print exploitation and digital exploration, the conflicts between these still exist today to a degree that they could not be resolved within one integrated organizational context where the explore-exploit dilemma was relegated to individual employees. So the firm-level solutions put in place by senior management may have introduced tensions one level down in the organizational hierarchy. However, the *USA Today* case post-2005 lacks individual-level data to give further insights into this.

But if the ambidexterity dilemma can be resolved at firm level by delegating the responsibility down to individuals, this also leads to the question of whether ambidexterity could be achieved one level up from the firm level, at the industry level, for example through partnerships between firms with relative focus on exploration and exploitation. It seems reasonable that multiple firms within one industry context may struggle with similar conflicting tasks—*USA Today* was by no means the only legacy newspaper firm exploring online opportunities in the 1990s.

It seems likely that their challenges were similar to those experienced by other legacy newspaper firms at the time, and that there were hard-learned lessons to be shared across the industry, even if firm-specific solutions may differ (Markides, 2013). This leads into the next section, which discusses ambidexterity as a multi-level, nested concept.

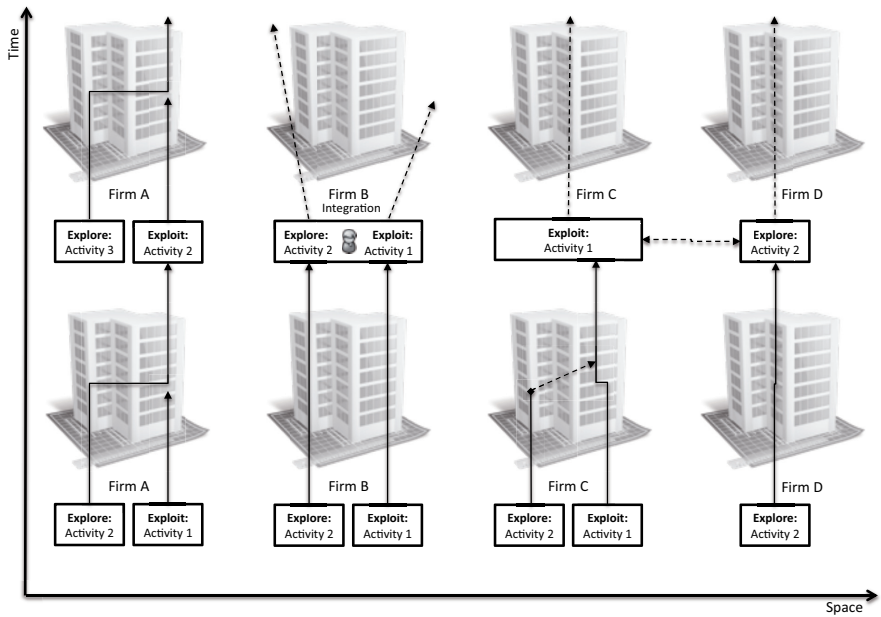
HOW DOES AMBIDEXTERITY DEVELOP ACROSS DOMAINS OVER TIME?

While much of the existing literature on ambidexterity examines large organizations, such as *USA Today*, with the resources to address the

explore/exploit dilemma by for example a structural separation, the deeper challenge of finding an appropriate balance between exploration and exploitation may manifest itself on multiple levels in a nested system (March 1991)—at the individual and organizational levels, but also across the larger ecosystems in which firms operate. Figure 1 on the next page illustrates some possibilities in regards to the distribution of exploration and exploitation across multiple firms across an industry context over time.

- For example, if Firm A is simultaneously exploiting Activity 1 while exploring Activity 2 (structural ambidexterity), it seems likely that over time, Activity 1 may be discontinued, and Activity 2 matures into exploitation as the organizational becomes skilled at it. The innovation frontier may then move to a new Activity 3 to be explored. This suggests that the ambidexterity conflicts may persist over time, but involve shifting sets of activities.
- Conversely, it seems possible that a particular set of conflicting activities may retain their exploratory or exploitative nature over longer periods—see firm B in the model. One example could be the print/online framing used in the *USA Today* example in the previous section. The theory then suggests that firms may deploy a structural separation, followed by integration efforts where individuals are charged with resolving the explore/exploit dilemma on their own, and potentially another cycle of separation if the conflicts between activities 1 and 2 persist.

Figure 1: Exploration and exploitation distributed over time and space



- It also seems likely that some firms may at one point in time explore activities that did not pay off, and discontinue these over time. The firm may then fall back on tried and tested activities, perhaps with some lessons from failed experiments. See firm C.
- And finally, it also seems possible that some firms may pursue continuous experimentation and exploration without settling down to exploit the benefits at any given point in time—see Firm D in the model.

The model also illustrates how a particular activity, which at one point in time as regarded as exploitation by one firm, may at another point in time be regarded as an explorative activity for another firm. It also seems possible that the same activity could be regarded as both exploration and exploitation at the same point in time when undertaken by two different firms.

This leads to the idea of inter-firm ambidexterity: it also seems possible that if for example Firm C at some point in time has settled for only exploitation of Activity 1, then it should be possible to achieve some sort of inter-firm balancing of exploration and exploitation through targeted integration through an alliance with Firm D, which focuses on exploration of Activity 2. Accordingly, across an industry context, the balancing of exploration and exploitation may be achieved at the level of the broader social system by certain firms one level down, taking the role of industry front-runners (or explorers), experimenting with radical innovations, which may be distributed within the firm's larger industry ecosystem for subsequent exploitation through network innovation (O'Reilly and Tushman, 2013).

To illustrate how ambidexterity develops across domains over time, I will use the case of *Nettavisen*, an online start-up that has competed with legacy newspaper firms in the online space since 1996:

Exploration and exploitation at *Nettavisen*

In 1996, three entrepreneurs started *Nettavisen* (Norwegian for *Online Newspaper*) as the first independent online news site in Norway. The ambition was to be a direct competitor to the legacy newspaper firms. The start-up quickly grew in size, securing a position as the second-largest news site in Norway by early 1998. With no legacy business to protect, *Nettavisen* was free of any concerns of cannibalizing existing markets and products, allowing the start-up to focus on attracting as many people as possible to their Internet site by whatever means possible. *Nettavisen* had the freedom to publish news instantaneously as they happen—and important competitive advantage over the news sites managed by newspaper publishers who had to think about that news should be saved for tomorrow's paid printed products. A number of early online innovations were developed by *Nettavisen*, such as live sports scores, stock tickers and also ad-free

products. In a booming Internet economy, *Nettavisen* was an attractive investment object.

In 1999, a Swedish Internet company acquired *Nettavisen* for 180 million NOK, and then only a year later, the firm changed hands again, this time to the German company Lycos. However, when the dot-com bubble burst in 2002, failing revenues and stagnant market growth hit *Nettavisen* and its owners hard. By this time, the firm was also losing market shares compared to the larger legacy news companies, and was put up for sale by the German owners, carrying a deficit of 500 Million NOK. In 2002, *Nettavisen* was acquired by TV2, a Norwegian broadcasting company for a 30 million NOK, and fully integrated into their online operations. TV2 had ambitions to become a leading online site, and saw the strategic value of acquiring and integrating the *Nettavisen* brand into their existing product portfolio. Over the next couple of years, TV2 acquired or launched a host of new Web sites, and *Nettavisen* no longer played the role as the industry explorer, but became a part of a major broadcast corporation. By 2007, the rebranded site *TV2 Nettavisen* was losing market share despite several years of online investments. In early 2008, the decision was made to spin it out as a separate firm with a staff of about 120 people. The strategic intent of the separation was to improve competitiveness by having TV2 focus more on broadcast-oriented activities, and *Nettavisen* more on pure online services. Shortly after the separation, a series of cost-cutting measures were put into place. At the time, *Nettavisen* already had a yearly employee churn of about 10%, but over the next year, the staff was reduced to about 60 people. For 2008, the net result was a loss of 88.4 million NOK. The spinout forced the firm to focus on being profitable and competitive as a stand-alone unit, and that the timing of the spin-out was such that *Nettavisen* actually came out of the global financial crisis of 2009 in better shape than the legacy newspaper and broadcasting firms, who had all had integrated and consolidated their online operations when the financial crisis hit the

market. In 2009 and 2010, *Nettavisen* was back in position as the third largest online news site, but still ran a net loss of some 33 and 16 million NOK respectively. It was actually not until 2011 that *Nettavisen* became profitable, some 15 years after it was first founded. Part of the reason for this late success was a steady increase in sales revenues, growing traffic and strict cost-control, but also a stream of digital innovations that were disruptive relative to the established business models of the legacy news companies.

In 2012 *Nettavisen* acquired *blogg.no*, a Norwegian blogging community of thousands of individual bloggers that write about various topics ranging from fashion, sports, politics, technology or how to bake a cake. The move caused some industry controversy, as many of the most popular bloggers blended commercial and editorial content. For example: a model might write a blog where she also shares photos of clothing and make-up tips. Increasingly, advertisers such as cosmetics' sponsors and clothing brands want their products associated with specific bloggers who generate long-tail audiences. Similarly, another vertical was created around personal trainers who share their fitness and healthy eating tips. This created interest from other types of advertiser, such as promoting training gear, dietary supplements, and so on. One particular aspect of the business model behind this is that *Nettavisen* and each individual blogger shared the advertising revenues generated from the traffic to the blogger's site, a move triggered by the success of *Huffington Post* (a leading US independent news portal). The blogging strategy has resulted in criticism from other Norwegian news providers, claiming that this dilutes journalistic standards and ethics. Still, *Nettavisen* came out of 2012 with a record profit of 8.5 million NOK from a turnover of 85 million NOK. In 2015, *Nettavisen* made another surprising strategic move, entering into an alliance with *Dagsavisen*, a legacy print newspaper group that for years had been struggling with their online operation. *Nettavisen* has continued to grow into 2015,

pursuing a strategy of differentiating themselves from legacy news firms, while at the same time seeking alliances with likely and unlikely partners.

Exploration and Exploitation Through Alliances and Acquisitions

The case of *Nettavisen* yields some interesting insights into how start-up exploration matures over time and how exploration and exploitation balance across the broader industry context and through inter-firm alliances. In the following, I will discuss tensions across different levels, thus also addressing a basic question: *Is Nettavisen ambidextrous, or has it been at some point in time?*

Early-stage explorative alliances. Starting out in 1996, it seems straightforward to argue that *Nettavisen* was not ambidextrous; the firm did not have a legacy business to exploit, and it was not competing in dual markets with competing products, technologies and so forth—as was the case of the legacy newspaper firms at the time (see the *USA Today* case). Rather, the historical data further suggests that the start-up continued exploring and experimenting with a string of online opportunities over the first five years, gaining a large share in a growing market, but was never able to shift to exploiting this to make a profit⁸.

The first few years of the firm were characterized by creating new business areas that simply did not exist at the time. We developed the first effective online ads and made classifieds markets, quizzes and tests—digital

⁸ But this leaves the question of why the *Nettavisen*'s online exploration in the late 1990s did not mature into exploitation, for example through the cycle of discovery proposed by Gilsing and Nooteboom (2006), where exploration matures into exploitation through a consolidation around a dominant design/technology that triggers a shift from product innovation to process innovation. In the case of *Nettavisen*, the answer seems fairly straightforward: The string of new owners with fresh capital presumably meant that the firm could continue exploring, financed by new entrants into the Norwegian news market, making *Nettavisen* far more successful than legacy firms that stuck to only in-house experimentation. There thus was no need to switch to process innovation and exploitation.

offerings we take for granted today, but that it did not exist anywhere at the time. (Manager interview, 1998⁹)

It is also interesting to note that *Nettavisen* was pushing other legacy newspaper firms to do more radical online experiments to keep up with the start-up. As the manager of one of the competing newspapers noted:

Early online exploration for Norwegian newspapers was of little interest, apart from one significant incident: the launch of *Nettavisen*, which pushed newspaper firms to pursue online experimentation more aggressively than they really were comfortable with at the time. (Krumsvik, 2006)

But the role of industry front-runner also meant that the firm was an attractive investment object, as well as a potential partner for legacy newspaper firms. The historical records indicate that *Nettavisen* entered into a partnership with a competitor already in 1998, when the firm launched the first online classified marketplace in Norway in partnership with *Dagbladet*, a leading legacy newspaper firm.

In a new business environment, it is not unnatural for *Dagbladet* to enter into a close collaboration with a competing business in an area where we have the same interests. Online is affecting our legacy print business no matter if we choose to be part of digital innovation or not. We choose to develop our online offerings based on the premise of this new media, not the old. (CEO *Dagbladet*, Interview 1998)¹⁰

⁹ <http://historienom.no/#/article/3422818356>

¹⁰ <http://historienom.no/#/article/3422818356>

This inter-firm alliance seems to fit with some of the arguments in the previous section, more specifically that legacy firms that unsuccessfully try to exploit new activities over time may seek alliances with firms that are explorative relative to the industry context. But the strategic intent of this particular alliance was joint exploration of value-adding activities up-stream in the value chains of both companies, for example as described by Lavie and Rosenkopf (2006), who in their study of software firms between 1990 and 2001 suggested three domains in which exploration and exploitation may be pursued and balanced in industry alliances: *Function domain* refers to the value-adding activities in alliances, where explorative alliances generate new knowledge, whereas knowledge-leveraging marketing alliances are seen as exploitative alliances; *structure exploration* refers to forming alliances with previous (exploit) or new partners (explore); *attribute domain* refers to exploring alliances with partners whose organizational attributes considerably differ from prior partners. The authors suggest that any time within a given domain, a firm may emphasize either exploration or exploitation, yet across domains and over time, balance is maintained. This framework suggests the *Nettavisen-Dagbladet* alliance was explorative across all three domains; in the functional domain as the alliance was generating new knowledge for both firms; in the structural domain as they were new partners; in the attribute domain because the organizations were quite different and unlike previous partners. Accordingly, there does not seem to be arguments for some sorts of inter-firm ambidexterity where alliance partners have relative focus on exploration and exploitation.

Can explorative capacity be acquired? The acquisition by TV2 marked a significant shift for *Nettavisen*, as the previous owners had also been Internet start-ups. The historical data suggest that the intent of the *Nettavisen* acquisition was clear: TV2 was looking for a new strategic direction and an opportunity to acquire expertise in the online area, given that the broadcasting firm at the time did not

have the know-how needed to match their strategic ambitions of competing in both broadcast and online markets simultaneously.

The only place to be is amongst the top three online news services. We were number eight, and had to invest. (TV2, Manager interview, 2003¹¹).

Acquiring *Nettavisen* was seen as a way for TV2 to integrate specific competencies to address rapidly changing online business environments, in line with ideas from the literature on dynamic capabilities (Teece, Pisano & Shuen, 1997; Helfat, et al., 2007). Several studies have examined under what conditions acquisitions facilitate exploitation and/or exploratory activity by the acquirer firm. For example, Phene et al. (2012), in their study of the semi-conductor business, found that acquisitions are more likely to be tied to an exploitation strategy, as opposed to exploration. Of the 141 acquisition studies, 77 instances resulted in only exploitation by acquirer firms, 6 resulted in only exploration and 8 in both exploration and exploitation (i.e., ambidexterity); the remaining 50 did not demonstrate either exploration or exploitation. In the case of *Nettavisen*, it soon became apparent that the larger broadcasting organization would primarily exploit the knowledge resources and online capabilities of *Nettavisen* to leverage their own objectives as a broadcasting company, rather than explore new online opportunities. Following the merger, TV2/*Nettavisen*'s online offerings shifted focus from exploring digital innovations to light entertainment, sports, cars and travel content. The online staff was kept as a separate unit, but *Nettavisen* management was not represented in the executive leadership at TV2. Arguably,

¹¹ http://www.dn.no/tekno/arkiv/2003/01/23/tv-2s-borsnotering-forsvarte-sprek-nettsatsing#site_container

this points to a shift towards a more exploitative acquisition strategy on the part of TV2, rather than ambidexterity.¹²

Ambidexterity through alliance networks. After being spun out from TV2 in 2008, Nettavisen had to focus on cost control and efficiency to turn the failing business around, but at the same time quickly had to launch a series of new explorative initiatives to secure long-time growth, in line with the ambidexterity concept.

We came up with a dozen new products that were more or less thought-through business ideas. By sorting and analyzing, we managed to launch several large projects in a short time was very important, and in a short period of time was essential for the continued operations of *Nettavisen*. (Nettavisen innovation manager, interview, 2015¹³)

Previous competitive advantages from online innovations and technologies were now also lost, as these had become commonplace in the market. Defying conventional industry logic, the firm captured new markets by exploring a revenue-share business models with new partners, rather than relying on the knowledge and skills of existing organizational resources. More specifically, *Nettavisen* explored a network alliance with thousands of individual bloggers who blended commercial and editorial content to grow revenue-generating new markets. Through the blogging network, *Nettavisen* has become the hub for thousands of one-person businesses, allowing the firm to absorb knowledge from

¹² To fit with contextual ambidexterity, there should be integration between Nettavisen and TV2 staff in one integrated business unit with senior management support; to fit with structural ambidexterity, there would be structural separation where *Nettavisen* unit would be free to explore online opportunities, but with targeted integration mechanisms, as well as senior leader support. The historical data suggest neither of the above.

¹³ <http://historienom.no/#/article/3422818356>

all parts of the network—in line with ideas from Nooteboom et al. (2006), who studied the role of a firm’s alliance network on exploration specifically, finding that a central network position was linked to high exploration performance given partners at a limited technological distance, and when supported by sufficient network density that enhances the absorptive capacity of each individual actor in the network. The logic behind this is that a firm close to the hub of a network gets exposed to different kinds of knowledge and information, creating an opportunity to integrate and exploit potentially unrelated information. This network may thus enable both firm level and individual ambidexterity simultaneously. From the *Nettavisen* firm-level perspective,¹⁴ the individual bloggers are all structurally separated, with targeted integration through their networks, working independently (exploring) new business opportunities through blogging on various topics and blending commercial/editorial content, while *Nettavisen* sits downstream, exploiting and commercializing individual blogs to a larger audience. Many of the bloggers peak in popularity and commercial success within a few months, and then lose audiences quickly, but through the network, *Nettavisen* has access to a constant stream of new opportunities that allow the firm to balance exploration and exploitation. Presumably, the individual bloggers may also use their networks as levers for their own ability to behave ambidextrously (Rogan and Mors, 2014).

¹⁴ The blogging strategy also has implications for the *Nettavisen* organization: rather than maturing into a better-defined organizational structure with clear boundaries, it is becoming more of a networked organization, with loose connections to individual bloggers. Historically, there has been a high employee churn at *Nettavisen*, where employees would stay with the firm for a while before going to work in one of the larger, legacy newspaper firms. This ensures that explorative innovations are disseminated throughout the industry. Gaining experience from *Nettavisen*, a purely online operation is seen as a valuable work experience, rather than a long-term career path (Nettavisen Manager, interview, 2014). Interestingly enough, this high employee churn may be tied to the lasting explorative nature of the firm. In theory, the high personnel turnover works against socialization of new individuals into the procedures and beliefs of an organization, which March (1991) argues will work to reduce exploration. The argument is as follows: New employees and bloggers are on average less knowledgeable than the existing staff. However, even if old-timers know more, this knowledge may actually be to some extent redundant, given it is likely embedded in the organizational code. More tenured individuals are less likely to add new knowledge on the margins—i.e., push the boundaries of exploration. New employees on average know less, but the knowledge they have is more likely to improve the margins, and less likely to be redundant.

For example, the individual bloggers may explore controversial and experimental new types of content, while simultaneously exploiting through advertising on their blogs. It also seems likely that individual bloggers may vacillate between periods of relative focus on exploration and exploitation, in more rapid cycles than higher-level systems.

The success of the network-based blogger exploration, which is subsequently exploited at firm-level by *Nettavisen*, is in contrast with some previous research, for example Siggelkow and Rivkin (2006), who in their agent-based simulation of organizational designs in multi-level firms, challenged that notion that enabling lower-level exploration will broaden the exploration conducted by a firm as a whole. They found that delegating the search for new business opportunities to lower-level individuals might negatively affect exploration for a firm as whole. The more extensively low-level individuals explore, the more effectively they can disregard options that do not serve their particular interests, negatively affecting exploration for a firm as whole. Presumably, the size and transparency of the *Nettavisen/blogger* network means that any opportunity screened out by a particular individual may be picked up by and leveraged by another individual in the network, given a limited technological distance, and high network density. This suggests that higher-level ambidexterity may indeed transpire in a “bottom-up way” where frontline employees take the initiative to shift the exploitation–exploration balance over time though the knowledge inflows from their network (Zimmerman et al. 2015). Similarly, Jansen et al. (2012) suggest successful ambidextrous firms may use allow individuals engage in parallel and simultaneous adaptations to localized demands while exploiting complementarities over time. Their study suggests that individuals can work autonomously and make their own judgment in addressing conflicting demands of exploitation and exploration, but performance improvements are constrained by higher-level decision-making processes.

Research proposition 3: Ambidexterity may be achieved though individual exploration and firm-level exploitation, i.e., the explore/exploit tensions may be resolved across levels of analysis.

Returning to the previously discussed alliance framework proposed by Lavie and Rosenkopf (2006), the blogging alliance is explorative in the functional domain, as the alliance is generating up-stream value as well as new knowledge for both *Nettavisen* and *blogg.no*, but interestingly enough, a closer review of the historical data reveal that in the structural domain, these were not new partners. Rather, the entrepreneurs behind *blogg.no* developed the initial blog technology and concept in already 2003, while working for *TV2 Nettavisen*. However, at the time TV2 was not interested in investing further in blogging, and gave the rights back to the original entrepreneurs. Over the next ten years, *Nettavisen* were in business with the blog owners, leading up to the acquisition in 2011:

Blogg.no needed an industry partner to exploit the opportunities in a growing and increasingly mature market for content marketing and editorial blogging. The merger with *Nettavisen* has subsequently proved to have been a particularly appropriate strategic choice for both parties. (Manager, *blogg.no*, 2012¹⁵)

This is in line with Rothaermel and Deeds (2004), who found that firms may initiate early-stage exploratory alliances to develop products, which later may be brought to market through exploitation alliances, suggesting that a firm's competency that is currently exploited must have been explored at some earlier

¹⁵ <http://kampanje.com/archive/2012/12/nettavisen-kjoper-blogg-selskap/>

time (2004:204). The success of the new *Nettavisen* alliances is further in line with Lavie, Kang and Rosenkopf, (2011), who examined the performance implications of exploration and exploitation in alliances, finding that firms do not typically benefit from balancing exploration and exploitation within the function and structure domain. Rather, improved profits and market value come to firms that balance exploration and exploitation *across* these domains—in this case an explorative alliance (thousands of bloggers) with a prior partner (exploitation). Conversely, the 2015 alliance with the legacy newspaper firm *Dagsavisen* is arguably an exploitative marketing and production alliance with a new partner (exploration).

Nettavisen complements us well and strengthens us where we are weakest. Therefore, this is a good match. (CEO, *Dagsavisen*, interview 2015¹⁶)

Dagsavisen has had some recent success with highly localized print newspapers. Impressed with how *Nettavisen* had managed to challenge the largest legacy national newspaper firms, the new alliance hoped to create a new online market through localized digital content. This suggest that *Nettavisen* as of 2015 may simultaneously play the part of *both explorer and exploiter* relative to different industry partners, enhancing firm performance without structural or contextual solutions, which may be challenging to put in place as well as sustain over time.

Research proposition 4: From the perspective of different alliance partners, a firm may be perceived to be both explorative and exploitative simultaneously.

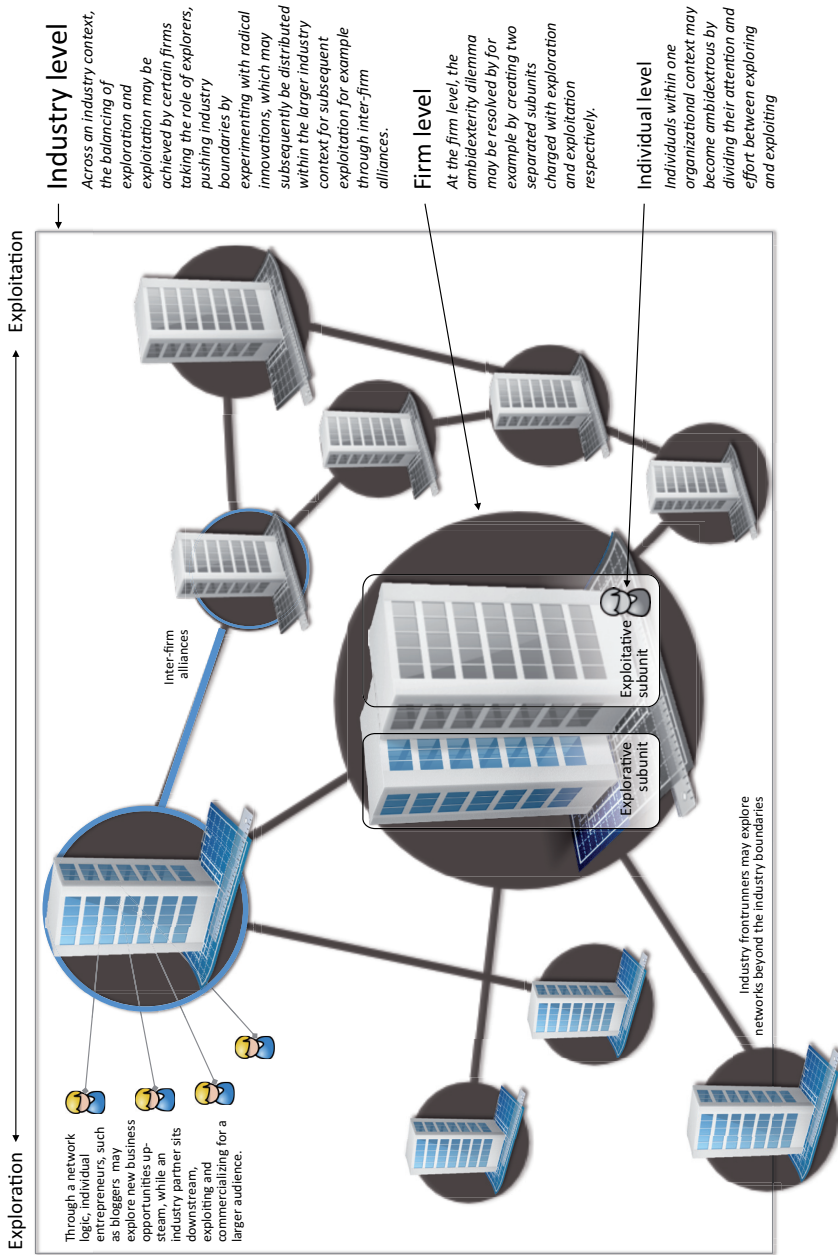
¹⁶ <http://www.nettavisen.no/na24/propaganda/dagsavisen-og-nettavisen-satser-sammen-i-storbyene/3422803961.html>

DISCUSSION AND CONCLUSION:

A RIDDLE, WRAPPED IN A MYSTERY, INSIDE AN ENIGMA

The purpose of this study has been to give some insights onto how ambidexterity develops over time, and how the explore/exploit tensions persist on multiple levels from the individual to the organization, as well as the larger industry context in which a firm does business. I have shown how the ambidexterity concept in itself is a paradox—a *riddle, wrapped in a mystery, inside an enigma*—requiring the acceptance of contradictions and conflicts on multiple levels, where no simple resolution can be found. Through two inductive case studies, I have shown how the firm-level structural and contextual ambidexterity solutions suggested by the current literature may not offer any lasting resolution to the explore/exploit dilemma, but rather offer temporary relief at one particular point in time and space, while conflict is brewing somewhere. This suggests that to unlock the explore/exploit dilemma, researchers may have to move beyond the current focus on organizational ambidexterity to also consider industry and individual levels of analysis. Without understanding and accounting for multiple levels of analysis any proposed organizational solutions to the explore/exploit dilemma will most likely be inadequate. Figure 1 is a conceptual model of such nested explore/exploit tensions across industry, firm and individual levels. This suggests that a firm, which on the industry level may be defined as an explorer (compared to other relatively more exploitative firms), may in turn be defined as ambidextrous on the firm-level of analysis; organizational sub-units may in turn be explorative or exploitative on the unit level of analysis—relative to the firm.

FIGURE 2: The explore-exploit tensions “nested” at industry, firm and individual levels



This nesting logic is replicated downwards through the organizational hierarchy, until we get to the level of the individual employee, which by firm standards may be an explorer, while the individual may in fact, from his or her own perspective, only be leveraging existing individual knowledge, which happens to be considered highly experimental in the particular given organizational context. Accordingly, any research into the explore/exploit dilemma may be complicated by the fact that ambidexterity results from dynamic interactions across multiple levels (Jansen et al. 2009, Mom et al. 2009, Taylor & Helfat 2009; Birkinshaw & Gupta, 2013). For example, in the case of *Nettavisen*, the empirical evidence presented in this paper suggests the firm has over the past 20 years contributed to the balancing of exploration and exploitation in the newspaper industry in Norway by constantly exploring new opportunities. More specifically, the firm may enable inter-firm ambidexterity in an alliance with a partner with relative focus on print exploitation, such as the case with *Dagsavisen*. Simultaneously, *Nettavisen* may also exploit its network position relative to the explorative individual bloggers that experiment with new possibilities with risky outcomes. As Raisch and Birkinshaw (2008) point out: all these levels of analysis are equally valid, but it is important that researchers are aware of possible differences between the level at which the tension between exploration and exploitation is experienced, and the level on which it is addressed Resolving the ambidexterity dilemma at a higher level may actually create a new set of conflicts for individuals further down in the organizational hierarchy (Birkinshaw and Gupta, 2013). For example, even if industry-level balance can be found by some distribution of more-or less explorative and exploitative firms, or through inter-firm alliances, it seems likely that firms constantly exploring industry boundaries over time may still risk carrying most of the cost of experimentation without reaping its benefits. Early-stage exploration at *Nettavisen* illustrates this. Conversely, the more exploitative firms may over time lose their explorative capabilities, as this has been outsourced

to industry partners that may move on or go out of business. One level down, when considering firm-level exploration and exploitation, management may address the ambidexterity dilemma on the firm level, perhaps by using a contextual solution where lower-level employees are charged with dividing their time between exploration and exploitation. Presumably the ambidexterity dilemma is now relegated to the individual level, where tensions may persist (Bøe-Lillegraven, 2014).

This illustrates how the explore/exploit balancing-act is no steady state where a one-size-fits-all-solution can be found; rather firms may use several adaptation modes over time, none of which is fully autonomous or fully integrated. Managers should continuously adapt organization designs and linking mechanisms in response to changes in organizational learning, competitive context, and innovation life cycle maturity (Westberg et al. 2006,). As Markides (2013) notes, the trick is to find the firm-specific, multi-level answers to achieve the delicate balance between exploration and exploitation.

IMPLICATIONS FOR FUTURE RESEARCH

The research propositions above may have some important implications for future ambidexterity research.

Firstly, given that the whole point of the explore/exploit balancing-act is to secure firm survival over time, we need to know more about exactly when and how ambidexterity affects firm performance. Despite hundreds of studies over the past 15 years, there is still much we do not know about the link between ambidexterity and firm performance. Junni et al. (2013), in their systematic analysis of research to date, found that exploitation was linked to profits, whereas exploration was linked to growth. Future studies should consider multiple, fine-grained measures within specific industry contexts to further our understanding of

the ambidexterity-performance linking mechanisms across multiple levels of analysis.

This also leads to another issue for future studies to consider, what I think of as the black box¹⁷ of the ambidexterity concept: *individual* exploration and exploitation. What exactly happens inside an ambidextrous organization? The *USA Today* case suggests the firm may have switched to a fully integrated business unit in line with contextual ambidexterity, but individual-level empirical data is missing. As noted several times in the discussion above, individual employees may at the end of the day end up with the responsibility for dividing their time and attention between what is seen as conflicting tasks from a firm perspective. But does this make an *individual* ambidextrous? Future studies should consider the conflicts individuals face as firms try to do new things, but also consider multiple levels of analysis—i.e., if an individual is engaging in activities that on a firm level may be considered conflicting, does this also make the firm ambidextrous?

When considering individual exploration and exploitation, the issue of ambidextrous leadership also comes up. Tushman and O'Reilly (1996) originally suggested that the ambidextrous firm needs ambidextrous leaders, but it is not clear exactly clear what the inherent conflicts and paradoxes may mean both operational and strategic levels. For example, what is the link between ambidexterity and strategic planning? Do these strategies consider the multiple lines of conflict proposed in this study? Do the complexities of navigating in explorative ventures require more strategy work than navigation the old certainties of the legacy business? Also, in line with the discussion above on how the ambidexterity conflicts may be felt in different places in an organization, it may be interesting to see if there are differences between leaders, for example technology, production, market, and business departments of a firm.

¹⁷ "Black box" is a term commonly used for a closed system that can only be viewed in terms of its input and output without any knowledge of its internal workings.

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Chapter 3

UNTANGLING THE AMBIDEXTERITY DILEMMA THROUGH BIG DATA ANALYTICS

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Abstract: Ambidexterity theory suggests that the ability to simultaneously explore and exploit is linked to firm performance, but more research using multiple, fine-grained measures is needed to further our understanding of the ambidexterity–performance relationship. In this study, I reviewed the existing research on firm performance in the newspaper industry in order to identify the main causal factors in a single industrial context. Three broad categories emerged: media convergence, organizational ambidexterity, and business model innovation. By incorporating variables and arguments from these categories into a basic performance model, I developed a multidimensional conceptual framework of explore and exploit value chains. The article concludes with a discussion of how the ambidexterity framework can be operationalized using big data analytics, and specific recommendations for future research are offered.

Keywords: ambidexterity, exploration–exploitation, organizational performance, big data, analytics capability, organization design

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INTRODUCTION

The ambidexterity premise suggests that organizations capable of exploiting existing businesses while simultaneously¹⁸ exploring new opportunities may achieve superior performance compared to firms emphasizing one at the expense of the other (Raisch & Birkinshaw, 2008; Tushman & O'Reilly, 1996). Over the past 15 years, there have been hundreds of empirical studies linking ambidexterity and firm performance. Junni et al. (2013), in their recent meta-analysis of ambidexterity research to date, found that exploitation was linked to profits, whereas exploration was linked to growth, but they pointed out that it is not clear *when* or *how* ambidexterity affects firm performance. They recommended that future studies should consider multiple, fine-grained measures within specific industry contexts to further our understanding of the ambidexterity–performance relationship (Junni et al., 2013). In this study, I followed their recommendation by examining ambidexterity in the empirical context of the newspaper industry. This is an appropriate context for studying the relationship between ambidexterity and firm performance, given that newspaper firms over the past two decades have embarked on a digital transformation of their businesses to explore the value potential offered by the Internet, social media, and mobile devices while still relentlessly exploiting the legacy print business (Lawson-Borders, 2006; O'Reilly

¹⁸ I would like to thank an anonymous reviewer for pointing the ambiguity of the word *simultaneously*—does this exclude a cyclical emphasis on exploration and exploitation over time? In their original 1996 article, Tushman and O'Reilly introduced the idea of the ambidextrous organization, wherein exploration and exploitation are undertaken at the same point in time by structurally independent units, each having their own processes, structures, and cultures. In a later study, the authors specifically emphasized that ambidextrous organizations do *not* switch between exploration and exploitation; rather, they do both simultaneously (Tushman et al. 2002, p. 9). However, in their 2013 review on the ambidexterity literature, O'Reilly and Tushman expanded the concept to include the idea of a sequential/temporal ambidexterity, which suggests firms may in fact cyclically shift to emphasize between exploration and exploitation over time. I would add that this issue might be highly dependent on the level of analysis. At the firm-level, structurally separate organizational resources may allow for simultaneous exploration and exploitation. However, this may not be feasible at lower levels of analysis (i.e., for individuals). See, for example, Gupta et al. (2006), who argue that exploration and exploitation should be conceptualized as mutually exclusive when confined to a single domain (i.e., individual or subsystem), and that individuals must accordingly shift their attention and efforts between these over time (p. 698).

& Tushman, 2013; Quinn, 2005; Taming & Broersma, 2013). This paper is structured as follows: First, I systematically review past research on the newspaper industry to synthesize what is known about firm performance in the digital age. Three categories of potential causal factors emerge from this review: media convergence, organizational ambidexterity, and business model innovation. Next, I use these factors to develop a multidimensional conceptual framework of explore and exploit value chains in the newspaper industry as well as their interrelations and conflicts. This allows for an in-depth examination of the relationship between ambidexterity (i.e., simultaneous exploration and exploitation) and firm performance. The article concludes with a discussion on whether recent advances in big data analytics—the process of collecting, organizing, and analyzing large sets of data to discover patterns and other useful information—may help firms balance the trade-offs inherent in the ambidexterity framing, potentially reducing the risks and uncertainties involved in exploring dynamic business environments in particular. I also derive some theoretical and methodological implications for future ambidexterity research.

LITERATURE REVIEW:

FIRM PERFORMANCE IN THE NEWS INDUSTRY

To identify relevant literature on firm performance in the newspaper industry, I used the EBSCO host database to conduct a systematic literature review by accessing Academic Search Elite, Business Source Alumni Edition, Business Source Complete, Communication & Mass Media Complete, eBook Collection (EBSCO host), EconLit, ERIC, PsycARTICLES, PsycCRITIQUES, PsycEXTRA, PsycINFO, Regional Business News, and SocINDEX with Full Text. To ensure research quality, the search was limited to peer-reviewed scholarly journals published in English over the period 1994–2013. Table 1 is a summary of the search terms used and the number of articles found. This search

process yielded a total of 593 articles. When duplicates were removed, 358 articles remained. To identify articles that specifically focused on the newspaper industry, I examined all of the 358 articles for their industry context. The industry filter reduced the number of potentially relevant articles to

| Table 1: Search terms used | <i># of articles</i> |
|-----------------------------------|----------------------|
| Newspaper performance | 109 |
| Newspaper explore exploit | 0 |
| Newspaper ambidexterity | 0 |
| Newspaper business | 235 |
| Newspaper innovation | 43 |
| Newspaper organization | 134 |
| Newspaper management | 84 |
| Newspaper multimedia | 23 |
| Newspaper convergence | 25 |
| Newspaper organization online | 4 |
| Newsroom management | 19 |
| Newsroom organization | 26 |
| Newsroom convergence | 51 |

197. Each of those articles was content analyzed, looking at factors such as type of newspaper, firm performance, organization theories used for analysis, research methodology, empirical sample, and relevant findings (where applicable). The content analysis further reduced the sample of articles to 33 that specifically addressed firm performance in the context of the newspaper industry. The content analysis suggested that there are three streams of research involving firm performance in the newspaper industry: media convergence, organizational ambidexterity, and business model innovation.

Media Convergence

One prominent media research stream concerns *convergence*, commonly defined as the integration of organizations, products, technologies, and business models among previously distinct provinces of print, television, and online media. In the early 2000s, this stream of research theorized how integrated news organizations could provide superior news coverage and capture lucrative new audiences (Boczkowski, 2004; Deuze, 2004; Fioretti & Russ-Mohl, 2009; Kolodzy, 2006; Lawson-Borders, 2006; Quinn, 2005; Quinn & Filak, 2005; Singer, 2004). Much of the research focus has been on providing a normative,

stepwise model to describe how newspaper firms can integrate their print and online operations to become convergent. Although this is conceptually appealing, the research to date has recognized the fundamental differences between online and print product/market domains that make it difficult for firms and individuals to truly excel at both. Tameling and Broersma (2013), in their review of the convergence literature, noted that the research to date has presented a “fuzzy picture of a confused profession” (p. 21), suggesting that convergence is not an end goal for organizations but rather a continuous struggle to balance journalistic aims and profitability through a fundamental technological disruption. Legacy newspaper firms want to embrace the opportunities offered by digital technologies but have to balance the certainties of their present business model with the uncertainties of a digital future. My review indicated that most convergence studies have been conducted in the social sciences, relied on qualitative data, and offered limited insights into the specifics of newspaper firm performance—in particular, across print/online business domains. One notable exception was Graham and Greenhill (2013), who examined the influence of print/online convergence on the rate of print circulation change for 100 regional newspapers in the United Kingdom. Their regression analysis suggested that established firms with premium pricing, multiple-platform distribution, and free online content had print circulations that declined less than other newspapers. Also, in a study of the relationship between organizational changes and performance in newspaper firms, van Weezel (2009) found that integration and outsourcing positively affected financial performance.

Organizational Ambidexterity

The ambidexterity concept suggests that the simultaneous exploration of new business opportunities and exploitation of existing businesses results in superior firm performance (Tushman & O’Reilly, 1996). Juggling new and old

business is crucial for firm survival over time, but competition for attention and resources still means that explicit and implicit choices have to be made between new and old, as “exploration of new alternatives reduces the speed with which skills at existing ones are improved” (March, 1991, p. 72). The literature has remained divided over whether superior firm performance can be found through the structural separation of exploration and exploitation into separate and distinct organizational units (*structural ambidexterity*); through resource integration into one organizational unit wherein individuals can decide for themselves how to best divide their time between exploration and exploitation (*contextual ambidexterity*); or by firms shifting between long periods of exploitation offset by brief exploratory periods triggered by market disruptions, such as a technological paradigm shift (*sequential ambidexterity*). A number of ambidexterity studies have used case studies from the newspaper industry as a context for studying the tensions between exploration and exploitation (Boumgarden, Nickerson, & Zenger, 2012; O’Reilly & Tushman, 2004, 2013; Smith et al. 2010; Tushman et al., 2002). These studies have defined the print business as exploitation and digital ventures as exploration. In one often-quoted case study, Tushman and O’Reilly (2004) examined how *USA Today*, a legacy newspaper firm, established an independent online operation in the mid-1990s to explore new business opportunities. Due to its poor performance, however, the online venture was later integrated back into the parent print organization, where resources could be leveraged across explorative and exploitative domains. This case has been used as an example of a successful ambidextrous organizational design, suggesting that *USA Today* improved its performance as a result. It is not clear, however, how the ambidextrous organizational design specifically contributed to firm performance. Junni et al. (2013), in their meta-analysis of 69 empirical studies, found that most of the empirical evidence to date was linked to subjective measures of performance through cross sectional survey designs, and thus, they recommended

that future studies consider multiple performance measures and longitudinal data to further examine the mechanisms through which ambidexterity influences performance on multiple levels. Also, ambidexterity scholars have been divided on whether exploitation and exploration involve unavoidable tradeoffs (March, 1991) or if the two factors are orthogonal to each other, allowing firms to choose to engage in high levels of both at the same time (Burton, Obel, & DeSanctis, 2011; Cao, Gedajlovic, & Zhang, 2009).

Business Model Innovation

A third stream of research on firm performance in the newspaper industry concerns business model innovation (Bakker, 2002; Carter, 2009; Eppler & Hoffmann, 2012; Holm, Günzel, & Ulhøi, 2013; Lewis, 2004; Sullivan, 2006; Tang et al., 2011). Holm et al. (2013) defined a *business model* as a conceptual device that helps show how value is created through business processes or, more specifically, “describes the value which a company offers to one or several (segments of) customers, the architecture of the internal processes of the firm, and the network of partners it has built up for creating, marketing and delivering this value in order to generate revenue streams and profit” (pp. 326–327). Disruptive technologies, such as the Internet, have triggered changes in the prevailing business models of newspaper firms. The case studies of two Danish newspaper firms showed these incumbents opening their business models to ideas from outside the company or even the industry (Holm et al., 2013). The flipside of openness is increased complexity and involves a number of trade-offs, as more openness can help drive innovation and diversify revenue streams, but it also makes a firm more dependent on third parties. Although this study was well done, it did not address a key issue for legacy newspaper firms—namely, that of managing two or more possibly conflicting business models simultaneously (Markides, 2013) and how this balancing act affects total firm performance.

Difficulties in operationalizing the business model concept have led to its being used inconsistently, even as it has been applied to a wide range of situations (Harren, 2012; Holm et al., 2013). One notable exception is Tang et al. (2011), who examined how investment in *bricks* (i.e., the newsroom staff and resources that produce news content) helps build *clicks* (i.e., more online visitors and, subsequently, online advertising revenue). The authors conducted an econometric analysis of 12 years of longitudinal data from one multichannel newspaper. The findings showed that the basic success of the online business model depended on the investment in newsroom resources.

DISCUSSION

The literature review indicated that the convergence, ambidexterity, and business model innovation constructs have been used to shed light on the digital transformation of the newspaper industry. But how do these concepts fit together? Should they be seen as complementary perspectives, competing perspectives, or both?

Starting with the convergence construct, much of the research has aimed to provide a normative framework to describe how legacy newspaper firms have responded to technological change and increased market dynamism. In theory, superior firm performance is found through systematically integrating print and online operations, yielding synergistic effects that may improve firm productivity and reduce operating costs as multiskilled individuals work across print and online operations (Quinn, 2005), but the empirical evidence is lacking. This is where the ambidexterity research can help, with hundreds of empirical studies across multiple industries examining how firms can balance exploration and exploitation. More specifically, the convergence concept is in line with ideas from the literature on contextual ambidexterity, which is achieved not through the creation of dual organizational structures but by enabling and encouraging individuals to make

their own judgments about how to divide their time between conflicting demands for exploration and exploitation (Gibson & Birkinshaw, 2004, p. 210). Future media studies could benefit from drawing upon existing ambidexterity literature and theoretical framework (the ambidexterity concept was initially conceptualized through the case study of *USA Today* over the period from 1996 to 2001) to provide perspectives on the challenges the industry is facing. For example, the contextual solution is just one of several approaches to the ambidexterity dilemma. Conversely, many ambidexterity studies have been based on cross industry samples, making it difficult to understand precisely what exploration and exploitation mean in these different contexts (O'Reilly & Tushman, 2013). By drawing on the deep and rich qualitative industry-specific data from convergence research, ambidexterity researchers can get a deeper understanding of what precisely exploration and exploitation mean in this given industry context but also update the somewhat simplistic print exploitation/digital exploration dichotomy that has been used in the existing literature (O'Reilly & Tushman, 2013). Similarly, some recent work suggests that ideas and theoretical constructs from the ambidexterity literature may help guide future research into business model innovation. More specifically, Markides (2013) noted in his article "Business Model Innovation: What Can the Ambidexterity Literature Teach Us?" that one of the issues tackled by the growing literature on business model innovation is that of managing two conflicting business models, such as when legacy newspaper firms balance paid print offerings with free online news. In this context, business model innovation could, for example, be framed as exploration, in line with March (1991). The default solution in the strategy and management literature has been to keep the two business models physically separated into distinct organizations, in line with ideas from structural ambidexterity. However, this approach means that a firm may fail to harvest any potential synergies between the two organizations. Markides (2013) noted that the potential for synergies is contingent upon the

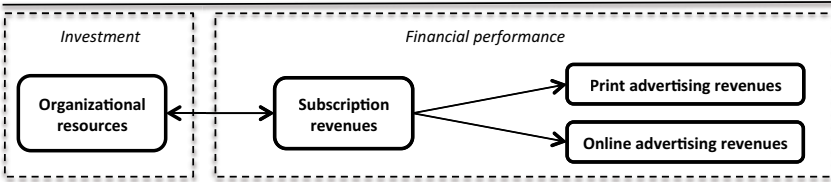
strategic fit of the explorative/exploitative domains served by dual business models, implying that the level of integration needed should vary by the specific firm and industry context and that future research must explore what specific kinds of integrating mechanisms work for what kinds of firms. And, as Markides and Sosa (2013) pointed out, whether a new and innovative business model can be labeled as a success may depend upon which metrics one focuses. Which is better: market growth or profitability measures? To date, no empirical business model innovation studies have examined this question. The ambidexterity perspective can help guide future business model studies by giving rich insights into the actual mechanisms that firms can use to integrate and manage conflicting demands. “There is no sense in ignoring this literature and embarking on research projects that discover the same things that research on ambidexterity discovered over the last 40 years” (Markides, 2013, p. 318). In summary, media convergence and managing contradictory business models is just one of many paradoxical framings that can potentially be nested in the ambidexterity construct.

In the next section, I synthesize factors and arguments from media convergence, organizational ambidexterity, and business model innovation to develop a conceptual framework of explore and exploit value chains in the context of the newspaper industry. This framework allows for a discussion of the various relationships involving ambidexterity and their implications for firm performance.

FIRM PERFORMANCE: EXPLORE AND EXPLOIT VALUE CHAINS

In the digital era, performance management has expanded from using only financial indicators to include complex nonfinancial measures as well (Bititci et al., 2012). My literature review suggested a similar evolution of performance measures in the newspaper business. For newspaper companies, financial performance is based on a 200-year-old business model in which revenues come from two main sources: sales and advertising. Newspaper sales (circulation) are

Model 1: Resource investments and financial performance (Adapted from Tang et al 2011).



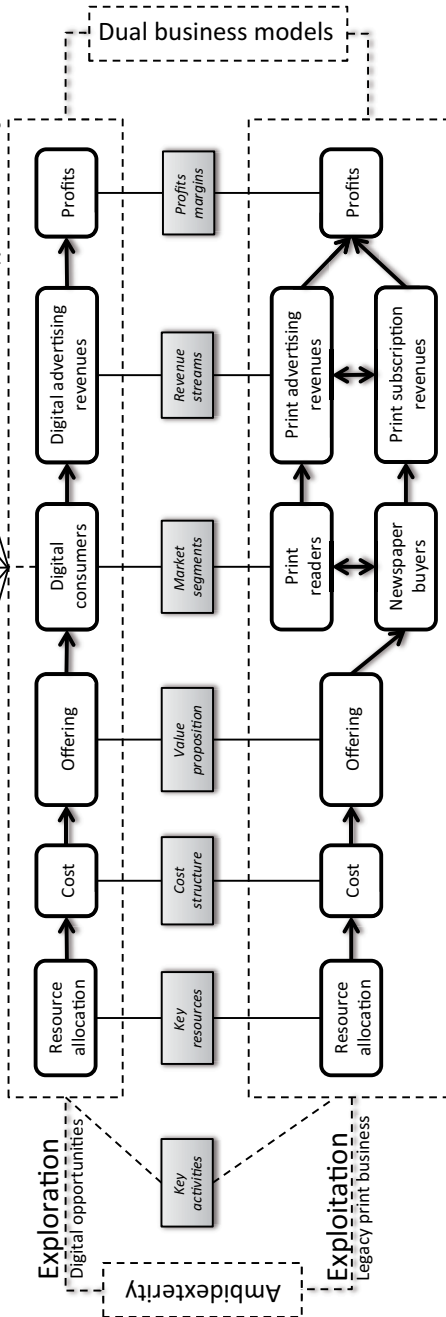
typically either subscription-based (home delivery) or single-copy (at newsstands) sales. The estimated number of total readers typically determines the advertising rates. Conversely, digital revenues for newspaper firms are based almost solely on advertising: The more readers an online site (or other digital product) attracts, the higher online ad rates a company can charge. Online performance measures have evolved significantly from the advent of the Internet until today, from simple measures of online page impressions (how many times a webpage is displayed by a hosting server) to complex measures involving the browsing patterns of individual online users on multiple digital platforms. A resource-based view of a firm suggests that firm resources determine financial performance relative to the competition (Barney, 1991; Otto & Aier, 2013). Several studies have shown a positive correlation between resource allocation and revenues in the newspaper industry (Blankenburg, 1989; Cho, Thorson, & Lacy, 2004; Mantrala et al., 2007; Tang et al., 2011). To differentiate themselves from the competition, and attract large-enough print and online audiences to sustain their businesses, newspaper firms make investments in key resources, which in turn produces high-quality content, which improves market penetration and yields higher revenues (Lacy, 1992). I propose that this basic financial performance model (see Model 1) be updated to include factors associated with media convergence, organizational ambidexterity, and business model innovation.

First, consider factors suggested by the business model innovation literature. Holm et al. (2013) suggested that, in the digital age, newspaper firms must manage the coexistence of their traditional print business model with emerging and potentially disruptive digital business models. They suggest that business model *building blocks* include key activities, key resources, cost structure, market/customer segments, and revenue models. Second, consider the recent theoretical linkages between business model innovation and ambidexterity (Markides, 2013), particularly how the ambidexterity framework can be used to guide research in the industry and address the challenge of managing dual business models simultaneously. Third, acknowledge the conflicting demands ambidexterity places on the exploration and exploitation value chains. These include allocating resources between explorative and exploitative activities, managing diverse product offerings across multiple market segments, and potentially cannibalizing returns from the subscription-based legacy business. Fourth, consider the link between organizational ambidexterity and performance. Previous empirical studies (see Junni et al. 2013 for a summary of these) have broadly linked exploration to growth and exploitation to profits, but how and when ambidexterity affects a firm's value chains remains unclear.

Consolidating all of these variables into a single conceptual framework leads to the multidimensional framing of the exploration and exploitation value chains shown in Model 2. This model takes into account the argument that the ambidexterity dilemma is a nested issue (Birkinshaw & Gupta, 2013; March, 1991; Markides, 2013; O'Reilly & Tushman, 2013) that transpires at multiple levels in a firm and its ecosystem. Next, I will discuss how the model can be used to track and measure the effects of ambidexterity and manage conflicts across the multiple dimensions of explorative and exploitative value chains. In doing so, I will draw upon some ideas from recent research in big data analytics as well as open innovation.

Model 2: The explore and exploit value chains

Holm et al (2013) point to the increasing importance of **partner networks** as firms open up their business models through agreements with other companies to offer and commercialize value. Examples include offering tablet apps that are distributed through the virtual Apple Store, or even more reluctant partnership, such as Google linking to news content directly from their search engine.



- **Key activities** are the different activities a firm undertakes to produce and deliver its value proposition through a value chain.
- **Key resources** are the tangible and intangible assets at a firm's disposal, including people, technology, knowledge, capabilities, information, equipment, etc.
- **Cost structure** refers to the costs of labor, production, distribution etc. in the given value chain
- **Value proposition**: a firm's bundle of offerings and their value propositions, i.e. products, services, distribution channel, level of standardization/differentiation, brand, etc.
- **Market segment**: is the intended target of a value proposition/offering, from entire market population, through differentiated market segments to the individual consumer.
- **Revenue streams**: to survive, a firm must have some source of revenue model, such as a subscription-based, advertising-based, fee-based (pay-per use).
- **Profit margins**: Profits are a function of revenues and cost, and the profit margin indicates the percentage of the revenues that are turned into profits. This measure is mostly used for internal comparison of the risks involved in different activities – for example exploration and exploitation.

UNTANGLING THE AMBIDEXTERITY DILEMMA WITH BIG DATA ANALYTICS

The ambidexterity premise suggests that digital exploration and print exploitation can be undertaken simultaneously for superior performance, but this balancing act is complicated by differences in the distribution of costs and returns across the two value chains, as suggested by Model 2 above. Moreover, outcomes associated with digital exploration are more uncertain than the outcomes associated with print exploitation. I propose that big data analytics can help firms untangle the ambidexterity complexities (i.e., simultaneously explore and exploit). This has some important theoretical as well as methodological implications, which I will discuss in the following section.

A Methodological/Measurement Perspective: Can Big Data Improve our Measurement and Observation of Ambidexterity?

First, it is useful to define exactly what is meant by big data. In a recent review of research into the big data concept in existing strategy, management, business, and performance management literature, Mello et al. (2014) found a surge in academic publications in 2012 and 2013, wherein the term *big data* was most often defined in terms of *volume*, in reference to the magnitude of data that has become readily available in the digital age; *velocity*, in reference to the speed at which data are aggregated, collected, processed, and analyzed; and *variety*, in reference to the integration of different types of structured and unstructured data from multiple sources. In addition, a number of studies have pointed to the importance of *value*, in reference to the value big data actually create for firms, as well as *veracity*, in reference to the inherent reliability and validity of the data. Convenient alliterations aside, the current state of research into the big data concept suggests that scholarship exploring the promise and opportunities for new theories and practices that big data may bring about still remains limited.

Accordingly, a recent article from the editors of *Academy of Management* suggested that the big data concept should be grounded in existing research, as scholars can help unpack how big data can generate business value, as well as the mechanisms through which such value is created (George, Haas, & Pentland, 2014, p. 324). There has already been some empirical evidence linking big data analytics with firm productivity and profitability (e.g., McAfee & Brynjolfsson, 2012), but most of the research to date has been anecdotal and case based, leaving a research gap in regard to exactly how big data can improve firm performance. Interestingly enough, there has already been some work linking big data to the previously discussed business model innovation concept. For example, Hartmann et al. (2014) suggested that big data analytics offer practitioners and scholars the opportunity to dynamically track and measure the outcomes of organizational strategies through two distinct but interrelated performance dimensions: “On the one hand, (big) data is used for the incremental improvement and optimisation of current business practices and services...On the other hand, new products and business models can be innovated based on the use of data” (Hartmann et al., 2014, p. 5). I propose that these two performance dimensions—optimization of current business and innovation in new business—can be framed through the theoretical lens of organizational ambidexterity. Such a framing allows for the application of well-established ideas and concepts from the ambidexterity literature, building on existing, industry-specific research to further our understanding of the ambidexterity–firm performance link in particular in the era of big data analytics.

A review of the ambidexterity literature suggested several empirical studies have deployed a methodological approach wherein large samples of data (500+ firms) are used to document the effects of ambidexterity over time (see, for example, Caspin-Wagner et al., 2012; Geerts, Blindenbach-Driessen, & Gemmel, 2012; Goosen, Bazzazian, & Phelps 2010; Uotila et al., 2008). In this sense, big

data analytics are not new to ambidexterity research, leading to the question of the specific value added by applying the big data concept to ambidexterity. Part of the answer is going beyond size: I agree with George, Haas, and Pentland (2014), who noted that the bigness of the big data concept is a bit of a misnomer, as it attracts researchers' attention to the mere size of the data set. The authors argued that the defining parameter of big data should not be the *bigness* but rather the *smartness* of the data (i.e., the level of insights fine-grained, diverse data can provide, shifting focus from the number of firms sampled to rich, granular information about specific firms or even individual behaviors and actions). More specifically, access to ubiquitous, high-velocity data may allow for the continuous analysis of the microfoundations of ambidextrous activities as they "...evolve on a minute-to-minute, day-to-day basis, rather than being constrained to assessing snapshots such as quarterly inputs and outcomes or sales cycle trends" (George, Haas & Pentland, 2014, p. 325). Big data analytics may thus offer the ability to link resource allocation, cost structure, value proposition, market segments, revenue streams, and profits across explorative and exploitative value chains to help researchers track, measure, and understand in more detail what makes a firm ambidextrous (i.e., simultaneously exploring and exploiting).

A Theoretical Perspective: Can Big Data Help Organizations Manage the Exploration–Exploitation Tension?

The arguments above illustrate how the defining quality of big data is the granularity and the velocity of the data, potentially providing researchers with fine-grained, concurrent information about individual behavior, giving insights into the microfoundations of organizational ambidexterity (Rogan & Mors, 2014). The same insights could also be used to help firms manage the explore–exploit tensions. Moreover, a whole range of advanced analytics can be used to gain further insights from big data, including A/B testing, cluster analysis, forecasting,

data mining, visualization of large data sets, content analysis, and network analysis. For example, if one first consider the allocation of key resources (one of the components in Model 2 in the previous section) across explorative and exploitative domains, big data analytics could track in real-time the efforts of individual employees experimenting with different types of content (e.g., text, videos, photos, blogs, etc.), thereby giving insights and continuous feedback into firm and individual productivity as well as the specific cost structure of each piece of content as it is being produced. Such content objects could then be combined into a particular offering aimed at existing (exploitative) or new (explorative) market segments, which in turn may have very different revenue streams and profits. Building on the example above, an employee working for a legacy print newspaper could spend a full workday experimenting with making a digital, interactive video blog for the Web edition of the newspaper, which would then be subsequently shared on Facebook and Twitter. Through network analysis, it is possible to track in real-time how this particular blog is reposted and viewed by individuals across social media. This information can then be combined with data from Google Analytics to determine the exact amount of ad revenues this particular digital blog generates as it drives traffic to the newspaper website. Through content analysis, A/B testing, and cluster analysis, it can be determined which blog framings or formats yield the most Twitter retweets or website traffic, as well as which Facebook users generate the most story shares and comments through their individual networks. In another example, the reporter could engage in the recent trend of native advertising by writing sponsored stories (e.g., praising a particular product) that would then be published online in a format very similar to an actual news story but, in fact, is a form of paid advertisement. This practice is quite controversial, as readers sometimes have a hard time telling the difference between sponsored stories and “the real thing.” At the firm level, there is also the danger of losing credibility by engaging in paid journalism, but that cost may be

outweighed by the potential ad revenues generated from the native ads. Through big data analytics, the impact of such explorative ventures can be tracked in real time, giving feedback regarding the return on investment of a full-day's work exploring digital media. For firm management, such individual data can then be aggregated to assess the viability of explorative ventures and, thereby, systematically reduce the risk and uncertainty involved in digital exploration, making the returns on alternative resource investments more predictable. The rich data also allow for the examination of *outliers* that may represent the innovation frontier (George, Haas & Pentland, 2014).

Paradoxically, the richness of real-time insights into the effects of digital exploration may actually complicate decision-making in the legacy (print) part of the business, where the available performance data remain largely static and events traditionally unfold at a much slower pace. Even though resource allocation, productivity, and cost structures can presumably be measured in real time in the exploitative value chain, tracking and measuring market performance of the printed offerings in real time is not possible. Instead, that is done through surveys of representative samples of individuals from different market segments to assess if they have read the newspaper or particular sections of it such as advertisements. Such surveys are conducted at regular intervals and are representative of the general population as such; they allow for comparison of competing products as well as the identification of general trends and average tendencies. Similarly, the revenue streams from print business are often based on long-term, prepaid subscriptions. Print advertisers traditionally commit to buying large volumes of advertising space in printed newspapers, often a year at a time. In the digital space, in contrast, advertisers may literally bid for advertising space in real time as an attractive consumer loads a webpage on an online news site. The slower velocity of the data from print exploitation implies that there is no direct linkage or feedback mechanism between individual effort and effect. If returning

to the example of the print reporter who spent a full workday making a digital, interactive blog or a native advertisement, assume this effort came at the cost of him or her creating one less story for the printed newspaper. The incremental effect of this on the print side of the business may be tricky to measure. Most likely, another print story can take its place, and newspaper readers will be none the wiser for it—unless they discover the interactive blog and decide to spend their time reading it instead of the printed newspaper.¹⁹ The arguments above suggest that, when considering the context of the newspaper industry, big data analytics hold the power to reverse the logic of the explore–exploit framework (March, 1991) by actually making returns from experimentation with new digital opportunities more positive, proximate, and predictable. Conversely, the returns from exploiting the existing print business have become more uncertain, distant, and often negative.

SUMMARY AND RECOMMENDATIONS

The main purpose of this study was to address the gap in the current understanding of when and how ambidexterity creates value for firms. Synthesizing arguments from theories of media convergence, organizational ambidexterity, and business model innovation, I proposed a value chain framework that allows for a more in-depth understanding of the interrelations between exploration and exploitation as well as their implications for the ambidexterity concept. The theory suggests that ambidexterity (the simultaneous pursuit of print exploitation and digital exploration—in this case, in the newspaper industry) is linked to superior firm performance, but the empirical evidence has

¹⁹ I would like to thank an anonymous reviewer for pointing out that the blog and the print story need not be substitutes, but rather that the writing of the blog might subsequently lead to the reporter writing a better print story. That is, the two might potentially be complementary. If so, a given investment or action might yield positive returns in both the explorative and exploitative value chains. This is a good example of how insights from big data analytics could have theoretical implications for the ambidexterity concept.

been based mostly on subjective measures of financial performance. My model allows for a more granular understanding of when and how ambidexterity affects firm performance in the context of the newspaper industry. Previous ambidexterity studies have shown that exploration is linked to growth, whereas exploitation is linked to profits. I went beyond these arguments, furthering the current understanding of the interaction mechanisms between six dimensions of the explore–exploit value chains: resource allocation, cost structure, value proposition, market performance, revenues, and profits. I would like to see future empirical studies use big data analytics to test the proposed model at both the individual and firm level of analysis (e.g., by means of A/B testing). It would be useful to examine how the ambidexterity–performance link is moderated at the firm level by alternative resource allocations. For example, what are the specific performance implications of having individuals divide their time between print exploitation and digital exploration, as opposed to specializing in one or the other? Also, what are the firm performance implications of investing in content creators versus advertising/sales resources, Web traffic managers, pricing specialists, conversion rate optimization experts, or data scientists? What is the distribution of costs and returns of such alternative resource investments over time? Big data analytics offer the opportunity to consider the microfoundations of both ambidexterity strategies and activity by allowing for the examination of how business opportunities are simultaneously exploited and explored in real time as well as longitudinally. However, I would argue that the *sine qua non* of big data analytics is the potential to move ambidexterity research beyond its current focus on survey-based industry studies and selected case studies (which yield a great deal of detail but offer limited generalizability) toward more rigorous research designs whereby voluminous and diverse sources of data from multiple time periods can be analyzed to find patterns that the current theoretical models cannot. O’Reilly and Tushman (2013) noted that, as the innovation frontier increasingly

moves outside incumbent firms, the explore–exploit balancing act becomes more complex. In the context of the newspaper industry, the logic of open innovation is fundamentally different from the traditional business paradigm that has sustained the newspaper industry for almost three centuries. Future studies should consider how both incremental and disruptive innovations are distributed in the larger ecosystems in which firms reside. And, as George et al. (2014) pointed out, once such correlative linking patterns are identified, the next big data challenge is to explore causality. Hopefully, the model proposed here offers a theoretical and operational starting point for future studies investigating the impact of ambidexterity as well as big data analytics on multiple levels, from the individual and organizational to the larger industrial context.

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Chapter 4

THE BLACK BOX: AN EMPIRICAL INVESTIGATION INTO INDIVIDUAL PERFORMANCE IMPLICATIONS OF ORGANIZATIONAL AMBIDEXTERITY

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Abstract: In this study, I further the understanding of the contextual ambidexterity concept by examining the link between firm-level ambidexterity and individual activity. Based on a review of the literature, I propose that individual ambidexterity may involve both cognitive and activity aspects. A set of theory-based hypotheses are developed and tested using a methodological triangulation in which I use multiple data sources (observations, interviews, content analysis, archival records, survey and objective performance data) to further the understanding of how individual employees divide their time, attention, and efforts between conflicting tasks and what the implications are for performance. I find that even given firm-level ambidexterity, and a management that encourages individuals to decide for themselves how best to divide their time between exploration and exploitation, most individuals tend to focus on exploiting existing skills rather than exploring new alternatives. I suggest that this may be due to cognitive strain, limitations of attention, and the coordination costs involved in switching between conflicting tasks. The empirical evidence suggests that individual ambidexterity is quite rare but may be linked to top performance.

Keywords: ambidexterity, microfoundations, exploration, exploitation, attention, performance

INTRODUCTION

Theories of ambidexterity suggest that to survive over time, organizations must exploit their legacy business while exploring new opportunities. But despite hundreds of studies over the past 15 years, organizational ambidexterity remains largely a *black box*—a closed system in which little is known of the inner mechanisms—in particular the individual implications of such organizational strategies. One key question that is rarely addressed in the current literature is how individuals manage the competing demands of exploration and exploitation: By which measures can individual employees be ambidextrous, and what are the performance implications? Previous research has indicated that individual exploration and exploitation may enable firm-level ambidexterity and that organizational solutions (such as structural or contextual ambidexterity) may in turn affect individual behavior (Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L., 2009). However, a research gap remains in understanding the relationships between individual ambidextrous behavior and the firm's or business unit's level of ambidexterity, as well as how hierarchical levels and functional areas may moderate such relationships (Mom, T. J. M., Van den Bosch, F. A. J., & Volberda, H. W., 2009). To this effect, this study is guided by the following research question: The current literature highlights the relevance of investigating managers' ambidexterity for increasing our understanding about how to build ambidexterity in a firm, but what about lower-level employees? What are the relationships between individual activity and firm or business unit ambidexterity?

To address this research gap, this study adopts a multiple-level approach to further our understanding of the ambidexterity concept through an in-depth case study of a firm pursuing business-unit integration strategies in line with the contextual ambidexterity concept—that is, rather than structurally separating exploration and exploitation into different organizational units, management encourages individual employees in an integrated business unit to make their own

choices as to how they divide their time between exploration- and exploitation-oriented activities. I examine how individual employees on all levels across an integrated business unit divide their time, attention, and efforts between conflicting tasks, and what the implications are for both firm and individual performance through a methodological triangulation in which I use multiple measures (cross-sectional survey data, observations, interviews, content and productivity analyses, archival records, and performance data), to further the understanding of contextual ambidexterity. My contribution to the ambidexterity literature is as follows: First, I build on arguments in the current literature to propose that ambidexterity may involve both cognitive and activity aspects—that is, what people think and what they do. Secondly, this study suggests that even given firm-level ambidexterity in an integrated business unit, most individuals tend to focus their efforts to improve performance. I suggest that this may be due to cognitive strain, limitations of attention and the coordination costs involved in switching between conflicting tasks. The empirical evidence suggests that individual ambidextrous activity is quite rare and calls into question the viability of the contextual solution to the ambidexterity dilemma. In the following section, I review the state of literature on ambidexterity, focusing on what we know and what we don't know about its theoretical and practical implications for individuals. Next I propose a set of hypotheses to be empirically tested.

RESEARCH INTO INDIVIDUAL AMBIDEXTERITY

The current literature focuses on three broad approaches to how organizational ambidexterity can be achieved: *Temporal ambidexterity* suggests that firms shift between periods of exploration and exploitation over time in response to environmental change; *structural ambidexterity* suggests that firms should create separate, distinct subunits responsible for exploration and exploitation respectively, allowing for focus and specialization; *contextual*

ambidexterity, which is the focus of this paper, suggests that all individuals within an integrated business unit can be enabled to decide themselves how to best divide their time between conflicting tasks of exploration and exploitation. These three approaches to ambidexterity also represent the evolution of the theory, as the focus shifts from the (organizational) macro-level to exploring the micro-foundations of ambidexterity (Eisenhardt, K. M., Furr, N. R., & Bingham, C. B., 2010).

The temporal, structural, and contextual approaches to organizational ambidexterity offer quite different views on individual exploration and exploitation (see Table 1). O'Reilly and Tushman (2008) argued that ambidexterity is rooted not in individual ambidexterity but rather in a complex set of firm-level routines including decentralization, differentiation, and long-term commitments to specialized resources (2008, p. 200). In this view, only senior leaders tackle the ambidexterity dilemma as such. Middle management and individual employees are free to focus their attention and efforts on either exploration or exploitation. In contrast, contextual ambidexterity suggests that it is possible to cultivate an organizational context that encourages individuals to make their own choices as to how they divide their time between exploration- and exploitation-oriented activities. In this view, ambidexterity is seen as a characteristic of a business unit as a whole, which “manifests itself in the specific actions of individuals throughout the organization” (Gibson & Birkinshaw, 2004, p. 211). The authors suggest that ambidexterity is dependent on leaders who nurture and promote individual exploration and exploitation. In this view, individuals on all levels in an organization face the ambidexterity dilemma and have to divide their attention and efforts between the competing demands of new and old business.

The conflicting arguments above point to the need for more research into which individuals end up with the responsibility for resolving the tensions between exploration and exploitation (Birkinshaw & Gupta, 2013).

TABLE 1: Proposed organizational solutions to the ambidexterity dilemma and their individual implications

| Organizational solution to the ambidexterity dilemma | Theoretical implications for individuals | Performance implications |
|---|---|--|
| <p>The temporal/sequential view of organizational ambidexterity suggests that firms must rhythmically shift their relative emphasis on exploration and exploitation in response to environmental changes ("disruptions") or through the direct intervention of senior leaders, but over time invariably gravitate towards a state of equilibrium and stable, predictable performance (Tushman and Romanelli, 1985; Brown and Eisenhart, 1997; Siggelkow and Levinthal, 2003; Bourgeois et al. 2012; Coosen et al. 2012). In this view, a disruptive event (such as a new technological paradigm) may trigger a short, turbulent period of radical innovation, but experimentation and exploration will invariably over time "mature" into exploitation – i.e. the "new" losses its novelty over time, and aligns with the "old" paradigms either by complementing or replacing these.</p> | <p>Accordingly, individuals may also be required to sequentially shift their attention and efforts between exploitation and exploration to match the firm orientation. The transitions between such periods may be experienced as smooth or highly disruptive – most likely relative to the time dimension as well as some aspects of individual as well as organizational capacity/tolerance for change. This temporal view suggests that exploration and exploitation should be conceptualized as two ends of a continuum, and thus will generally be mutually exclusive within a single system, i.e. for an individual (Gupta et al. 2006). In this view, an individual can arguably never <i>simultaneously</i> explore and exploit, but rather shift ("vacillate") attention and focus between the two over extended periods of time.</p> | <p><i>Superior firm performance is found through sequential shifting between exploration and exploitation over time. Superior individual performance is found through similar mechanisms.</i></p> |
| <p>Structural ambidexterity suggests that middle management and individual employees should be further split into separate organizational units, free to focus their efforts, thereby enhancing performance in their respective domains by specialization. For example, O'Reilly and Tushman (2008) argue that ambidexterity is not rooted in an individual's ability to explore and exploit, but rather suggest that ambidexterity "embodies a complex set of routines including decentralization, differentiation, targeted integration, and the ability of senior leadership to orchestrate the complex trade-offs that ambidexterity requires. These are founded in part on tacit knowledge and require long-term commitments to specialized resources" (2008, p. 200).</p> | <p>Tushman and O'Reilly (1996) originally suggested that a small group of ambidextrous managers could link exploitative and explorative operations undertaken in separated and independent organizational subunits by individuals specializing in <i>either</i> exploration or exploitation. These senior managers are boundary spanners (Raisch and Tushman 2011; Ren and Guo, 2011) are then presumably charged with defining overarching strategies that integrate exploration and exploitation, as well as assigning distinct objectives and metrics relevant to middle management in explorative and exploitative domains, respectively (Smith et al. 2010). This view implies that only senior leaders tackle the ambidexterity dilemma as such. Middle management and individual employees focus on either exploration or exploitation.</p> | <p><i>Superior firm performance is found through structural separation of individuals into autonomous sub-units with focus and specialization in either explorative or exploitative task environments.</i></p> |
| <p>Contextual ambidexterity suggests that it is possible to cultivate an "organization context" of systems and "processes" that enables individuals to be ambidextrous. Ambidexterity is defined as an organization's capacity to simultaneously achieve explorative and exploitative ability within a single business unit, but is <i>not</i> achieved through structural division of task environments, nor by sequential shifts between exploration and exploitation over extended periods, but rather by encouraging individuals to make their own judgments as to how best divide their time between the conflicting demands for exploration and exploitation. In this view, ambidexterity "manifests itself in the specific actions of individuals throughout the organization" (Gilson and Birkinshaw, 2004, p.211). Ambidextrous employees will optimize their own allocation of time and effort to the competing demands of exploration and exploitation in response to environmental fluctuations. Aggregated, this may lead to improved firm performance without resorting to structural separation. Ambidexterity is dependent on leaders that nurture and promotes such individual ambidexterity.</p> | <p>In this view, individuals on all levels in an organization face the ambidexterity dilemma, and have to divide their attention and efforts between the competing demands of exploration and exploitation (Birkinshaw and Gupta, 2013). It should be pointed out that this solution does not as such suggest that individuals simultaneously explore and exploit, but rather that both can be achieved simultaneously across one integrated business unit context through individual explorative and exploitative activities. Some previous studies have suggested that individual explorative and exploitative activities might actually be simultaneous, for example as an individual performing a routine task synchronously engages in a non-routine task of exploring new opportunities (Adler et al. 1999). I agree with Raisch et al (2009), who suggest that even given contextual ambidexterity, individuals may not literally perform two conflicting activities simultaneously, but rather switch between explorative and exploitative activities at cycles that are shorter (perhaps at minutes or hours in length) than those observed at the firm level, for example in the temporal mode (p.689).</p> | <p><i>Superior firm performance is found through structural integration of explorative and exploitative operations. Superior individual performance is found through dividing attention and efforts between explorative or exploitative task environments.</i></p> |

However, as Rogan and Mors (2014) pointed out, both theoretical and empirical issues complicate the research into such individual ambidexterity. Theoretical issues relate to the argument that exploration and exploitation should be conceptualized as mutually exclusive ends of a continuum, suggesting that individual ambidexterity (if defined as *simultaneous* undertaking of explorative and exploitative activities) is simply not an option; individuals must resort to temporal shifting between exploratory and exploitative modes over time (see for example Gupta et al., 2006, p. 698). I believe that this view may be unnecessarily restrictive and may depend on how individual ambidexterity is defined and measured.

Cognitive and Activity Aspects of Ambidexterity

On a cognitive level, it seems quite feasible that an individual may accommodate two conflicting ideas at the same time. As Raisch et al. (2009) note, human brains are quite literally ambidextrous, with the capability of handling conflicting cognitive ideas simultaneously. Several studies suggest that ambidexterity is rooted in such paradoxical cognition—that individuals recognize and embrace contradiction (Birkinshaw & Gupta 2013; O’Reilly & Tushman, 2004; Smith & Tushman, 2005; Smith et al. 2011). For example, they perceive a need for both exploration and exploitation, which may involve quite different cognitive processes. For example, Laureiro-Martínez et al. (2015), in their neuroscientific study of managers, found that exploitation is cognitively linked to reward-seeking processes in the brain that focus on the value of existing choices, while exploration is associated with an “attentional shift” from a current task to consider alternative activities with less certain outcomes. The authors suggest the focus of attention to be a cognitive mechanism individuals use to switch between explorative and exploitative tasks. However, such task switching might involve considerable mental strain, which may be amplified relative to the perceived

incompatibility and conflict between the exploitative and explorative tasks. Similarly, Taylor and Helfat (2009), in their study of ambidextrous leaders, pointed to the cognitive costs of developing and maintaining linkages between conflicting task environments. A higher degree of separation and specialization within each task environment raises such “coordination costs” for ambidextrous individuals; the greater the conflict between explorative and exploitative activities, the greater the cognitive strain as well as task-switching cost as individuals engage in both. Accordingly, Kauppila (2010) suggested that individuals who have operational responsibilities *cannot* engage in explorative and exploitative activities simultaneously, as dealing with such contradictory activities creates operational inconsistencies and implementation conflicts (p. 285). Similarly, Raisch et al. (2009) suggested that temporal switching between exploitation and exploration may be needed for individuals to effectively focus on each respective task domain in turn, and reduce the risk of confusion, but they suggested that the individual cycles of exploitative and explorative activities are probably shorter (perhaps even minutes or hours in length) and more tightly coupled than those observed at the firm level. This line of reasoning suggests that individual ambidexterity may be more viable under conditions of weak boundary conditions between explorative and exploitative activities; that is, a lower degree of conflict between the two activities would presumably reduce the coordination cost as individuals engage in both in sequence and would enable shorter, more tightly coupled cycles of task shifting.

There is already some empirical evidence to support this. Jasmand et al. (2012), in their study of call-center operators, found empirical evidence that activity-based individual ambidexterity involved employees’ engaging in two conflicting activities (customer care and cross-selling at a call center) simultaneously and/or switching between them at minute intervals to become ambidextrous (p. 31).

This suggests that if two tasks are highly interlinked and even complementary, an individual may engage in both simultaneously.²⁰ The study also found that individuals engaging in both activities were actually less efficient (call conversion rates/time spent per call) than individuals who focused their efforts on only one activity, either customer service *or* cross-selling. This implies that individuals who engage in two conflicting activities may suffer the risk of underperforming in the two respective task domains compared to those who focus their effort on one activity.

In summary, the review of the current literature still leaves some questions as to what constitutes individual ambidexterity. The arguments above suggest that it may consist of two distinct but interrelated aspects: a capability to engage in conflicting tasks as well as a cognitive capacity for accepting contradictory ideas and new knowledge that conflicts with existing paradigms. I propose that this distinction between the cognitive and activity aspects of individual ambidexterity may have some interesting implications when considering the relationships between individual activity and firm-level ambidexterity, which I will discuss next.

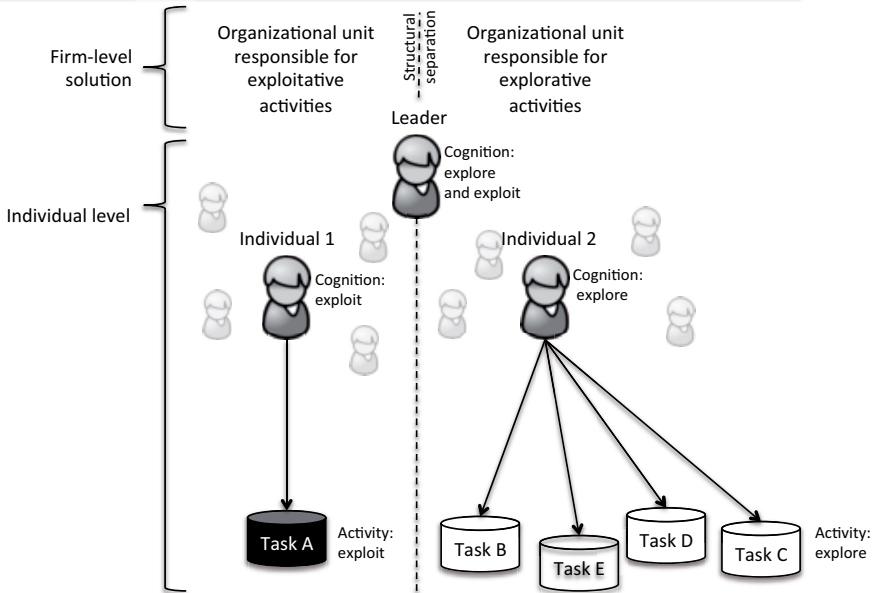
PREDICTIONS

Individual Activity Given Structural Ambidexterity on the Firm Level

Structural ambidexterity refers to the idea that a small group of ambidextrous top leaders could link exploitative and explorative operations undertaken in physically separated and independent organizational units by individuals specializing in activities that are either explorative *or* exploitative relative to the firm orientation (Tushman & O'Reilly, 1996).

²⁰ But this in turn raises the question of this actually is ambidextrous behavior, or if an individual is rather exploiting skillsets or knowledge across different task environments. The current literature is not clear on this.

Figure 1: Individual implications given firm-level structural ambidexterity



This suggests that given structural ambidexterity, top leaders (boundary-spanners) may be more likely to perceive their organization as both exploring and exploiting, given their high-level perspective of the firm. Lower-level individuals in an explorative sub-unit may tend to perceive their organizational context as explorative (experimental, risk-taking, changing, etc.) and conversely, lower-level individuals in an exploitative sub-unit may tend to perceive their organizational context as more exploitative (focused on productivity, efficiency, consistency, etc.).

When considering individual activity, it seems likely that individuals in an exploitative unit would focus on optimizing the performance of a particular task that is associated with refinement, productivity, and efficiency relative to the firm context (Laureiro-Martinez et al., 2015; March, 1991). Conversely, individuals in explorative sub-units may (in theory, at least) continuously experiment with new

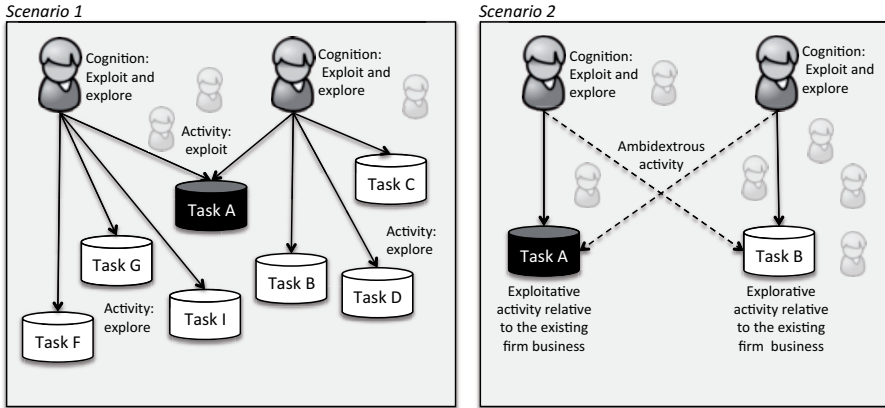
alternatives and diverse tasks with uncertain, distant, or even negative results. This suggests that firm-level structural ambidexterity is not rooted in individual ambidextrous activity, in line with O'Reilly and Tushman (2008). Figure 1 illustrates the predictions given the structural ambidexterity.

Individual Activity Given Contextual Ambidexterity on the Firm Level

Next I consider the contextual solution, which is the focus of this study. The current theory suggests that management should put in place an integrated organizational context where individuals can make their own judgments as to how best divide their attention between the conflicting demands for exploration and exploitation (Gibson & Birkinshaw, 2004). In this view, firm-level ambidexterity is achieved when every individual agrees the integrated business unit is both exploring new opportunities and exploiting existing knowledge (O'Reilly & Tushman, 2013). So in theory, when considering the cognitive aspect of ambidexterity, there should be a shared acceptance that both exploration and exploitation are needed. Put more succinctly, contextual ambidexterity on the firm level is probably by definition such a shared individual cognitive acceptance. But what is perhaps more interesting is to consider what individuals actually *do* in such an integrated setting. The theory suggests that given contextual ambidexterity, "every individual in a unit can deliver value to existing customers in his or her own functional area, but at the same time explore new task environments" (Gibson & Birkinshaw, 2004, p. 211). This raises the question of how such exploration of new tasks happens. From a theoretical point of view, I see a couple of different possibilities:

One scenario is that every individual divides time between exploiting the legacy business while exploring a string of random new task environments of his or her own accord. In this scenario there could in theory potentially be any number

Figure 2: Individual implications of firm-level contextual ambidexterity



of variations of new alternative task environments distributed among individuals across the integrated business-unit setting, while a fixed set of existing functional areas remained. See Scenario 1 in Figure 2.

In my view, this scenario points to a potential key shortcoming of the contextual solution. As noted by O'Reilly and Tushman (2013), it is hard to see how such random individual exploration can enable a firm to assemble an orchestrated response to disruptive changes in technologies and markets or conduct radical forms of exploration. The authors use the example of legacy print newspapers having to reallocate resources and attention to compete in the digital space, arguing that such decisions cannot be relegated to lower-level employees but require senior managers to provide the foundation and legitimacy for exploration of new technology or business models (p. 12). This leads me to suggest the following:

Hypothesis 1: Contextual ambidexterity at the firm level is perceived as dependent on management support.

The current literature stresses that the ambidextrous firm needs leaders with the ability to orchestrate the complex trade-offs between exploitation and exploration on the firm level (O'Reilly & Tushman, 2008), as well as to foster lower-level individual ambidexterity (See for example Gibson & Birkinshaw, 2004; Jasmand et al., 2012; Mom et al., 2009; Raisch et al., 2009; Tushman & O'Reilly, 2011). More specifically, Birkinshaw and Gupta (2013) pointed out that a manager's job is to override the organization's tendency to go down the path of least resistance (p. 293), or to revert to exploitative patterns. Management is seen as fostering ambidexterity by encouraging and nurturing exploration in particular.

This line of argument points to another possible scenario (see Scenario 2 in Figure 2) in which management does set the stage for exploration of a particular new task environment (such as the example above involving legacy newspaper firms exploring digital opportunities, which may be highly disruptive relative to the existing business), and in turn enables individuals to freely decide how to divide their time between exploring the "new" and exploiting the "old" task environments. This is in line with Siggelkow and Rivkin (2006), who in a study of multilevel organizational exploration suggested that top management might define arenas within which low-level managers can explore freely, making it less likely that senior managers would subsequently quash departmental initiatives (2006, p. 793). From an individual perspective, this scenario may have some interesting implications.

Firstly, it seems clear that those individuals who choose to stick with only exploiting existing functional areas in the "old" task environment (let's for simplicity call this "Task A") are probably not engaging in ambidextrous activity in this given scenario. We can call these "exploiters."

Secondly, it seems reasonable that those who choose to engage exclusively in the new task environment (let's call this "Task B") at the cost of Task A may not be ambidextrous, but rather are "explorers," at least from a firm perspective

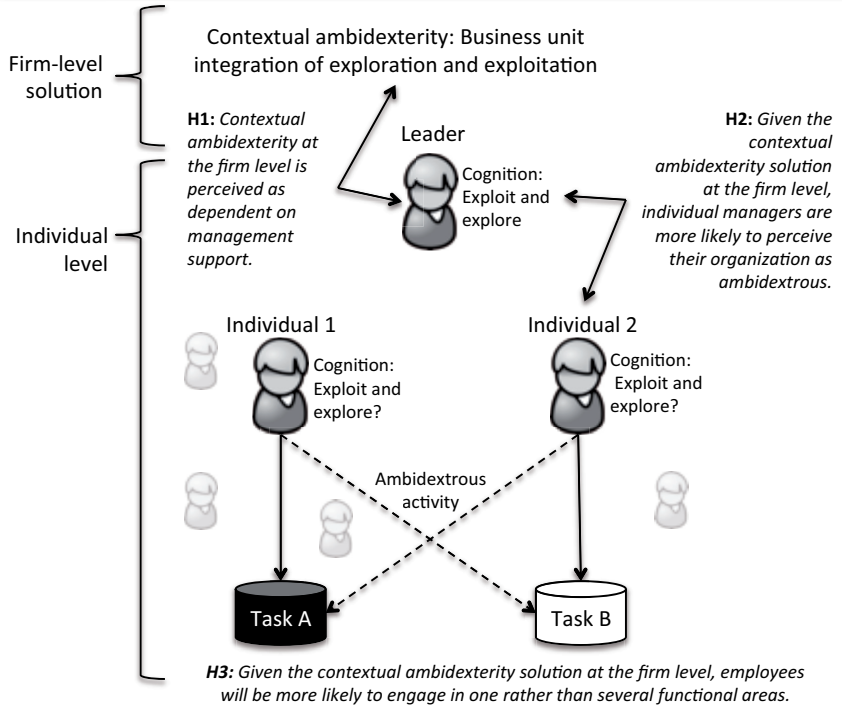
(as the activity solely involves the new business). However, it is important to note that from an individual perspective, these individuals may in fact be exploiting existing knowledge in Task B that just happens to be explorative relative to the firm. I will get back to this point.

Lastly, there is the question of what should be defined as ambidextrous activity in this scenario. Presumably, if an individual who was only exploiting Task A switches to also exploring Task B, this could potentially constitute ambidextrous activity.

Interestingly enough, the converse may also hold true: an individual who is currently only exploiting Task B may “become” ambidextrous by switching to also exploring Task A, provided that Task A is an “explorative” task environment from the individual point of view. This line of argument points to the relative and multi-level nature of the ambidexterity framing. What is exploration for one individual may be exploitation to another. What is explorative from a firm perspective may be business as usual from an individual perspective, and so forth.

The arguments above also imply that in the contextual solution, the cognitive and activity aspects of ambidexterity may not be consistent. I reason that it is quite possible for an individual to have *cognitive* acceptance of a normative idea that exploration and exploitation is needed for firm survival, but that this may in some cases be de-coupled from individual action – i.e. the actual undertaking of conflicting activities. Arguably, such a decoupling may even be favorable in some instances, for instance as top leaders articulate ambidexterity strategies that on operational levels may create practical inconsistencies and implementation conflicts for lower-level employees. Hence, I speculate that it may be easier for an individual to accept the cognitive idea that exploration and exploitation are both needed when they don’t actually have to engage in conflicting activities themselves:

Figure 3: Individual implications and predictions given firm-level contextual ambidexterity



Hypothesis 2: Given the contextual ambidexterity solution at the firm level, individual managers are more likely to perceive their organization as ambidextrous.

The arguments above leave the question of how individuals will behave given contextual ambidexterity on the firm level. Will most individuals engage in both Task A and B? I propose that the previously discussed limits of attention may have some critical implications for the activity aspect of individual ambidexterity. It seems likely that even given management support and firm-level ambidexterity, which theory enables an individual to explore new task environments, most individuals may still tend to focus on their own functional area rather than

exploring the conflicting task environment. I speculate that most individuals may seek to specialize and focus their efforts:

Hypothesis 3: Given the contextual ambidexterity solution at the firm level, employees will be more likely to engage in one rather than several functional areas.

This is in line with the attentional view, which suggests that individual attentional processes will focus on a limited set of issues, prompting action toward those functions and tasks being attended to, and inhibiting perception and action toward those that are not. Figure 3 illustrates the individual predictions given the contextual solution. The arguments above may also call into question the ambidexterity-performance link on an individual level, which I will discuss next.

Performance Implications of Individual Task Switching

“The question is whether you can do exceptionally well, as opposed to better than average, without leaving the confines of conventional action”

(March, 1991, p. 83).

Birkinshaw and Gupta (2013) raise an interesting point, arguing that it is almost tautological to link ambidexterity to improved performance, as those who do two things must “by some definition” outperform those who do just one thing. I would argue that the reverse may also hold true: It might be just as likely that those who spread their efforts too thinly may underperform compared to those who focus their efforts.

The example in Table 1 illustrates why this may be the case, but also points to the importance of definitional issues. In this simple example, the individuals Peter, Hannah, and John are constrained by the same limits of attention and have a

total of 10 minutes each to divide Tasks A and B. Let's assume that switching between Tasks A and B has two-minute coordination cost, and for simplicity's sake assume that the output is one production unit per minute per task. If

Table 2: Performance implications of individual task switching

| | Task A | Task B |
|--------|----------|----------|
| Peter | 10 units | - |
| Hannah | - | 10 units |
| John | 5 units | 3 units |

individual ambidexterity is measured *only* by whether an individual engages in both Tasks A and B—without considering the relative performance in each separate task domain—John is arguably outperforming the others. Conversely, Peter and Hannah underperform simply by virtue of engaging in one task environment exclusively and completely missing out on one of the performance metrics. However, this example also suggests that Peter and Hannah may still outperform John in their *respective* task domains by focusing their efforts. Also, John may suffer coordination costs from switching between task environments. The arguments above lead me to suggest the following:

Hypothesis 4: Task switching is negatively linked to top performance in each respective task domain.

I would like to emphasize that this is not to say that individual ambidexterity could never lead to top performance, but rather that it may be very difficult for individuals to excel in two conflicting task domains compared to those who specialize.

METHODS

Research Design and Sampling Strategy

The purpose of this study is to examine the relationship between business unit ambidexterity and individual behavior. The following steps were taken: First, I established firm-level contextual ambidexterity through a two-step approach to develop a measure for a unit's ambidexterity (Gibson & Birkinshaw, 2004; He & Wong, 2004) based on a cross-sectional survey of all individuals in an integrated business unit. Second, I examined individual activity given such firm-level ambidexterity through objective as well as subjective measures. This research design is in line with current theory, which suggests that contextual ambidexterity is achieved when individuals agree that their unit is both exploring and exploiting (O'Reilly & Tushman, 2013). In this view, ambidexterity is seen as a characteristic of a business unit as a whole, which "manifests itself in the specific actions of individuals throughout the organization" (Gibson & Birkinshaw, 2004, p. 211).

I further follow the recommendations by Junni et al. (2013) who point to a need for future ambidexterity studies to focus on multiple levels of analysis simultaneously in order to specify how linkages at different levels contribute to performance, for example by combining survey data to capture ambidexterity at one level of analysis with other data that captures other levels of analysis (2013, p. 310). This study may thus best be described as theory elaboration (Lee, 1999), as it expands on our current understanding of contextual ambidexterity by suggesting a theoretical distinction between a cognitive and an activity aspect, as well as explicitly considering both an individual and firm level of analysis. To the best of my knowledge, such linkages have not been empirically addressed in the current literature.

The choice of the case company was a result of several considerations. The empirical context is the newspaper industry, which has been the focus of a number of ambidexterity studies. I started out in 2011 by gathering data on organizational design as well as firm performance from all legacy newspaper firms (N=228) in Norway, a region particularly well suited for examining how the tensions between online exploration and print exploitation are resolved. Several studies have shown that ambidexterity may be more beneficial in dynamic environments with high uncertainty and technological change (Auh & Menguc, 2005; Bierly & Daly, 2007; Geerts et al., 2010; Jansen et al, 2005; Jansen, Vera, & Crossan, 2009; Sidhu, Volberda, & Commandeur, 2004; Siggelkow & Rivkin, 2005; Tempelaar & Van De Vrande, 2012; Uotila et al., 2008; Wang & Li, 2008; Yang & Atuahene-Gima, 2007). As of 2011, Norway was at the forefront of the digital transformation of the news industry reflecting Scandinavia's traditional consumer enthusiasm for the Internet and digital media.²¹ The empirical data suggested that most of the newspaper firms in Norway at the time were explicitly pursuing integration strategies in line with contextual ambidexterity, rather than structural separation. The industry analysis yielded one particular case that was deemed to be of particular interest and relevance to this study: the case of *Adresseavisen*, identified in several previous studies as the most integrated newspaper firm in the industry.

This purposive sampling strategy identified a case study that allowed for a longitudinal perspective on how organizational solutions enable individual ambidexterity and how these ambidextrous individuals may be vital to the usefulness of organizational solutions. This is in line with the idea that ambidexterity is a multilevel, nested issue that transpires at both the individual and firm levels.

²¹ <http://www.zenithoptimedia.com/zenith/zenithoptimedia-publishes-new-media-forecasts/>

Table 3: Overview of data sources used in this study

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Interviews | | | | | x | x | | | | | | | x | x | x | x | | x | x | x |
| Financial data | | | | | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Yearly reports | | | | | | | | | | | | | x | x | x | x | x | x | x | x |
| Observation (site visit) | | | | | | | | | | | | | | | | | x | x | x | |
| Newsroom survey | | | | | | | | | | | | | | | | | | | x | |
| Empirical studies | | | | | | x | | | | x | | | x | x | x | | | | x | |
| Other archival data | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Industry financial data | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Market penetration print | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Market penetration online | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |

Data Collection

The data for this study were collected over a period from 2011 to 2014, when I visited the firm a number of times, deploying a methodological triangulation with multiple measures on both the firm and the individual level (cross-sectional survey data, interviews, observations, content and productivity analysis, archival records, performance data), to further the understanding of how individuals divide their attention and efforts between conflicting tasks and what the implications are for performance. The research hypotheses were tested using the cross-sectional survey data, but all findings were triangulated and supported by other primary and secondary data sources. I conducted an extensive literature search to see if the case firm had been the subject of scholarly research and reviewed archival data such as newspaper clippings, yearly reports, and strategy documents. In total, I reviewed about 3,000 pages of documents. The historical data were used to establish the organizational context—exploration and exploitation within the specific firm and industry context—as well as to construct an innovation timeline consisting of 33 discrete innovation events, which were classified according to explorative or exploitative innovations. The survey was done using SurveyMonkey, a commonly used Web-based survey tool. It was first

piloted on a group of managers, and then some adjustments were made for clarity and language. An outside researcher also reviewed the survey. To reduce method bias and improve construct validity, I removed ambiguous or unclear terms and kept questions simple, concise, and to the point (Podsakoff et al., 2003). The survey was then sent out in fall 2012 via personal emails to everyone in the newsroom at the case firm (N=142). The initial mail was re-sent three times over a two-week period, resulting in a total of 133 responses, a response rate of 94%. Previous studies have shown that subjective measures such as surveys are consistent with objective measures (Dess & Robinson, 1984; Venkatraman & Ramanujam, 1987), but to reduce the uncertainty of measurement and minimize issues of common method bias, a product and content analysis was also conducted to examine the extent to which individual employees actually engaged in online activities and print activities in daily operations. This study builds on five different sets of data, reflecting the journey of my empirical investigation into individual ambidexterity. The choice of these data sets is justified by my main research question and theoretical framework. Table 2 lists the data sources.

Measures

To evaluate the hypotheses with regard to ambidexterity, I collected cross-sectional data through surveys of individuals in the case firm. Exploration, exploitation and ambidexterity constructs were measured with multi-item scales based on previous research. Management support, individual attention, and task switching were measured by original, theory-based scales developed for this study. Individual performance was measured by a content and productivity analysis. To assess the construct validity of the measures, I conducted an exploratory factor analysis including all items of this study's constructs. The following is a summary of the measures used in this study.

Ambidexterity (dependent variable). Ambidexterity is measured as an additive integrative construct of exploration and exploitation. Several other studies (De Visser et al., 2010; Jansen et al., 2009; Lubatkin et al., 2006; Revilla et al., 2009) have shown this additive model (e+e) to have the best explanatory power. I developed these items based on the original explore/exploit framing proposed by March (1991).

Exploitation. To measure exploitation, I collected data by asking survey respondents in the case firm to indicate, on a 4-point Likert scale, the degree to which they agreed with the following statements about their organization (March, 1991): “We offer refined products and services which we know will satisfy our customers” (component load .851); “In our organization, we value experience and professional conduct. This helps us maintain consistently high quality standards” (.661); and “We know our market and what our clients want. Our products reflect this” (.732). Principal component analysis indicated that all items loaded on a single factor had an eigenvalue of 1.7, accounting for 57 percent of the variance. Internal reliability was .616, which is accepted in exploratory studies (Hair et al., 2005). I would argue that this is appropriate given the limited research into individual ambidexterity in the contextual solution.

Exploration. I also developed a multi-item scale to represent **exploration** (March, 1991), and collected data by asking survey respondents in the case firm to indicate, on a 4-point Likert scale, the degree to which they agreed with the following statements about their organization: “Individual employees have the freedom to experiment and can directly influence our products” (Component load .722); “Our organization is characterized by flexibility and lack of bureaucracy” (.821); and “Our organization is characterized by constant change and movement”

(.697). CFA indicated that all items loaded on a single factor had an eigenvalue of 1.7 and accounted for 56% of the variance. Internal validity was .606.

Task switching. The activity dimension of individual ambidexterity was measured by whether an individual had switched between conflicting task environments relative to the firm orientation. This was measured through self-reporting (survey measures) as well as objective data (content and productivity analysis) to ensure validity. These data were found to be consistent.

Management support. To capture management support, I asked respondents to indicate, on a 4-point Likert scale, the degree to which they agreed with the following statements: “How clear is management on strategic intent and where the firm is heading?” (.826); “How well does management explain the reasons for changes?” (.852); “How supportive is management of new ideas and initiatives?” (.759); and “How realistic are the goals set by management?” (.738). Principal component analysis indicated that all items loaded on a single factor had an eigenvalue of 2.5 and accounted for 63% of the variance. Internal validity was .805.

Individual performance. To evaluate individual performance, a content analysis was done by examining a two-week sample of all published print and online articles over a period from January to February 2012. A pilot analysis had indicated that this sample size would allow for capturing individuals working across print and online task domains. The choice of the individual performance indicator was a result of several considerations. Firstly, the primary output of the business unit was news articles of various lengths that were published in print and/or online. The publication process involved careful reviewing, selection, and editing, and a number of article manuscripts were rejected or heavily cut on a daily

basis. The best articles were published, and top stories were typically longer. This suggested that both the publishing frequency (number of articles) and publishing volume (total words) of each individual were relevant performance metrics to consider. The print newspaper content was manually reviewed and entered into an Excel spreadsheet along with relevant meta information, such as reporter name, article length, subject matter (news, sports, etc.), date of publication, and page of publication. A similar data set was extracted electronically from the online publication systems. The two data sets were merged to examine to what extent reporters published stories in both print and online products over the two-week period examined. This resulted in a sample of some 220 individuals²² who over this period produced a total of 446 print stories and 1,568 online stories.²³ This added up to a total of 179,695 words, or an average of 849 words per article published. I used these data to generate an 8-day sample, which was then analyzed to assess individual performance. Individual performance was measured as follows: firstly, the total (absolute) number of articles actually published by each individual in print and digital form was identified. Secondly, a word count was conducted to measure the volume of each article. The total word count was used to rank individual performance in the respective task domains—that is, more words published gave a higher ranking.

Attention. *Attention* is defined by Ocasio (1997) as the focus on *issues*—defined as the available repertoire of categories for making sense of the environment: problems, opportunities, and threats—as well as *answers*, the available repertoire of action alternatives: proposals, routines, projects, programs,

²² This figure included about 100 freelancers.

²³ A pilot sample had revealed that most print stories tended to be reused online on matching publication dates. For example, a story would appear in the newspaper in the morning, and then typically online later that same day. For online-to-print sharing, however, the logic was usually reversed. A story would appear online one day, and then be reused in the printed paper the next day. Accordingly, the sample actually included an extra day of online articles to ensure that all duplicate stories were identified.

and procedures (p. 189). The empirical data suggested two such firm-specific attentional structures, namely that of the legacy print business and the still-emerging digital business. This is in line with Ocasio (2010), who suggests that attention in organizations is not typically experienced directly but is rather driven by attentional carriers such as media organizations, which shape an individual focus on critical issues, events, and forms of sense making that is later adopted throughout the organization (Hoffman & Ocasio, 2001; King, 2008; Nigam & Ocasio, 2010). For the purpose of this study, I measure individual attention by asking survey respondents how much time they spend on digital and print media.

Control variables. In this empirical study, I controlled for possible alternative explanations by including relevant control variables that were established by previous studies of individual ambidexterity. Firstly, individual experience may influence ambidexterity; increased levels of experience may be associated with an increased ability to deal with ambiguous cues (Mom et al., 2009). To control for experience, I included an individual's age, which is expected to positively relate to individual ambidexterity (Tushman & O'Reilly, 1996), as well as the broadness of experience, as an ambidextrous individual's skill base may be more generalist (Birkinshaw & Gibson, 2004, p. 49). Secondly, several studies have suggested that levels of individual exploration and exploitation activities may differ across functional areas as well as the specific organizational context (Duncan, 1976; Gibson & Birkinshaw, 2004; Mom et al., 2009). Accordingly, I included dummy variables to control for both departmental and functional effects.

Empirical Setting—A Brief History of Adresseavisen

The case firm, Adresseavisen, is a large regional newspaper firm in Norway that operates in a highly dynamic market characterized by having the world's highest penetration of digital media platforms,²⁴ as well as suffering steep declines in the legacy print business over the past decade. The firm traces its roots back to 1767, making it the oldest newspaper firm still operating in Norway. The empirical focus of this study is the period from 2009 to 2014, but it is helpful to first briefly recap the first tentative digital exploration of the 1990s and early 00s.

Archival records show that as early as 1993, a junior manager at the firm (who would later be appointed head of digital operations and would remain so for the next 20 years) was sent on a “reconnaissance mission” to the United States to visit “development labs” where new online technologies were being tested. Over the next two years, Adresseavisen’s top management became involved in digital exploration; for example, the publisher personally attended several international seminars and conferences on the quite novel topic. By 1996, the firm launched its first experimental online offering, based on new technology developed at a local university. Initially, the online website was meant to supplement the existing print newspaper by providing a free “information service.” “Our goal is to create an information channel that picks up where the printed paper left behind,” said one manager at the time,²⁵ also noting that the “electronic paper” was not seen as a threat to the printed newspapers at the time.

Archival records suggest that most lower-level employees at the firm at the time had little interest in online exploration. The decision to launch an online site was made at the discretion of management and approved by the board of directors before any lower-level employees were involved (Spilker, 2004). At the time, management saw entering the online market as primarily a defensive move

²⁴ <http://www.zenithoptimedia.com/zenith/zenithoptimedia-publishes-new-media-forecasts/>

²⁵ <http://www.digi.no/45720/storaviser-ut-paa-nett>

(triggered by major national news outlets' establishment of online services) to gain experience and secure a possible future position in a growing but volatile online market. Around the turn of the century, firm management decided to invest in a new consolidated technology platform that could help ease the "flow of information" in the firm, especially between online and print operations. To help facilitate further cooperation, the online operations were moved physically next to the print operations, and in 2000, an extensive program was launched to train every employee to work across the print and online task environment: "We want to rewire people's heads so they can learn to think differently. Department by department, we will integrate," said one online manager (Spilker, 2004). The move was triggered by a strategic intent of being more competitive in online markets by leveraging existing firm resources. Management also wanted to move away from the more experimental approach that had characterized the early days of online offerings, and focus on a much more goal-oriented and tightly managed operation (Spilker, 2004). A key component in this strategy was also the realization of synergic effects from the flow and reuse of content between the different publication channels.

By 2004, most of the larger Norwegian online news sites, including Adresseavisen, were bringing in a steady (but small) trickle of money, after eight years of continuous online losses. But this online growth also came at a cost, as total print sales and revenues across the industry had been slowly declining since 1999. By 2005, Adresseavisen initiated cost-cutting programs and staff reductions in response to dropping print profits. This led to the resignation of the editor-in-chief, who was replaced with a company man with more than 10 years of experience in the firm. Under new leadership, the firm continued to pursue integration strategies in an effort to make every employee fully "multi-medial" by putting action before words: "Committing a set of strategies on paper is not

enough. The organization must be trained to execute these strategies. It has to be embedded in the knowledge of the organization,” said one manager.²⁶

By 2009, the worldwide economic recession was also affecting the Norwegian news market. For Adresseavisen, it meant a cut in staffing of about 15%, and a push for implementation of further savings process improvements in print operations in particular. A strategic document from 2009 indicated that management planned to reduce the print production staff by 50% over the next three years. This was made possible through the merger of certain job functions, as well as the use of automation. Interestingly enough, the next year seems to have marked a turning point of sorts for the integration strategies. The archival data suggest that the firm made substantial efforts over the period from 2000 to 2010 to create an organizational context in which all employees were enabled to divide their attention and efforts between print and digital task environments. However, 2010 marked a strategic shift toward further diversification of print and online operations to increase quality and variation, as well as the competitive advantage in the respective domains. “I believe that a more specialized presentation will become more important as we progress. Print has to be a different reader experience than online, and we need to use the possibilities offered by digital technologies as best as possible” (manager, interview, 2010). This diversification would also signal a move toward more specialized employee skills,²⁷ which continued into the next year, in part triggered by a new wave of digital exploration as tablet devices such as the iPad became available to a large market of new consumers. This also meant that the firm management was rethinking the integrated organizational form; the new wave of digital technologies could trigger a need for smaller subunits responsible for specialized skills.²⁸

²⁶ <http://www.mediehus.org/2008/10/adresseavisen-full-konvergens-i-flere-avdelinger/>

²⁷ <http://www.mediehus.org/2009/10/adresseavisen-nedbemanning-og-fokus-pa-utvikling/>

²⁸ <http://www.mediehus.org/2010/10/adressa-betalt-innhold-i-fokus/>

In archival documents from 2010, senior management also explicitly articulated a “safeguarding strategy” for the print newspaper, where digital offerings made even more different from print offerings in an effort to avoid cannibalization, or readers migrating from paid print to free online offerings. In 2012, the firm turned a corner, as the online edition for the first time in history attracted more readers than the print newspaper. However, this came at the cost of heavy losses in print revenues, a trend that seems to be accelerating. Accordingly, the firm is speeding up its digital transformation, and in early 2014, the firm launched its first exploratory iPad product, after nearly a year of experimentation and product development.

ANALYSIS AND RESULTS

The mean, standard deviation, and correlations among variables are shown in Table 4. There was a strong positive correlation between exploration and exploitation, suggesting that individuals perceive that their business unit can indeed achieve both simultaneously. Further, ambidexterity, exploration, and exploitation were all significantly correlated to management support, indicating the leadership role in enabling ambidexterity, and particularly exploration. There were strong correlations between individual attention and specialization in task environments. Respondents who indicated that they did not switch between task environments indicated strong attentional preferences relative to the task environment they specialized in. It is of particular interest to note that the survey responses suggest a strong negative relationship between individuals working only in print task environments and attention to the emerging digital media. Presumably, such limited (or lack of) individual attention to digital exploration may be problematic given the explicit firm-level strategy of enabling individual ambidexterity through the contextual solution. The survey data suggest that those individuals who reported that they switch between print and digital task domains

did in fact pay more attention to digital media than those who only worked in print domains. The empirical evidence links individual attention and activity as predicted.

Test of Main Effects

Table 5 presents the results of the regression analyses for individual ambidexterity. In line with previous studies of individual and firm-level ambidexterity (see for example Cao et al., 2009; He & Wong, 2004; Mom et al., 2009) I tested the hypotheses for ambidexterity using a multiple regression analysis, in which the independent variables are entered cumulatively to assess increments in variance explained. I calculated variance inflation factors (VIFs) for each regression model. Given that I found VIFs to be between 1.574 and 1.017, and well below the recommended ceiling of 10 (Neter, Wasserman, and Kutner, 1990), issues of multi-collinearity seem not to be a problem. Model 1 is the base model that includes the control variables. I found no significant effect of age, experience, or department on the variance in ambidexterity.

Hypothesis 1 predicted that organizational ambidexterity would be dependent on management support. As can be seen from Model 2 in Table 4, I found a positive and significant relation ($b = .365, p < .01.$) supporting Hypothesis 1. Hypothesis 2 predicted a relationship between ambidexterity and hierarchical levels; that is, that managers would be more likely to perceive their integrated business unit as both exploring and exploiting because of their non-operational “high-level” view of the firm. As can be seen from Table 4, I found no significant improvement of fit when adding hierarchical level to model 3 ($b = .365, p < .01.$). Hypothesis 2 is rejected, but I suggest a simple reason for this: the productivity analysis indicated that all leaders in the business unit were operational, offering no “high-level” perspective on the ambidexterity dilemmas. I refer to the Discussion section for more on this.

Table 4: Correlations, means and standard deviations

| | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------------------|--------|------|--------|--------|---------|--------|---------|---------|-------|--------|---------|---------|--------|-------|------|
| 1 Ambidexterity | -.0458 | 1.58 | | | | | | | | | | | | | |
| 2 Exploration | -.0238 | .97 | .805** | | | | | | | | | | | | |
| 3 Exploitation | -.0184 | .98 | .812** | .307** | | | | | | | | | | | |
| 4 Attention legacy media | 9.33 | 3.17 | .144 | .005 | .201* | | | | | | | | | | |
| 5 Attention digital media | 9.66 | 3.91 | .020 | .068 | -.056 | .072 | | | | | | | | | |
| 6 Management Support | -.043 | .951 | .590** | .371** | .557** | .028 | -.011 | | | | | | | | |
| 7 Hierarchical level | 1.19 | .399 | -.169 | -.020 | -.249** | -.083 | .120 | -.314** | | | | | | | |
| 8 Task switching activity | .26 | .445 | .009 | -.031 | .043 | -.129 | .204* | .151 | .182* | | | | | | |
| 9 Print-only activity | .70 | .460 | .181 | .073 | .219* | .233** | -.380** | .260** | -.128 | .057 | | | | | |
| 10 Online-only activity | .43 | .497 | -.047 | -.029 | -.050 | -.106 | .434** | .038 | .055 | .593** | -.447** | | | | |
| 11 Age | 3.01 | 1.06 | .090 | .013 | .105 | .121 | -.398** | -.062 | .101 | -.108 | .283** | -.413** | | | |
| 12 Experience | 13.16 | 8.87 | -.007 | .069 | -.060 | -.046 | .343** | .066 | -.024 | .048 | -.001 | .091 | -.181* | | |
| 13 Department | 1.94 | 1.40 | .102 | .097 | .077 | .004 | -.164 | .177 | -.078 | .008 | .326** | -.221* | .137 | .017 | |
| 14 Functional area | 1.89 | 1.23 | .170 | .198* | .099 | -.029 | -.101 | -.033 | .041 | .008 | .019 | -.083 | -.052 | -.134 | .075 |

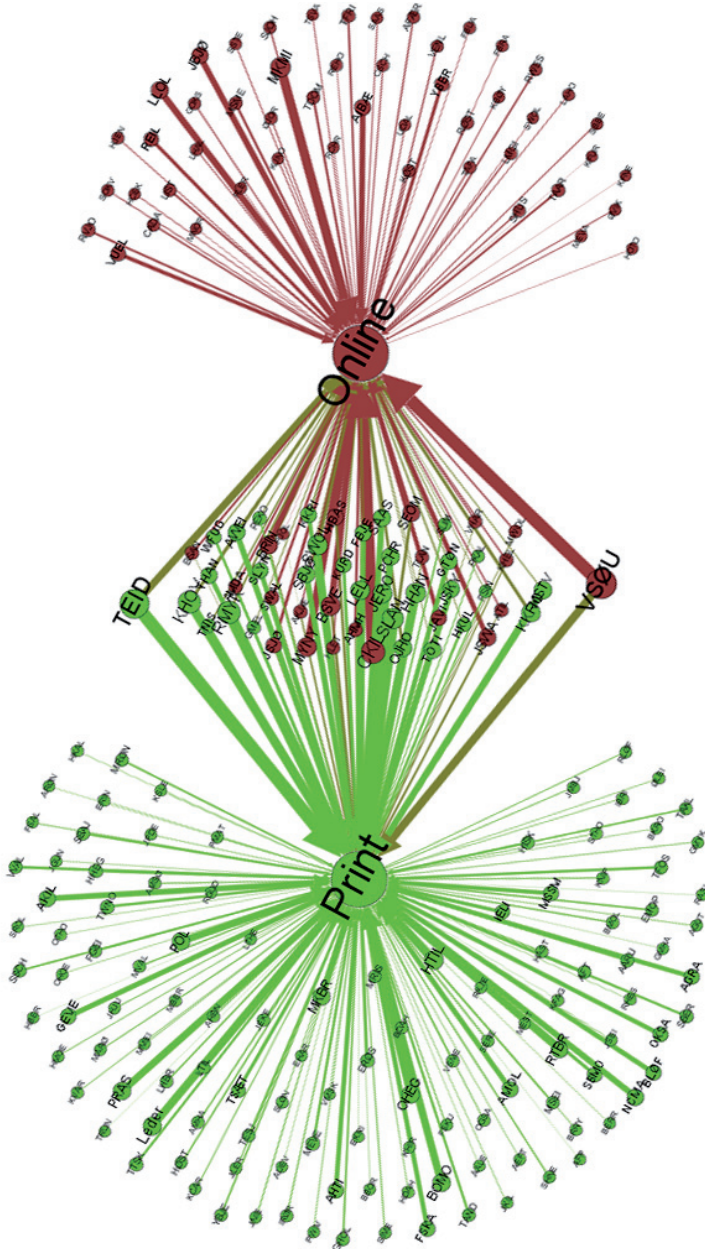
** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 5. Results of regression Analyses

| | Model 1: Dependent variable, ambidexterity | | Model 2: Dependent variable, ambidexterity | | Model 3: Dependent variable, ambidexterity | | Model 4: Dependent variable, task switching | |
|--------------------------|--|------|--|------|--|------|---|------|
| | B | SE | B | SE | B | SE | B | SE |
| Main effects | | | | | | | | |
| Intercept | -6.14 | .618 | -4.67 | .500 | -.495 | .637 | 1.365 | .555 |
| Management support | | | .603*** | .143 | .605*** | .151 | .265* | .121 |
| Hierarchical level | | | | | .006 | .355 | .156 | .121 |
| Digital attention | | | | | | | .306** | .027 |
| Print attention | | | | | | | -.096 | .029 |
| Cognitive ambidexterity | | | | | | | -.087 | .070 |
| Control variables | | | | | | | | |
| Age | .079 | .160 | .126 | .129 | .125 | .131 | -.148 | .095 |
| Experience | .006 | .019 | -.023 | .015 | -.023 | .015 | -.043 | .011 |
| Department | .091 | .119 | -.022 | .098 | -.023 | .098 | -.077 | .065 |
| R2 | .016 | | .365** | | .365** | | .277** | |
| Adjusted R2 | -.16 | | .336 | | .329 | | .155 | |
| F improvement of fit | .502 | | 49.367*** | | .005 | | | |
| ANANOVA F | .502 | | 12.918*** | | 10.221*** | | 3.162** | |

Standardized regression coefficients are shown in the table. *p < .05. **p < .01. ***p < .001.

Figure 1: Visualization of individual performance in online and print domains



Hypothesis 3 predicted that most individuals will tend to specialize rather than switch between conflicting tasks even given contextual ambidexterity on the firm level. This hypothesis was tested by both objective measures (content and productivity analysis) and subjective measures (survey and interview), which were found to be consistent. The following steps were taken to triangulate the data: The survey responses indicated that 51.1% of individuals primarily engaged in a print task environment, and the product analysis confirmed that 53.4% of all individuals had only published print stories over the sampled period. Conversely, 21% of survey respondents said they primarily explored digital opportunities; the product analysis confirmed that 22.8% of individuals had published only digital content over the sampled period. Finally, about 24% of respondents indicated that they switched between print and digital task domains. The product analysis indicated that 23.7% of all reporters sampled had published stories both in print and online. Model 4 predicts a relationship between individual attention and task environment specialization. I also found a positive and significant relation with attention to digital media when controlling for age, experience, and department ($b = .306, p < .01.$), supporting Hypothesis 3. There was also a link to management support. I found no effect for cognitive ambidexterity, suggesting that the cognitive and activity aspects of ambidexterity may not be linked. I refer to the Discussion section for more on this.

Hypothesis 3 is accepted; even given contextual ambidexterity and management support, most individuals will exploit one functional area rather than switch between conflicting tasks. The empirical data suggest that only about 1 in 4 individuals actually switch between task domains to “become” ambidextrous by task switching.

Table 6: Top performing individuals across print and online task domains

| Total online stories published | Total words published (online) | ONLINE RANK | | | PRINT RANK | Total words published (print) | Total print stories published | |
|--------------------------------|--------------------------------|-------------|---------------------|--|---------------------|-------------------------------|-------------------------------|----|
| 21 | 7760 | 1 | Reporter 220 | | Reporter 202 | 1 | 7632 | 16 |
| 29 | 7276 | 2 | Reporter 35 | | Reporter 165 | 2 | 6365 | 7 |
| 22 | 5588 | 3 | Reporter 125 | | Reporter 184 | 3 | 6288 | 12 |
| 22 | 4704 | 4 | Reporter 136 | | Reporter 100 | 4 | 5302 | 9 |
| 11 | 4364 | 5 | Reporter 202 | | Reporter 80 | 5 | 5093 | 7 |
| 12 | 3939 | 6 | Reporter 115 | | Reporter 63 | 6 | 5080 | 12 |
| 7 | 3891 | 7 | Reporter 33 | | Reporter 220 | 7 | 4833 | 9 |
| 15 | 3760 | 8 | Reporter 30 | | Reporter 73 | 8 | 4818 | 9 |
| 16 | 3609 | 9 | Reporter 78 | | Reporter 111 | 9 | 4684 | 6 |
| 5 | 3379 | 10 | Reporter 12 | | Reporter 110 | 10 | 4668 | 8 |
| 9 | 2884 | 11 | Reporter 91 | | Reporter 29 | 11 | 4308 | 8 |
| 3 | 2497 | 12 | Reporter 195 | | Reporter 139 | 12 | 4292 | 7 |
| 9 | 2444 | 13 | Reporter 77 | | Reporter 154 | 13 | 4166 | 6 |
| 10 | 2359 | 14 | Reporter 221 | | Reporter 153 | 14 | 4081 | 7 |
| 3 | 2062 | 15 | Reporter 159 | | Reporter 147 | 15 | 3924 | 8 |
| 6 | 2053 | 16 | Reporter 224 | | Reporter 124 | 16 | 3880 | 5 |
| 3 | 1878 | 17 | Reporter 103 | | Reporter 133 | 17 | 3729 | 6 |
| 2 | 1866 | 18 | Reporter 178 | | Reporter 167 | 18 | 3570 | 8 |
| 3 | 1842 | 19 | Reporter 100 | | Reporter 137 | 19 | 3454 | 9 |
| 3 | 1827 | 20 | Reporter 59 | | Reporter 175 | 20 | 3358 | 7 |
| 2 | 1820 | 21 | Reporter 89 | | Reporter 170 | 21 | 3350 | 3 |
| 7 | 1601 | 22 | Reporter 141 | | Reporter 90 | 22 | 3313 | 4 |
| 1 | 1521 | 23 | Reporter 194 | | Reporter 22 | 23 | 3270 | 5 |
| 5 | 1469 | 24 | Reporter 10 | | Reporter 13 | 24 | 3265 | 4 |
| 5 | 1380 | 25 | Reporter 131 | | Reporter 209 | 25 | 3064 | 6 |
| 2 | 1358 | 26 | Reporter 201 | | Reporter 195 | 26 | 3024 | 4 |
| 4 | 1254 | 27 | Reporter 32 | | Reporter 51 | 27 | 2978 | 4 |
| 2 | 1251 | 28 | Reporter 197 | | Reporter 103 | 28 | 2909 | 4 |
| 5 | 1250 | 29 | Reporter 15 | | Reporter 17 | 29 | 2887 | 7 |
| 1 | 1241 | 30 | Reporter 168 | | Reporter 141 | 30 | 2878 | 9 |

Hypothesis 4 predicted that individual task switching is negatively related to top performance but positively linked to average performance. I will evaluate these hypotheses in the following analysis of the objective individual performance data.

Results of the Content and Performance Analysis

Figure 1 visualizes the individual performance of the sampled reporters. The dots on the illustration represent individual reporters. The lines illustrate

actual performance against explorative digital domains (marked in red) and/or exploitative print domains (marked in green). Those individual “boundary-spanners” who were simultaneously exploring and exploiting over the period sampled can be found in the middle of the illustration. The thickness of the line from each individual represents the level of input (relative to all individuals) toward the respective task domain; a thicker line means the individual produced more content over the period, whereas a thinner line means an individual was less productive. Hypothesis 4 predicts that given contextual ambidexterity, individual switching between conflicting tasks is negatively related to *top* performance in the respective task domains.

This hypothesis was tested by ranking all individuals in terms of their performance in print and digital task domains, respectively; i.e. how much content each individual had published over the sample period. To assess individual performance, I ranked all sampled individuals (N=220) in terms of total words published in print and online, respectively. See the method section for more on this. Table 5 lists the top 30 individual performers in print and online task domains. As can be seen, five individuals made both lists. It is also worth noting that the two very top performers in each domain, Reporters 202 and 220, were in fact task switchers. It is also worth noting that even though the empirical data link individual exploration and exploitation to superior performance, they also illustrate how rare such individuals are. Of the 54 individuals in Table 5, only six (11%) published across the print and online domains, even given a supportive organizational context that enabled individuals to divide their attention and efforts between exploration and exploitation. Hypothesis 4 is rejected. I refer to the discussion section for more on this.

DISCUSSION

The empirical setting for this study is a firm that over a 15-year period has been pursuing integration strategies aimed at enabling individuals to decide how to divide their attention and efforts between exploration and exploitation, in line with the concept of contextual ambidexterity. The literature suggests that firm-level ambidexterity is achieved when individuals agree that their business unit is both exploring new opportunities and exploiting existing knowledge. The empirical evidence in this study suggests this is the case. However, a triangulation of data indicated that even given such firm-level ambidexterity, most individuals tend to exploit one functional area rather than explore others. This suggests that the integration strategies put in place by management may not have the intended effect on individual behavior. The results are also in contrast with current theory, which suggests that given contextual ambidexterity, “every individual in a unit can deliver value to existing customers in his or her own functional area, but at the same time explore new task environments” (Gibson & Birkinshaw, 2004, p. 211). My analysis suggests that only about 1 in 4 individuals actually engaged in both print and online publishing over the sampled period. The empirical evidence suggests that individuals on all levels experience three fundamental conflicts between print and digital task environments:²⁹

²⁹ There is some recent research to support this; for example, Tameling and Broersma (2013) studied how *de Volkskrant*, a Dutch newspaper, struggled with exploration of new online opportunities: “They want to embrace the opportunities offered by the Internet and digitization, but have to balance the certainties of their present business model with the uncertainties of a digital future” (p. 20). The case study shows how the firm over a five-year period from 2005-2010 pursued a strategy of integrating online and print operations, reallocating staff to stimulate cooperation and make reporters to work for both the newspaper and website—in effect creating an ambidextrous organization where individuals engage in both exploitation-oriented and exploration-oriented activities simultaneously. The researchers found that most reporters did not combine print and online journalism, as the two activities were seen as fundamentally incompatible. Print reporters in particular wondered why they should spend time on a new medium that had yet to make substantial revenues and did not value their existing skills and knowledge. The authors suggested the presence of a strong organizational code obstructs the change of mindset and culture that is necessary to stimulate cooperation with new colleagues and platforms. This led to the subsequent structural separation of print and online operations in 2011.

Differences in velocity: In the digital domain, speed is of the essence, and literally every second counts. Reporters compete to publish the latest breaking news on digital devices. This is seen to be in direct conflict with the print product domain, where stories are written for tomorrow’s newspaper, and individuals may spend days and weeks refining an article. As one reporter noted: “Time—there is too much work to be done by too few people” (survey response, 2012). Doing both seems to create profound operational inconsistencies that most lower-level individuals are not comfortable tackling alone without direct management guidelines. “If you want to publish online, priorities mean that it comes at the cost of making better content for the printed newspaper” (survey response, 2012)

Differences in task complexity: In the print domain, individuals are traditionally only responsible for isolated parts of the production process (i.e., there are reporters, photographers, page designers, copy editors, printers, etc.), whereas in the digital domain, individuals most often do all the work with a piece of content, including the actual publishing. The empirical evidence also shows a link between digital exploration and broadness of experience; that is, individuals working in a digital functional area were more generalist in the sense that they engaged in more diverse tasks within the digital domain. When switching between task environments, this introduces complications as individuals have to align with two different and conflicting production logics. As one employee noted, “Doing both (print and online) at the same time offers problems. Besides, it is difficult to know how to work online when one does not know how they work, and what the routines are” (survey response, 2012). The empirical evidence suggests that most individuals look to management for specific guidelines on how to switch between tasks.

Difference in volatility: In the print domain, the same business paradigm has been largely static for decades. Even as performance drops, the rate of decline is predictable. Digital domains, in contrast, involve constant change and updated skills and knowledge, for example as individuals may be required to do video reporting, multimedia presentations, or live chats with online readers on Facebook. Individuals have to accept a constant state of exploration of new opportunities. In the digital domain, market feedback is instantaneous; comments are made on individual online stories as they are shared on Facebook or Twitter, for example. This can include harsh criticism and opposing views, as well as constructive feedback. In print, most of the feedback is internal and quite civilized, involving staff meetings in which the print product is discussed and reviewed through formalized mechanisms provided by management. The empirical evidence suggests that the task switchers were able to balance these conflicting demands by leveraging knowledge and dividing their attention between print and online task domains. They also reduced their coordination costs in part by repurposing and rewriting content so it could be reused in other publication channels. This leads to the question of whether this is actually ambidextrous behavior or is just exploitative behavior. In other words, are they simply reapplying existing skills to a new functional area? I can offer two perspectives on this. The first is of a theoretical nature: Conceptually, it seems reasonable that individuals must to some extent exploit existing skills and knowledge even when “exploring.” This is why individual ambidexterity in the literature often has been conceptualized with exploration and exploitation as two ends of a continuum. As noted earlier, some arguments from existing literature point to individual ambidexterity being more viable under conditions of weak boundary conditions between explorative and exploitative activities—that is, a lower degree of conflict between two activities (or a smaller distance on a continuum) would presumably reduce the coordination cost as individuals engage in the balancing act of doing both in sequence.

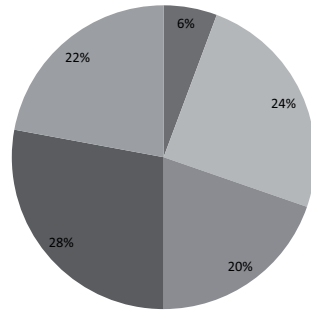
Arguably, this is the case here. In a most basic sense, individual reporters are for example reusing basic writing skills when switching between tasks, even if print and online domains involve conflicting complexity, velocity, and volatility. Secondly, it must be noted that even given such weak boundary conditions, as well as persistent and explicit firm-level integration strategies, most individuals still stick with exploiting their existing functional area—print *or* online. So arguably, the task switchers were clearly exploring new opportunities compared to other individuals who did not. It is also worth noting that even if tasks to some extent reused existing skills and even reused content, they still had to compete on two fronts with specialists who focused their attention and efforts to meet the same publication standards. In sum, I would argue that such individual task switching does constitute ambidextrous behavior.

As predicted by Hypothesis 1, individuals also see ambidexterity as being dependent on the support of management, who are seen as supporting ambidexterity by explicitly modeling the appropriate individual behavior (see for example Birkinshaw & Gupta, 2013; Gibson & Birkinshaw, 2004). As one employee noted, “The biggest challenge today is that it is up to individuals to choose if they want to work online or not. This leads to differences in workloads and speed. Management should define the same demands for everyone” (survey response, 2012). The current literature has suggested that managers would be perceived as encouraging and nurturing *exploration* in particular. However, the empirical data from the study at first glance seem conflicting on this issue. The cross-sectional survey data from 2012 suggest that firm management was perceived as more supportive of *exploitation*. In contrast, when taking a longitudinal view, the archival records document how the initial digital exploration of the early 1990s was a result of individual management initiatives, as well as the direct intervention of executive leadership, rather than lower-level employee exploration. The editor-in-chief himself initiated several probes into the

possibilities offered by digital technologies, quick to react and investigate the opportunities offered by new technology. The eventual decision to launch an online site came from executive level, rather than an initiative from lower-level entrepreneurs in the organization, and was a response to increased competition in the market. This

In our organization, we have clearly defined rules and guidelines for working across print and online product domains

■ Strongly agree ■ Somewhat agree ■ Not sure ■ Somewhat disagree ■ Strongly disagree



suggests that leaders may play an important role in the early pioneering stages of exploration, in line with Tushman and O’Reilly (2002, 2013), for example, who argue that the decision on the part of print newspapers to compete in the digital space would initially require legitimacy and direct intervention from senior executives. However, it seems likely that at some point in time executive leaders have to delegate front-line digital exploration to lower-level employees and focus their own efforts on the leadership responsibility of managing and balancing the conflicting needs of exploration and exploitation from a “high-level” perspective of the firm. As the publisher of the case firm noted in a conversation in 2012:

This is quite a dilemma. Lower-level employees keep asking me for very precise instructions and guidelines as to how to balance the need for structure and efficiency in print operations with the need to be flexible and innovative in the digital space. But if I have to micro-manage everything that goes on, why would I even need people working for me? I have to be able to delegate responsibilities to middle management, and trust that they can sort out the operational details. I cannot put in place detailed instructions for everything. (Publisher, personal communication, 2012)

This inherent dilemma with regard to the contextual solution was apparent in other empirical data. For example, respondents were surprisingly divided on a question of whether there were “clearly defined rules and guidelines for working across print and digital task domains in daily operations. One individual commented, “This depends on who you ask—two managers can give you completely different answers” (survey response, 2012). Another individual noted, “The rules are outdated. They have to be revised far more often than today” (survey response, 2012) and finally, one individual commented, “Plan and structure is missing!” (survey response, 2012). The mixed answers suggest that there is no shared understanding of what the rules/guidelines are for working across print and digital task environments, nor of how such routine procedures should be applied.

This brings me to what seems a theoretical paradox: namely that management by definition is aimed at providing some level of control, structure, predictability, and results. From a theoretical point, exploration management may represent a contradiction in terms, hinting at the paradoxical nature of the ambidexterity construct. I would argue that exploration in its purest form is more likely to be linked to the *absence* of such management control and support systems. Ironically enough, lower-level employees seem to look to management for guidelines as to how to experiment and explore new opportunities.

CONCLUSION: DIVIDE AND CONQUER?

The purpose of this study has been to examine the micro-foundations of ambidexterity: What is the link between firm-level ambidexterity and individual ambidextrous activity, and what are its performance implications? I contribute to our understanding of the ambidexterity concept by proposing a cognitive and an

activity aspect. In the given empirical context, I found that persistent attempts at resolving the ambidexterity dilemma at the firm level through a contextual solution have been successful in the sense that most individuals now share the *perception* that both exploration and exploitation is needed (i.e., a cognitive aspect). However, I also found that most individuals do not engage in switching between conflicting tasks (i.e. individual ambidextrous activity). The empirical evidence suggests that this may be due to limits of attention and the coordination costs involved in switching between conflicting tasks. The empirical evidence suggests that about one out of four individuals engaged in such ambidextrous behavior. This also calls into question the performance benefits of such task switching. Out of the top 30 performers in print and digital task domains, respectively, only a total of five individuals were task switchers, even given a supportive organizational context that on a firm level enabled individuals to divide their own attention and efforts between exploration and exploitation. This suggests that much like in nature, individual ambidexterity may quite rare, but can be quite beneficial to those who are able to use it to improve their performance compared to individuals who focus their efforts on one set of tasks.

However, this insight on the rarity of individual ambidexterity also calls into question the usefulness of the contextual solution at the organizational level. Simply put, if most individuals tend to focus their efforts even given the contextual solution, why not put in place a structural solution on the firm level, which may better allow for such individual specialization and focus of attention and effort? The archival data, as well as the interviews, observations, and survey responses, suggest two primary reasons for the case firm pursuing a strategy of contextual (as opposed to structural) ambidexterity, namely that of reducing risk as well as improving firm competitiveness: The historical data from the early days of digital exploration at the case firm indicate that the initial move to launch an online site in 1996 was seen as a strictly necessary one, but experimentation was

kept to a minimum to reduce uncertainty. One manager noted at the time that the firm realized that it had to get involved in online exploration simply because it did not want to risk being left behind by the competition: “At Adresseavisen, management took the initiative to put the Internet on the firm agenda, but it was with an explicit defensive strategy to gain experience and reduce uncertainty” (Spilker, 2004, p. 175). The Internet changed the market conditions for newspaper firms, and competitors were investing heavily in online media. Once the firm had established a position in the digital arena, management quickly moved to consolidate print and online operations in an attempt to improve the firm’s competitiveness in online markets by leveraging existing firm print resources:

The most important thing for us has been integrating as much as possible. While others have been moving more apart, we have actually been trying to crawl even closer together. I guess we have realized that if we are to be competitive, we have to use the resources we have in our whole organization. (Hjeltnes et al., 2007)

This integration strategy continued for the better part of a decade until 2010, when senior management signaled a strategic shift, as the digital product portfolio may need to be further differentiated from the printed product portfolio in an effort to reduce cannibalization of the legacy print business—that is, readers migrating from paid print products to free digital offerings. Several managers indicated in interviews in 2012 that an unwanted side effect of the integration strategies was that print and online products over time had become too similar, in part because individuals working across task domains were in essence sub-optimizing by duplicating articles rather than exploring radical new product formats in the digital space in particular.

This strategic move to differentiate print and online products has also led to senior firm management recognizing that there may be a future need to protect the vulnerability of digital exploration by structural separation from the legacy business. As one manager put it:

It's a balancing act between principles and being pragmatic. In principle we are pursuing integration. In practical terms, we may be better off recognizing that some employees are best suited to do one thing well, rather than attempting to do two.“ (firm manager, interview, 2014)

LIMITATIONS AND FUTURE STUDIES

As noted in the theory section, both theoretical and empirical issues complicate research into individual ambidexterity. One key limitation of this study is of an empirical nature. Simply put, individuals can engage in infinite variations of explorative activity that cannot easily be tracked and measured by researchers. For the purpose of this study I have confined my empirical research to what I referred in the Theory section as “Scenario 2,” in which management sets the stage for exploration of a particular business domain, which is seen as conflicting with the legacy business. This allows for the in-depth study of the print and online framing of both individual and firm levels of analysis. Of course, all the individuals in this study could potentially still in their work time be exploring a string of arbitrary alternative activities, which may be explorative relative to the firm but were not possible to track. Similarly, the chosen individual performance metric (published stories) is clearly not the only relevant one. For example, the level of readership for each individual article (both online and print) is also a highly relevant metric, which in turn influenced firm advertising revenues. Future studies should consider these, for example by using recent advances in big data

analytics that may allow for real-time insights into the performance implications of individual exploration and exploitation (Bøe-Lillegraven, 2014). In addition, there are a number of other performance metrics, such as whether the article addresses important social or political issues and helps the firm fulfill its role of informing the public. To properly account for this, future studies of individual ambidexterity may benefit from an ethnographical approach, which would enable the researcher to reveal how individuals within an integrated business unit go about their daily routines. As noted in the method section, I found low reliability for the constructs of exploration and exploitation. Arguably, this can be justified by the exploratory nature of this study. Most ambidexterity studies to date have sampled managers, who may be expected to have a firm (no pun intended) understanding of the innovation framing that has typically been used in previous ambidexterity studies. I would argue that since the empirical focus of this study is all individuals in one integrated business unit, the chosen explore/exploit framing is appropriate.

Like many ambidexterity studies (see for example Gibson & Birkinshaw, 2004; Jansen et al., 2005; Mom et al., 2009), this study involves cross-sectional data from single informants using perceptual scales. Measuring different constructs with the same method potentially introduces a common bias effect—i.e., some of the observed co-variation between variables may be due to a shared method of measurement. To control for such bias, I deployed five specific procedural remedies *ex ante* as suggested by Podsakoff et al. (2012) to maximize respondent motivation and ability to respond accurately. It should be noted that I did consider obtaining predictor and criterion variables from different sources. Unfortunately, this was not an option for this study, so I instead introduced a number of other remedies: Firstly, I deployed at a proximal separation between constructs for exploration, exploitation by means of dedicated buffer items. This has been shown to diminish method bias by increasing the difficulty of responding

stylistically or using prior responses to answer subsequent questions (Podsakoff et al. 2003). Secondly, I minimized the scale properties shared between predictor and criterion variables by using varying Likert scales/items so the respondents would not cognitively combine related items, which could lead to a biased pattern of responses. Thirdly, based on a pilot survey, I improved the scale items to remove ambiguity, keeping the questions simple, specific, and concise and avoiding vague concepts. In line with suggestions from Krosnick (1991), I also labeled every point on the response scale to further reduce item ambiguity. Fourth, I also introduced positive and negative items to control for response style tendencies that may have produced misleading factor scores and deflated or inflated regression scores. Lastly, and perhaps most importantly, in line with suggestions from Aronson et al. (1998), I also created a cover story for the study to increase the probability that respondents would provide accurate answers. As suggested by Podsakoff et al. (2012), this cover story was actively endorsed by senior management. Respondents were also assured of the anonymity and confidentiality of the study, that there were no right or wrong answers, and that they should answer as honestly as possible (Chang et al., 2010). I believe these procedural remedies should minimize the effect of common method bias, but I also performed Harman's one-factor test on items included in the regression models as a statistical remedy. If common method bias was still a problem in the study, I would expect either that a single factor to emerge from the factor analysis or that a general factor would account for the majority of the covariance among the variables (Podsakoff & Organ, 1986; Podsakoff, Todor, Grover, & Huber, 1984; Podsakoff et al., 2003; Mom et al., 2009). I did not find such a single factor. I should also note that the methods deployed in this study are suited to establish relationships between constructs, not causality.

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Chapter 5

EDITOR, EXECUTIVE, AND ENTREPRENEUR: STRATEGIC PARADOXES IN THE DIGITAL AGE

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Abstract: To survive in today's increasingly complex business environments, firms must embrace strategic paradoxes: contradictory yet interrelated objectives that persist over time. This can be one of toughest of all leadership challenges, as managers must accept inconsistency and contradictions. In this article, we develop and empirically test a set of hypotheses related to ambidexterity, a key example of a paradoxical strategy. Through our analysis of data from a survey of executive leaders, we find a link between organizational ambidexterity and strategic planning, suggesting that the complexities of navigating in explorative ventures require more explicit strategy work than the old certainties of the legacy business. We identify and discuss inherent paradoxes in 22 industry-specific strategies and their implications for firm performance, where empirical industry data shows a pattern of conflict between explorative growth strategies and exploitative profit strategies. We argue this is just one of the inherent paradoxes in the ambidexterity construct.

Keywords: ambidexterity, leadership, strategy, paradoxes, organizational change

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INTRODUCTION

An emerging idea in strategy, management, and organizational studies is that in the highly competitive business environments of the 21st century, being very good at just one thing is no longer good enough. To survive and prosper over time, firms must be *ambidextrous*—able to implement both incremental and revolutionary change—continuously exploiting the existing business while simultaneously exploring new and potentially disruptive market opportunities (March, 1991; Tushman & O’Reilly, 1996). However, exploration and exploitation are associated with conflicting business logics that create fundamental strategic challenges for firms and their leaders (Smith & Tushman, 2005). Exploitation aims to refine products in existing markets, whereas exploration seek to introduce new products and services to uncharted markets. Undertaken simultaneously, they create a strategic paradox: “contradictory yet interrelated demands embedded in an organization’s goals” (Smith, 2014, p. 1542).

Paradoxes denote tensions that coexist and persist over time, pose competing demands that require ongoing adaption and change, and defy resolutions (Lewis, 2000). The strategy literature is full of examples of such paradoxes organizations face, including tensions between corporate synergies and business unit specialization, financial viability and social responsibility, or high growth and high profitability; still, we know little about the specific nature and management of strategic paradoxes (Smith, 2014, p. 1593). Effectively implementing and managing contradictory business objectives is complex and challenging, yet a research gap remains regarding exactly how leaders plan and execute paradoxical strategic intent (O’Reilly & Tushman, 2013). This paper addresses this gap by examining how executive leaders manage conflicting strategic priorities in response to environmental and internal pressures for change: Does a readiness for change help organizations simultaneously explore and exploit to become ambidextrous? Do multiple, conflicting objectives lead to more

explicit, written strategic planning, or alternatively a more *laissez-faire* approach given the complexities involved?

The empirical setting of this study is the newspaper industry, which provides a particularly relevant context for studying how incumbent firms adapt paradoxical strategies in response to increasingly complex business environments (O'Reilly & Tushman, 2013; Smith et al., 2010). Over the past decade, newspaper readers and advertisers have been migrating to digital media, leaving the industry in a constant state of change. Smith and Lewis (2011), in their study of strategic paradoxes, noted that such increased environmental dynamism may encourage leaders to push the boundaries of both explorative and exploitative strategies. The strategic tensions become further prominent in “complex settings” where there are overlapping technological paradigms. Such is arguably the case in the newspaper industry, where digital media over the past 20 years have competed for primacy over the legacy printed newspaper. For leaders, this introduces a strategic dilemma: Should they focus on what they know well—keeping their current newspaper businesses profitable—or should they attempt to compete with Facebook, Google, Twitter and the like for future digital revenues?

The answer is probably that they must do both; an either/or response to these strategic tensions would most likely be inadequate (Smith et al., 2010). In the digital age, leaders may be charged with being editors, executives, and entrepreneurs. As editors, their responsibility is to uphold ethic and journalistic standards across different media platforms. This can be quite challenging, as they have to balance the need for getting the latest news out on the Internet as quickly as possible with the need for fair and accurate reporting on important topics. As an executive, they have to make sure to uphold the financial sustainability of current products and markets, while upholding the journalistic, ethical, and professional standards on which the current business was built. As entrepreneurs, they have to outsmart the Silicon Valley start-ups to build new digital business opportunities

that could potentially kill off their existing print cash cows before they have the chance to milk the last drops from them. In sum, industry leaders are charged with making choices and trade-offs among competing, conflicting, and often paradoxical strategies (Jansen et al., 2006, 2009; March, 1991; Smith et al., 2010; Smith & Lewis, 2011; Tushman & O'Reilly, 1996).

Our contribution to current research on strategic paradoxes and ambidexterity is three-fold: First, our study links a firm's readiness for change to both exploration and exploitation, suggesting such readiness may indeed help firms sustain ambidextrous strategies. Second, we link ambidexterity to strategic planning, suggesting the complexities of navigating explorative ventures require more strategy work than the old certainties of the legacy business. Finally, we discuss paradoxes involving 22 industry-specific strategic initiatives, giving new insights into the financial viability of ambidexterity strategies.

In the following theory section, we discuss the role of leaders in managing change and strategic paradoxes. We note that much of the management and strategy literature has been focused on firms overcoming organizational inertia to become innovative and continuously changing in response to environmental demands and pressures. Ambidexterity strategies adopt an alternative approach, suggesting that leaders must attend to conflicting demands for consistency and change simultaneously. This requires the continuous management of multiple, divergent objectives and can be the toughest of all leadership challenges, as managers must embrace inconsistency and contradictions. The theoretical payoff is improved firm performance and prosperity over time. We propose a set of hypotheses grounded in theory to be empirically tested; then, we present our findings; finally, we conclude the paper with a discussion of the theoretical and practical implications of our study.

THEORY AND HYPOTHESES

One of the cornerstones of modern management theory is the idea that the consistent manipulation of organizational structure and resources is key to financial success. Most firms exist to generate some sort of coordinated effort—such as the production of goods and/or services that are of value to their environment—and to accomplish this, firms need a set of rules and authorities that guide the individual members of the organization toward a shared goal. Strategic management can be framed as a series of processes aimed to regulate the actions of the organization to achieve consistent firm performance. But the need for stability can be self-destructive in the long run. Prone to the success paradox (Tushman & O'Reilly, 1996), incumbent firms may resist change, ignoring business strategies regarded as disruptive to the current recipe for success and favoring the activities they know best: further efficiency gains through incremental improvements of existing processes and products rather than experimentation with radical new approaches (Benner & Tushman, 2003; March, 1991). In this view, sometimes called *punctuated equilibrium*, fundamental change occurs only through an interruption—disruption—of the status quo, either by the direct intervention of executive leadership or by an external event such as a new technological paradigm (Christensen, 1997; Tushman & Romanelli, 1986). These disruptions (punctuations) can lead to an upheaval of an organization's deep structures, leaving it in disarray until the disturbance ends and new stability is found. In this view, organizations inevitably gravitate toward a state of equilibrium in which managers fall back on learned patterns of exploitative response, as “the certainty, speed, proximity, and clarity of feedback ties exploitation to its consequences more quickly and more precisely than is the case with exploration” (March, 1991, p. 73). Levinthal and March (1993) called this the myopia of learning: firms tend to rely on strategies that are proximate, less risky, and more measurable. Such resistance to change is rational, but can also be self-

Table 1: The ambidexterity paradox (adapted from Tushman and O'Reilly, 1996)

| | Exploitative activities | Exploratory activities |
|-------------------------|--|---|
| <i>Strategic intent</i> | Cost control, profit | Innovation, growth |
| Critical tasks | Operations, efficiency, incremental innovation | Adaptability, new products, breakthrough innovation |
| Competencies | Operational | Entrepreneurial |
| Structure | Formal, mechanistic | Adaptive, loose |
| Controls, reward | Margins, productivity | Milestones, growth |
| Culture | Efficiency, low risk, quality, customers | Risk taking, speed, flexibility, experimentation |
| Leadership role | Authoritative, top down | Visionary, involved |

destructive in the long run, as firms and managers risk losing their competitive edge.

Ambidexterity Strategies

Ambidexterity theories suggest that firms and their managers must overcome these self-enforcing patterns of learning that favor the known to develop the dynamic capability to simultaneously exploit existing business and explore new opportunities in order to address rapidly changing environments (O'Reilly & Tushman, 2008; Taylor & Helfat, 2009; Teece et al., 1997). To remain successful over long periods, managers and organizations must be able to implement both incremental and revolutionary change (Tushman & O'Reilly, 1996, p. 8). As shown in Table 1, the ambidexterity framing introduces a number of trade-offs on both operational and strategic levels, which is why it has often been used as a “key example” of a strategic paradox (Papachroni, 2014; Smith, 2014). The ambidextrous firm must simultaneously pursue both explorative and exploitative strategies that are internally consistent but contradictory across strategies (Smith et al., 2010). This introduces a particular type of leadership challenge, as managers must confront and overcome both personal and organizational needs for

consistency (Brown & Eisenhart, 1997; O'Reilly & Tushman, 2013; Smith & Tushman, 2005). Senior executives in particular are regarded as playing an important role in helping organizations attend to contradictory demands and foster ambidexterity (See for example Birkinshaw & Gupta, 2013; Gibson & Birkinshaw, 2004; Lubatkin et al., 2006; Raisch & Birkinshaw, 2008; Smith & Tushman, 2005; Tushman & O'Reilly, 2011). Rather than attempting to align and “resolve” conflicting demands of exploration and exploitation, executive leaders need to embrace divergence and build the capacity to attend to competing and conflicting demands simultaneously (Smith & Lewis, 2011), combining the attributes of rigorous cost cutters and free-thinking entrepreneurs (O'Reilly & Tushman, 1996, 2013). In day-to-day business, managers need to achieve operational efficiencies by making incremental improvements to existing products to exploit existing resources and customers, thereby reducing risk and improving short-term performance. However, to secure a firm's long-term survival, leaders must also plan and prepare for the inevitable revolutions required by discontinuous environmental change (Tushman & O'Reilly, 1996, p. 11). From the perspective of long-term planning, ambidexterity strategies may be particularly challenging because even if the theory suggests firm must pursue explorative and exploitative activities simultaneously, organizations typically look to leaders to provide definitive answers to questions such as, Should we pursue strategy A or B? Ambidexterity strategies offer no such resolution, but rather ask, Can we do both? Accordingly, leaders must make seemingly rational and consistent choices in the short term, while remaining acutely aware of accepting strategic paradoxes and contradictions in the long term; “Doing so involves consistent inconsistency as managers frequently and dynamically shift decisions” (Smith & Lewis, 2011, p. 392). Such strategic paradoxes defy rational, linear logic, and may foster frustration for the organization's lower-level workers, who experience management as inconsistent, ambivalent, or even hypocritical (Lewis, 2000;

Smith, 2014). This can lead to internal pressures to stick with one strategy, but as Birkinshaw and Gupta (2013) point out, why else would firms need managers, if not to override the organization's natural tendency to resist change and help it do things that do not come naturally? In summary, fostering and leading organizational cultures that can handle both incremental and discontinuous change is perhaps the most demanding aspect of strategic management (Tushman & O'Reilly, 1996, p. 24). The arguments above suggest that readiness for change may be needed for the successful implementation of ambidexterity strategies, leading us to propose the following hypothesis.

Hypothesis 1: Readiness for Change is Positively Related to Ambidexterity.

This is in line with previous ambidexterity studies, which suggest that a capacity for change enables firms to both explore and exploit market opportunities (O'Reilly & Tushman, 1996; Papachroni, 2014; Taylor & Helfat, 2009). As Judge and Blocker (2008), pointed out, leaders sensing the need to change is undeniably the first step in firms becoming ambidextrous, but simply acknowledging what must be done is not enough; actually following through and implementing changes to pursue both exploitive and exploratory strategies is likely the biggest hurdle in a firm's pursuit of strategic ambidexterity (p. 920). This leads to the question of whether it is actually possible to plan for ambidexterity—that is, both incremental and discontinuous change. There is a long-standing debate regarding whether strategic planning (defined as an organization's process of defining its objectives and making decisions on allocating its resources to pursue this strategy) is beneficial in unstable environments, with one school of thought arguing that strategies come into existence not as "snapshots in time" (for example, though a written, explicit long-term strategic report/statement) but rather through small decisions that are assessed and updated periodically. These small decisions are not

predetermined, but emerge logically through experimentation and learning (logical incrementalism). In this view, strategic planning is of little help for explorative activities (see for example Eisenhart & Brown, 1998; Mintzberg 1991, 1994). Another school of thought contends that strategic planning can provide a roadmap to help a firm achieve its vision and goals regardless of environmental stability (see for example Ansoff 1991, 1994). In this view, strategic planning is seen as a deliberate, rational, linear process where the goals are specified first, followed by a detailed implementation plan. Brews and Hunt (1999), in their study of strategy processes at 656 firms, attempted to resolve these conflicting views by suggesting that both the deliberate and emergent approaches may be part of good strategic planning, especially when firms face increased environmental turbulence. The authors suggest that exploitation strategies in stable environments may require *less* planning, as firms may rely more on existing routines and capabilities in predictable, slow-moving industries where uncertainty is low. Increased environmental turbulence may force the development of more sophisticated explorative strategies and planning capabilities (Brews and Hunt 1999, p .905–906). Based on the arguments above, we speculate that the paradoxes inherent in ambidexterity strategies could lead to a greater degree of explicit strategic planning, suggesting a positive relationship between the two.

Hypothesis 2: Strategic Planning is Positively Related to Ambidexterity

There are two arguments to consider. First, managing strategic paradoxes is presumably more complex than managing one, internally consistent strategy. Second, we would expect a stronger relationship to exploration, as this represents new strategic territory, while exploiting old certainties may require *less* strategic planning. This is in line with Kohtamaki et al. (2010); in their study of ambidexterity strategies, they found that strategic planning, defined as “a detailed

process that aims to explicate strategy through the analysis of various strategic options” (p. 222), could help facilitate the exploration of new opportunities—in particular, by helping leaders focus on the big picture rather than day-to-day operational details. Their study also emphasized the importance of making such strategies understandable and tangible to secure lower-level employees’ commitment to the success of strategy implementation. Several other studies have also suggested that a compelling strategic plan that justifies the need for simultaneous exploration and exploitation, as well as the relentless and explicit communication of such a strategy, may increase the likelihood of a firm actually achieving ambidexterity (see for example O’Reilly & Tushman, 2008, p. 197–198).

Lastly, in line with a number of other studies, we also speculate that ambidexterity strategies are perceived to be linked to improved firm performance (see for example Junni et al., 2013, and O’Reilly & Tushman, 2013, for extensive reviews of the literature linking organizational ambidexterity and financial performance). One of the key arguments in the literature is that ambidexterity strategies are needed to secure firm survival in fast-changing, complex business environments, where an *either/or* approach to strategic planning may be inadequate. To stay competitive, firms and their leaders must adopt a *both/and* approach, committing to conflicting strategies and their associated product, market, and organizational architectures (Smith et al., 2010, p. 449). Put more succinctly, the reason leaders pursue strategic paradoxes, given their complexities and inconsistencies, is probably that they believe they will improve firm performance.

Hypothesis 3: Ambidexterity is Perceived as Positively Related to Firm Performance

In the next section, we outline our research methodologies, procedures, measures, and analysis results. We end the paper with a discussion of practical implications for both researchers and practitioners, as well as some limitations of our study and avenues for further research.

METHODS

Procedures and Sample

Our procedures consisted of: (1) one-on-one interviews with top executives in newspaper firms across the Nordic countries, (2) management group sessions in Norway, Sweden, Denmark, and Finland, to explore issues related to strategic planning and threat/opportunity framing, (3) a survey sent to all newspaper executives in the four Nordic countries, (4) case studies of a legacy newspaper firm and an Internet start-up. In this study, we primarily report on quantitative data from the survey. Our survey sample was based on email lists provided by the respective publishing organizations in Denmark, Finland, Norway, and Sweden was distributed to all (N = 917) media top executives (editors and/or business managers) in the four Nordic countries to assess to what extent they saw their firms as ready for change, as well as which of a list of 22 pre-defined strategic challenges to the industry they consider priorities (Wilberg, 2011; 2012; 2013). We made this list through management sessions and personal interviews with news executives, and reviewed, tested, and validated it annually to find the most relevant issues for the industry at the time. The 2012 survey included several new items—exploration, exploitation, and organizational ambidexterity, which were theory-based and which one of the authors has used in two separate case studies (N = 133 and N = 58), and found valid and reliable. The survey used *SurveyMonkey*, a popular Web-based survey tool. We first piloted it on a small group of executives and one external researcher. We made some adjustments for clarity and language, then sent the final survey to respondents in late fall 2012. At

the end of the data collection we had a sample of N = 143 executives from the four Nordic countries, representing 13–20% of the news organizations in each country. Sample sizes and country breakdown for 2012 appears in Table 2. One of the questions also links to a study from 2006 (N = 130).

Measures

Organizational ambidexterity (dependent variable). In line with existing studies, we computed ambidexterity as an additive integrative construct of multi-item scales for exploration and exploitation (Lubatkin et al., 2006; De Visser et al., 2010; Jansen et al., 2009; Revilla et al., 2009). However, we also created both additive (e*e) and subtractive (e-e) models to be tested.

Exploration and exploitation. In line with previous ambidexterity studies, we constructed separate scale items for *exploration* and *exploitation*. We captured exploitation by asking executives to indicate, on a four-point Likert scale, the degree to which they agreed with the following statements about their organizations: “*We offer refined products and services which we know will satisfy our customers*” (Principal component extraction .77); “*In our organization, we value experience and professional conduct. This helps us maintain consistently high quality standards*” (.77); “*We have a mature product, and know what our readers want and need*” (.78); “*We run a pretty tight organization with clearly defined roles and responsibilities*” (.81); “*Productivity and efficiency is a core value in our organization*” (.84); “*Employees have freedom to improvise on current products.*” (.81). The items loaded on three factors (refinement, consistency and experience), explaining 79.61% of the total variance. The Cronbach’s alpha for the exploration measure is .60. Hair et al. (2005) notes that alpha values over 0.60 are accepted in exploratory studies. Next we created an additive construct comprised of these three factors, which we believe now

adequately captures the essence of exploitation: *refinement, consistency and experience* (March 1991).

We captured exploration by asking respondents to indicate, on a four-point Likert scale, the degree their organization was characterized by the following: “*We have to put out new products to survive*” (.70); “*Ongoing redefinition of job descriptions*” (.81); “*Constantly changing*” (.70); “*Authority tied to tasks rather than positions*” (.74); “*Every failure is seen as a learning experience*” (.54); “*We believe in limited structure and flexibility*” (.61). The items loaded on three factors (*experimentation, flexibility, and change*), explaining 68.17% of the total variance. The Cronbach’s alpha was .60. Next we created an additive construct comprised of these three factors, which we believe now adequately captures the essence of exploration: *experimentation, flexibility and change* (March 1991).

Readiness for change. We captured a firm’s perceived readiness for change by asking survey respondents, on a 7-point Likert scale to assess how ready their firm was for change on editorial as well as the business side of operations. There was also a comparison with a study from 2006 where the same question in regards to readiness for change had been given with the same target group, and with a sample size of $N = 130$.

Firm performance. To measure firm performance, we asked respondent to rate, on a 5-point Likert scale, how they perceived their firm’s performance in terms of newspaper sales, online users, mobile users, tablet users, print advertising revenues, digital advertising revenues, mobile advertising revenues, and other revenues. We found this scale to have a Cronbach’s alpha of .67. We also created separate scales for performance in explorative and exploitative product/marked domains respectively. We found it loaded on three components (digital (Web, tablet, mobile)/print/other revenues) for a cumulative eigenvalue of 71.95%. We also asked respondents how much of their total revenues came from the digital

side of the business. The market average in the Nordic countries for 2012 was 4%. We were looking for firms that outperformed the market.

Strategic planning. We asked respondents if they had a written strategic plan for their firm, but also to rank the strategic importance of 22 industry-specific strategy items on a 7-point Likert scale. We wanted to assess the importance of specific strategic intents. This would also allow us to examine the relationship between an organizations capacity/propensity for ambidexterity (what characterizes the organization) and the strategic intent. We found this scale to have a Cronbach's alpha of .74.

Control variables. In line with previous ambidexterity studies, we controlled for firm size, country, leaders' functional areas, and perceived environmental munificence (market volatility).

ANALYSIS AND RESULTS

Mean, standard deviation, and correlations among the variables appear in Table 3. Strategic planning and readiness for change significantly and positively related to ambidexterity. It is interesting to note that strategic planning had a positive relation to exploration, but no significant relation to exploitation. Readiness for change linked to exploration and exploitation strategies, as well as perceived firm performance.

Main Effects

Next, we tested the main effects by employing a multiple regression analysis, entering independent variables cumulatively to assess the increments in variance explained. The results of the analyses appear in Table 4. For the hypotheses regarding ambidexterity, the firm control variables first appear in Model 1, but show no significant effect on the variance in ambidexterity. In Model 2, we added the environmental control variables, with no significant effect. In Model 3 we add the first main effect, finding that readiness for change

significantly improves the fit of the model, now accounting for 15.8% of the variance in ambidexterity ($p < .01$).

This supports Hypothesis 1, which proposes a link between readiness for change and ambidexterity. Adding strategic planning in Model 4 further improves the fit of the model, which now accounts for 21.2% of the variance in ambidexterity ($p < .001$). This supports Hypothesis 2, which suggests a positive link between ambidexterity and strategic planning. We also note that in this full model, the effect of firm country becomes significant ($B = .198$; $P < 0.5$). We refer to the discussion section for more on this. In Model 5 we test for the link between ambidexterity and firm performance, while controlling for the other variables. We find no significant relation. This means we must reject Hypothesis 3, which suggests a positive link between ambidexterity and firm performance. We will discuss this somewhat surprising finding in the discussions section.

Table 3: Correlations, means and standard deviations

| | Mean | St. Dev. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------------------|--------|----------|--------|--------|--------|--------|---------|--------|--------|--------|---------|------|
| 1 Exploitation | .000 | 1.732 | | | | | | | | | | |
| 2 Exploration | .000 | 1.732 | .260** | | | | | | | | | |
| 3 Ambidexterity | -.028 | 2.676 | .786** | .801** | | | | | | | | |
| 4 Strategic Planning | .895 | .307 | .101 | .198* | .207* | | | | | | | |
| 5 Readiness for change | 5.874 | 1.421 | .258** | .257** | .323** | -.015 | | | | | | |
| 6 Firm performance | 19.335 | 5.389 | .079 | .123 | .139 | .135 | .366** | | | | | |
| 7 Leaders functional area | 1.839 | .801 | -.079 | -.080 | -.096 | -.155 | -.029 | -.108 | | | | |
| 8 Firm size | 2.671 | .940 | -.001 | .171* | .092 | .245** | .080 | .281** | -.005 | | | |
| 9 Firm country | 2.664 | 1.041 | -.096 | .083 | .030 | -.111 | -.277** | -.161 | -.065 | -.207* | | |
| 10 Type of firm | 1.795 | 1.028 | -.055 | -.008 | -.003 | .119 | .066 | .086 | -.194* | .407** | -.292** | |
| 11 Environmental munificence | 30.050 | 5.694 | .009 | .227** | .144 | .105 | .082 | .141 | -.196* | .263** | .034 | .066 |

N=142. * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 4. Results of regression analyses

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
|----------------------------------|-----------------------------------|-----------|-----------------------------------|-----------|-----------------------------------|-----------|-----------------------------------|-----------|---------------------------------|-----------|
| | Dependent variable, ambidexterity | | Dependent variable, ambidexterity | | Dependent variable, ambidexterity | | Dependent variable, ambidexterity | | Dependent variable, performance | |
| | B | SE | B | SE | B | SE | B | SE | B | SE |
| Main effects | | | | | | | | | | |
| Intercept | .122 | .974 | -2.23 | 1.990 | -6.914 | 2.191 | -9.358*** | 2.302 | | |
| Control variables: | | | | | | | | | | |
| Ambidexterity | | | | | | | | | | |
| Readiness for change | | | | | .365*** | .172 | .392*** | .168 | -.029 | .194 |
| Strategic planning | | | | | | | .249*** | .790 | .097 | 1.674 |
| <i>Leaders functional area</i> | | | | | | | | | | |
| <i>Firm size</i> | -.108 | .321 | -.069 | .336 | -.067 | .315 | -.007 | .315 | -.062 | .659 |
| <i>Firm type</i> | .109 | .300 | .069 | .315 | .070 | .295 | .005 | .295 | .242* | .607 |
| <i>Firm country</i> | -.059 | .279 | -.026 | .297 | .009 | .279 | .032 | .272 | -.84 | .558 |
| <i>Environmental munificence</i> | | | .063 | .268 | .168 | .261 | .198* | .255 | -.080 | .536 |
| <i>F improvement of fit</i> | .745 | | .121 | .048 | .094 | .045 | .090 | .044 | .033 | .092 |
| <i>R Squared</i> | | | .949 | | 16.664*** | | 7.793** | | | |
| <i>Adjusted R Squared</i> | .019 | | .035 | | .158** | | .212*** | | .213** | |
| <i>ANANOVA F</i> | -.006 | | -.007 | | .113 | | .163 | | .155 | |
| | .0745 | | .926 | | 3.559** | | 4.346*** | | 3.630** | |

N=120. Standardized regression coefficients are shown in the table. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5: Newspaper circulation in Nordic countries 2002-2012 (1000)

| Year | Denmark | Finland | Norway | Sweden |
|------------|--------------------|--------------------|--------------------|--------------------|
| | Subscription sales | Subscription sales | Subscription sales | Subscription sales |
| 2002 | 1162 | 1937 | 1891 | 2919 |
| 2003 | 1115 | 1923 | 1857 | 2894 |
| 2004 | 1083 | 1924 | 1831 | 2877 |
| 2005 | 1071 | 1914 | 1812 | 2846 |
| 2006 | 1040 | 1905 | 1788 | 2808 |
| 2007 | 981 | 1895 | 1777 | 2771 |
| 2008 | 926 | 1842 | 1746 | 2697 |
| 2009 | 883 | 1783 | 1576 | 2603 |
| 2010 | 843 | 1730 | 1537 | 2504 |
| 2011 | 810 | 1667 | 1497 | 2438 |
| Change (%) | | | | |
| 2002-2011 | -30 | -14 | -21 | -16 |

Sources: *Nordicon.gu.se* (Danish Audit Bureau of Circulations, Finnish Newspapers Association, Finnish Audit Bureau of Circulations/Statistics Finland, Statistics Iceland, Avisåret (annual publications by Høst, Institute of Journalism/Volda University College in Norway), Swedish Audit Bureau of Circulations (Tidningsstatistik AB) (processed).

Table 6: Readiness for change across countries, 2012 (N=143)

| | What country? | | | |
|----------------------|---------------|---------|--------|--------|
| | Denmark | Finland | Norway | Sweden |
| | Mean | Mean | Mean | Mean |
| Readiness for change | 3,38 | 2,76 | 3,00 | 2,65 |

Comparisons of Column Means^a

| | What country? | | | |
|----------------------|---------------|---------|--------|--------|
| | Denmark | Finland | Norway | Sweden |
| | (A) | (B) | (C) | (D) |
| Readiness for change | B D | | | |

Results are based on two-sided tests assuming equal variances with significance level .05. For each significant pair, the key of the smaller category appears under the category with larger mean.

Table 7: Readiness for change 2006 (N=130) and 2012 (N=143).

| | Year | | | |
|-----------|------|-------|------|-------|
| | 2006 | | 2012 | |
| | Mean | Count | Mean | Count |
| Readiness | 3,13 | 130 | 2,94 | 143 |

Comparisons of Column Means^a

| | Year | |
|-----------|------|------|
| | 2006 | 2012 |
| | (A) | (B) |
| Readiness | B | |

Results are based on two-sided tests assuming equal variances with significance level .05. For each significant pair, the key of the smaller category appears under the category with larger mean.

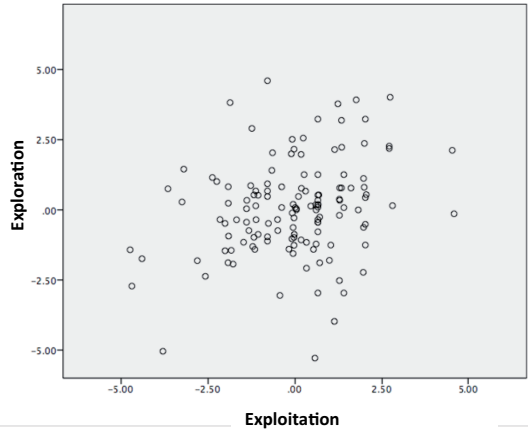
- a. Tests are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction.

Post-Hoc Analysis

To further verify our findings and gain additional insight, we conducted a series of post-hoc analyses. Hypothesis 1 suggests a link between readiness for change and ambidexterity. The data also suggested that such readiness for change might differ between the Nordic countries. Previous studies have suggested that relationship will strengthen during periods of high environmental uncertainty and weaken during periods of certainty (Judge & Blocker, 2008, p. 921). To explore this further, we conducted a standard t-test of the column means from the 2012 samples from Sweden, Norway, Finland, and Denmark with a confidence level of 95%. We expected that there would be a statistically significant difference across the different Nordic countries, as industry data (see Table 5) suggests that for example Denmark has experienced a stronger industry decline than the other countries over

the period from 2002–2012. Our expectation would then be that the Danish respondents would report that they are more ready for change than their Nordic counterparts. This was confirmed, as shown by the results in Table 4. We see that Denmark is reporting a higher level of readiness for change than Norway, Finland, and Sweden—but only on the business side of operations. On the editorial side, there was no significant difference between the responses from the different countries.

Figure 1: Plot of exploration vs. exploitation for the 143 firms



We wanted to further elaborate on this interesting finding by considering longitudinal data. The results from our analysis of the cross-sectional survey data from 2012 suggested a link between greater environmental turbulence and an increased need for change. However, we speculate that the need for change may not only be unevenly distributed across space (in this case geographical borders across countries), but also over time. We had access to data from a 2006 survey pursuing a similar question on readiness for change, and we deployed a standard t-test for independent samples to compare the responses from 2006 and 2012 with a confidence level of 95%. The sample reports suggest that respondents across the Nordics may in fact be less ready for change in 2012 than in 2006. We refer to the discussion section for more on this.

Hypothesis 2 predicted that strategic planning has a positive relation to ambidexterity. We found a strong, positive, and significant relation ($b = .207, p < .05$). However, our analysis suggested a positive, significant relation to exploration, but no significant relation to exploitation. Figure 2 represents the

Table 8: Strategic planning - importance of key strategic issues over the next three years

| | EXPLORATIVE | EXPLOITATIVE | AMBIDEXTROUS |
|---|-------------|--------------|--------------|
| | FIRM | FIRM | FIRM |
| Focus on profitability in all parts of the organization | -.043 | .125 | .183* |
| Focus on collaboration with other firms | .240** | -.320** | .137 |
| Rapid implementation of changes | .127 | -.092 | .035 |
| Reduction in number of employees | .104 | -.130 | .024 |
| Product development - editorial | .150 | -.048 | .049 |
| Product development - market and advertising | .147 | .036 | .189* |
| Stable and reliable distribution | .091 | -.004 | .000 |
| Better market research/documentation | .165* | .092 | -.012 |
| Spend more money on Web site(s) | .100 | -.129 | .138 |
| Increase marketing budgets | .147 | -.090 | .006 |
| Top customer service | -.066 | .065 | .169* |
| Development of the firm brand | .305** | -.219** | .010 |
| Develop employee competences | .225** | -.130 | .096 |
| Develop a good working environment | .045 | .041 | .070 |
| Encourage cooperation between departments | .172* | -.089 | .113 |
| Increase overall competence in the organization | .276** | -.130 | -.016 |
| Relationships/alliances with competitors | .284** | -.173* | .126 |
| Management and leader development | .275** | -.083 | -.120 |
| Board level competence | .139 | -.188* | .180* |
| More interaction with users | .101 | -.185* | .018 |
| Application of new technology/software | .175* | -.061 | .239** |
| Experiment with new business models | .143 | -.192* | .126 |

*N=143. Median cut off (He and Wong, 2004) ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).*

relationship between exploration and exploitation, illustrating how most firms tend to cluster towards the middle. We see a small number of firms rate high on both exploration and exploitation—the truly ambidextrous businesses. We wanted to examine this further, by testing how ambidexterity, exploration, and exploitation were related to a set of pre-defined specific strategic items found highly relevant in the given industry context.

In line with He and Wong (2004), we divided our sample into three firm groups based on a median cut-off criterion, ranking them in descending order of explorative or exploitative factor scores. We coded firms that fell in the upper half of the explorative ranking as such, and did the same for the upper half of exploitative rankings. A firm was ambidextrous if it belonged in both upper halves (see Figure 2). Table 8 summarizes significant correlations on the 22 strategic

items. The results show a number of statistically significant differences between explorative, exploitative, and ambidextrous firms. Only 26% were ambidextrous, based on leader responses. For these, top strategic priorities included application of new technologies, market-driven product development, and top customer service.

The table above suggests the powerful inertial forces of exploitation are in place even in the ambidextrous firms, which seem to take a middle-of-the road approach to strategic planning. “Explorative” firms put significantly stronger importance to strategic intents in regards to collaborations with other firms, or even competitors; developing both brand and internal competences on all levels of the organization. Exploitative firms seem to strongly avoid collaboration with other firms. Further development of the brand is seen as being of relatively little importance, and there were also significant negative relations to experimenting with new business models, technologies, and alliances with competitors. This should prove quite challenging in the long term, given the rapid changes in the news industry.

DISCUSSION

The purpose of this study has been to examine how executive leaders manage the paradoxes introduced by ambidexterity strategies. This can be one of the toughest leadership challenges, as it requires “consistent inconsistency as managers frequently and dynamically shift decisions” (Smith & Lewis, 2011, p. 392). Ambidextrous leaders may make rational and consistent choices in the short term, while acutely aware of accepting contradictions in the long term. Such inconsistency is probably an acquired taste for most. Accordingly, we had suggested a possible link between ambidexterity and a readiness for change. Without such a recognition that change is needed, leaders would probably just go

about their daily business, without experimenting with disruptive technologies that could eradicate the legacy business that made the firm successful in the first place. We found support for this in empirical data, but one somewhat surprising finding from our post-hoc analyses was that even given the well-documented media turmoil in the wake of the financial crisis of 2009, executive leaders in Nordic countries may not be more ready for change in 2012 than they were back in 2006. We would like to offer two perspectives on this:

First, the news industry has undergone continuous disruptive change for almost two decades and there have been countless “doomsday” warnings for the newspaper business, as well as a number of “industry saviors” that provided only a short-lived hope of better times for the industry. The introduction of the iPad in 2010 particularly showed a tendency for newspaper firms to jump on the next big technological innovation, while trying to maintain financial results. We have been quite surprised at how conservative newspaper firms have been in developing tablet products. Initially, there was much hype regarding how these devices would save the declining newspaper industry. However, in one telling case study (Boe-Lillegraven, 2014), we followed a product development project over the course of one year, noting a strong tendency to align new tablet products with existing resources, markets, business models, production processes, and product conventions.

Our study suggests that even when embarking on digital exploration, newspaper firms tend to rely on previous experience, familiar patterns of learning, and well-practiced routines. It is no secret that many of the Web, tablet, and mobile offerings made by newspaper firms are basically digital copies of the printed newspaper that has sustained the industry for decades. We suggest a simple, rational, and almost trivial reason for this. Even in the digital era, most newspaper executives have been in the newspaper industry for decades, and newspapers rarely bring in top leaders from other, radically different industries to

help newspaper firms really push their explorative capabilities. We have often seen quite the contrary, actually. Even the top national newspaper firms in the Nordic countries prefer to recruit “innovation” executives from their own ranks—trusted employees that have been with the firm long enough to adhere to the organizational code, and make sure that the digital exploration does not stray too far from the core business. We also found that this iPad project, like many other similar projects, failed to generate substantial revenues or market interest. Given this, there is perhaps an element of fatigue amongst newspaper executives and their firms, resulting in a lower readiness for change. Second, we suspect that there has been so much talk about the readiness for change in the industry that the term “change” simply loses its meaning. Leaders don’t want to talk about change, they want to execute. But how do leaders enact truly transformational change?

Based on our review of the literature on managing strategic paradoxes, we predicted a link between strategic planning and ambidexterity. Our data confirmed this. We had some concerns as to the validity of this finding, however. It could simply be that larger firms do more strategic planning (because of their size) and are more likely to be ambidextrous due to resource slack—they have the resources to both explore digital opportunities and exploit their legacy print business. In our regression models on ambidexterity, we controlled for firm size, finding no significant effect. Second, we had a concern about reversed causality. Is ambidexterity an antecedent to strategic planning?

We suggest it is an iterative process, a dynamic interaction. Explicit and detailed strategic planning may help navigate the complexities of explorative digital domains. But such plans need continuous revision as the front lines of technological innovation shift. In theory, exploiting the “old certainties” of the legacy print business may require less strategic planning if the legacy business could simply be left to manage on its own devices. However, the inherent dilemma in ambidexterity strategies is that every strategic move made in

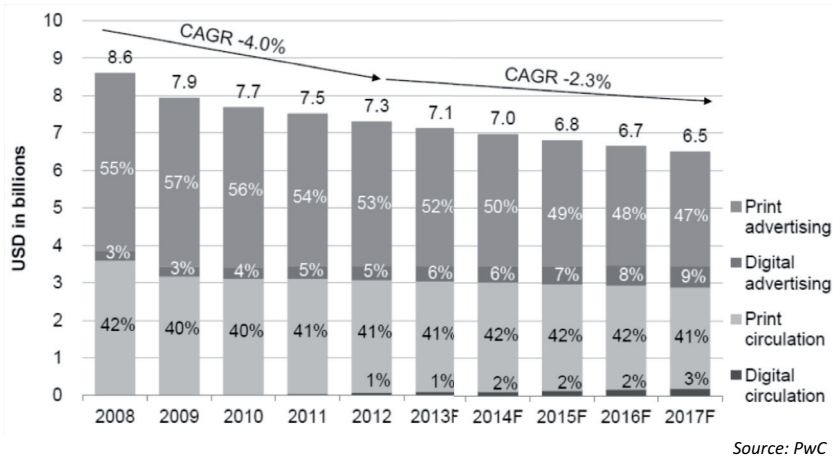
explorative digital domains may disrupt the exploitation of print domains. This means any ambidexterity strategy must consider both dimensions and be continuously updated and realigned to reflect changing market dynamics.

Our study suggests a significant positive relation between strategic planning and exploration, but no significant relation between strategic planning and exploitation. This fits with our observation that newspaper firms are quite elaborate in their digital strategizing, but less clear about the implications for exploitation strategies. It seems as if the tendency is to attempt to align digital exploration and print exploitation into some sort of consistent middle-of-the-road strategic framework without accounting for the inherent dilemmas and paradoxes involved in radical exploration and exploitation. We have rarely seen newspaper strategies that recognize and embrace paradoxical and conflicting objectives. This is of course quite rational behavior, as most managers arguably get paid to fix problems—not invite conflicts with inconsistent strategic objectives.

Indeed, strategic paradoxes may be of more interest to academics than to practicing managers. After all, a paradox is by definition a proposition that works well in theory, but may seem senseless, logically unacceptable, or self-contradictory in practice. As Birkinshaw and Gupta (2013) note, the paradoxical nature of ambidexterity may be part of its attraction to researchers, but ambidexterity is an academic construct, which may offer little intuitive meaning to practicing managers—unlike other management literature terms such as innovation, growth, or leadership (p. 290).

However, we would argue that any simplistic, one-sided strategy could have dire real-life financial consequences. Our study suggests that discomforts of these strategic paradoxes should be seen as growing pains, as firms and leaders learn to do new things. Facing the complex business realities of the digital era, top leaders have to tackle inconsistencies and even risk appearing hypocritical as they balance short-term and long-term goals. We have seen many executive keynotes

Figure 3: Strategic outlook: Newspaper firm revenues in explorative and exploitative product/ market domains over the next five years



showcasing the next big digital opportunity, which were followed a few months later by much less-publicized quarterly financial results, with red numbers foreshadowing another round of cost-reduction and budget constraints in print operations. This brings us to the link between ambidexterity strategies and firm performance.

Our study did not find that leaders perceived ambidexterity strategies linked to improved firm performance. This is in contrast with the ambidexterity premise (Raisch et al., 2009), but fits a pattern we have seen over the past decade in the given empirical context—for most newspaper companies, growth in explorative digital product/market domains has come at the cost of persistent revenue declines in the legacy print business, leading to a general decline in industry profitability. And as indicated by Figure 3, the outlook for the next five years is further decline. A similar pattern emerges though a more granular analysis of the previous research into the ambidexterity-performance linking. See for example Junni et al. (2013), who in their meta-analysis of empirical studies to date found that exploitation strategies link to profits, whereas exploration strategies are linked to growth, which implies that ambidexterity may have quite different impacts on

different aspects of firm performance (p.308). The empirical context of our study supports this argument and suggests the direct conflict between digital exploration and print exploitation.

Still, newspaper leaders have no choice but to continue digital exploration even if it slowly eradicates their legacy print business and overall industry revenues keep dropping. This is just one of the inherent paradoxes in ambidexterity strategies.

CONCLUSION

In closing, we would like to offer a telling example of an emerging strategic paradox in the context of the newspaper industry. Consider the recent trend of online paywalls—newspaper firms requiring online readers to pay to access news and other content on their Web sites. In our view, these paywall strategies, heralded as an innovative industry move, really indicate the organizational need for consistency. The paywall strategy attempts to eliminate the challenges of managing two different and directly conflicting business models simultaneously—namely that of having a paid-for print newspaper, while also offering news for free online (Markides 2013). This one consistent pay-for-news strategy across print and digital domains may look good on paper for top executives.

However, it most likely introduces a new strategic paradox. How can newspaper firms hope to compete against open access, free-for-all social media such as Facebook, Twitter, or Google for new digital revenues if top management decides to erect digital paywalls that keep potential new audiences out?

LIMITATIONS

This study involves cross-sectional data from single informants using perceptual scales, which potentially introduces common bias effect—some of the observed co-variation between variables may be due to a shared method of measurement. To control for such bias, we deployed five specific procedural

remedies *ex ante* as suggested by Podsakoff et al. (2012) to maximize respondent motivation and ability to respond accurately. First, we deployed at a proximal separation between constructs for exploration, exploitation by means of dedicated buffer items. This has been shown to diminish method bias by increasing the difficulty of responding stylistically or to use prior responses to answer subsequent questions (Podsakoff et al., 2003). Second, we minimized the scale properties shared between predictor and criterion variables by using varying Likert scales/items so the respondent would not combine related items, which would bias responses. Third, based on our pilot survey, we improved scale items to remove ambiguity: keeping questions simple, specific, clear, and concise. In line with suggestions from Krosnick (1991) we also labeled every point on the response scale to further reduce ambiguity. Fourth, we introduced positive and negative items to control for response style tendencies that may produce misleading factor scores and deflate or inflate regression scores. As suggested by Chang et al. (2010), we assured respondents of the study's anonymity and confidentiality; that there were no right or wrong answers, and that we valued their honesty. We believe these remedies should minimize common method bias, but we also performed Harman's one-factor test on items included in the regression models. If common method bias was still a problem in the study, we would expect either a single factor to emerge from factor analysis, or one general factor to account for the majority of the covariance among the variables (Podsakoff & Organ, 1986; Podsakoff, Todor, Grover,& Huber, 1984; Podsakoff et al., 2003; Mom et al., 2009). We did not find such a single factor. Note the methods deployed in this study are suited to establish relationships between constructs, not causality.

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Chapter 6

CONCLUSION

SUMMARY

If James March had a dime for every time his article “*Exploration and exploitation in organizational learning*,” has been cited in academic journals, he would have \$1375.60 in his pocket as of today, March 8th 2015. According to Google Scholar, his article has been cited an impressive 13756 times since it’s original publication in 1991. As March predicted, the story has been told in many forms. This thesis adds to our understanding of this delicate balancing act by focusing the concept of *organizational ambidexterity*, which initially was suggested a simple solution to the explore/exploit problem: firms should create separate organizational units for exploration and exploitation respectively (Tushman and O’Reilly, 1996). Over time, however, researchers found that although conceptually appealing, this structural approach was inadequate to explain the complexities of modern firms face. Accordingly, the ambidexterity concept was been expanded to include the idea of contextual ambidexterity (Gibson and Birkinshaw, 2004), which suggests that firms may find superior performance not through separation, but by integrating individuals into one business unit where they can make their own judgments about how to divide their time between conflicting demands for exploration and exploitation. More recently, the ambidexterity concept have come full circle of sorts, by also including the idea that firms may shift focus between exploration and exploitation over time in what is now referred to as temporal ambidexterity (See for example O’Reilly and Tushman (2013) for a review of the current state of literature). But in closing this circle, ambidexterity also becomes self-contradictory, as the concept was initially introduced as an alternative to ideas such as the punctuated equilibrium, which had suggested that firms sequentially shift between long periods of exploitation offset by short, turbulent exploratory phases (See for example Tushman and Romanelli, 1986; Miller, 1994; Romanelli and Tushman, 1994). However, such contradiction is perhaps fitting, given that one thing that I have come to realize over the course

of writing this thesis is that the ambidexterity concept in itself is a paradox - *a riddle, wrapped in a mystery, inside an enigma* – requiring the acceptance of contradictions and conflicts on multiple levels, where no simple resolution can be found. That firms can “become” ambidextrous through structural separation as well as integration – and even by shifting relative focus between exploration and exploitation over time - may just be another inherent paradoxes in the concept. But this also leaves the question of what exactly is the unique value added by ambidexterity. The purpose of this thesis has been to address this ambiguity by examining the following overall research question: How are the conflicts between exploration and exploitation managed within and beyond the organizational boundaries, and what are the performance implications? This main research question was further split into four sub-questions, which guided my process of finding an answer to the main question, but also addressed the following specific research gaps in our current understanding of the ambidexterity concept:

- *How does ambidexterity develop over time across multiple levels of analysis?*
- *How does exploration and exploitation influence multiple firm performance measures, and what is the role of industry dynamics?*
- *By which measures can individuals be ambidextrous, and what are the performance implications?*
- *What is the leader role in planning and executing strategic paradoxes?*

The different chapters in this thesis address specific research gaps identified in current literature, providing a multi-level understanding of how the tensions of exploration and exploitation are managed, as well as when the benefits of ambidexterity outweigh the costs:

MAIN FINDINGS BY CHAPTERS

Through the review of the current ambidexterity literature in chapter 2, I identified and discussed three under-researched issues in regards to the ambidexterity framing; Firstly the idea that ambidexterity involves persistent conflicts that may not be resolved even through the organizational “solutions” proposed by the current literature; from this follows secondly the idea that the conflicts and boundaries between exploration and exploitation may shift over time, and thirdly the idea that the ambidexterity concept involves conflicts within and beyond the organizational boundaries – i.e. as a multi-level or “nested” concept. Taken together, this suggests that to truly unlock the explore/exploit dilemma, researchers may have to move beyond the current focus on *organizational* ambidexterity (i.e. conflicts involving organizational design, knowledge, skills, structure, competences, leadership and so forth), to also explicitly account for conflicts involving (but probably not limited to) technology competing products, different market segments as well as conflicting business models. Without accounting for these, any organizational solutions may not stand the test of time. I suggest this insight has some implications for future studies, and point to three specific research gaps, which I give some further insights into in the subsequent thesis chapters.

Firstly, any study that examines the ambidexterity-firm performance linkage should take into account the particular industry setting, as well as account for potential conflicts in the multiple dimensions beyond the organizational boundaries discussed above. In chapter three, I did this by reviewing existing research on firm performance in the newspaper industry in order to identify the main causal factors in a single industrial context. By incorporating variables and arguments from theories of media convergence, organizational ambidexterity, and business model innovation into a basic performance model, I develop a multi-dimensional conceptual framework of explore and exploit value chains. The

chapter concluded with a discussion of how the recent advances in big data analytics – the process of collecting, organizing, and analyzing large sets of data to discover patterns and other useful information – may hold the power to untangle explore-exploit complexities, providing firms with real-time insights into the trade-offs between pursuing new and old business, and potentially reduce the risks and uncertainties involved in exploring dynamic business environments in particular.

Secondly, most of the ambidexterity research to date has been on the firm level, but the “deeper” challenge of finding an appropriate balance between exploration and exploitation may manifests itself on multiple levels. In chapter three, I discussed the industry level, while in chapter four I examined both the firm and individual level through an in-depth, historical case study of a newspaper firm that is trying to do new things. In this study, I have deployed a methodological triangulation where I use multiple data sources (observations, interviews, content analysis, archival records, survey and performance data), to further our understanding of how individuals divide their time, attention and efforts between conflicting tasks of exploration and exploitation, and what the implications are for both firm and individual performance. I propose that individual ambidexterity may involve both cognitive and activity aspects, finding that even given an organizational context that enables individuals to decide for themselves how to best divide their time between conflicting tasks of exploration and exploitation, most individuals tend to focus their efforts, rather than attending to both explorative and exploitation. I suggest that this may be due to cognitive strain, limitations of attention and the coordination costs involved in switching between conflicting functional areas. The empirical evidence suggests that individual ambidexterity is quite rare, but may be linked to top performance.

Thirdly, the idea that the ambidextrous firm needs ambidextrous leaders is well established, and chapter four gave some insights into the operational and strategic challenges involved for managers, but it is not clear exactly what the inherent conflicts and paradoxes may mean for strategic planning. Do the complexities of navigating in explorative ventures require more strategy work than navigation the “old certainties” of the legacy business? In chapter six, which is co-written by Dr. Erik Wilberg, we examine the leadership role in managing ambidexterity and strategic paradoxes by analyzing data from a Nordic survey of top management respondents on strategic priorities in response to environmental and internal pressures for change. The article contributes to transformational leadership by showing a link between strategic planning and ambidexterity, and discusses how specific strategic items relate to the explore/exploit framing. Interestingly enough, we did not find a link between ambidexterity strategies and firm performance. This is in contrast with the ambidexterity premise (Raisch et al 2009), which suggests that superior performance is found through ambidexterity strategies. A more granular analysis of the previous research into the ambidexterity-performance linking suggests that exploitation strategies are linked to profits, whereas exploration strategies are linked to growth (See for example Junni et al 2013). In the given empirical context, we find that growth in explorative digital product/market domains comes at the cost of steep declines in overall profitability across the industry since the global financial crisis of 2008, and the outlook towards 2017 is further decline. Still, newspaper leaders have probably no choice but to continue their relentless digital exploration even if it slowly erodes their legacy print business.

This is just one of the inherent paradoxes in ambidexterity strategies.

OVER ALL CONTRIBUTION

Taken together, these four chapters have illustrated some of the complications involved when firms try to do new things, contributing to what is arguably the most important question addressed by empirical research into ambidexterity: the link to firm performance (O'Reilly and Tushman, 2013; Junni et al 2013). After all, if there were nothing to be gained, why would firms seek out the inherent conflicts, inconsistencies and paradoxes of ambidexterity strategies?

Throughout this thesis, I have considered the performance implications of ambidexterity on industry, firm and individual levels from both theoretical and empirical perspectives such as the recent advances in big data analytics. One should be careful to draw conclusions across these levels of analysis, but one of the benefits of examining a single industrial context is that the performance implications of a particular ambidexterity framing, in this case that of print exploitation vs. digital exploration, can be discussed on multiple levels.

On the industry level, the empirical evidence seems clear: the digital exploration over the past 15 years has resulted in an exponential market and audience growth, with digital products overtaking and in many instances replacing the legacy printed newspaper. However, the digital business has proven to be far less profitable than the legacy print business. Accordingly, the industry as a whole struggles with declining profits, a trend that is set to continue as the digital transition accelerates.

On the firm level, I have found no objective evidence that ambidexterity is linked to improved financial performance. As part of the research for this thesis, I reviewed detailed performance data for every registered newspaper firm in Norway (N=228), finding no evidence that mixing print and online was good business. Rather, I found that the firms that had most aggressively invested in digital exploration were also those that had suffered the greatest declines in profits

in the legacy print business over the period from 2000-2012, and that the digital revenues had failed to make up for these declines.

When considering individual ambidexterity, I found that even given firm-level ambidexterity strategies, most lower-level employees tend to exploit their existing functional areas, rather than explore new possibilities. The reason for seems to be fairly straightforward: switching tasks introduces coordination costs, attention problems and cognitive strain that may hurt individual performance. For most individuals a more focused effort seems to pay off. The empirical evidence from my study indicated that only a few individuals are able to divide their attention between print and online functional areas to achieve top productivity, leveraging existing knowledge and reducing “coordination costs” by repurposing and rewriting content across multiple publishing platforms.

From a theoretical point of view, this seems to make sense, because what happens to the proposed competitive edge if everyone is ambidextrous? I would argue that the scarcity of ambidexterity might be what links it to superior performance. March (1991) makes a similar argument, noting that “the question is whether you can do exceptionally well, as opposed to better than average, without leaving the confines of conventional action“ (p.83). If a set of conflicting tasks are standardized and mastered, this should in theory reduce the variability in both the time required to accomplish the tasks at hand as well as the quality of task performance. If ambidexterity becomes the norm rather than the exception, i.e. “everyone” is by some definition exploring and exploiting, the average performance across a population of individuals or firms may improve by some measure, but such a reduction in variation could also in theory negatively affect the chances of ambidextrous individuals or firms achieving superior performance. To stand out and stand the test of time, you must be willing to break the norms and purposely risk destroying the “old” in order to meet the “new” (Tushman and O’Reilly 1996). Such appetite for destruction is the essence of ambidexterity.

In closing, I would like to comment on the recent call for a “return to the roots” of the ambidexterity concept, and complaints that the current research has become fragmented, and complex and, well, inconsistent. I would argue that this is exactly the way things should be, given that the framing only mirrors the complexities modern firms face.

After all, what better way to address a real-life business paradoxes than through a theoretical paradox?

LIMITATIONS AND CRITICAL REFLECTIONS

During the course of this study, I have been challenged regarding my own capabilities, as any Ph.D. scholar should be, but I have also faced some limitations and shortcomings the theoretical framework, empirical data as well as the research design and method. Most of these have been addressed where appropriate in the respective chapter, but I would like to add the following:

Concerning the choice of explore/exploit framing: In this dissertation I have chosen to apply the ambidexterity perspective to characterize how newspaper firms allocate attention and resources in response to the digital transformation of their legacy print business. However, this is just one of many possible ambidexterity framings. Such is the nature of this concept. In the given empirical context, the ambidexterity framing could for example also be used to shed some light on the inherent conflict between business and social mission. Do newspaper firms pursue business objectives to sustain our journalistic objectives, or is it the other way around? What are the conflicts between commercial and editorial objectives? I would argue that the print/online framing is particularly relevant and useful in part because it has been well established in the ambidexterity literature (the original idea of the *ambidextrous organization* was modeled after USA Today

(Tushman and O'Reilly, 2002), allowing for a longitudinal view on how this particular framing plays out on multiple levels from the individual to the individual. However, as noted in chapters 2 and 3, future studies could also consider framings in regards to the commercial/editorial conflict, where the lines are increasingly being blurred as newspaper firms create what is called “native advertising,” or advertorials – i.e. sponsored journalism.

Concerning the choice of case firms: In researching the project, I reviewed data on all publicly listed newspaper firms in Norway as of 2011 (N=218), as my initial aim was to identify several contrasting case studies that fit with the temporal, structural and contextual approaches to ambidexterity. However, I found that most all firms were pursuing integration strategies in line with ideas from contextual ambidexterity. I was only able to positively identify one case firm that still had structurally separated their online operations. However, upon closer examination (interviews with managers) it turned out that even this firm was in the process of integrating print and online. My choice was to select a firm that represented an extreme case of integration strategies in order to investigate the viability of the contextual ambidexterity concept. My industry analysis also identified *Nettavisen* as well as *Dagsavisen* that were interesting in the sense that they represented “pure players” that explicitly focused on *either* print or online, rather than pursuing both simultaneously. These cases allow for an interesting perspective on how exploration and exploitation is played out in an industry context, which I have now included in Chapter 2.

Concerning the operationalization of ambidexterity: Having extensively reviewed the current literature, I have found that even though most of the ambidexterity research to date has converged around the exploration/exploitation framing, there is a great diversity in both conceptualization and operationalization of the concept. In their review of ambidexterity articles published in top academic journals over the period from 1996 to 2012, Birkinshaw and Gupta (2013) found

that ambidexterity has been measured as 1) an organization's *propensity* to explore and exploit; 2) an organization's *intent* to explore and exploit; 3) the *capacity* to explore and exploit, and 4) the *outcomes* of from what the organization actually did. Most research to date has been done by using cross-sectional measures surveys that ask individuals to answer on behalf of their organizations. In this thesis, I have chosen to primarily use a capacity framing, following previous studies by asking large samples of individuals to rate their organization on both explorative and exploitative capacities and to then aggregate their responses to create unit-level measures (Gibson and Birkinshaw, 2004). In analyzing this data, through both exploratory and confirmatory factor analysis, I found that it was possible to frame ambidexterity using two-factor, three-factor, four-factor and six-factor models, but that these tended to be consistent. I also found that previous research varies greatly in how ambidexterity is measured (exploration *multiplied* by exploration; the absolute value of exploration *minus* exploration; exploration *plus* exploration). I have chosen to use the additive approach, which consistently had the best explanatory power, even though the multiplicative approach yielded similar results.

Concerning the data sources: To ensure the validity of my findings, I have referenced the survey data with other sources where possible. The value (and necessity) of such triangulation became apparent as I got deeply into the nuts and bolts of the statistical analysis of survey data, moving further and further away from the real-life complexities of organizational life. Ideally, I should have sought out even more "reality checks" - spending more time as an observer in the case organizations to experience first hand how the tensions between exploration and exploitation play out in the day-to-day business. In gathering the individual performance data, it also became apparent how little quantitative data was readily available. Accordingly, I had to spend disproportionate amounts of time manually reviewing and inputting individual performance, yielding a small but valid sample.

In preparation for the project, I should have devised structured ways of automating this process, allowing for larger samples (BIG Data) that yield a deeper understanding of the mechanisms at work as individuals explore and exploit. But it should be added that only through the rigorous analysis of the productivity samples did I find the ambidextrous “outliers” – and in particular the two individuals that were switching between functional areas to become top performers in both print and online publishing. It seems clear that the neither survey data, nor ordinary regression analysis would have given this significant finding, which leads me to suggest some areas for future research:

IMPLICATIONS FOR FUTURE RESEARCH

As noted in chapter 2, I have chosen to use the empirical context of the newspaper industry, making it possible to identify common themes and conflicts that newspaper firms may be experiencing across both time and space. Future studies should consider if similar conflicts are inherent in other industry settings, where for example Internet technologies may have had similar disruptive effects. This may help address a research gap in the current literature. Even though there have been a number of multi-industry ambidexterity studies, there is still some confusion in the literature as to what exactly “exploration” and “exploitation” mean across different empirical contexts. For example, as O’Reilly and Tushman point out in their 2013 review of the ambidexterity literature, it is not clear if the “exploration” invoked when a firm like Kodak attempts to move into digital imaging is the same as when Smith-Corona moves from typewriters to word processors, or when a bank moves away from physical offices to internet services (p. 331). Using the model proposed would allow for us to revisit the rich empirical data from these cases to consider for example if these “moves” involved new and disruptive business models; if digital imaging primarily involved

“replacement products” to existing customers, or if the real challenge was that of capturing new markets with radically new and disruptive products and so forth. In the literature, the Smith-Corona case (Danneels, 2012) is framed as one about dynamic capabilities, but it is really about ambidexterity?

In this thesis I have made some headway in giving insights into the “black box” that is organizational ambidexterity, but as noted in chapter 3, I suggest that future empirical studies should use big data analytics to examine how the ambidexterity-performance link is moderated on the firm level by alternative resource allocations. This would also help move ambidexterity research beyond its current focus on survey-based industry studies and selected case studies (which yield a great deal of detail but offer limited generalizability) towards more rigorous research designs where voluminous and diverse sources of data from multiple time-periods are analyzed to find patterns that our current theoretical models cannot.

For example, what are the specific performance implications of having individuals divide their time between print exploitation and digital exploration, as opposed to specializing in one or the other? Also, what are the firm performance implications of investing in content creators versus advertising/sales resources, web traffic managers, pricing specialists, conversion rate optimization experts, or data scientists? What is the distribution of costs and returns of such alternative resource investments over time? Big data analytics offers the opportunity to consider the micro-foundations of both ambidexterity strategies and activity by allowing for the examination of how business opportunities are exploited and/or explored in real-time as well as longitudinally.

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