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Title: A multidimensional profile model of ambidexterity and innovation – an empirical case study

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Accepted version

Abstract:

The purpose of this study is to examine which combination of dimensional features of ambidexterity influences innovation. Furthermore, this study examines the way in which the combination of dimensional features of ambidexterity influences an organisation's ability to innovate. We used a single holistic case study design and conducted semi-structured interviews with innovation experts from an outdoor company. We used template analysis to analyse our data.

Unlike existing studies that examined ambidexterity in relation to innovation by offering theoretical arguments, simulations and little empirical research, we contribute a multidimensional profile model - comprised of a combination of the different features associated with the dimensions of organisational ambidexterity - to the existing literature. Based on this, we explain how some dimensional features of ambidexterity are identified, and subsequently how their combinations influence an organisation's ability to innovate. We also contribute to the literature on profile models of multidimensional constructs. We suggest that future research could longitudinally examine organisational ambidexterity from a multidimensional view through multiple cross-industry cases.

Keywords: innovation; ambidexterity; multidimensional profile model.

1. Introduction

A rapid rise in market competitiveness, economic volatility and customer expectations makes innovation a crucial capability for competitive survival. Organisations need to pursue radical innovations that will provide them with a competitive advantage in the future; at the same time, however, they have to incrementally innovate in order to keep up with the rapid changes in their environment. Identifying the right balance is a complex challenge. Too much focus on radical innovation can threaten the firm's liquidity, whereas concentrating too much on incremental innovation will leave the firm lagging behind competitors (Lin et al., 2013). Furthermore, both activities require fundamentally different ways of learning and management. Therefore, organisations wanting to excel at both have to cope with this strategic dilemma (March, 1991).

The ability to simultaneously exploit existing competences and explore new opportunities has, through the work of Duncan (1976), become known as *organisational ambidexterity*. The academic debate around the concept of ambidexterity has gained significant momentum in recent years (Zimmermann et al., 2015). This is because ambidexterity has repeatedly been proven to benefit organisations in their innovation efforts (Rothaermel and Alexandre, 2009), yet the ways in which it is best achieved remain debated. In particular, by acknowledging the multidimensionality of ambidexterity, researchers can improve their understanding of the ways firms focus on exploration and exploitation simultaneously (Lavie et al., 2010).

This research aims to supplement this multidimensionality debate in relation to ambidexterity by examining which combination of dimensional features of ambidexterity influences innovation. Furthermore, this study aims to examine the way

the combination of dimensional features of ambidexterity influences an organisation's ability to innovate.

2. Theoretical background

Ambidexterity, defined as “the ability to simultaneously pursue both incremental and discontinuous innovation and change results from hosting multiple contradictory structures, processes, and cultures within the same firm” (Tushman and O'Reilly, 1996, p. 17), is about an organisation's quest to achieve both stability and change by accommodating seemingly paradox attributes, such as habit-creativity, structure-agency, and order-freedom (Farjoun, 2010). Ambidexterity theory challenges the view that the trade-offs between exploration and exploitation are insurmountable, by offering ways in which organisations can excel at both activities with equal dexterity (Raisch et al., 2009).

The importance of exploration and exploitation for innovation is also evident in the conceptualisation of innovation. While exploration leads to knowledge creation, exploitation diffuses the newly derived knowledge; but for innovation to happen, both are required (Newell et al., 2009). Andriopoulos and Lewis (2009) emphasise this dependency of innovation on both exploration and exploitation in relation to the waning as well as the renewal and expansion of a firm's knowledge base.

The seminal concepts of ambidexterity focus on its achievement through architectural solutions that separate the contradictory yet interdependent activities of exploration and exploitation into different units (Tushman and O'Reilly, 1996).

Gibson and Birkinshaw (2004) refer to this as *structural ambidexterity*. In contrast, *contextual ambidexterity* allows for exploitation and exploration behaviours to occur within one organisational unit, through the use of organisational stimuli (e.g.,

processes, leadership and rewards) (McCarthy and Gordon, 2011). Firms can achieve contextual ambidexterity through processes and systems that enable and encourage employees to decide individually how much time to allocate to exploration and exploitation (Gibson and Birkinshaw, 2004).

However, the reduction of ambidexterity to a matter of deciding between the separation of units - or leaving the decision down to an individual's judgement - has been criticised for its simplicity. Consequently, recent research has put forward more complex views in which the development and sustenance of ambidexterity depends on combinations of structural, contextual, managerial and cultural aspects ([Cantarello et al., 2012](#)). These combinatory views argue that structural differentiation requires integrative efforts and mechanisms between the explorative and the exploitative activities, in order to coordinate them and create synergistic effects of ambidexterity ([Jansen et al., 2009](#); [Cao et al., 2009](#); [Raisch et al., 2009](#)). [Jansen et al. \(2009\)](#) elaborate that the need for coordination and mutual interaction stems from resource interdependency and is an important moderator that impacts upon the effectiveness of each unit. [Andriopoulos and Lewis \(2009\)](#) provide a view on the exploration-exploitation tensions identified within three paradoxes of innovation (i.e., profit versus breakthrough focus; tight versus loose coupling; and discipline versus passion). These authors propose complementary tactics involving both integration and differentiation in order to deal with these paradoxes and to create virtuous cycles of ambidexterity. They further highlight that the management of paradoxes has to occur at multiple organisational levels and that the dominance of either extreme should be avoided ([Andriopoulos and Lewis, 2009](#)).

Based on the work of March (1991), [Kim et al. \(2012\)](#) suggest the need for a balance between localised learning (exploitation) and learning-by-trial (exploration).

This is supported by empirical evidence showing a positive effect of interactions between explorative and exploitative innovation on sales growth, as well as a negative effect of exploration-exploitation imbalances on sales growth (He and Wong, 2004).

Other scholars also highlight the importance of a balance between exploration and exploitation (Siggelkow, 2001; Smith and Tushman, 2005; Venkatraman et al., 2007). Despite these studies, a key concern for ambidexterity researchers is still to identify an appropriate balance between exploration and exploitation (Lavie et al., 2010), which is difficult to specify and even more so to implement (Levinthal and March, 1993). Until now, very little consensus exists regarding the ways in which this balance should be achieved (Adler et al., 2009). The common ground among scholars examining this balance is its dependence on the firm's mission, dominant logic and industry setting.

Contrary to the above, considerably less attention has been devoted to identifying whether - and how - firms achieve a balance between exploration and exploitation. Regarding this debate, scholars have contributed theoretical arguments (Koza and Lewin, 1998), simulations (Fang et al., 2010) and a few empirical studies (He and Wong, 2004; Sidhu et al., 2007). Some state that the problem of achieving an appropriate balance between these two types of innovation points towards the contingent and contextual nature of ambidexterity (Lavie and Rosenkopf, 2006), which can be addressed by acknowledging the role of multiple organisational dimensions of this concept (Raisch and Birkinshaw, 2008; Lavie et al., 2010). Consequently, researchers are able to shed light on how the exploration/exploitation balance can actually be accomplished (Lavie et al., 2010).

So far, only a few studies have examined ambidexterity through multiple organisational dimensions and their dimensional features. Previous research in this

regard has identified customer and competitor orientation influencing market orientation (Atuahene-Gima, 2005), time pacing influencing steady and periodic organisational change ([Brown and Eisenhardt, 1997](#)), the role of strategic intent, critical tasks, competences, structure, controls and rewards, culture and leadership regarding ambidexterity (O'Reilly and Tushman, 2004), linking mechanistic and organic structural characteristics (Sheremata, 2000), a temporal and a structural dimension (Simsek et al., 2009) as well as alignment and adaptiveness (Tiwana, 2010). Regarding alliance setup and ambidexterity, function-, structure- and attribute-based dimensions were identified (Lavie et al., 2010).

To advance the debate on the multidimensional nature of ambidexterity a profile model of ambidexterity, which can be broken down into the exploitation and exploration dimensions, might be helpful. In such a profile model, each dimension is formed based on different combinations of their dimensional features (based on [Law et al., 1998](#)). Subsequently, an improved understanding regarding different dimensions of ambidexterity and their dimensional features can be developed, in comparison to one-dimensional constructs. The rationale for this is the recognition of the complexity and the contextual embeddedness of ambidexterity (based on Maslach, 1998). Several examples of such profile models of multidimensional constructs exist in other areas of research, e.g., outsourcing decision-making ([Sanders et al., 2007](#)), managerial influencing patterns ([Kipnis et al., 1985](#)) and features of organisational environments (Duncan, 1972). The virtual absence of studies incorporating multiple dimensions of ambidexterity in relation to different combinations of their dimensional features prompts our first research question:

What is a combination of the dimensional features of ambidexterity that influences innovation?

In relation to the complexity and contextual embeddedness aspects of our argument above, our second research question is:

How does the combination of the dimensional features of ambidexterity influence innovation?

3. Methodology

3.1. Data collection

We collected data in one industry, because organisations operating in the same industry share strategic factor markets (Barney, 1986). Furthermore, specific industry characteristics influence strategic decisions (Mascarenhas and Aaker, 1989) as well as organisational aspects, e.g., innovation (Newell et al., 2009). Product innovations served as the unit of analysis (Atuahene-Gima, 1995), as this allowed for the exploration of various dimensions, as well as combinations of dimensional features associated with ambidexterity and innovation.

We used a single holistic case study design (Yin, 2013, p. 46). The reason for this is the focus on the unique circumstances of the case organisation in question (Yin, 2013), in relation to the development of innovative outdoor products. Thus, a case study provides an optimal way of investigating the ‘how’ and the ‘why’ of actions, and the phenomena that occur in specific organisational settings (Rowley, 2002).

In order to elicit a combination of the dimensional features of ambidexterity, and to ascertain how these features influence innovation, we identified success stories and success factors (Ambrosini and Bowman, 2001) through semi-structured, face-to-face interviews with six individuals (Rowley, 2012) in relation to activities regarding product innovations.

We conducted these interviews in a narrative nature, in order to gain an in-depth “understanding of the interviewee’s experience and perspective through stories, accounts and explanations” (Lindof and Taylor, 2002, p. 173). Each interview lasted between 45 and 60 minutes. Approximately 76 pages of interview transcripts were generated.

Following Ambrosini and Bowman (2001), interview participants were asked to narrate on an innovation success in the recent past, and latterly to give a detailed account of the underlying actions and practices. This method, which is based on critical incident analysis by Flanagan (1954), provides an effective way to ensure that the participants express actual behaviours and not just their belief of how things should be done (Ambrosini and Bowman, 2001). During the interviews, probing questions were used - as shown in the causal mapping process (Figure 1) - to further investigate the causes of the successes mentioned (Ambrosini and Bowman, 2001). The aim of this is to “turn an unreflective practice into a reflective one” and to understand the actions that the research subjects carry out subconsciously as a result of repeated practice and ongoing learning (Tsoukas and Vladimirou, 2001, p. 990).

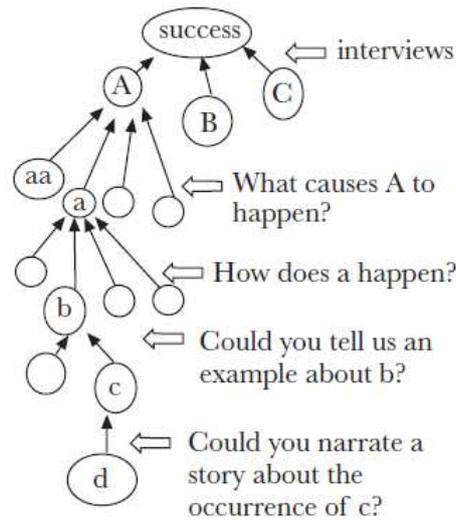


Figure 1: Causal mapping process

Source: Ambrosini and Bowman (2001, p. 823)

An example of the interview guide is provided in the Appendix. These interview questions were adapted to the role of each interviewee. They only served as a rough guideline and were not followed in strict order.

From the range of purposeful sampling strategies available, we pursued intensity sampling. The reason for this lay in our intent to identify exceptional or rich examples in relation to ambidexterity and innovation (and to avoid unusual cases) (Patton, 1990). Thus, we selected expert respondents (Bogner et al., 2009) who had been actively involved in developing and implementing game-changing and/or incremental product innovations within their organisation. To avoid developing one-sided accounts, key respondents from different positions and management levels were interviewed, i.e., the Vice President Global and Brand Marketing, the Global Creative Manager, the Product Manager for equipment, a Senior Designer, the Design Manager and a Senior Innovation Designer.

3.2. Data Analysis

After every interview, the recorded material was transcribed and a causal map created with the key information obtained from the interview. This process served four purposes: (1) familiarisation with the data; (2) detection of themes or factors that could be integrated into the interview guide for subsequent interviews; (3) facilitation of data analysis; and (4) provision of an audit trail as a validation method (Symon and Cassell, 2012). Support for this data collection/analysis overlap is provided by Eisenhardt (1989, p. 538):

“Overlapping data analysis with data collection not only gives the researcher a head start in analysis but, more importantly, allows researchers to take advantage of flexible data collection. Indeed, a key feature of theory-building case research is the freedom to make adjustments during the data collection process.”

Hence, the alterations made to the interview guide throughout the research process enhanced the quality of the findings. They allowed adaptation of the research path to real themes that emerged throughout the collection process, rather than sticking to a *priori* theory-based themes and ignoring the outliers.

A drawback of qualitative research is that it results in large pools of data in the form of words that have multiple meanings and are context-dependent, therefore making the analysis complex and prone to subjectivity. To mitigate this issue and to increase the objectivity of the analysis, the data were evaluated through template analysis with the computer software *NVivo*. Template analysis was chosen for its flexible and data-driven method of analysis (King, 2012), and the use of the software contributed to the clarity, efficiency, and flexibility of the coding and analysis process. Nonetheless, the researchers always form part of the research; their

interpretation of the data inevitably causes a certain degree of subjectivity. We addressed this issue by cross-checking the coded data and the classification of themes (Rowley, 2012).

A drawback of thematic analysis, as identified by Braun and Clarke (2006, p. 27), is *“the limited interpretative power beyond mere description if it is not used within an existing theoretical framework that anchors the analytic claims that are made”*.

Hence, to overcome this issue and enhance the validity and generalisability of the findings, the final concepts that emerged from this study were critically compared to those of extant literature:

“Overall, tying the emergent theory to existing literature enhances the internal validity, generalizability, and theoretical level of theory-building from case study research. While linking results to the literature is important in most research, it is particularly crucial in theory-building research because the findings often rest on a very limited number of cases. In this situation, any further corroboration of internal validity or generalizability is an important improvement” (Eisenhardt, 1989, p. 545).

We also sought further validation through respondent feedback, the findings from which were taken back to the respondents, in order to avoid misinterpretations of the primarily collected data (Richards, 2009; Rowley, 2002).

4. The case organisation and structural features of ambidexterity

4.1. Introduction to the case organisation

The case organisation (hereafter Company A) started its business activities as an importer of specialist outdoor products. Over time, Company A realised that there was a market for its own outdoor products, and subsequently, it began to successfully develop and sell its own range of outdoor products. One of Company A's key ingredients for success was the hand-in-glove collaboration with key customers and suppliers throughout the innovation process.

Company A has a market presence in over 30 countries and has introduced many outdoor product innovations since its inception. Due to confidentiality reasons, financial figures cannot be disclosed in the present study.

4.2. Structural features of ambidexterity in the case organisation

From the interviews, we identified that Company A has addressed the innovation paradox with a structural solution, in which differentiated subunits focus on either exploration or exploitation. We refer to these subunits as Unit A and Unit B.

Unit A is the exploitive unit of the business. It works on the products that account for the highest share of sales in the organisation, in terms of both numbers and revenue. The designers in this unit work to briefs that state the products and the incorporated technologies that should form the next season's range. These briefs are created by the category and product managers, and are based on commercial information (e.g., competitor analysis, sales figures and value analysis) as well as ideas and opinions put forward by the designers. Accordingly, the product managers liaise closely with people from the creative side of the business (i.e., the designers) and with people from the commercial side (e.g., sales staff). Once the brief is

finalised, the designers are bound to a strict timeline - referred to as the *critical path* - that encompasses various deadlines and mandatory meetings in order to ensure to timely launch of the brand's bi-annual product ranges. Furthermore, much of the designers' resources and attention goes towards developing products based on existing technologies, and towards incrementally progressing and refining products from previous seasons.

Unit B, however, can focus more strongly on exploration. It is not bound to the bi-annual product seasons, and therefore has more time to experiment with ideas without having to instantly commit to them. This allows the unit to carry out more in-depth research and provides it with the chance to learn from failure and thereby to develop better solutions. Also, the unit is given the opportunity to draw other internal people into the team as support for particular projects. Nonetheless, Unit B is not purely focused on research; it also develops final products that make up the brand's top-end range, in terms of product price and performance. This means that the team still works to product briefs, but they are more flexible and can be more strongly influenced by the designer than usual briefs. Timelines are also in existence, but are rather based on the complexity of the project and can be extended. Furthermore, Unit B works on far fewer projects per employee and is provided with more financial resources for its projects than Unit A.

5. Results and discussion

5.1. Introduction

In this section, we will answer our two research questions regarding: 1) a combination of the dimensional features of ambidexterity that influences innovation; and 2) the

way in which the combination of the dimensional features of ambidexterity influences innovation. An illustrative outline of our answers to both questions is provided in Figure 2. It shows the multidimensional profile model of ambidexterity, comprising a combination of the different dimensional features associated with exploration and exploitation. Figure 2 was developed based on the identified themes and their interrelationships. These themes have been further classified into two dimensions that, each in its entirety, lead to either the exploration of new possibilities or the exploitation of old certainties.

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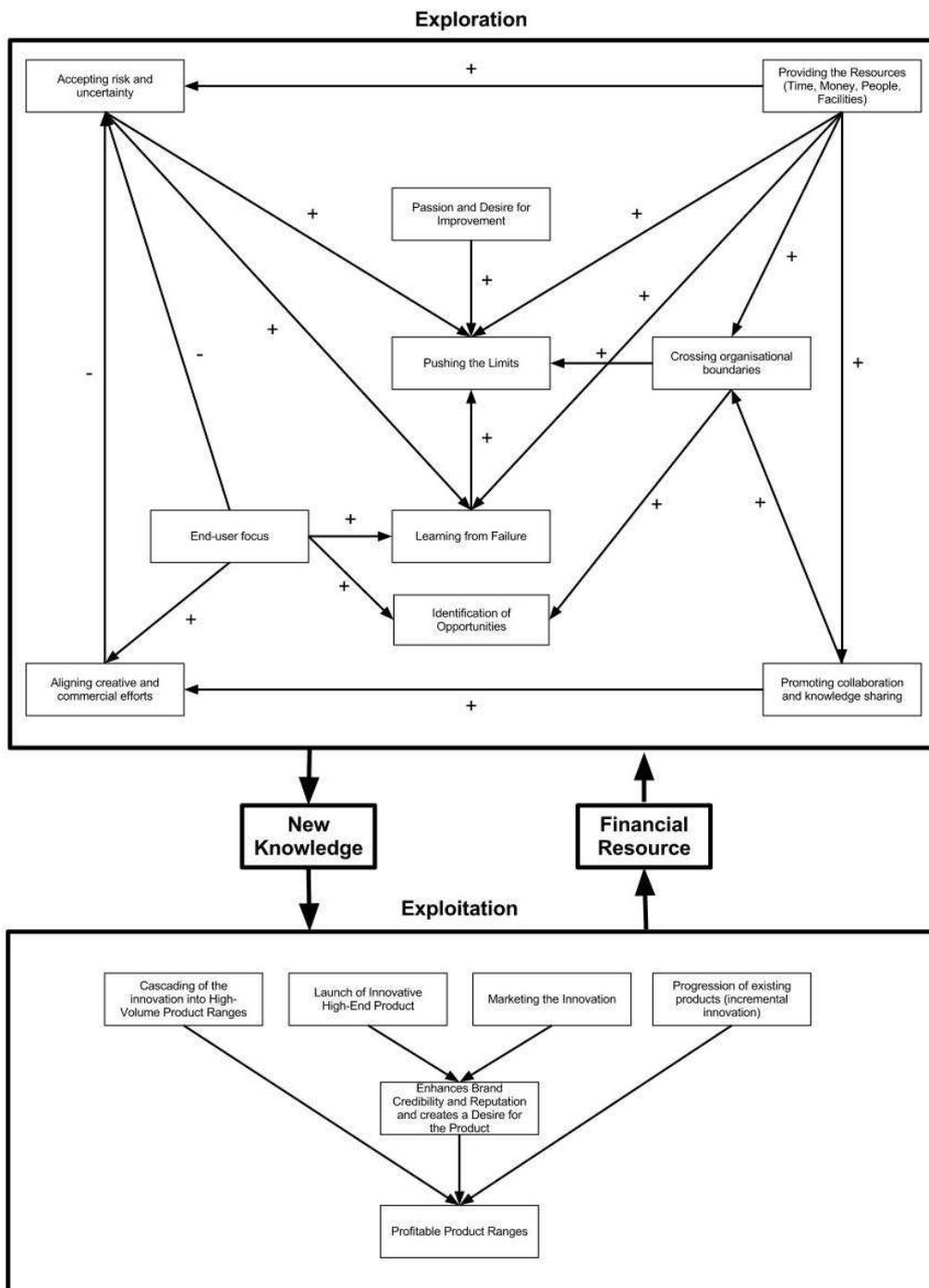


Figure 2: Multidimensional profile model of ambidexterity

This figure will serve as a basis for the later discussion of the multidimensional profile model of ambidexterity, and the different dimensional features associated with exploration and exploitation. In the figure above, the plus symbols indicate positive effects, whereas the minus symbols indicate negative effects.

Below, the dimensional features and relationships in the diagram will be discussed. We will limit the discussion to the themes/dimensional features that are most central to answering the research questions, because “[...] the ‘keyness’ of a theme is not necessarily dependent on quantifiable measure, but rather on whether it captures something important in relation to the overall research question” (Braun and Clarke, 2006, p. 82).

5.2. Dimensional features of knowledge exploration

The top half of the profile model of ambidexterity shown in Figure 2 highlights the dimensional features promoting the exploration of new knowledge. In this section, we will explain certain dimensional features and relationships that are crucial to answering the research questions.

5.2.1. Accepting risk and uncertainty

In Figure 3, we highlight the relationship between risk, uncertainty and failure (extract from Figure 2).

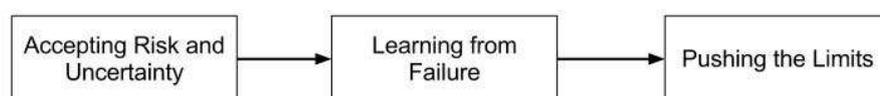


Figure 3: Risk, uncertainty and failure

We identified that innovation requires risk-taking, and while this may be the main reason limiting innovation efforts of many organisations, at the same time, it is also the reason why innovation provides much potential for competitive advantage, as stated by one respondent:

“It's important that we take a degree of risk and push ourselves to create something that is better to what we have done and what other people have done before, but that risk has to be calculated, because to keep [Unit B] profitable or worthwhile, it might not be in monetary terms but it might be in PR and brand perception, some of these products have to see the light of day. So it's calculated risks. We have some projects that have a much higher risk and might take five years; we also have some projects that are more within our level of expertise and that we are pretty certain of that we can get them done.”

As Freiling (2009) has argued, entrepreneurial opportunities always come with uncertainties and risks, and innovation certainly falls into this category. Therefore, the exploratory side of innovating requires the acceptance of risk and uncertainty, as indicated in an illustrative quote by a respondent:

“They need to keep understanding that it can be experimental, and the more experimental you are, the more innovative you might become, instead of backtracking into safe territory, which is often what brands do when the economy isn't so good. They just want to stick with what they know sells, but actually it is going to be the innovative product that is going to give them the edge.”

If organisations want to achieve breakthrough innovations that push the limits of their industry, failures will inevitably occur. It is the way in which these are dealt with that determines whether the organisation derives some form of benefit from its efforts. A general consensus was noted among respondents; they agreed that failure should be seen as an opportunity for learning and making it better for the next attempt. This attitude is illustrated in the following response:

“We celebrate it [failure], because in this area it is okay to fail. Because what you are ultimately doing is you are pushing the boundaries and pushing the limits of what is available today in order to pursue a better solution for tomorrow. Therefore you have to go through the process of trying something, and you may get the breakthrough, and in some cases you may not.”

Accordingly, existing limits can only be pushed if failure is used as a learning opportunity instead of a reason to stop. And for this to happen, the acceptance of risk and uncertainty is paramount.

Structural ambidexterity, as explained above, allows the case company to accept a higher degree of risk and uncertainty within Unit B because this risk is balanced by the work of Unit A. Unit A provides the necessary safety ‘buffer’ that can compensate for slow or failing returns from innovation projects of Unit B.

5.2.2. Providing resources

In Figure 4, we highlight the relationship between resources and different mechanisms of innovation. (Again, the extract is taken from Figure 2.)

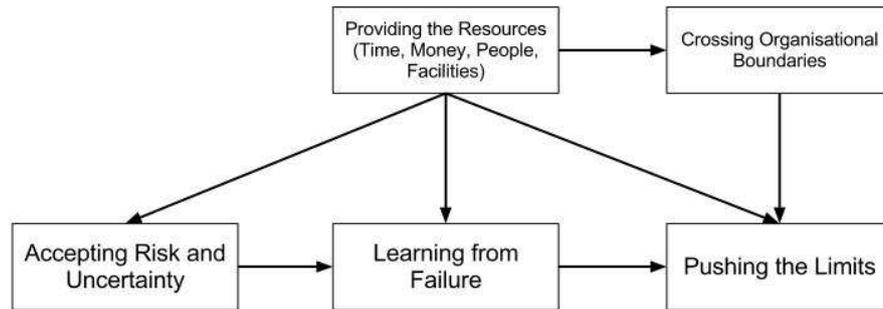


Figure 4: Resources for innovation

An important theme/dimensional feature was the need for adequate resources for innovation. All respondents mentioned the availability of resources as a key factor that determines the extent to which they could get involved in exploration. For the illustration of this point, the focus will be put solely on time and money - although having the right people and facilities is no less important.

“I think - for that real, serious step of change innovation - there has to be an acceptance, investment, and understanding that it might take five years to actually do the amount of planning, research, design, testing, to make that kind of thing happen.”

Another illustrative example regarding the scheduling of sufficient time reinforces the importance of time and money for exploration purposes.

“I think any designer, if they are given the permission to be creative and the time and space to be creative, would come up with a better product and be commercially more successful. Not only coming up with really true new-to-the-world innovation, but the things to develop products and enhance them [...]. They would be more successful first time, because at the moment we spend a lot of time at the back end rectifying problems with designs that aren't

really executable because they haven't had enough time at the front end to fully explore the ideas [...]. Having that time to think about what you are doing would be very well spent from this perspective.”

The innovation stories told by respondents have highlighted that, often, the organisational boundaries need to be crossed in order to innovate. In one example, individuals from the case company worked with a supplier in Asia in order to change the part they supplied in a way that allowed it to be used innovatively, in a different product from the one for which it is intended. These cross-organisational interactions also require time and money. The necessity for providing appropriate resources was also identified in relation to interactions between the parent company and Company A for exploration purposes:

“But I know [Person F], who is the CEO of [the parent company], was very keen on having a sub-unit within [Company A] that was like [Unit X in another subsidiary], so I suspect the seed of the idea came from him and he pushed it, because you have to budget for something like that which doesn't actually make any money. So it has to go into the company's plans, so when [Company A's] exec. team goes down to the [parent company] board and they are presenting their plan and figures for the next financial year, and obviously their plans are going ahead for the next three to five years, they would have to have a budget set aside for developing product that is completely outside the critical path, that may perhaps not make any money at all. So, within that, they had to have a very tight plan on how it was going to be managed financially and with the time of when things get to market - if they did indeed get to market.”

The importance of allowing time for innovation also became evident in an innovation story that was repeatedly brought up by respondents. During a time before Unit B came into existence, an innovative rucksack system was launched prematurely, due to time pressure. Consequently, several issues were not entirely resolved before launch, which ultimately led to customer complaints and a poor exploitation of its potential.

The structural ambidexterity explained above provides a solution to these issues, as it would enable Unit B to use more resources for each of their projects. This is made possible through the efficiencies achieved by Unit A.

A similar resourcing difference was highlighted by a respondent of the case organisation:

“So [Person G] was tasked with doing massive amounts of research to find any new technologies: how we could turn these technologies into products and how these products could possibly be taken to market. In other words, making them viable so you can manufacture them commercially. And s/he didn't have any time constraints attached to him/her, so if s/he found an idea, say the [component Y], they'd say it would be great if we could launch that for winter [next year], but if it doesn't work out then it would have to be autumn or winter [the following year]. Whereas all the other designers have very... 50 dates per deadline are set in stone, so if your design doesn't work you are probably dropped, you can't push your design any further out than that deadline.”

The identified themes/dimensional features contributing to knowledge exploration show that exploration requires letting go of conventional management

practices aimed at creating efficiency and reducing variation. Structural ambidexterity appears to be a tool to do this, in such a manner that does not place the survival of the organisation at any increased risk.

5.2.3. Promoting collaboration and knowledge-sharing

Collaboration and knowledge-sharing were found to be the underlying basis for every innovation success reported by research participants. Firstly, collaboration is often the origin for new ideas that may help solve an identified issue: *“Things are starting to happen because they talk to each other ... Ideas are being generated because of the collaboration.”*

Secondly, collaboration was found to lead to the integration and complementation of different sets of skills and knowledge. In various success stories that were reported, the success was the outcome of collaboration among people with diverse knowledge and skill sets. For example, the development of an innovative product was the work of a highly knowledgeable materials expert, a skilled pattern cutter, a visionary designer, an experienced commercial person, and a person who managed the team and established the connections, as stated by a respondent:

“I think it was primarily internal skills. [Person A] has been working on [component X] for the vast majority of his / her career, s/he has worked at [the case organisation] for 40 years I think, so [Person A] is a world expert in how to construct [component X]. [Person B] is another world expert in [design method X], [...]. [Design method X] is a very skilled role, so [Person B], again, was another instrument for the team. [Person C] is quite a visionary designer; s/he does a little bit of running, but s/he does a great

amount of outdoor sports. S/he is quite good at thinking about an idea and turning it around in his/her head and figuring out a way forward with it, so s/he is good in the design side of things. And then [Person D] heads the whole thing up, s/he has got a Ph.D. in [the development of component X], so s/he is among the top three people in his/her field globally, I think. [Person E] is an excellent fell runner, mountain biker, and s/he is the person who pulled together the commercial angle of it. So it was a very good effort, and having used the product myself, it works very, very well.”

However, this does not mean that constant collaboration is required throughout the innovation process. Instead, collaboration has been shown to occur in intermittent patterns, interrupted by phases of individual work for experimentation and problem-solving:

“We would put down ideas on paper and then I would usually go away and start coming up with designs and options and, during that period, I will raise a lot of questions. So on a bit of an ad-hoc basis we get together and discuss options and decisions when they arise ... I think it is 80% thinking about it myself, and 20% consulting other people.”

Collaboration and knowledge-sharing were enabled through structural ambidexterity. For instance, in Unit B, this happened to a larger extent, because it is given more autonomy and time to consult and collaborate with other people. Unit A, however, proved to be restricted in its ability to share ideas and knowledge because of its intense work schedule:

“I think sharing ideas is probably something they [the designers in unit A] are not particularly good at. I think a lot of that is down to people being so busy, you are just trying to rush through everything to get it sorted and meet your deadline.”

This need for collaboration and knowledge sharing was also highlighted by another respondent:

“If [Unit B] was like 'We are not going to listen to anybody else except ourselves' ... In a company like this with the resources we have, they wouldn't achieve the success that we have. It has to be wider and more collaborative.”

This reinforces the finding that structural ambidexterity positively affects the organisation's ability to innovate, because it provides a unit with unusually high levels of exploration-supportive attributes, for which another unit compensates. It therefore creates a system in which the pursuit of radical innovation becomes sustainable.

5.3. Dimensional features of knowledge exploitation

The bottom section of Figure 2 highlights various dimensional features of knowledge exploitation and their relationships. To a small degree, innovations are exploited through the launch of the high-end products; this is usually the first way in which an innovation is introduced to the market. However, these highly specialised products only account for a relatively small share of sales. Hence, successful top-end product innovations are cascaded down into high-volume product ranges. Thereby, the

product is made attainable and useful for a broader range of end-users. A respondent in Company A highlights this in an illustrative statement:

“Yes, there is a trickle-down process. For example, [component Y] was developed for [athlete A] and it was patented. Obviously patents cost an awful lot of money and we have to have a different one for every country, so we can't do so many of those now because it is very costly. That [component Y] is used on as many products as it makes sense to be used on. And the other thing that we developed, [component V], that was used throughout the entire [product X] range: right from [Unit B – the exploration unit] products down to everyday lifestyle products that are still technical, but not designed for climbing or mountaineering. If you've got an idea that is going to benefit consumers, whatever their end use is, then you should make the most of it and market it.”

Because the launch of the high-end products is coupled with extensive marketing efforts in the form of well-documented professional expeditions, a strong awareness is created around the innovation, which in turn enhances the credibility and reputation of the brand and creates a desire for the product among users, as shown in two illustrative quotes by respondents:

“Yep, they are very important within the process, we always use our athletes. We use a lot of their trips and expeditions.”

“... They have got prototypes with them that they are testing out in [region X]. These will then form the stories and innovations that we can launch in future seasons.”

Thus, innovations do not immediately create profits in their first appearance as high-end products, but they set the path for high-volume products to be successful. The focus of Unit B is therefore not to directly create profits, but to create a basis of new knowledge and innovations, which can then be exploited by Unit A. This is neatly illustrated by a respondent: “[...] that was developed first by the [Unit B] team as a technology and then it was given to other areas of the business to add into their products.”

5.4. Discussion regarding the influence of structural ambidexterity on innovation

In our multidimensional profile model of ambidexterity, we identified that a structural solution positively affects the organisation’s ability to innovate because of the different dimensional features associated with each ambidexterity dimension. This grants a sub-unit an increased amount of exploration-supportive dimensional features that would not be sustainable without having another sub-unit that, through its efficient exploitation, provides the necessary resources and safety. This is in accordance with [De Visser et al. \(2010\)](#), in that they show organisational innovation performance to benefit from adopting structural ambidexterity, because it facilitates having different structures and processes within each of the units.

The increased autonomy and resources given to Unit B allow it to be significantly less mechanistic in both its behaviours and processes. This enables it to conduct explorative and experimental activities throughout the innovation process in a more rigorous and flexible manner, thereby increasing the likelihood of creating innovations that fundamentally differentiate the firm’s products from those of competitors. This is supported by [Jansen et al. \(2006\)](#), who state that explorative units

benefit from less formalisation and consequently can create more breakthrough innovations.

The work of Unit A is strongly focused on the frequent and efficient output of profitable products. This is achieved through pre-determined timelines, and a sharp focus on the progression of products selected for their ability to create commercial success. This provides the resources to sustain the efforts of Unit B, and also mitigates the risks it takes. However, novel in our study, is that our findings also indicated a risk associated with a structural solution:

“I do feel that the general design team sit there a little bit untapped ... It is a little bit like the special people deal with innovation and the rest of the design team aren't considered innovative or able to innovate, when actually they may have ideas that would be fantastic [...]. By making it somebody's job it then makes it everybody else's 'not job'.”

This shows that a clean-cut separation between Unit A and Unit B may adversely affect innovation performance by hindering knowledge integration between the units. Worst case, it may even stop other employees from thinking about radical innovations, as they do not feel that it is expected of them.

Further enquiry into this issue during the data collection showed that this was unintended by the management. On the contrary, most interviewees expressed that Unit B actively encouraged people from outside the team to contribute. Rather, what emerged as the cause of this risk of disintegration between the two units was the tendency to push Unit A so far to the exploitative extreme that it negatively affected its ability to contribute to Unit B:

“[...] it is task A, task B, task C, task D, within that there is not any space built for opinion, mind change, thinking time, or reflection.”

“Everybody is perfectly able to put forward ideas. I would say the only reason they may not do so is because of workload.”

5.5. Discussion regarding the influence of contextual ambidexterity on the effectiveness of structural solutions

We have shown that a structural solution can allow for managing exploration and exploitation distinctively, in the way that proves most effective for each unit.

However, the findings suggest that the structural approach does not simply mean having one unit that solely explores and another that exploits. For instance, Unit B was reported to temporarily change from exploration to exploitation when it was getting closer to the launch of a new top-end product. While Unit A is mainly focused on exploitation, it still enters phases of exploration, when it is necessary (e.g., for developing progressive versions of existing products). Although the lengths of these phases are very differently balanced within each of the two units, the analysis of the evidence suggests that ambidexterity exists *within* both units. We refer to this as *temporary cycling*.

Furthermore, we identified that ambidexterity can be created through creative-commercial partnerships between designers and product managers within both units, as highlighted in this illustrative statement by a respondent:

“[...] When I [the designer] got that [component] out of the bag, [Person H – the product manager] was there at the same time, so I just said to him/her, ‘What do you think about this, do you think we could [use this for product Y]?’”

S/he said, 'Yeah, I don't see why not, makes sense'. So other people are kind of involved in the idea quite early on."

In these relationships, the designers predominantly exhibit behaviours that aim at creating variation, whereas the managers ensure alignment with the business goals. While respondents reported a notion that designers tended to become overly attached to the innovative projects they envision, they also voiced concerns over the tendency of commercially-orientated people cling to products that have been successful in the past. The collaborative creative-commercial partnerships therefore act as mediating mechanisms preventing either extreme from dominating. Although the balance of power between these partners is significantly different between the two units, this form of ambidexterity also exists *within* both units. We refer to these as *ambidextrous partnerships*.

Our findings suggest that features of contextual ambidexterity existing within each of the structural units (i.e., *temporary cycling* and *ambidextrous partnerships*) are necessary for the structural solution to work. This is for the following reasons. Without these features of contextual ambidexterity, Unit A would not be able to create incremental innovation and would also be more restricted in its ability to pass on ideas and knowledge to Unit B. Contextual ambidexterity is likewise required for Unit B to apply its newfound knowledge into products; without this, there might be a risk of experimenting with ideas that have no practical application. Hence, we argue that features of contextual ambidexterity prevent each unit from drifting too far into the extreme of either exploration or exploitation. This, in turn, ensures that the two units remain integrated and aligned in order to remain mutually-reinforcing.

These findings show a concurrence with what Simsek et al. (2009) class as a reciprocal type of ambidexterity, in which exploration and exploitation are pursued reciprocally and sequentially, both within and across subsystems. These authors argue that this type of ambidexterity “*assumes a reciprocal interdependence in which the outputs of exploitation from unit A become the inputs for exploration by Unit B and the outputs of Unit B cycle back to become the inputs of Unit A*” (Simsek et al., 2009, p. 886).

This is similar to what happens in Company A. Unit A provides the financial basis (and occasionally identifies new problems, ideas, and insights) that fuels the actions of Unit B. Unit B passes on its innovations, in order for them to be applied in the products of Unit A.

Furthermore, Durisin and Todorova (2012, p. 71) suggest “*keeping organizational units simultaneously separated to prevent cross-contamination and integrated to allow cross-fertilization*”. Our findings suggest that structural separation enables the effective pursuit of exploration and exploitation, yet integration and alignment between the units remain important in order to ensure their mutual support. In relation to this, Durisin and Todorova (2012) report a case in which managers deliberately restricted the time period during which the structures were separated, in order to avoid the case where the vertical split transforms itself into antagonism between the teams. While the exact reasons for this fear of antagonism are not further elaborated, this may provide support for the finding made here, that purely structural solutions come with the risk of creating a culture in which only the ‘special’ people are tasked with innovation.

We add to the literature about the accomplishment of an appropriate balance between exploration/exploitation (e.g., Lavie et al., 2010; Adler et al., 2009) by

providing details about the actual features of both ambidexterity dimensions, which are contextualised in a particular industry. In doing so we answer our first research question regarding a combination of dimensional features of ambidexterity influencing innovation.

In answering our second research question - on how a combination of dimensional features of ambidexterity influences innovation - we contribute to the existing literature in the two ways. Firstly, by explaining how the combination of the dimensional features we identified in our interviews facilitates innovation in relation to the exploration and the exploitation dimension of ambidexterity, i.e., in structurally separated units. Secondly, we explain how the combination of these dimensional features facilitates innovation through the fertilisation of ideas across structurally separated units, and how resources are deployed across such structurally separated units in order to facilitate innovation. This is important because, hitherto, only some papers have examined ambidexterity through multiple dimensions and combinations of their dimensional features. In cases in which dimensional features and their combinations were researched, different dimensional features and their combinations to the ones identified in our findings were emphasised, as highlighted in the present review of the literature (e.g., Atuahene-Gima, 2005; [Brown and Eisenhardt, 1997](#); O'Reilly and Tushman, 2004; Sheremata, 2000; Lavie et al., 2010).

6. Conclusion

6.1. Contribution

In this paper, we offer a multidimensional profile model comprised of a combination of the different features associated with the dimensions of organisational ambidexterity. Based on this, we explain how some dimensional features of ambidexterity are identified, and how their combinations influence an organisation's ability to innovate.

We also identified that the structural separation of exploration from exploitation allows for either activity to be pursued on a level that would normally not be sustainable for an organisation. The extreme focus of one unit on exploration sustains the other unit's extreme focus on exploitation. Yet, the findings indicate that if the two extremes are not mediated through features of contextual ambidexterity within each unit, their mutual reinforcement will wane. Hence, the findings support the combinatory views on ambidexterity (Raisch et al., 2009); they suggest that structural ambidexterity co-exists with features of contextual ambidexterity in order to strengthen the organisation's ability to innovate.

Aside from partially confirming aspects of existing ambidexterity research, as highlighted above, our findings are novel, because we believe that our study is the first to have developed a multidimensional profile model of organisational ambidexterity. Thereby, we contribute strongly to the existing debate in this field, which has offered theoretical arguments and simulations, but little empirical research to date. This contribution is important because, in our multidimensional profile model of organisational ambidexterity, we highlight the contingent and contextual nature of ambidexterity by emphasising its multidimensional nature through a combination of dimensional features. Moreover, this is important, because our findings thereby

recognise and highlight the complexity and contextual embeddedness of ambidexterity. This furthers our understanding regarding the difficulties in specifying the complexities of, and then implementing, organisational ambidexterity in order to achieve an appropriate balance between exploration and exploitation. Finally, we contribute to the literature on profile models of multidimensional constructs, which has, so far, offered only a few research outputs, unrelated to organisational ambidexterity.

6.2. Limitations

A limitation of the findings is that they are not statistically generalisable, because they were derived from a single case and may therefore be context-specific. Furthermore, the relatively low number of interviews (six) poses a risk that some elements remained unidentified and that the subjective views of the interviewees are more strongly represented than they would have been in a larger sample.

This study also only provides a snapshot of a multidimensional profile model of ambidexterity and their dimensional features as they were at the time of the research. Because of the dynamic nature of the business environment and the subsequent need for rapid change within organisations, the multidimensional profile model is likely to dynamically change over time as well.

6.3. Future research

With the development of a multidimensional profile model of ambidexterity, this research has opened up a new avenue for the investigation of organisational ambidexterity. Based on the limitations of this study, we suggest that future research that examines organisational ambidexterity from a multidimensional point of view

could incorporate multiple cases across industries. Furthermore, longitudinal studies could provide a deeper understanding of the dynamics of a multidimensional profile model.

Certain dimensional features of the multidimensional profile model of ambidexterity shown in Figure 2 were not covered, as they were peripheral to our research questions. Nonetheless, they were included in the diagram for reasons of completeness. Hence, further study could focus on dimensional features of the multidimensional profile model of ambidexterity that were not discussed here. For instance, the intrinsic motivation and passion of employees appeared to fuel their innovation efforts. It would therefore be interesting to investigate how structural and/or contextual ambidexterity impacts on employee motivation.

In order to create a study that can capture the processual nature of the management of innovations, a multi-phase research method could be of benefit. This would allow for an initial research phase in which a multidimensional profile model as a whole can be identified; subsequent research phases could then examine the dimensional features and their relationships over time.

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Accepted version

Appendix: Example of interview guide

Interview Guide

Emily Example – Senior Manager

Thank for interview participation.

Complete consent form.

Ask for allowance to record the interview & turn on recorder.

Intro

Can you please tell me about your personal background and what brought you into the role that you are in now?

Are you personally involved in any kind of outdoor activity?

Can you please tell me a little bit about your role?

Whom do you liaise with most closely?

How do you communicate with the people you work with?

Where do you spent most of your working day?

Can you please tell me about the specific purpose of the [blank] team and how it functions?

Did the decision to set up [blank] come from within [blank] or from [blank]?

To what degree does [blank] actively decide what is happening at [blank]?

To what extent do the [blank] businesses collaborate with each other?

Transition to innovation

How would you define innovation?

How would you describe your company culture?

[Blank] is an outdoor brand that has a long innovation history. What do you think makes this organisation so innovative?

Stories of success / failure

Can you tell me of an innovation success that you were somehow involved in during your time at the company?

- How was this done before?
- Why was it changed?
- Who and what initiated the change?
- How long did the whole process take?
- Do you think there will be further changes regarding this?
- Who was involved in this?
- Were there barriers to overcome?
- How were these overcome?
- Were there people who resisted the new approach?
- What was done about this?

Could you please tell me about an innovation attempt that failed?

- Who and what initiated the change?
- Who was involved?
- Why did it not succeed?
- How was the failure dealt with?
- Does this happen often?

Innovation management

Are there specific processes that [blank] follows? Please elaborate on these.

What are the guidelines and restrictions that [blank] has to adhere to?

What is expected of the team in terms of innovation, are there specific targets?

How often do you have to report what you are working on and to whom?

How do you keep the balance between experimentation and ensuring a regular output of commercially viable solutions?

Do you separate between projects that could lead to radical innovations, and those that potentially create small improvements?

Do you think that having a group of people who are tasked with innovation might discourage people who are not part of that group to come forward with their ideas?

How much freedom were you given to experiment with things?

Do you have any slack time designed into your role to allow you to be creative?

Where did you look for new ideas and solutions?

Do you get to follow your ideas through to the end, or are they at some point passed on to somebody else?

Speaking from your experience as senior innovation manager, what are the most challenging aspects of managing innovation?

How do you deal with these challenges (please provide examples)?

Has it ever been considered within [blank] to open up innovation to the public – e.g., publishing an identified problem on the webpage in order to get external people to work on it?

Final

Where do you see opportunities for [blank] to become more innovative in the future?

Thank for interview.