

Crossing the Chasm between Exploration and Exploitation : Achieving Ambidexterity through Intrapreneurship

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ABSTRACT

This paper explores the transition of intrapreneurial initiatives from exploration to exploitation, referred to as the liminal state. An abductive methodology is combined with an in-depth comparative case analysis to investigate three large Dutch high-tech companies in order to enrich the theoretical understanding of this liminal state. Based on the findings 3 sets of propositions are developed. First, it is proposed that organisations need to provide legitimacy, funding and preparation for integration to intrapreneurs in order for them to successfully make initiatives emerge at the end of the liminal state, ready for scaling. Second, two proposition are developed on the size of the liminal state, suggesting that radical innovation increases the gap between exploration and exploitation, and that an entrepreneurial mindset within the firm can reduce the gap between exploration and exploitation. Third, the value of organisational barriers and market pull on the intrapreneurial process are discussed. All in all, this research aims to increase the theoretical understanding of the transition between exploration and exploitation and gives ideas on the role that firms need to play in order to support intrapreneurial initiatives through the liminal state.

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Keywords

Intrapreneurship, Liminal state, Corporate entrepreneurship, Exploration, Exploitation, Radical innovation

1. INTRODUCTION

To survive, firms must find ways to renew themselves (Burström & Wilson, 2015), their ability to innovate is critical, especially in rapidly evolving industries (Menzel, Aaltio, & Ulijn, 2007; Russell, 1999). Firms need to keep exploring new market configurations to be ready for future market needs (Hill & Birkinshaw, 2014; O'Reilly & Tushman, 2013).

Entrepreneurial activity often forms the base of these radical changes in organisational systems (Lassen, Gertsen, & Riis, 2006; Schumpeter, 1934). Firms increasingly rely on corporate entrepreneurship, also called intrapreneurship, to nurture both today's and tomorrow's competitive advantages (Ireland, Covin, & Kuratko, 2009). However, organisational contexts generally hide talent and barrier creativity (Menzel et al., 2007). At large firms, creativity is often met with hostile environments (Dess et al., 2003) and innovative proposals are frequently defeated by financial control systems or other formalities that are typical at large bureaucracies (Kanter, 1983). This leads to a high turnover of innovative-minded talents, who end up disenchanted by their organisations (Kuratko, Montagno, & Hornsby, 1990). Intrapreneurs need to be able to "defy systematisation, which unfortunately is the basis of organising large systems." (Manimala, Jose, & Thomas, 2006, p. 50).

This is especially necessary in dynamic environments, like the high-tech industry (Russell, 1999) as it operates in a fast-changing world characterised by frequent changes in technology, combined with increased competitive intensity (Chandrasekaran, Linderman, & Schroeder, 2012).

So large high-tech firms struggle to combine the explorative efforts of intrapreneurs with the exploitation of current business. Achieving both seems contradictory, as exploration requires experimentation, creativity, and organic structures (He & Wong, 2004; March, 1991), while exploitation is achieved through refinement, efficiency, and bureaucracy (He & Wong, 2004; March, 1991). The continuous strive for both is referred to as ambidexterity. Ambidextrous organisations are flexible and able to adopt new initiatives while they are simultaneously responsible for optimizing current business (Thompson, 2017). Researchers have increasingly come to realize the importance of balancing these conflicting tensions (e.g., Burgelman, 1983; Gibson & Birkinshaw, 2004; March, 1991; Raisch & Birkinshaw, 2008).

The difficulty in achieving this balance is felt by intrapreneurs who are exploring new initiatives. Organisational systems are often designed in favour of exploitation with a focus on short-term success (O'Reilly & Tushman, 2013). However, by its nature, exploration is inefficient and associated with an unavoidable increase of uncertainty (Karrer & Fleck, 2015). This means, for example, that intrapreneurs in large high tech firms often experience no willingness from their organisation to differ from long term planning (Hornsby, Naffziger, Kuratko, & Montagno, 1993), or that their firms do not look for future developments to begin with (Kuratko et al., 1990; Seshadri & Tripathy, 2006). Another example is that supportive departments have no time to assist (Hashimoto & Nassif, 2014; Hornsby et al., 1993), or that hierarchical decision-making slows down momentum (Dess, Lumpkin, & McGee, 1999). In summary, intrapreneurs find themselves blocked by organisational structures, policies and managers that are rather configured for exploitation (Hitt, Nixon, Hoskisson, & Kochhar, 1999). Research has yet to unravel the intrapreneurial process through which organisations can support intrapreneurial behaviour (Neessen, Caniëls, Vos, & de Jong, 2019)

This is partly due to the complexity of intrapreneurship. Intrapreneurship is defined as "the bottom-up initiative of individuals that make change happen with the goal of improving their organisations", (Deprez, Leroy, & Euwema, 2018, p. 163) regardless of the resources that the intrapreneurs currently control (Stevenson & Jarillo, 1990). The outcomes of intrapreneurship are related to the development of new products, services, the entering of new markets or a combination of these, and can further encompass initiatives that focus on changing current processes, structures or capabilities in order to improve its current competitive standing (Covin & Miles, 1999). Lassen et al. (2006) claim that intrapreneurial initiatives can vary in degree of radicalism, but that overlap exists as both intrapreneurship and radical innovation focus on the departure from customary systems to bring life to something new.

This means that firms that want to support intrapreneurs, have to provide intrapreneurs the freedom to explore new options, while, in the end, they have to achieve integration, scaling and maturity for the initiatives to make an impact (Burgelman, 1984). It is currently unclear through which processes firms develop intrapreneurial initiatives from exploration into exploitation. The current understanding of intrapreneurial

processes remains fragmented (Belousova & Gailly, 2013), especially regarding the organisational tools that foster, capture and leverage intrapreneurship (Raisch & Birkinshaw, 2008; Turner & Pennington, 2015). The difficult orchestration of resources between these phases is seldom addressed (O'Reilly & Tushman, 2013; Popadiuk, Luz, & Kretschmer, 2018) and the moment when ideas switch from exploration into exploitation has historically been hard to define (Cheng & Van de Ven, 1996). This means that current research defaults in explaining how organisations can support initiatives through the transition from exploration to exploitation (Ireland & Webb, 2007).

The purpose of this research is to explore the transition of intrapreneurial initiatives between exploration and exploitation and to propose organisational tools that large Dutch high-tech firms can use to support them.

What combination of organisational tools do large Dutch high-tech firms employ on an organisational level to support intrapreneurs through the transition between exploration and exploitation?

To theoretically explore this problem, ambidexterity literature is used. This helps to create an understanding of the differences and interlude between exploration and exploitation. By combining intrapreneurship research and ambidexterity research it is suggested that the intrapreneurial process from exploration into exploitation has to cross a chasm, the liminal state. This gap explains why intrapreneurial initiatives are often met with exploitatively oriented systems and processes. Based on ambidexterity research several organisational tools are suggested that can help to bridge the liminal state.

To explore this proposition an abductive methodology is combined with an in-depth case analysis. Hence this research starts from a theoretical perspective to see how that applies to the case companies to build propositions on the understanding of the liminal state. The sample for this study consists out of three large Dutch high-tech companies. The reason for this focus is that these firms operate in a challenging environment due to many technological changes which require them on one hand to be open for radical innovative ideas, while on the other forces them to be efficient and standardised.

With this approach this paper contributes to the intrapreneurship and ambidexterity research in two ways. First, it enriches the theoretical understanding of the

liminal state. Second it formulates propositions on how firms can deal with the liminal state.

The paper is divided into three parts. It starts with a theoretical framework in which the difference between exploration and exploitation, the concept of intrapreneurship and the intrapreneurial process are explored. It further contains an elaboration on the liminal state of intrapreneurship, and it provides a conceptual model of antecedents based on the proposed ambidexterity solutions. The second part continues with an empirical explanation of the methodology and the findings of the semi-structured interviews, after which a cross-case analysis is performed. The final part of this research paper involves a discussion of the findings, limitations and implications for theory and practice.

2. THEORETICAL FRAMEWORK

2.1 Exploration and Exploitation

“Since the publication of March (1991)’s pioneering article, the terms ‘exploration’ and ‘exploitation’ have increasingly come to dominate organisational analysis of technological innovation” (Gupta, Smith, & Shalley, 2006, p. 693). The concepts are rooted in Schumpeter (1934)’s theory of economic development, in which he explains that profits are a direct result of innovation, while day to day costs are a result of short term improvement choices. Simply put, Schumpeter (1934) sketches the relationship between the entrepreneurial search of new possibilities and the efficiency-driven need for old certainties.

March (1991) elaborates on this relationship by introducing the concepts exploration and exploitation, and by pitching them against each other. This is comparable to the concepts of alignment and adaptability used by Gibson and Birkinshaw (2004) and refers to the challenge that firms face in reconciling both. On one hand, exploration, or adaptability, refers to the capacity to explore new opportunities by reconfiguring activities in order to quickly respond to changing environmental needs (Gibson & Birkinshaw, 2004). It means experimentation, search, risk taking, variation, discovery, and innovation (March, 1991) and requires organic structures, loosely coupled systems, improvisation, autonomy and chaos (He & Wong, 2004). Its rewards are “uncertain, distant and often negative” (March, 1991, p. 85). On the other hand, exploitation, or alignment, is considered to be the refinement and gradual improvement of existing capabilities (Liu, 2012; O'Reilly & Tushman, 2007). Its purpose is to smoothen production,

create more efficiencies and execute plans. Exploitation is further associated with project selection, control mechanisms, and standardization procedures (March, 1991) and requires mechanistic structures, tightly coupled systems, path dependence, routinization and stable technologies (He & Wong, 2004).

Organisations that engage in exploration, to the exclusion of exploitation, find themselves suffering high development costs without reaping the benefits, they build up too little distinctive competence in any of the capabilities (Cheng & Van de Ven, 1996). Meanwhile, firms in the conversed configuration are trapped in an equilibrium in which they can expect to see profits declining (March, 1991). This is the reason why many researchers call for an appropriate balance between exploration and exploitation in order to achieve superior performance (He & Wong, 2004; March, 1991).

The problem is that exploration and exploitation require fundamentally different and inconsistent architectures and competencies (Jansen, 2009). March (1991) argues that exploration and exploitation compete for the same scarce resources and that as a result, organisations need to make trade-off decisions between the two. In short term, managers are required to look for alignment or exploitation. However, this evolutionary change is not rapid enough to sustain success (Tushman & O'Reilly III, 1996). In the long-run, firms are required to adapt to their changing environment and come up with revolutionary changes that could destroy the alignment that they have been trying to achieve (Tushman & O'Reilly III, 1996).

2.2 Ambidexterity: Exploration & Exploitation

Duncan (1976) was the first to use the term "ambidextrous". He used it to refer to firms that can shift structures to accommodate both the initiation and the execution of innovation. After researching resilience and adaptability among larger firms that have survived change over time, Tushman and O'Reilly III (1996) claim that true ambidexterity can only be achieved through the simultaneous pursuit of both. This is similarly backed by Raisch and Birkinshaw (2008) and Chandrasekaran et al. (2012) who argue that ambidexterity can only become a valuable dynamic capability if the firm's exploitation and exploration activities are strategically integrated to support each other. Ambidexterity as the simultaneous pursuit of exploration and exploitation has led to a stream of research into its precursors (Raisch &

Birkinshaw, 2008), underlying concepts (Gibson & Birkinshaw, 2004) and outcomes (He & Wong, 2004; Raisch & Birkinshaw, 2008).

Empirical evidence has shown the importance of ambidexterity in practice. For example, the research by Adler, Goldoftas, and Levine (1999) found that balancing efficiency and flexibility were at the core of Toyota's superior performance in the '90s. This hypothesis was further tested among a larger sample of technological innovators by He and Wong (2004) who found that balance between exploration and exploitation led to an increase in sales growth. Similarly Lubatkin, Simsek, Ling, and Veiga (2006) showed that the orientation towards exploration and exploitation, among small and medium enterprises, positively affected firm performance. Their research found significant effects at the firm level, whereas Gibson and Birkinshaw (2004) and Chandrasekaran et al. (2012) collected data on business units. They found evidence that a business unit's capacity to simultaneously achieve alignment and adaptability was significantly related to performance.

To synthesize all these different findings, Junni, Sarala, Taras, and Tarba (2013) performed a meta-analysis of the different empirical effects ambidexterity has on organisational performance. They found a clear positive association between ambidexterity and performance, and conclude that research should focus on creating an understanding of when and how ambidexterity affects performance (Junni et al., 2013).

2.3 Intrapreneurship: How to Explore

The literature suggests different methodologies to achieve ambidexterity. Intrapreneurship is considered to be one of the ways for firms to build an ambidextrous capability (Burström & Wilson, 2015). In general, ambidexterity research considers employees to be an important source for explorative efforts. Some authors even argue that the main manifestation of ambidexterity can be found in individuals, rather than in the organisational structure (Cannaerts N, 2016; García-Lillo, Ubeda García, & Marco, 2017; O'Reilly & Tushman, 2013).

Considering employees as the source of ambidextrous behaviour leads to the concept of intrapreneurship. "Intrapreneurship is defined as the bottom-up initiative of individuals that make change happen with the

goal of improving their organisations” (Deprez et al., 2018, p. 136). This is often done through the “introduction and implementation of a significant innovation for the firm, by one or more employees” (Rigtering & Weitzel, 2013, p. 341). The intrapreneurial process is defined to be a process in which individuals inside organisations pursue opportunities regardless of the resources they currently control (Stevenson & Jarillo, 1990). Intrapreneurship is therefore considered to be: “entrepreneurship within an existing organisation” (Antoncic & Hisrich, 2001, p. 495).

The outcomes of intrapreneurship can either be internal, external or strategic (Covin & Slevin, 1991). External corporate venturing is the creation of spin-offs through corporate incubating (Weiblen & Chesbrough, 2015). Internal corporate venturing is the creation new products/services, new markets or a combination of these (Covin & Slevin, 1991). Strategic intrapreneurship corresponds to a broader array of initiatives that focus on changing current processes, structures or capabilities in order to improve its current competitive standing (Kuratko, 2017). Lassen et al. (2006) claim that intrapreneurial initiatives can vary in degree of radicalism, but that both intrapreneurship and radical innovation focus on departing from the customary systems to bring something new to life.

There are different motivations for corporations to embark on intrapreneurial journeys. Often the goal is to find opportunities that can complement or extend their existing offering, or to improve its resource utilization and increase its talent retainment (Zahra, 1991). Based on their literature study, Ireland et al. (2009) propose that intrapreneurship is positively related to the competitive capability of a firm and its strategic position. Which makes sense, as both Antoncic and Hisrich (2001) and Zahra (1991) find that the financial performance of firms increases due to intrapreneurship. Zahra (1991) further found that intrapreneurship increases employee morale and productivity.

Most intrapreneurship research to date focusses on characteristics and behaviours that are expected of intrapreneurs to overcome organisational barriers (e.g. Antoncic, 2003; Hisrich, 1990; Rigtering & Weitzel, 2013; Turro, Lopez, & Urbano, 2013). This makes sense in smaller firms: Shane and Venkataraman (2000) describe that in start-ups the characteristics of the owner (entrepreneur) heavily influence its strategy, resources, network, and therefore its success. However, at

large firms, success is less reliant on personal characteristics and relies more on the systems, resources and policies that are in place that support these individuals (Manimala et al., 2006).

The focus in the literature on personal characteristics that can overcome organisational barriers, means that less attention has been given to researching organisational contexts that can actually lower these barriers. Employees in large organisations will only become intrapreneurs if the organisational design enables them to act in an entrepreneurial way (Delić, Đonlagić Alibegović, & Mešanović, 2016).

2.4 Entrepreneurial process: Exploration into Exploitation

Intrapreneurship is “entrepreneurship within existing organisations” (Antoncic & Hisrich, 2001, p. 495). Entrepreneurship, as a scholarly domain, tries to understand how opportunities are discovered or created and how they can be exploited, and by whom, in order to create value (Venkataraman, 1997). This means that its focus is on the processes of discovery, evaluation, and exploitation of opportunities (Shane & Venkataraman, 2000).

Entrepreneurs explore new opportunities and develop their ideas, after which they try to exploit these and earn a return on their investment (Shane & Venkataraman, 2000). As described before, these activities require different settings, leadership, and organisational designs. Cheng and Van de Ven (1996) argue that for individual entrepreneurs exploration includes search, discovery, experimentation, and trying new courses of action, while exploitation includes decision making, refinement, implementation, and execution of a particular course of action. This means that as ventures develop, their business’ requirements switch. An example of these switching requirements can be found in the founders-dilemma (Wasserman, 2008): As an entrepreneurial initiative evolves, different maturity stages require different leadership styles. In the early stage, the entrepreneur often follows its gut and is required to make ad hoc decisions, while as the company matures, its role shifts towards stakeholders management and requires a democratic attitude regarding decision making.

Cheng and Van de Ven (1996) describe that both action and outcome events are chaotic at the beginning of any initiative, and shift over time to a periodic pattern. However, their simulations based on real

innovative processes have not been able to identify the parameters where behaviour changes from explorative to exploitative. With these phases being so dissimilar, and the switching moment so difficult to define, entrepreneurs run into problems as the requirements change.

2.5 Intrapreneurial process: entering a Liminal State

The intrapreneurial process is similar to the entrepreneurial process in the sense that an idea develops from exploration into exploitation. However, there are two factors that make the intrapreneurial process inherently more complex in comparison to the entrepreneurial process (Hisrich, 1990).

First, the fact that the intrapreneur is developing its idea within a corporate space. This means that not only the requirements change for the intrapreneur, but that the organisation is also expected to provide evolving support as the initiative matures.

Second, within intrapreneurship, the explorative stage is often dragged out, as many different organisational layers have a say in the development of the idea. While simultaneously exploitative characteristics set in early: intrapreneurs often have easy access to resources and have to deal with control systems in early phases. Especially compared to their entrepreneurial counterparts outside the organisation, in which entrepreneurs generally develop their prototypes and business models before they try to get access to funding (Hisrich, 1990).

It is therefore proposed that instead of a clear distinctive moment, an overlapping threshold occurs. During this threshold, the intrapreneurial initiative exists in a state of liminality, hanging between exploration and exploitation. Before the initiative enters this state, the intrapreneur is in need of pure explorative support: ideation processes to identify opportunities and the freedom to explore their potential (e.g. Antoncic & Hisrich, 2001; Hashimoto & Nassif, 2014; Kuratko, Ireland, Covin, & Hornsby, 2005). On the contrary, upon leaving this overlapping state the initiative enters the exploitative efforts of the organisation. The initiative has, at that point in time, multiple paying customer and is ready to scale. It therefore needs to be fully integrated in the organisation (Burgelman, 1984). This often related to standardization, quality control mechanisms and financial audits, which are all exploitative constructs (Dai, Maksimov, Gilbert, & Fernhaber, 2014).

In between those two extremes the initiative slowly progresses to inherit more exploitative characteristics while remaining explorative to some degree. The complex mixture of the explorative and the exploitative stage makes it difficult to determine which support system is necessary at which moment in time (Cheng & Van de Ven, 1996). Which could explain the lack of research studies that describe organisational support activities for intrapreneurship (Burström & Wilson, 2015). The phase between pure exploration and pure exploitation is referred to as *the liminal state*. It is a chaotic phase as little is known about what organisations can do to make some initiatives emerge and ready for scaling, while others are abandoned. This is visualised in Figure 1.

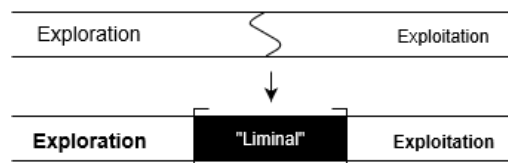


Figure 1: The Liminal State

After their formation, initiatives enter the liminal state when they get in first contact with control systems, accountability processes, integration-checks, or other related exploitative systems. Initiatives leave this liminal state once they fully embrace existing corporate systems and are ready for scale up.

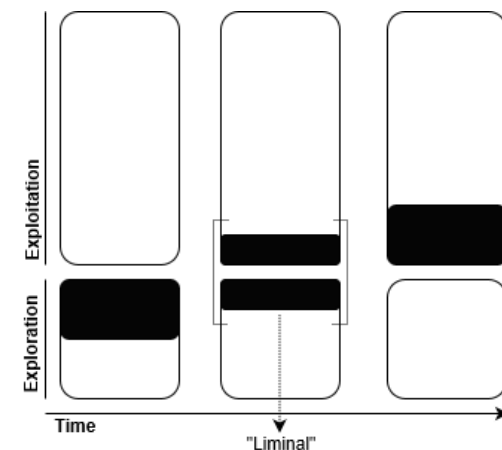


Figure 2: Two Ambidexterity Challenges visualised over time.

Figure 2 summarises the two major exploration and exploitation challenges firms run into when supporting intrapreneurship. First, firms need to balance how much, and in what way they want to support explorative efforts. This is the classic ambidexterity-challenge of balancing exploration and exploitation within the firm (vertically depicted). Second, firms need to understand that as intrapreneurial initiatives develop over time

(black box), their requirements for support change (horizontally depicted). To support initiatives through the liminal state, firms are expected to provide support, without creating bureaucracies that break the explorative efforts of the initiative, or disrupt the rest of the business.

Intrapreneurship research to date has not been able to capture the dynamics of this process in order to understand intrapreneurship (Turner & Pennington, 2015), and it is unclear how innovative-supporting behaviours are generated and directed (Ferreira, 2009; Russell, 1999). Crossing this chasm between exploration and exploitation can be a “lengthy, resource-intensive, and risky -although necessary-process” (Ireland & Webb, 2009, p. 470) however, the process through the chasm is crucial if the organisation wants initiatives to emerge, ready for scaling.

2.6 Organisational Instruments of Ambidexterity and Intrapreneurship

The core challenge of intrapreneurship is about the combination of exploration and exploitation, and is therefore ambidextrous in nature. Research into ambidexterity provides several pathways that could potentially be used to cross the liminal state. These provide a starting point to determine which tools influence the intrapreneurial process from exploration into exploitation.

First, the three solution groups of ambidexterity research are discussed. Ambidexterity research finds a consensus in three broad solution groups that enable firms to combine exploration with exploitation: *structural solutions* that try to physically separate exploration and exploitation, *contextual solutions* that enable employees to pursue both activities simultaneously within the same unit, and *leadership-based solutions*, that put the pressure on management for reconciling the tensions of ambidexterity (Raisch & Birkinshaw, 2008).

Each solution group tries to solve the ambidexterity premise in its own way. Based on a review of the literature on these three solutions all organisational tools that impact the initiative in liminal state are grouped together in table 1. The tools are grouped by their solution group and on basis of their intended outcomes. Based on this analysis it is suggested that there are three recurring intended outcomes in all solutions. This means that independent of the solutions firms choose, there are three separate outcomes that firms need to cover in order for initiatives to develop from explorative into

exploitative. These three outcomes are proposed to be a necessity in crossing the chasm, meaning that they shine a light on the inner workings of the intrapreneurial state of liminality.

Therefore, on basis of the analysis of the organisational tools to ambidexterity it is suggested that the liminal state can be crossed if firms achieve the following:

Outcome A. Legitimacy

The first set of tools provides legitimacy to intrapreneurs. It is essential for intrapreneurs to gain legitimacy from the organisation for their efforts. The intrapreneur needs the acknowledgement of peers and supervisors in order to continue pursuit (Kuratko, 2017). This can be difficult in liminality as each step that provides the necessary legitimacy is often accompanied by the inclusion of formal management systems, which can put serious constraints on the explorative development in this stage (Tushman & O'Reilly III, 1996). Intrapreneurs that do not feel legitimised, or whom are rejected by the organisation cannot continue their efforts. Providing legitimacy is therefore necessary but also yields an opportunity for the organisation to give direction to the initiatives. This leaves the question: *How do the different solutions provide legitimacy to the intrapreneurial process?*

Outcome B. Funding

The second recurring theme amidst ambidexterity solutions is the need for investment. If organisations truly support intrapreneurial initiatives they have to put money where their mouth is. Support has to be expressed in form of time or resource commitments (Antoncic, 2001), which further highlights the trust an organisation puts in their employees (Alpkan, Bulut, Gunday, Ulusoy, & Kilic, 2010). Investment is often related to certain accountability structures which can further decrease the room for exploration (Dai et al., 2014). It is therefore impertinent to understand: *How do the different solutions invest resources to the intrapreneurial process?*

Outcome C. Prepared for Integration

In order to have an impact on the organisation, intrapreneurial initiatives need to be integrated within the organisation

(Burgelman, 1984). The third group of organisational tools prepares the initiative for integration. Upon leaving the exploration stage the initiative should be ready for scaling. Furthermore, accomplishment is an important motivator for intrapreneurs (Park, Kim, & Krishna, 2014), a future perspective is therefore important to keep intrapreneurs passionate about the initiative. This further increases the tension between exploration and exploitation as the initiative is demanded to adhere to the corporate structure it wants to land in (Burgers & Covin, 2016). Initiatives that are not prepared to integrate might not find a landing spot within the organisation. Which leaves the question: *Through which methods do organisations help intrapreneurs prepare for integration?*

Organisations do not have to provide legitimacy, resources and integration-support in a linear fashion. However, all three are required in order to leave the liminal state. A legitimacy crisis will lead to re-evaluation, as a lack of acknowledgement of the firm will barrier further development (Belousova & Gailly, 2013). However, even if the firm sees the value of the initiative but struggles to provide the necessary resources to continue development, the initiative will fall short (Puech & Durand, 2017). Similarly, if the initiative is tasked with scaling in an organisational system for which its own business model is not prepared to integrate, it will run into steep organisational barriers (Pinchot, 1987). These three requirements give a collective insight in the role that the organisation has to play during the transition from exploration into exploitation, as visualised in Figure 3.

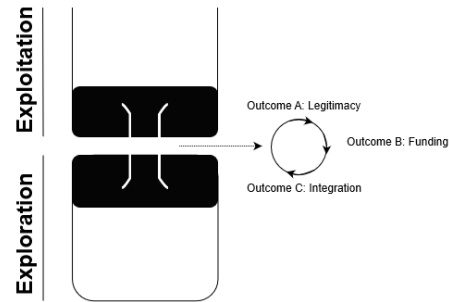


Figure 3: Necessary outcomes to bridge the Liminal state.

The specific organisational tools that firms can employ to achieve the three outcomes are discussed next. First, the organisational tools in structural solutions are discussed, second the tools of contextual solutions, and third the tools that are employed in leadership-based solutions. The goal is to answer the following questions for each of the three alternatives:

- *How do the different solutions provide legitimisation to the intrapreneurial process?*
- *How do the different solutions invest resources to the intrapreneurial process?*
- *Through which methods do organisations help intrapreneurs prepare for reintegration?*

The organisational tools are summarised in a conceptual model in Table 1.

	<i>Outcome 1: Legitimacy</i>	<i>Outcome 2: Funding</i>	<i>Outcome 3: Prepared for Integration</i>
Structural Solutions	Parallel structure (e.g. Raisch & Birkinshaw, 2008) Formal control systems (e.g. Kuratko et al., 1990) Reward systems (e.g. Antoncic & Hisrich, 2001) Inter-firm collaboration (e.g. Antoncic, 2001)	Slack Resources (e.g. Asif, 2017) Allocation of free time (e.g. Alpkan et al., 2010)	Integration systems (Burgers & Covin, 2016) Through: - Shared Vision - Senior team integration - Targeted structural linking mechanisms
Contextual Solutions	Peer-support and feedback (e.g. Belousova & Gailly, 2013)	Discretionary Resources (e.g. Hashimoto & Nassif, 2014) Autonomy (100% “free time”) (e.g. Burström & Wilson, 2015)	Contextual alignment (e.g. Chandrasekaran et al., 2012) Through: - Explicit task objectives - Constant reviews
Leadership-based Solutions	Middle manager support (e.g. Rigtering & Weitzel, 2013) Leader-member exchange (e.g. Rosing, Frese, & Bausch, 2011) Monitoring (Floyd & Lane, 2000)	Strategic Resources (e.g. Garrett, 2013) Key Performance Indicators (e.g. Kuratko et al., 2005)	Senior executive involvement (e.g. Raisch & Birkinshaw, 2008) Through: - Internal processes

Table 1: Overview of the organisational tools mentioned by literature for each solution, grouped per stage.

2.6.1 The Structural Solution

The structural solution suggests explorative functions should be separated from exploitative departments, in structurally separated units, in order to be effectively managed (Liu, 2012). Explorative units get the opportunity to adopt an organic structure, rely on horizontal coordination (Liu, 2012), and make use of open communication (Antoncic, 2001) and decentralized decision making (Asif, 2017). It initially *legitimises* intrapreneurs by relocating them in a parallel structure (Raisch & Birkinshaw, 2008), which enables them to work on their initiative without the distractions of current business. By employing a separate business unit, management shows its support of the intrapreneurial initiative. This effect is amplified by the existence of formal control systems that accept and reject certain proposals, (Antoncic, 2001; Asif, 2017; Kuratko et al., 1990), and the upheaval of reward systems that incentivise innovative behaviour (Antoncic, 2001; Asif, 2017). A last advantage of the structural solution is its adaptability for inter-firm collaborations, external units provide a better opportunity for cultures to come together and keep specific firm-knowledge safe, as partners are brought into the innovation process (Antoncic, 2001).

Structural solutions make resources available to *fund* experimental projects (e.g. Antoncic, 2001; Asif, 2017; Belousova & Gailly, 2013; Burgers & Covin, 2016; Csaszar, 2012). This can be in the form of knowledge, financial assets, equipment, or employees (Delić et al., 2016). Parallel structures are often accompanied by specific resource endowments for the development of new initiatives (Raisch & Birkinshaw, 2008). Another known way to make initial investments is by providing free time for employees to develop novelties without the burden of routine work (Alpkan et al., 2010).

The main downside of the structural approach has been a point of discussion among researchers (Raisch & Birkinshaw, 2008) and is located on the liminal threshold. Christensen (1997) claims that disruptive innovation can only be found through complete separation and a lack of bureaucracy, while O'Reilly and Tushman (2013) make the point that *reintegration* is imperative for the initiatives to have a future within the company. Control systems that evaluate proposals at the entry of the unit are on one hand ideal to steer the direction of the innovation efforts, while on the other hand, they might turn out to be an entry barrier (O'Reilly & Tushman, 2013). Burgers and Covin (2016) researched this effect and

found that even though managers “are well served” by employing dedicated structurally differentiated innovation units to increase corporate entrepreneurship, they should also invest in “the development of integration mechanisms – shared vision, senior team social integration, and cross-functional interfaces” to ensure a future for the ideas that come out of these units.

2.6.2 The Contextual Solution

Contextual ambidexterity calls for the simultaneous pursuit of exploration and exploitation within one unit (Gibson & Birkinshaw, 2004). By generating the right supportive context, employees should feel empowered to choose how they want to spend their time and pursue exploration if they have a good idea. According to longitudinal studies by Ghoshal and Bartlett (1994) and Gibson and Birkinshaw (2004), the primary dimensions of such a context are discipline, stretch, support, and trust. This is reflected in the legitimisation of intrapreneurial initiatives as there is a lack of formal systems. Intrapreneurs are *legitimised* by peer support and direct feedback from the organisation (Birkinshaw, 1997; Brown & Eisenhardt, 1997; Goodale, Kuratko, Hornsby, & Covin, 2011; Puech & Durand, 2017). Covin and Miles (1999, p. 16) emphasise that the open expression of radical ideas, the empowerment of employees, the belief that change is good and the spirit of teamwork are essential in such systems.

The stretch and trust factor are further reflected in the increased levels of autonomy that permit employees time to propose and test new ideas (Burström & Wilson, 2015; Kollmann & Stockmann, 2010) and the fact that employees can use resources discretionary (Antoncic & Hisrich, 2004; Burström & Wilson, 2015; Hashimoto & Nassif, 2014; Kearney, Hisrich, & Roche, 2007; Puech & Durand, 2017). This means that within this context, employees determine their *funding* themselves.

In contextual solutions, *integration* is within grasps as the initiative operates from within the business (Mustafa, Gavin, & Hughes, 2018). One of its essentials is the contextual alignment, which refers to the alignment of strategic and operational levels (Chandrasekaran et al., 2012). High levels of alignment promote consistency and clarity which makes it more likely that employees work towards the same goals (Gibson & Birkinshaw, 2004). It is hypothesised that alignment is achieved by creating explicit task objectives and promoting fast feedback cycles

(Chandrasekaran et al., 2012; Ghoshal & Bartlett, 1994). This should mean that all intrapreneurial initiatives work towards organisational goals and should therefore be readily adopted by the organisation upon maturity. However, contextual solutions can backfire when the context is unclear, misused, or when too many different initiatives spread the innovative force of the company too thin. An example of this was Google in 2011, when their CEO communicated that Google was going to put “more wood behind fewer arrows”, shutting down multiple initiatives and concentrating its innovation power in a certain direction (Page, 2011).

2.6.3 The Leadership-Based Solution

The leadership-based solution puts the pressure on leadership across the organisation to reconcile the tensions between exploitation and exploration (Raisch & Birkinshaw, 2008). The initiatives are *legitimised* by the support of direct supervisors, or middle managers (Kuratko et al., 2005; Rigtering & Weitzel, 2013; Rosing et al., 2011). This means that intrapreneurs put their trust in their supervisors (Rigtering & Weitzel, 2013). That is why communication exchange between leaders and employees is so important (Heinonen & Toivonen, 2007; Rosing et al., 2011). Park et al. (2014) argue that the quality of the relationship between employees and management is a key determinant of their loyalty and willingness to devote themselves to better performance. Rosing et al. (2011) claim that a strong leader-member exchange is positively related to innovation because of mutual trust. Managers often put their own reputation on the line (Burgelman, 1983; Linder & Bothello, 2015) in order to get initiatives funded. This leads to increased monitoring by the managers (Floyd & Lane, 2000)

This exchange further depends on the autonomy of middle managers, or better said: it depends on who holds the resources (Linder & Bothello, 2015). Through the endowment of strategic resources, middle managers, or higher hierarchical layers, can *fund* projects (Garrett, 2013). This requires the right performance indicators: middle managers should be rewarded for supporting innovating behaviour (Kuratko et al., 2005).

In the end, a presentation before the senior executives, or top management team, is considered the ultimate goal. Being incorporated within the organisation requires their support (Deprez et al., 2018; Garrett, 2013; Raisch & Birkinshaw, 2008), and lobbying to get strategically *integrated* is often necessary.

Top management teams can choose to employ certain internal processes to value and reward intrapreneurial initiatives, which can both positively and negatively influence the intrapreneurial process (Burgess, 2013; Raisch & Birkinshaw, 2008). The core challenge of leadership-based solutions in a state of liminality is simultaneously its core component: the dependency on leaders. This can be both positive and negative. It stimulates favouritism, and lacks a systematic approach to deal with initiatives. Furthermore, the effect of (not) changing leaders on the direction of innovation can impact the initiatives longevity.

3. METHODS

3.1 Research Design

This study uses a multiple case comparison methodology. Case study research involves the examination of a phenomenon in its natural setting (Creswell, Hanson, Clark Plano, & Morales, 2007). The method builds an in-depth, contextual understanding of the case, relying on multiple data sources (Yin, 2014). The research design involves multiple cases: which is generally regarded as a more robust design, since it provides for the observation and analysis of a phenomenon in several settings (Yin, 2014).

Intrapreneurship has predominantly been explored through quantitative methods, that helped establish which antecedents elicited intrapreneurial behaviour in individuals. However, how firms deal with the switching requirements of exploration and exploitation and during the intrapreneurial process has not been explored before. An exploratory study is therefore suitable, in order to unravel the organisational impact on the progression through the liminal state and to further academic understanding of the liminal state. Intrapreneurial behaviour does not happen in a vacuum (Floyd & Lane, 2000; Kuratko et al., 2005; Menzel et al., 2007), it is therefore imperative to consider the context in which it initiates (Belousova & Gailly, 2013; Menzel et al., 2007). This information can best be uncovered through in-depth investigations of real-life situations at different intrapreneurial firms. Secondly, qualitative research lends itself perfectly to “address process-oriented questions of interest to the field” (Leech & Onwuegbuzie, 2008). It allows for careful consideration of the experiences intrapreneurs have with different organisational tools.

3.2 Data collection

Data is collected from multiple sources. The main method of collection is the use of semi-

structured interviews. This method of data collection provides an opportunity for structure, while simultaneously leaving room for conversation and open responses to go further into depth when required (Longhurst, 2003). This allows for “the discovery and elaboration of information that is important to the participants but may not have previously thought of as pertinent by the research team” (Gill, Stewart, Treasure, & Chadwick, 2008, p. 291) which enables this research to expand the known organisational tools to ambidexterity. Interviews are most appropriate where little is known and when detailed insights are required from individual participants (Gill et al., 2008). Finally, interviews allow for evaluation of the person’s non-verbal indicators which increases the validity of the person’s answers and enables the researcher to capture of the interviewee’s judgement of former experiences (Boyce & Neale, 2006). Questions were asked regarding the ways in which firms provide legitimacy, funding and integration to their intrapreneurs. These semi-structured interviews have taken place across three companies. The goal was to select organisations that are large, Dutch and high-tech.

Size is important as smaller firms have less trouble integrating ambidextrous goals into one organisation (Burgers & Covin, 2016). Furthermore, smaller firms have the option to apply sequential ambidexterity and switch between exploration and exploitation (Raisch, Birkinshaw, Probst, & Tushman, 2009), while larger firms need to develop a method to reconcile those. A major complication is the number of employees, as these are the core element of intrapreneurship. As the number of employees increase, firms tend to create cumbersome structures to control and steer them, which in turn tends to freeze personal autonomy and individual creativity (Carrier, 1994). Therefore only large organisations were selected. The European commission considers companies with more than 250 employees large, while the three corporations in the sample approximately employ 700, 11.500 and 18.000 employees, they are therefore considered large.

The Netherlands is chosen as the country of research as its employment culture fits the idea of bottom-up idea generation through the concepts of “looseness” (Gelfand et al., 2011) and “low power distance” (Hofstede, 1984). Organisations in loose societies have less order and cohesion, which allows for greater innovation and more tolerance for change (Gelfand, Nishii, & Raver, 2006). Similarly but separately, Hofstede (1984) found that the Dutch culture has a low power distance, which allows for innovative thought sharing,

making the Netherlands a fitting country for research on intrapreneurial activity.

Certain environmental characteristics elicit corporate entrepreneurship as well. High-tech industries, for example, are commonly composed of disproportionate amounts of entrepreneurial firms (Covin & Slevin, 1991; Csaszar, 2012) and have similar statistics for spin-offs (Garvin, 1983). Empirical evidence suggests that corporate entrepreneurship is “particularly effective among companies operating in hostile environments” (Zahra & Covin, 1995, p. 44). These dynamic environments provide external pressure for constant change and internal renewal (Burgers & Covin, 2016). High-tech industries operating in dynamic environments are often responding to their environmental challenges “by taking risk, innovating, and exhibiting proactive behaviours – that is, by adopting entrepreneurial postures” (Covin & Slevin, 1991, p. 11).

The purpose of this paper is to explore a new theoretical domain theoretical sampling of cases is appropriate (Eisenhardt & Graebner, 2007). Eisenhardt and Graebner (2007, p. 27) define theoretical case sampling as “selection of cases because they are particularly suitable for illuminating and extending relationships among constructs”. So within the population of large, Dutch, high-tech companies, 3 cases have been selected that seemed suitable in demonstrating the variety of intrapreneurship systems. Those are the following: Royal Dutch Philips, Nedap, and Thales Nederland. In each organisation, multiple intrapreneurs have been interviewed to demystify the organisational tools that are employed to provide legitimacy, funding, or integration. These findings were triangulated with an interview of an innovation manager at each of the organisations. In general, saturation was reached after 14 interviews, with 12 different employees, encompassing 4 innovation managers and 8 intrapreneurs, equally distributed among the case companies.

Intrapreneurs were selected using the following inclusion and exclusion criteria: all participants are employed in one of the three case companies, and active in an intrapreneurial role. The intrapreneurial role was described as: “people who have taken initiative in the development of a new product, new service or strategic project within company X, while this is outside of their original job description”. It is furthermore important that company X recognizes the value of the initiative, as this is considered the start of the liminal state of intrapreneurship.

Table 2 shows an overview of the interview data, including the total amount of interview minutes.

Table 2: Overview interview data

Source	Method	Amount
<i>Thales</i>		
Intrapreneurs	Interview	124 min
Innovation managers	Interview	41 min
<i>Philips</i>		
Intrapreneurs	Interview	141 min
Innovation managers	Interview	107 min
<i>Nedap</i>		
Intrapreneurs	Interview	175 min
Innovation managers	Interview	73 min

Following Shenton (2004)'s assessment of validity in qualitative research, the researcher took the following steps to increase the credibility of the phenomena under scrutiny.

- 1) Early familiarity of the organisational culture of the companies allowed for the proper identification of a contextual, structural and leadership-based behaviours and enabled the interviewer to tailor questions accordingly.
- 2) The found data was triangulated using corporate documents, and multiple interviews. Especially the innovation manager-interviews increased comprehension of the complex systems in which the intrapreneurs operate and a call back was arranged to continue the conversation with the innovation manager in 2 instances.
- 3) All interviews were conducted face-to-face, at the location of work of the participants except for two call-backs. Furthermore, participants were reminded of their right to withdraw without disclosure of reason, or change their admission in hindsight. This research, including its method has been accorded by the ethics committee of the faculty BMS, University of Twente. This means that this study fulfils all guidelines to ethically study this research question. Accordingly, all participants were informed of the research aim, their privacy rights, anonymity protection, the voluntary nature of participation and data management. All interviewees consented to participate.
- 4) Two organisational cases included one intrapreneur that did not successfully implement its initiative. This negative case analysis was applied to ensure saturation among different instances of the same phenomenon (intrapreneurship) (Shenton, 2004).

3.3 Data analysis

Based on the consent given by the participants, all interviews were recorded using an audio recorder. This allowed for coherent transcription and enabled an open conversation during the interviews without the interference of elaborate note taking. Recordings were transcribed in order for interviewees to check these on correctness (Fereday & Muir-Cochrane, 2006).

To answer the research question an abductive analysis methodology is used. This is referred to as iterative grounded theory (Cannaerts N, 2016) as it is a mixture of deductive and inductive approaches (Dubois & Gadde, 2002). Inductive research aims to build new theory on basis of empirical findings, while deductive research tests specific hypothesis based on theory against empirical data (Morrow, 2007). Hence, this paper starts from an existing theoretical perspective, compares this to the found interview data and goes back to building new theoretical propositions.

The coding scheme and the interview protocol are based on the framework that was deduced from theory. Based on the different solutions to ambidexterity, it is proposed that organisations provide legitimacy, invest resources and prepare for integration. This allows the data to be coded accordingly. Inductively, patterns emerged around this based on interviewee input (Miles & Huberman, 1994) which form the basis of the propositions that are formed in the discussion.

3.4 The research context

Next, the context of each of these cases is set, providing a baseline from which the analysis can commence (Creswell et al., 2007). This enables the reader to make decisions about the generalizability of the findings towards different contexts (Morrow, 2007).

3.4.1 Philips

Royal Dutch Philips is a multinational conglomerate which is headquartered in Amsterdam, and was founded in Eindhoven. It is one of the largest electronic conglomerates in the world and currently employs 77.400 employees across 100 countries and recorded 18.121 billion euros revenue in 2018. 11.500 employees are based across their campuses in the Netherlands.

“Royal Philips of the Netherlands is a leading health technology company focused on improving people’s health and enabling better outcomes across the health continuum from healthy living and prevention, to diagnosis,

treatment and home care.” – according to their own website.

It is organized in two main divisions: Philips consumer health and well-being and Philips professional health care. The organisation is run through several business units who have their own product portfolios. Each of these business lines is supported by an new business creation board (NBX board) that makes decisions regarding the support of new business. These decisions are supported by central located service lines. One of these is the chief technology office, which plays a role in the initiation and orchestration of all innovation processes at Philips. This contains the official R&D department, as well as the organisations that deal with innovation management and start-up engagement.

3.4.2 Nedap

Nedap is a Dutch technology firm, located in Groenlo. It is active around the world and has 10 offices across borders. It employs approximately 700 people across 7 business units and recorded revenue of 191.4 million euros in 2018. They are among the 10 oldest public companies in the Netherlands.

Their website describes them as “*A vibrant community that inspires growth*” and their vision is rooted in diversity. “*We develop technology that helps people be more productive in their work by better matching their individual talents and capabilities*”.

Their products are based around the Near-Field Communication technology (NFC) and split up among 7 business units that all serve a different market. Examples of these markets are Retail (security and logistics), Livestock management (automatization of processes), and Healthcare (administrative systems). Business units are run as independent companies with 7 general managers leading them. Each of these units is further split up into smaller teams and groups. These teams are head up by captain, responsible for the people within their team.

3.4.3 Thales

Thales Nederland is a technology company primarily in the cybersecurity, airspace- and defence technology. It produces advanced radar- and communication technology. It is a subsidiary of the Thales Group, which is located in Paris, France and active across 68 countries. The Thales Group employs 80,000 employees of which 17.000 are located in the Netherlands, most of these are located in Hengelo. The Thales group has a turnover of 14.86 billion euros in 2016.

Their website describes their role as following: “*Our solutions help customers to make the right decisions at the right time and act accordingly in challenging environments*”

Thales Nederland is organized in different business units that overlap with those of the Thales group. This entails that business unit leaders report to both the management team of Thales Nederland, and to the business unit directors of the Thales Group. Thales Group has further organized Thales Research and Technology department (TRT). These are funded from Paris, but the Dutch subsidiary co-decides the topics for the TRT located in Hengelo. Multiple projects can be run at the TRT simultaneously.

4. FINDINGS

The qualitative data is coded and analysed using ATLAS.ti. For each of the three case companies codes emerged around antecedents that enabled intrapreneurship. These codes fit around the three core elements of the ambidexterity solutions: legitimacy, funding and integration.

The results of the analysis are described in the following sections. First, the organisational tools that describe the intrapreneurship system of Philips are discussed, Nedap follows, and at last the solution of Thales is described. The findings are summarized in Table 3.

Table 3 Case study findings summarized per company, divided among the three stages

	Outcome 1: Legitimacy	Outcome 2: Funding	Outcome 3: Prepared for Integration
Philips	Parallel structure (Healthworks) Business support Formal controls (NBX) - Stage gate system - Assessments Market Pull Training	Strategic resources - By: Business Sponsor - Through: Portfolio Management Allocation of free time to work on new projects (CTO office)	(Early) Formal controls (or Targeted structural linking mechanisms) (NBX) - Team formation - Landing spot - Monthly meeting with steering committee - Milestones
Nedap	Peer-support and feedback - Monthly meeting Informal controls Social Support - Coach // Captain - Goal setting Market pull	Autonomy // Discretionary resources	Contextual alignment Through: - (guided) Goal setting - Fast (informal) feedback cycles
Thales	Middle manager support - Leader-member exchange Monitoring Market pull	Strategic resources - By: Business Sponsor	Senior executive involvement Through: - internal processes - Lobbying

4.1 Philips: from Parallel to Integration

Philips has carefully designed a process to capture and accompany initiatives throughout development. It is based on Bell-Mason and has 4 stages that each have their own milestones and gates to pass. The stages are: Pre-seed, Seed, Alpha and Beta.

Intrapreneurs have two possibilities to enter that process. Their initiatives can either be brought to life by the chief technology office (CTO office) or by one of the business lines. This determines the location of the Pre-seed phase. However, once initiatives enter the Seed phase, they are expected to be sponsored, and located in the structure of a business. This is the start of the liminal state as an initiative becomes an official venture get in contact with the exploitative organisation.

After development through Seed and Alpha, the initiatives face the gate to Beta, which requires a readiness to scale across the Philips markets. This corresponds with the end of the liminal state.

4.1.1 Philips: Providing Legitimacy

Intrapreneurs at Philips are seen as legitimate when an official venture is initiated. Intrapreneurs who immediately start their venture through one of the business lines feel legitimised by the *business support* they receive. As referred to by an innovation manager [IM]:

[IM] *"It could be that an initiative is immediately embraced by the business, this means it will be moved in that business."*

Other ideas enter a *parallel structure* if no business line has shown interest yet, but the chief technology office sees potential. This is a trajectory that lasts approximately three months and in which intrapreneurs build their value proposition. It is called '*Healthworks*' and prepares intrapreneurs for finding the business support necessary to start a new venture. As referred to by the intrapreneurs [I] and an innovation manager [IM]:

[I] *"We made use of Healthworks, an acceleration program. We used it in the first months to deepen our potential for Philips and to come to better insight in how we can start this venture."*

[I referring to Healthworks] *"On basis of analysis we find out if the problem is big enough, next is to uncover if the problem is relevant – whether or not the proposed solution solves the problem and if our impact on it is realistic."*

[IM] *"If the [NBX-board of the] CTO office deems the idea to be promising, but no business is willing to step in, Healthworks can step in."*

After a venture is created the progression through the stage-gate process is

monitored by *formal control* systems, which further legitimise the efforts of the intrapreneur. The "new business creation office" (NBX office) at Philips has designed this process and assesses the maturity of the different ventures. These assessments are provided to the ventures, and to their "steering committees" as suggestions. The committees consists out of the ventures' main stakeholders: the sponsors, a representative of the market, someone from NBX and other stakeholders from the business. The committee is responsible to make decisions regarding the venture's maturity, often on basis of the assessment that is provided by the NBX office. The different maturity stages legitimise the effort of the intrapreneur and its team. Each phase requires different courses of action. The pre-seed stage leads to a value proposition that can convince sponsors to start a venture. The seed stage is about development and early customer involvement. The gate to pass to Alpha requires a minimal viable product (MVP) and a customer who is willing to put some skin into the game. The gate to Beta requires a readiness to scale across the Philips markets.

[I when talking about Healthworks/Preseed] *"Based on that work we got the support from within the business to start a venture"*

[I] *"Before you enter Seed, you have to pass a gate. You'll have an investment proposal for that, which consists out of a demonstrator and some risk assessment. In seed you'll produce a MVP that is enough to win some commercial clients. Then you'll also start marketing in order to move from seed to alpha."*

[I] *"We are currently in Seed, but are Alpha ready. We have commercial customers."*

[IM when talking about the gate to Alpha] *"We have very detailed checklists, but at a high level you need to have your MVP developed and you need a customer who is willing to implement - a paying customer!"*

All interviewees referred to *market pull* as an important cause for legitimacy. Showing interest from the market helps to legitimise the efforts towards internal actors.

[I] [Interviewer: "How did you convince them of the importance of your idea?"] *"We showed them results."*

[I] *"We interviewed multiple customers and saw that there was demand which we could play into. That is why we decided to start a pilot with a customer."*

A last important support value of the NBX-process seems to be the provision of *Training* both to the intrapreneurs and the supporting organisation. This also reflects back on the integration phase, but further legitimises the efforts of intrapreneurs within NBX.

[IM] *"We have two kinds of trainings. People who are in the ventures are trained to understand the process, and we offer training to our leaders to understand, ask the right questions and give them the right support."*

[IM] *"The change of mindset is a challenge. That is why NBX spends time on practitioners of an NBX venture, their leaders, their periphery and the business leaders To make*

them conscious of the contrasting requirements between current and new business.”

All in all, Philips employs an *elaborate formal processes* to help intrapreneurs to gain progress on their ventures, and to legitimise their efforts. The main recognition has to come from the *support of a business line*. However, a *parallel structure* can precede this if no interest has been shown yet. *The formal controls and training* that kick in after achieving business support help the business to value progress and keep the efforts of the initiative legitimate. Interest from potential customers, or market pull speeds up that process.

4.1.2 Philips: Investing Resources

The intrapreneurs indicate that in order to start a venture, they need to convince *sponsor* to support the creation of a venture. These sponsors are business owners, who keep the *strategic resources*. However, they are supported by an NBX board. Each business line has such a board to advise the business on investment opportunities.

[I; when talking about Healthworks] *“We presented what we had learned to our stakeholders. Those are the ones that provide the budget. The sponsors told us: ‘we are interested in this initiative and provide the budget for this venture’.*

[IM] *“When there is support from a business owner, we say ‘rapid co-create with a team of 3-4 people, now fulltime, to look at the idea.’”*

These business managers are stimulated to invest in adjacent businesses through *portfolio management*. The innovation managers explained that key performance indicators at business level stimulate managers to look beyond current business and accommodate the exploration of new opportunities.

[IM] *“We employ portfolio management, the idea is that the majority of your money needs to go to current business. However, it also needs to go to adjacencies, otherwise they will only be good for the coming year and not in the future. So they will have to show that they have a balanced portfolio.”*

[IM] *“The way Philips stimulates this is through different baskets of money. One is about stimulating current business, one about adjacencies, and one about completely new business. (...) Every business owner needs to report every 3 months about their portfolio.”*

The innovation managers indicate another investment tool: employees within the CTO office have *free time to work on new projects*. In doing so, Philips invests time in testing the waters, which favours CTO employees or employees who have a network in the CTO office. In general, employees in the CTO-office have the opportunity to pick new initiatives, and the research department (located in the CTO office) has Friday Afternoon Experiments, in which researchers are allowed

to pursue pet projects. One intrapreneur came from the CTO-office and describes how the availability of time helped its initiation:

[IM] *“There is no structured process, and it should not be a structured process because ideas are never structured. There are different ways to get your ideas to life. The only thing in my experience is: if you have an idea and you are behind it, you will find a way to make it work. Either you’ll find a researcher with some time to spend on a Friday afternoon, or you’ll get a business owner to allocate some time*

[I] [Interviewer: “How did you start working on this idea?”] *“Our department is a service organisation within which we have the room to take on these kind of projects. (...) It is project based. Together with someone who has knowledge about the content you have this kind of flexibility.”*

In conclusion, Philips’ investment in intrapreneurial initiatives is done by the *business lines*, who are stimulated to do so by *portfolio management*. However, the CTO office can provide preliminary support if ideas need *time to develop* before finding a suitable business to land in.

4.1.3 Philips: Prepare for Integration

The NBX process at Philips starts early with integration issues. The interviewees referred to the importance of finding a *landing spot* early on, as the initial influence of the business helps the integration later in the process.

[IM] *“The initial guidance in the beginning is to help you make a lot of design decisions early. You already know who the business owner is, which will help you to make the right decisions to find the right fit later.”*

[IM] *“As soon as you enter seed, you’ll need to drag in a landing spot business who says: ‘this looks promising’.”*

Another way in which Philips stimulates early business integration is seen in the *team formation* of ventures, which happens early on and shows that business integration is an important facet of the team’s focus.

[I] *“We set up an MT [Management team] for the venture in which we saw four roles: a jack of all trades – me, a commercial lead who is responsible for the complete aspect of product management, marketing and sales. (...) An operational manager who thought about how we would have to orchestrate operations within Philips. We had to develop a product, what if an order would come in? How would that go? Where would it land? And how would we invoice those orders? That complete trajectory. (...) And my R&D manager. However, those last two people are part of the current business. I took them in my MT, they do not work dedicated for the venture, but are significantly involved.”*

[IM] *“The initiator is someone you want to have in the core team, but that could be in any role. The team is also assessed by the NBX-assessments.”*

This integration is further supported through *monthly meetings* between the venture team and its steering committee. These meetings allow the landing business, through the role of sponsor to influence the progress and prepare the venture for reintegration.

[IM talking about monthly meetings] *“For example in Beta and Alpha, the interest is in revenue and sales. But when you are in Preseed, this is more qualitative. Have you developed your value proposition? Have you validated? How are you engaging with partners? (...) So it depends on the phase, you’ll have different discussions.”*

[I] *“Monthly we have a venture board to discuss the progress of the venture. Separately I meet with R&D of the business as I make use of his organisation. I kind of outsource production to him, internally.”*

In the end, the issue of integration is best summarized by the milestones that NBX expects ventures to cross. These are discussed in the monthly meetings. The innovation manager indicated that at Philips, intrapreneurs are expected to make progress on 16 areas of interest:

[IM] *“At each gate we look at 16 areas of interest. 8 are product related and 8 are regarding the organisation and capabilities. (...) Those final 8 are about preparing the venture in order for Philips to actually use these ventures to their potential.”*

So all in all, the formal integration mechanisms at Philips focus on integration issues early on. Intrapreneurs are guided towards integration through the use of milestones, team formation and monthly meetings with the steering board. This means that some of the exploitative barriers are put upon the exploring venture early on. This is best summarized by the innovation manager:

[IM] *“If you fit in that context you will grow faster than any external venture, but if you do not fit, it will be slower than any external venture.”*

4.1.4 Philips: Conclusion

Overall, Philips’ system aims to cross the threshold into exploitation by providing legitimacy, funding and integration-support. Business owners are tasked with the funding of new initiatives and play an important role in legitimising their efforts. This is supported by the centrally located NBX office and the NBX boards that are in each business line. An advantage of this system is related to integration. The early conformity to the business lines helps initiatives to integrate in a later stage. However, a disadvantage is also the early conformity. It has early exploitative barriers, which means that there is less room for wild explorations. The system needs to be cautious to not become path-dependent to the current business lines. The CTO office is tasked with this, and can support ‘wild’ ideas for a while, however if it does not fit to a current business line, there is no room to exist outside them. The idea is to fail early, which helps integration later, but limits the time that intrapreneurs get to develop their idea.

[IM] *“The big challenge is not to come with a good idea, there are many good ideas, but the challenge is to find a*

good idea in which we have the right to win and the right to play.

4.2 Nedap: from Autonomy to Alignment

At Nedap the intrapreneurial support system is characterised by autonomy. Both the innovation manager [IM] and the intrapreneurs [I] indicate that the freedom to make autonomous decisions is important at Nedap.

[IM] *“We do not have the illusion that managers know more about doing the job than the employees themselves.”*

[I] *“Upon joining the company, one of the first questions I got was: “what do you want to do?””*

[I] *“The degree to which you enjoy work is dependent on the amount of influence you have over it”*

This level of autonomy means that employees set their own development goals, determine their own working hours and choose their number of holidays. Which further highlights how new initiatives are started: employees can just start working on something else if they want to. The intrapreneur is responsible for its development within the context at Nedap until the products are ready to be sold to multiple customers. That is the end of the liminal state.

4.2.1 Nedap: Providing Legitimacy

[IM] *“I think it is best to let people make their own decisions. Those are taken within the teams. It is our task to make sure they have the right context, in order for their decisions to be in line with the direction we want to go. If the decisions go in many different directions it means we failed in setting down a general direction for the company.”*

This quote by the innovation manager describes the important sources for legitimacy at Nedap. The most important of these is within the teams. As an intrapreneur at Nedap, it is important to obtain legitimacy from your team around you. *Peer feedback* is considered as a decisive tool for legitimacy. All respondents talked about the peer feedback mechanisms that are in place.

[I] *“At that point, I went to propose the idea to a couple of people. (...) People that had started around the same time as I did. I knew I could not do this alone. I needed to find someone to help.”*

[I] *“I talk to others at the coffee machine. They would ask ‘are we going to ask money for this?’. That plants a seed. Furthermore, account and sales managers start wondering if we should not be asking money for this extra feature.”*

A formal method of organizing this peer feedback is a *monthly meeting*. Each business unit sits together, at least once a month, which can be used by employees to present ideas. Through an organized pitch, and through the involvement of different peers, intrapreneurs feel legitimised to work on their idea.

[I] *“Most people first explain it to a colleague, and at some point, they start talking about it more openly. At that point, we tell them: you should pitch this to the whole group, that’s what the podium is all about. When everyone does this [PUTS HIS THUMB UP] you can continue.”*

[I] *“We pitched our idea at the monthly meeting, describing the problem we wanted to solve. (...) The moment we got critical questions we knew we managed to interest some people. So we talked with them to find out how we could improve our idea.”*

[I] [After the pitch] *“we felt like there was enough support and that we needed to continue work on this.”*

The concept of peer feedback is linked to the *control mechanisms* that intrapreneurs encounter during the development of their initiative. Intrapreneurs at Nedap are expected to substantiate their decisions along the way. Through informal channels, colleagues and superiors can question their actions and discuss the outcomes. Multiple examples throughout the interviews show that even though intrapreneurs have the autonomy to make decisions, they often get questions, or go into discussion to ensure they make the right decision. These informal mechanisms further improve legitimacy as the intrapreneur builds trust in the path he/she is following.

[IM] *“You have to show that your decision has substance. If you can’t, we’ll send you back: please go do your job first.”*

[I] *“As an example: I wanted to validate our product and had found a company that could do so for 150.000 euro. I discussed this with our general manager: it is a lot of money, but I need to have it validated. He said ‘I know a third party that also does these, you should go talk to them’. He was not critical, because it was my decision as product lead, but he did help out.”*

Other important facets of the context within which intrapreneurs take these decisions are reflected in the data pool. These are summarized as *social support systems*, which influence the choices that intrapreneurs take. Nedap has deployed captains, coaches and a goal setting-system that influence the degree to which intrapreneurs feel legitimised in their actions. This social support system is discussed next. First of all, employees have the freedom to set their own goals in discussion with their “captain”, they discuss their progress at least once a year, at the request of the employee.

[I] *“These are meetings you set with your captain, these meetings are essentially a discussion in which you look at: what are my goals? What are Nedap’s goals? Are we going to achieve them together and how do they fit together?”*

[I] [referring to freedom for initiatives] *“During discussions we see if they are content with their own goals. People are their own greatest enemy in taking that freedom”*

Employees have coaches that they meet to discuss personal matters with, and captains to discuss work related matters with. This means that all employees have a 1 on 1 at least every 2/3 weeks. These conversations range from career perspectives to current tasks

at hand. It allows employees to voice new ideas and legitimises their efforts.

[I] *“In consultation with my coach I put my first project on hold, we were looking for new people but were not able to find them. [Initiative 2] was transferred to 2 colleagues and my coach proposed to take over [Initiative 3] if I really wanted to pursue [Initiative 4].”*

These social support system supports employees in setting priorities, and helps them in dealing with balancing their time. In its essence, the system asks employees to deliberately choose and discuss their individual balance between explorative and exploitative work.

[IM] [referring to the early role of captains]: *“If you give up at the first person you meet, your initiative did not have a future anyway. The role of the captain is to trigger. (...) A captain could slow you down, might say: ‘you should spend some more time on that’. This is subjective, cannot be done objective. Some people will make mistakes, others will make the right choices”*

The fourth and last element is external legitimisation or *market pull*. A proof of concept helps to legitimise their efforts and ensures internal support. All interviewees talk about the importance of a clear customer need, and examples show how the process gets sped up after serious customer interest. Identifying and formulating customer needs creates a passion for the project as it allows intrapreneurs to show the potential impact.

[I] *“Actually, the market need was the spark that set it in motion.”*

[I] *“I took a couple of months off to travel, and when I returned at Nedap I found the story I crafted around the product to be very much alive (...) Others were arguing: ‘this is unacceptable, this current state, we should do something about it’.”*

[I] *“Their first order was 1 million, and I reinvested that million into software development.”*

In short, Nedap enables employees to make their own decisions which means that its legitimacy system is more intricate than at Philips or Thales. Much of it depends on informal systems and leads to self-legitimation. No-one will take responsibility for the intrapreneurs venture, except for the intrapreneur. Summarized best by the innovation manager:

[IM] *“Entrepreneurs do not need legitimisation, they can create their own. We just offer them the support to do so.”*

4.2.2 Nedap: Investing Resources

At Nedap the level of autonomy gives intrapreneurs the freedom to drop current tasks and work on their own ideas. They invest their own time discretionarily

[I – referring to starting a new initiative] *“I had transferred my responsibilities to someone else, and my partner did the same during that period. When both of us were finally free, we started together.”*

This is similar for company resources. At Nedap, resources are discretionarily available to all that need to use it.

[IM] [Question interviewer: "What if I need resources?"] "You can just take them. Nothing is stopping you from doing so."

[I] "After I agreed upon the price I said to my captain: I need to involve a behavioural scientist, and I found one for 1.500 euros a month. Is that okay? The answer was: you know that it is okay."

[I] "Their first order was 1 million, and I reinvested that million into software development. Everyone said: you are completely crazy, even the director said that. But they allowed it nonetheless."

4.2.3 Nedap: Prepare for Integration

Upon reaching maturity, initiatives are expected to make an impact upon the organisation. The interviewees suggest that initiatives are often easily integrated with the organisation as the initiatives automatically grow to be part of the business. This is achieved through the concept of *contextual alignment*.

[IM] [talking about the creation of a new branch] "The management team only found out 4 years later. It was financed internally without them knowing"

[I] "We are currently determining if we can make enough impact for Nedap to be viable. (...) We have to put it up for discussion. If we make the choice to continue or stop, we have to be able to substantiate it."

To find contextual alignment, Nedap relies on the before mentioned social support systems. Informal *feedback cycles* enable people throughout the organisation to respond to initiatives quickly and ask critical questions, which provides a context for the intrapreneurs. Another tool that was mentioned before is the process of *goal setting*. This process allows the captains at Nedap to draw up specific conditions which can influence the direction of an employees' goals. Employees are asked to relate their goals to Nedap's goals.

[IM] "It is our task to make sure they have the right context, in order for their decisions to be in line with the direction we want to go to. If the decisions go in many different directions it means we failed in setting down a general direction for the company."

[I] "These are meetings you set with your captain, these meetings are essentially a discussion in which you look at: what are my goals? What are Nedap's goals? Are we going to achieve them together and how do they fit together?"

This shows how Nedap deliberately moves away from top-down directives and relies on informal processes. Even the *fast feedback cycles* are organized informally.

[INTERVIEWER] "The context heavily influences what will happen next, right?" [IM] "No, the effect is limited. Because some people are inclined to break the context. And it is those people you want to give the freedom to do so. If you are arrogant, or self-determinant enough to say: "I don't agree, I am going to do it anyway" – you should go for it"

4.2.4 Nedap: Summary

Nedap's solution demonstrates how the threshold between exploration and exploitation can be bridged through autonomy. Their solution reduces the general exploitative requirements and makes the chasm easier to cross. There is little differentiation between new explorative efforts, and products that are currently being exploited. Both are run by product leads, who set their own goals, who can take the resources they need, and who both deal with critical questions from the organisation. The lack of formal systems to adhere to make it easier for new business units to be formed. An advantage of this system is that it is easier for intrapreneurs to obtain the necessary resources, and to stay integrated, however a disadvantage is that intrapreneurs might feel illegitimate as they constantly have to prove their worth to the organisation. This increases the pressure on individual intrapreneurs, as no-one else takes responsibility for their actions.

[IM] "This organisation has freedom, responsibility, no fixed working hours, no fixed number of holidays and allows you to determine your own schedule. That is literally burnout (...) Especially those that adopt extra insecurity by taking on a new initiative"

[IM] "If my agenda is full from 9 to 5, I won't be able to do new things. But, the question is: why is my agenda full? And who determines that my agenda is filled? Who says yes? Who does not make more room? That is me."

[I] "I think that this is the biggest challenge we faced, the recognition you get is very soft, you have to find it between the lines because there is no manager who will say: this is a good idea, you should do this."

4.3 Thales: Follow the Leader

The complex organisational system of Thales offers multiple roads for intrapreneurs to start. The key factor differentiating these roads is the sponsorship of various budget holders. Multiple methods were described by the innovation manager, which were backed-up by the intrapreneurs. These will be described.

The first possibility is to start an initiative as part of a research proposal. Smaller initiatives stay within the bounds of their businesses, and a third option is to get support from the top management team.

Thales has an official maturity and scaling process based on Technology Readiness Levels (TRL). From TRL 5, a technology should be validated in the relevant environment and be scaled into larger systems. This is the end of the liminal phase.

4.3.1 Thales: Providing Legitimacy

The interview data was analysed to identify organisational tools that provide legitimacy to

the intrapreneurs. The importance of direct managers at Thales cannot be overstated in the sense that all intrapreneurs mentioned how their direct managers helped, connected or protected them in various ways throughout the process.

[I] *"We got our technical director to vouch for us. Our team would continue, regardless of the income we were generating. The presentation that we gave, with help from the department in France told him "what they are doing fits one on one". That helped."*

[I] [talking about the direct manager] *"He was a nuanced man and has been like an umbrella to the department."*

This kind of relationship between intrapreneur and direct manager is important to the intrapreneur. Such a backing legitimises the project. This is often achieved through close exchanges between *leader and member*, which is considered an important tool to build trust and legitimisation in leadership-based solutions.

All intrapreneurs explained that throughout the development their progress is *monitored*. Through monthly progress meetings, sponsors want to be kept up to date.

[I][Question interviewer: "Where you held accountable?"] *"Yes, to our two sponsors. (...) We had a monthly progress report."*

[I] *"I had a monthly meeting with my boss, and based on those we decided to make the investment"*

Furthermore, *market pull* was found to legitimise the business efforts of the intrapreneurs at Thales. All interviews explained that serious interest from the market accelerated the process.

[I] [referring to the high targets set by Thales] *"There was a dowry at the beginning, 1 big project up for tender and the full expectation that we would win it"*

[I] [referring to the first product they had sold] *"There turned out to be a market, and we worked out a commercial model for that. What if we could continue that? (...) At that moment we knew this could be serious."*

In short, *middle manager support*, often through *leader-member exchange* legitimises the efforts of intrapreneurs. Their progress is *monitored* through monthly meetings with their supervisors. *Market pull* excelled their legitimacy within the corporation.

4.3.2 Thales: Investing Resources

At Thales there are multiple sources for finding resources. This is important, as funding alone can keep an initiative afloat. This is highlighted by example an initiative that got funded through European research funds.

[IM] *"There is a lot of subsidies. This is necessary as our navy wants to be the most innovative navy in the world."*

[I] [When talking about participating in European tenders for subsidy] *"As long as we created our own business, we could continue to do research and get the financial resources we needed to keep ourselves afloat."*

Finding a sponsor is therefore essential at Thales. These sponsor are often those that control the *strategic resources* and can bestow them on intrapreneurial initiatives. However, this does not necessarily have to be the current supervisor of starting intrapreneurs. Thales has created a system in which support can come from a variety of sponsors, as strategic resources are available both within the businesses and at the centrally located innovation committees.

[I] [talking about connecting their manager to another business unit's manager] *"They became our two sponsors. He watched what we were doing and advised us on business, how we could develop it and how we could get support from the management team."*

[IM] [talking about the innovation committees] *"Since we are expecting disruption from existing technologies we have reserved a budget to play with things. We buy a Google glass, we buy a HoloLens and let people play with them. (...) People from the business lines get the opportunity to see if we can use that technology in our products"*

[IM] [referring to employees who are accepted by the innovation committee] *"They are freed of their daily activities for 50%, and allowed to work on other activities for 50%. A small team of enthusiastic people achieves more than a hundred badly motivated people."*

In summary, the idea that support comes from a direct manager holds at Thales. However, the system is broader: support can come from various sponsors. Either from outside of the organisation, from budgets within the business lines, or from centrally arranged budgets. This gives intrapreneurs more opportunities to find a sponsor who wants to get involved with their initiative.

4.3.3 Thales: Integration

[Interviewer]: "How do I end up before the management team?"

[IM] *"Actually it is quite simple, as in every lobby, you have to talk to individuals. During that process, the story around your initiative will get better. (...) At some point you'll end up together in a room. You'll say: this is the idea, this is the business case, what do you think?"*

[Interviewer]: "Is there an official decision moment?"

[IM]: *"There is a gate, an official gating process"*

This paragraph from the interview with the innovation manager gives an insight into the final steps toward integration. Initiatives have to end up at the management team at Thales, who can make a final integration decision. Ventures can find a final place within the businesses of Thales, through *senior executive involvement*. A gating process, or formal *internal process* is in place to guide that final process.

An important step to fully integrate a venture is located at the management team at Thales. An important discussion with the management team in this final stage is about the landing business. In which business unit will the

new venture be integrated? To find a fitting solution, and to end up before the management team, intrapreneurs employ *lobbying*.

[IM] [referring to integration in the organisation] *"We have a process for that: the Chorus process. This defines certain roles, as we are enormous. The Chorus process is necessary because customers want to make sure that "every part of the supply chain is done correctly".*

[I] [referring to his direct manager] *"He stuck his neck out for us, and gave us the opportunity to pitch our idea at the board. If it sails well we would get the time to bring it into a product"*

[I] *"Everyone was looking to each other. [The department in] France was looking at the [management team in the] Netherlands: 'you go and invest first'. While the Netherlands was thinking: 'if you find it interesting you should invest.' They were looking to each other and we were in the middle"*

The limited reach of middle managers requires senior management involvement at Thales. Their involvement can speed up the process towards integration, which is further supported through internal processes that help to identify the relevant actors during the integration process. This means that the final balance decision lies with the senior management team, who have to decide to what degree exploration is allowed within the organisation, and in which directions. This allows them to provide direction to bottom up initiatives. It is important for intrapreneurs to adhere to the management's vision of the future. This requires a landing spot in a current business, or the strategic decision to open a business into a new direction, both of which require lobbying from the intrapreneur's side.

[I] [referring to the management team] *"Yes, they gave us a chance. They financed us for a couple of years, but that was based on the enthusiastic stories from [business unit X]. However the path to integration never came about. (...) In hindsight I thought: it really needs to be part of their vision and strategy. Only that will give you a chance of survival. If it does not directly fit, it is seen as a hobby on the side"*

4.3.4 Thales: Conclusion

At Thales, the different organisational tools all refer back to the importance of leaders within the organisation. The sources of legitimacy, funding and integration are spread across several hierarchical levels. The liminal state can therefore only be crossed if managers are able to combine the necessities of exploration with those of exploitation. An advantage of this system is that managers take personal responsibility in the initiatives, which provides legitimacy and a forward push to the intrapreneur. However, a disadvantage of this system is that managers need to strike the balance between exploration and exploitation. At Thales, intrapreneurs expressed that monitoring was often done based on exploitative indicators like sales, or revenue, as their managers had a similar pressure from

higher up the organisation. This shows that managers struggle with achieving balance between exploration and exploitation.

[I: Referring to a research department who gets subsidy from outside Thales] *"You have a lot of freedom. The only thing that Thales is concerned about is that we break-even at the end of the year: that they do not have to sponsor us too much and interesting results roll out"*

[I] [Interviewer: "What were your targets when you started?"] *"Crazy high at that moment. Meaning above the 10 million for the first years. Roughly said: earn a lot of money with few people and no product portfolio. They started with a strong believe that the group excelled in this area which should have excelled us as well."*

[I] *"Our boss was interested in sales, because his boss was interested in his sales. That means he delegates it down to us."*

The challenge at Thales is to create an organisational system that enables leadership to support intrapreneurs over the long time. Such a system needs patient resources, and long term focussed key performance indicators that can further help to align managerial interest with those of exploration.

4.4 Cross-case analysis

The case studies employ different systems in order to cross the liminal state. Each of these systems provides legitimacy to the intrapreneur, invests in its initiative and promotes integration with the organisation. However, the way these outcomes are achieved varies greatly among the case companies. In the following sections the differences between these cases are discussed.

4.4.1 The sources of Legitimacy, Funding and Integration

The three case companies have distinctive different sources of *legitimacy, funding and integration*. At Thales, managers are tasked with balancing exploration and exploitation. They are required to take care of current business, while they simultaneously support intrapreneurs. Middle managers legitimise new ventures, and provide the first round of funding, and senior management is responsible for integration within the organisation. An advantage of this is that managers take a personal stake in the success of the venture: intrapreneurs feel protected and legitimised by the security their manager can offer. A disadvantage of this involvement is that intrapreneurs are often expected to contribute to the financial bottom-line early on, as these managers feel the same pressure from their managers. Another risk is its reliance on senior individuals, who can form a barrier to further development, as referred to by the innovation manager.

[I-Thales] *“Our boss was interested in sales, because his boss was interested in sales. That means that he delegates it down to us.”*

[I-Thales] *“Whenever I made an estimation of future turnover they would double it. But the doubling would be half of the original plan they had for us.”*

[IM-Thales]: *“The reality is that I think that in some positions, innovation-related positions, key-players stay too long. An advantage is that they have a lot of knowledge and experience, but the other side is that 40 years might be too long. These might be biased before someone even gets an opportunity. The moment might be different this time around.”*

This is different at Philips, they employ a formal process to legitimise, fund and integrate intrapreneurs. This is process-based and therefore less reliant on managers. Philips’ initiatives are required to jump through several hoops in the first months of development. Through multi-disciplinary team members, and specific milestones, the process pushes the initiative forward towards scaling. The intrapreneur has to find a fit within the organisation. These high expectations can be seen as a barrier early on, but stimulate integration with the firm in a later phase. The goal of the process is to make sure that the initiative fits within the organisational processes of Philips. A fit ensures easy scaling, but finding this fit is a challenge for intrapreneurs.

[I-Philips] [referring to supporting departments like quality regulatory, procurement and architecture] *“Let’s say you start a venture half way through the year. Who is waiting for you? No-one is sitting around and waiting for you to come by with a venture to work on. It is an illusion to think that other departments can easily help you out. It is a tug of war to see if you can free people up to help you out.”*

[IM-Philips] *“Just as an example: Philips bills on a monthly basis, let’s say you want to bill unstructured as it fits your business model. This is not supported by Philips and it is very difficult to change that.”*

[I-Philips] *“For all business model capabilities that are important for our business we had to evaluate and see if we would get the support.”*

At Nedap the intrapreneur carries responsibility for the legitimisation, funding and integration. This means that the initiative has to get accepted by the organisation around it. The idea is that the departments develop a shared responsibility for everything that is going on. A difference with the other firms is that at Nedap the general exploitative requirements for businesses are relatively low. This reduces the gap between new initiatives and current business and means that there are little organisational barriers to integrate new products. An advantage of this model is that employees can figure the development out themselves. A downside of this system is that each new intrapreneur has to go through a comparable process which can be accompanied with uncertainty and stress.

[IM-Nedap] *“The group can act on that. Maybe because the story just is not right. People start thinking: ‘What is that person doing? I do not get it at all’. This leads to a conversation of course. Either your own group corrects you: ‘Please stop it, we have to do more work and we have no clue what you are contributing’ That is key. If you can convince others, you have to convince your team to support you.”*

[I-Nedap] *“In the past 1,5 year we were focussed on building the product and validating if it works. The phase we are currently in is to see if we can make enough impact for Nedap to keep it viable. (...) I hired someone to help built the business case”*

[I-Nedap] *“I do not know how you validate a business model, or what good business models are. You can read about it all you want but there was too much uncertainty and it was very difficult to determine if we were still on the right path. Because no-one told us if this was a good idea.”*

The cross-case analysis shows that there are different methods of supporting intrapreneurs, and that although all three companies provide legitimacy, funding and integration the sources of providing it vary greatly. Each method has advantages and disadvantages and therefore needs careful consideration. Next, the effects of these systems on the intrapreneurial process are discussed.

4.4.2 Organisational Barriers to Intrapreneurship

During the development from exploration to exploitation intrapreneurs face several barriers. In order to understand how intrapreneurs cross this chasm the next step is to compare the barriers in difficulty and position. Figure 4 simplifies and compares the differences in difficulty of the organisational barriers at each organisation per intended outcome.

It shows that intrapreneurs at Thales have the lowest barrier in obtaining legitimacy in the liminal state. Their sponsors provide shade for the intrapreneurs to operate in. Intrapreneurs at Philips have relatively more difficulty as they have to reach certain milestones for each NBX phase. In comparison, Nedap offers relatively little support to legitimise intrapreneurs. This is because intrapreneurs have to continuously substantiate their decisions to a multitude of organisational actors.

This is different for acquiring funding. Intrapreneurs at Nedap can easily take the resources they need. At Thales and Philips these are provided by a sponsor, whom intrapreneurs have to convince. Both companies have certain requirements for pitches and therefore certain barriers to pass. However the biggest difference is the use of portfolio management at Philips. This tool helps sponsors to balance exploration and exploitation and ensures that intrapreneurs

do not have to contribute to the bottom-line of the operations.

The three firms further differentiate in the tools they employ to prepare initiatives for integration. At Nedap relatively little assistance is offered to intrapreneurs. They have to figure out the business requirements on their own, and find their landing spot in the organisation. However, Nedap has sparse exploitative requirements for current businesses, which means that the difference between current business and new initiatives is relatively small. This makes the total barrier relatively easy to pass, even if intrapreneurs have to do it alone. To be integrated within Thales, initiatives need to be approved by senior management. Not an easy feat, even though Thales has employed a formal internal process to help intrapreneurs

find a landing spot. This is considered to be more difficult than the integration at Philips as Philips prioritises integration earlier in the process. Their total barrier to integration is higher as many different units within the organisation maintain different requirements for new products, however, in comparison to the other two companies, Philips offers more integration support, at an earlier stage.

The comparison shows that the different organisational tools that are employed by the case companies influence the configuration of the process during the liminal state. It highlights that even though these firms support their intrapreneurs, they still have organisational barriers in place. The location and height of these barriers differ.

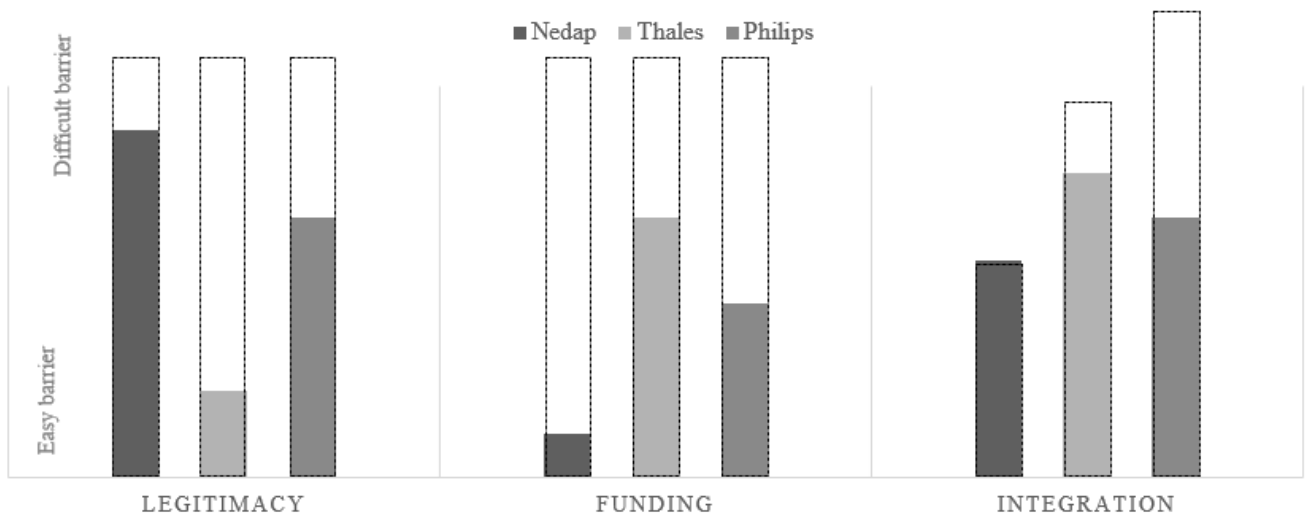


Figure 4: A comparison of barrier difficulty for the intrapreneur per intended outcome (dashed line visualises the total barrier)

	<i>Outcome 1: Legitimacy</i>	<i>Outcome 2: Funding</i>	<i>Outcome 3: Prepared for Integration</i>
Structural Solutions	Parallel structure Formal control systems - <i>Stage gate system</i> Reward systems Inter-firm collaboration <i>Market pull</i> <i>Training</i>	Slack Resources - <i>Through: Portfolio Management</i> Allocation of free time	Integration systems Through: - Shared Vision - Senior team integration - Targeted structural linking mechanisms - <i>Team formation</i>
Contextual Solutions	Peer-support and feedback Informal control - <i>Monthly meeting</i> <i>Social support systems</i> - <i>Coach // Captain</i> - <i>Goal setting</i> <i>Market pull</i>	Discretionary Resources Autonomy (100% “free time”)	Contextual alignment Through: - Explicit task objectives - Constant reviews
Leadership-based Solutions	Middle manager support - Leader-member exchange Monitoring <i>Market pull</i>	Strategic Resources Key Performance Indicators	Senior executive involvement (e.g. Raisch & Birkinshaw, 2008) Through: - Internal processes - <i>Lobbying</i>

Table 4: Full conceptual model (Italics indicate case study findings)

5. DISCUSSION

The difficult reconciliation of the explorative actions of intrapreneurs, with the exploitative efforts of the organisation has been the core focus of this research. A lack of research into the intrapreneurial process mystifies the liminal state between exploration and exploitation, which makes it unclear what tools firms can employ to support the development of initiatives. The purpose of this research is, therefore, to explore the instruments that are necessary for firms to support the development of intrapreneurial initiatives from exploration into exploitation.

5.1 Three Necessities in Crossing the Chasm

The state of liminality occurs in intrapreneurship because of the interaction between the initiative and the organisation, and the trouble firms have in consolidating the explorative requirements of one, with the exploitative requirements of the other. This core-problem of intrapreneurship is ambidextrous in nature and this study therefore draws on ambidexterity research for solutions.

Based on the ambidexterity research field it is suggested that there are three intended outcomes that are necessary for initiatives to develop from exploration into exploitation. In order to support intrapreneurs firms have to:

1. Provide Legitimacy
2. Invest Resources
3. Prepare for Integration

The case findings corroborate this proposal. Interestingly, even though the case companies vary from each other, their supportive systems in the liminal state can be summarised based on these three intended outcomes.

The cross-case analysis shows that the approach of the case companies to intrapreneurship varies, as they employ several tools that lead to different configurations of the three stages. Appendix 2 shows that the case companies use organisational tools from multiple ambidexterity solutions across the three liminal stages. This is in line with the suggestions by Raisch and Birkinshaw (2008) who suggest that organisational tools to intrapreneurship interact and complement each other.

Past research on organisational antecedents of intrapreneurship finds broad concepts like values, communication or organisational support to positively influence intrapreneurship (Antoncic & Hisrich, 2001; Zahra, 1991) or

suggests specific solutions to the intrapreneurial endeavour: leadership-based support systems (Deprez et al., 2018) or structural differentiation (Burgers & Covin, 2016; Zahra, 1991). This research builds on those findings by providing an overarching model that captures the tools of all three possible ambidexterity solutions that firms can employ to support intrapreneurs.

The notion of liminality in corporate entrepreneurship has been explored by Henfridsson and Yoo (2013, p. 945) who claim that intrapreneurs struggle with uncertain periods of liminality when “their new possible innovation trajectory is not fully formed but coexists side-by-side with established trajectories”. Their concept highlights the development process for individual ideas, while this paper investigates the role of organisations in that process. This research elaborates former findings by highlighting the problem that intrapreneurs face within larger organisations and by suggesting organisational tools that can help to cross the chasm.

Proposition 1. *Intrapreneurial initiatives only cross the liminal state if the organisation provides the initiatives legitimacy, resources and help with integration .*

5.2 The Size of the Chasm

It is important to further develop the understanding of the liminal state, and the factors that influence its existence. To do so, the assumption of radicality and the empirical findings on paradoxical mindsets are discussed.

The liminal state is the difference between the explorative efforts of the intrapreneurs with the exploitative efforts of the organisation. This suggests that as exploration strides further away from current capabilities, the gap increases. The interview findings show that Thales and Philips have specialised processes in place to support innovative ideas but still face integration problems. It is therefore proposed that the liminal state is affected by the complexity of the innovation. This builds on the idea of Assink (2006), he finds that large corporations particularly face barriers in the development and commercialisation of disruptive innovations. Incremental innovations develop and scale with relative ease, as they make use of current organisational standards (Ireland & Webb, 2007). However, as radical innovations depart from the current methods of working (Lassen et al., 2006) their integration becomes more difficult (Deprez et al., 2018; Jansen, 2009). This link between radical innovation and intrapreneurship was first made by Lassen et al. (2006) and fits the conceptualisation of intrapreneurship in this

research. All intrapreneurs that were selected for this study worked on new products, services or markets for their companies. The methodology of this paper does not allow to infer at which level of complexity the problem of liminality materialises but it does suggest that the level of innovation complexity influences the existence, or the size of the liminal state. The following is therefore proposed:

Proposition 2. *The liminal state materialises after a certain threshold of innovation complexity (radicalness).*

Another impact on the existence, or on the size of the liminal state could be the entrepreneurial mindset of the rest of the organisation. Assink (2006) suggest that corporate attitude and employee mental models can be important inhibitors to radical innovation and Dess and Lumpkin (2005) suggest that an entrepreneurial orientation positively affects intrapreneurship. The idea that the mindset of the rest of the organisation influences the ease of integration was further suggested by an innovation manager at Philips.

[IM-Philips] *“You can’t just say: I need a finance and account person, let me grab one from this pool of people. It is not going to work, you need a mindset change. We have to understand what we need for that and offer it to our intrapreneurs. That is the cycle of learning in which Philips currently resides.”*

It also corroborates the interview findings at Nedap. Their propensity towards autonomy and risk taking reduces the requirements for intrapreneurs and eases the threshold between exploration and exploitation.

[Both IM & I said this separate from each other] *“It’s much better to ask forgiveness than it is to get permission”.*

[I-Nedap]: [If it fails] *“it might be a waste of money? Yeah, maybe, but it brought us much more. (...) We now have a team of three people who perfectly fit the organization, who know exactly how the market operates and have learned to continuously prove themselves.”*

It is therefore suggested that the entrepreneurial orientation of a firm decreases the chasm between exploration and exploitation.

Proposition 3. *The entrepreneurial orientation of a firm is negatively related to the size of the liminal state.*

5.3 Being Conscious of Organisational Barriers

Organisational barriers to intrapreneurship are often the result of new initiatives coming into contact with actors, procedures or systems that are oriented towards exploitation. It is therefore suggested that ambidextrous solutions can smooth the transition across the liminal state by eliminating all organisational barriers. This idea

is reflected by research into the organisational effect on intrapreneurship (Burgess, 2013; Menzel et al., 2007; Morris & Trotter, 1990). They argue that a firm can only add value to intrapreneurs if the corporate structure enables them, suggesting that all corporate barriers should be eliminated. However, other authors argue for the importance of organisational barriers (Calisto & Sarkar, 2017; Hornsby et al., 1993; Pinchot, 1987). Pinchot (1987) argues that barriers show if intrapreneurs truly believe in their idea. Intrapreneurs must be willing to fight through organisational barriers (Calisto & Sarkar, 2017).

Interestingly, the findings of this research reflect this discussion. The research findings indicate that although the three firms consciously support intrapreneurs, they still maintain several barriers. This suggests that a barrier-free liminal state is impossible, not desirable, or that these firms have room to improve. Based on the methodology of this research it is not possible to identify a clear answer to this problem. This requires an effectiveness analysis of certain intrapreneurial systems, and a quantification of the value that barriers can bring. However, the research findings do suggest a difference between conscious and unconscious barriers.

Some organisational barriers are mentioned by intrapreneurs and explained to have a purpose by the innovation managers (the organisation is conscious of their existence) while other barriers are just mentioned by the intrapreneurs, indicating that they might be unknown to the organisation. The idea of conscious barriers is proposed by Hashimoto and Nassif (2014). They argue that managers support their intrapreneurs by eliminating some barriers, and by helping them cross other barriers that are deliberately left in place.

The research findings indicate conscious barriers at all three case companies, see appendix 1. According to the innovation managers, these barriers have a purpose, and in all cases the company offers some form of assistance in passing them. An example of such a barrier is the entry barrier at Philips. Getting access to the NBX-process requires approval from the NBX-board. This means that intrapreneurs need to officially request access and await a decision. However, Philips also provides best-practices and business model examples to help intrapreneurs to cross this barrier. So why does Philips maintain this organisational barrier? This seems to be a conscious decision on basis of their innovation goal. Philips has designed its intrapreneurship-system to selectively decide early on which

ideas it wants to invest in. They claim to have enough ideas and need to filter out the ones with 'potential'.

[IM-Philips] *"The big challenge is not to come with a good idea, there are many good ideas, but the challenge is to find a good idea in which we have the right to win and the right to play. We must deliver much higher value to the customer and bring a superior value compared to competitors."*

The intrapreneurs further mentioned organisational barriers that were not acknowledged by innovation managers. By identifying these barriers, the organisation becomes conscious of their existence. If they serve no purpose, they should be eliminated to ensure that no intrapreneurs are hindered by them. At all three case companies, unconscious barriers were found, see appendix 1. A clear example of such a barrier is provided by Thales. Once initiatives are approved, and gain legitimacy through their direct supervisor or sponsor, all intrapreneurs indicated that the control mechanisms were not suited for young initiatives. The innovation manager indicates that department heads of innovative departments are tasked with innovative key performance indicators, but the intrapreneurs explain that in their experience their supervisors were mostly interested in their financial bottom-line. This means that new initiatives get little time to grow, and are immediately confronted with exploitative systems. This seems counterintuitive and if the firm would decide that this barrier serves no purpose it should be eliminated. The conceptual model from this research suggests possible organisational tools to do so. Thales could employ key performance indicators for new initiatives that allow intrapreneurs time to develop and measure their success not on basis of output measurements, but on development measurements. Specialised ring-fenced innovation budgets for department heads allows them to grant more lenience to intrapreneurs and tackle this barrier.

[I-Thales] [Interviewer: "What were your targets when you started?"] *"Crazy high at that moment. Meaning above the 10 million for the first years. Roughly said: earn a lot of money with few people and no product portfolio. They started with a strong believe that the group excelled in this area which should have excelled us as well."*

[I-Thales] *"Our boss was interested in sales, because his boss was interested in his sales. That means he delegates it down to us."*

It is unclear if the liminal state can be crossed without any organisational barriers, and it is questionable if this is desirable. Research has indicated the importance of intrapreneurs passing deliberate organisational barriers. The idea of deliberate ambidexterity is therefore proposed (O'Reilly & Tushman, 2008) Organisations have to be deliberate about their support system for intrapreneurship, and

consciously decide which barriers are necessary and which should be eliminated (Delić et al., 2016). The three intended outcomes of the intrapreneurial process can help to identify organisational barriers that enable organisations to make deliberate choices regarding their need and function. This research provides suggestions for eliminating barriers that do not serve a purpose, but does not allow for a definitive answer on the usefulness of certain barriers, as it is centred around the needs of the intrapreneurs, rather than the needs of the organisation. The fact that some barriers can be explained by the organisation does not necessarily make them useful to the process, nor does this mean that all unconscious barriers should be eliminated. This research purely elicits that organisations should make conscious decisions about their intrapreneurial process. Future research is necessary to assess the ups and downs of organisational barriers to intrapreneurship, and to identify which organisational trade-offs need to be made.

Proposition 4. *Conscious organisational barriers increase the effectiveness of an intrapreneurial process.*

5.4 The undeniable force of Market Pull

The first intended outcome of the liminal state is legitimacy. Maintaining the support of the business is important. An interesting recurring effect across the three case studies is the value of external influences on the internal legitimacy. The recognition and forward momentum that initiatives gain is highly dependent on an external factor: pull from the market.

[I-Thales] *"because we had a strong reference point. We had shown through [CUSTOMER #1] that we could really add value."*

[I-Nedap] *"They both ordered a couple thousands, they were two [CUSTOMERS] who were friends with each other. Their first order was 1 million, and I reinvested that million into software development."*

[I-Philips] *"We interviewed multiple customers and saw that there was demand which we could play into. That is why we decided to start a pilot with a customer."*

This is not completely unexpected. On one hand, ambidexterity research, and in particular the structural solution, discuss the possibility of inter-firm collaboration (Cantarello, Martini, & Nosella, 2012), or customer co-creation (Cannaerts N, 2016). Structurally separated units offer a protective environment for the involvement of co-operators. On the other hand, intrapreneurship research establishes a relationship between market orientation and innovation, as external scanning is found to positively influence decision risk-taking, which stimulates

intrapreneurial initiatives (Chandrasekaran et al., 2012; Dess et al., 2003).

However, the effect of clear external signals (market pull) on ambidexterity, or on the intrapreneurial process have not been discussed before. The interview data indicate on multiple occasions throughout the cases that a clear external buying signals influence the internal legitimacy of an initiative. This suggests that as external signals grow, the ambidextrous challenge for decisionmakers slinks. The future rewards of the initiative become clearer, which decreases the chasm between exploration exploitation, and increases the legitimisation of the project.

This value of early customers is not new, as it is clearly recognized in network theory (Burkhardt & Brass, 1990) and in entrepreneurship research (Wang, Song, & Zhao, 2014). Burkhardt and Brass (1990), suggest that the existence of early adopters reduces uncertainty for followers (Burkhardt & Brass, 1990) and Wang et al. (2014) find that early customers can have a strong signalling effect on performance.

It is therefore proposed that clear market pull signals from customers positively influence the internal legitimacy of intrapreneurs within their organisation. This is important for intrapreneurs who are stuck in the liminal state, and shows the relevance of linking intrapreneurs to customers for innovation managers that want to further intrapreneurial initiatives.

Proposition 5. *Market pull is positively related to the internal legitimacy of an intrapreneurial initiative.*

5.5 Theoretical implications

This study contributes to the field of intrapreneurship in several important ways. It reconceptualises the process perspective on intrapreneurship. This research draws out the threshold between exploration and exploitation and in doing so gives important insights into the challenges that intrapreneurs face within large organisations. The identification of the liminal state helps to understand why many intrapreneurial initiatives fail despite clear explorative and exploitative support systems. To the best of my knowledge, intrapreneurship has not been approached through an ambidextrous lens before, with one notable exception (Burström & Wilson, 2015).

Burström and Wilson (2015) introduce the concept of intrapreneurial ambidexterity and its main building blocks. The present research builds on that concept and shows that

ambidextrous solutions (structural, contextual and leadership-based) provide valuable insights into the organisational tools that can be used to stimulate the intrapreneurial process.

A second contribution is related to the liminal state. Past research has provided valuable insights in the methods that organisations employ to support the exploration of opportunities through ideation support (e.g. Woodman, Sawyer, & Griffin, 1993) and freedom (e.g. Alpan et al., 2010; Rigtering & Weitzel, 2013) and the exploitation of opportunities through maturity and scaling models (e.g. Burgers & Covin, 2016; Jansen, 2009). This is also reflected in the three case studies. The companies use parallel structures, autonomy and specialised innovation committees to enable intrapreneurs, while they simultaneously have formal processes at play. Thales for example employs technology-readiness levels and Philips a stage gate system. This research makes clear that the interlude between exploration and exploitation can be problematic for intrapreneurial initiative at larger firms as it is unclear when and how firms can develop the initiatives through the threshold. This research helps to understand the theoretical concept of the liminal state and formulates potential relationships that influence the problem.

An ambidextrous approach to intrapreneurship enables the research field to look beyond intrapreneurs' personality characteristics and pulls focus towards the structures, contexts and leadership behaviours that help organisations to balance explorations and exploitation throughout the intrapreneurial process.

5.6 Practical implications

The newly developed framework provides a new managerial perspective on the support of intrapreneurs. This research suggests that firms need to make conscious decisions about their intrapreneurial process from exploration into exploitation.

This research suggests that radical intrapreneurial initiatives require organisational assistance to pass through the liminal state, in the form of legitimacy, funding and help with integration. Without support intrapreneurial initiatives will die once they get in contact with the exploitative organisation. Organisations need to provide intrapreneurial initiatives legitimacy to indicate the potential of the idea and to understand its development, organisations need to invest resources into initiatives for them to actually develop over

time, and organisations need to prepare the initiatives for integration to ensure a future within the corporate bounds.

The conceptual model, based on ambidexterity and intrapreneurship research, and extended based on the case studies provides a valuable overview of the different organisational tools that firms can employ to support intrapreneurial initiatives and take down organisational barriers. This research suggests that organisations need to make conscious decisions regarding the intrapreneurial systems. The conceptual model can be useful in designing or evaluating intrapreneurial processes on the chasm between exploration and exploitation. This model is visualised in Table 4.

A final implication is the customer involvement in the development process. Market pull is suggested to be an essential element in the internal legitimacy of an initiative. This implies that businesses can leverage their influence on the legitimacy of intrapreneurs from their suppliers by getting involved in pilots. Which is a valuable strategy for firms to stay at the forefront of any developing industry. It further implies that organisations should reevaluate the role of sales or customer relations in intrapreneurial ventures, as the impact of customer input is seen invaluable to intrapreneurship.

5.7 Research Limitations

The results that are reported in this research are subject to the limitations of its methodology. The qualitative and explorative work of this research is meant to be interpreted as such. The case-study approach provided valuable insights in the way firms deal with the liminal state, but does not show any significant results that proof the theoretical workings of the proposed conceptual model. Nor does it show the effectiveness of the proposed solutions.

Another limitation lies within the analysis method of this research. The interpretations of both the literature review and the semi-structured interviews are performed by one researcher, which increases the chance of omitted variables in the analysis.

Thirdly, the selection of the interview sample, achieved through personal network or official communication channels does not guarantee an heterogenous sample. It is highly probable that the interpretation of the first contact within the organisations steered the final selection of the sample, which could lead to an homogenous recollection of affairs: the

omitting of certain support functions or the amplification of others.

Lastly, the research was conducted through the use of semi-structured interviews, the results are therefore based on the experience of intrapreneurs, self-knowledge, perception and recall ability. Interviewees can also be prone to answer politically correct. These factors can influence the results of this research. Nevertheless, the interview strategy was designed to elicit non-biased answers for the interviewees. Additionally, in accordance with Alshenqeti (2014), the interviewees were well informed before the interview started, they got the chance to ask questions, they could add to their earlier given statements, and their data is kept anonymous.

5.8 Directions for Future Research

The results that are reported in this study suggest several additional possibilities for future research. The first couple of directions are related to the propositions that have been made. The latter discusses linkages to various other research fields.

This research proposes that intrapreneurial initiatives can only cross the liminal state if the organisation provides the necessary legitimacy, resources and integration support. Future research is necessary to identify if these outcomes are completely exhaustive and if their effect indeed leads to successfully bridging the gap between explorative and exploitative systems at innovative organisations. One research method for this would be to compare succeeding and failing initiatives within a single company, assuming that their development falls short in the liminal state, to identify the factors that influence success.

The application of this model to other forms of innovation should also be tested. It is proposed that only radical innovations experience the liminal state, as incremental innovations more easily fit within the current exploitative systems. This could be tested by comparing several innovative proposals over time and assessing their innovative complexity and maturity. This could highlight whether the liminal state exists for other forms of innovation.

Further research is necessary to identify if all organisational barriers should be eliminated. A possible synopsis for this research design would be to quantitatively cross reference the maturity of past intrapreneurial initiatives of various organisational systems with the barriers that were in place in order to

find out which barriers lead to failure, or were most difficult to cross.

Another point of attention for future research is the need to address different possibilities in designing intrapreneurial systems. This research proposes that organisations use various combinations of tools from different ambidexterity solutions. It is interesting to identify if the arch-solutions from ambidexterity hold up across a multitude of organisations and what determines their success. This research would be most valuable if it is able to determine why certain organisations choose to design certain systems.

A final point for future research is rooted in the homogenous sample of this research. An example of this is seen in the gender of the interviewees. All intrapreneurs and innovation managers that were selected for this research were male. This could be a coincidence, it could mean that these firms have a relative low percentage of women intrapreneurs (or women employed), or it could mean that the definition of intrapreneurs currently used in research provokes masculine character traits. An interesting path for future research could therefore be to combine intrapreneurship with gender studies to explore this potential relationship. A possible method for doing so would be to explore within one organisation whether the diversity of the whole organisation is reflected in the intrapreneurship numbers and whether this is influenced by the diversity of the sponsors/managers. This could help to determine if the antecedents suggested in this research are gender specific, or if they support a variety of intrapreneurs.

6. CONCLUSION

This research set out to identify what organisations can do to support intrapreneurial initiatives through the threshold between exploration and exploitation. The theoretical differences between exploration and exploitation materialise as organisational barrier to intrapreneurs. Past research defaults in explaining how firms can support intrapreneurs through this threshold. This paper helps to understand the problem in much more details and gives some ideas of how firms can deal with this problem. It is proposed that firms need to provide legitimacy, funding and integration-support in order to successfully develop initiatives out of the liminal state.

7. REFERENCES

- Adler, P. S., Goldoftas, B., & Levine, D. I. (1999). Flexibility versus efficiency? A case study

of model changeovers in the Toyota production system. *Organization science*, 10(1), 43-68.

- Alpkan, L., Bulut, C., Gunday, G., Ulusoy, G., & Kilic, K. (2010). Organizational support for intrapreneurship and its interaction with human capital to enhance innovative performance. *Management Decision*, 48(5-6), 732-755. doi:10.1108/00251741011043902
- Alshenqeeti, H. (2014). Interviewing as a data collection method: A critical review. *English Linguistics Research*, 3(1), 39-45.
- Antoncic, B. (2001). ORGANIZATIONAL PROCESSES IN INTRAPRENEURSHIP: A CONCEPTUAL INTEGRATION. *Journal of Enterprising Culture*, 9(2), 221. doi:10.1142/S0218495801000122
- Antoncic, B. (2003). RISK TAKING IN INTRAPRENEURSHIP: TRANSLATING THE INDIVIDUAL LEVEL RISK AVERSION INTO THE ORGANIZATIONAL RISK TAKING. *Journal of Enterprising Culture*, 11(1), 1-23.
- Antoncic, B., & Hisrich, R. D. (2001). Intrapreneurship: Construct refinement and cross-cultural validation. *Journal of Business Venturing*, 16(5), 495-527. doi:10.1016/s0883-9026(99)00054-3
- Antoncic, B., & Hisrich, R. D. (2004). Corporate entrepreneurship contingencies and organizational wealth creation. *Journal of Management Development*, 23(6), 518-550. doi:10.1108/02621710410541114
- Asif, M. (2017). Exploring the antecedents of ambidexterity: a taxonomic approach. *Management Decision*, 55(7), 1489-1505. doi:10.1108/MD-12-2016-0895
- Assink, M. (2006). Inhibitors of disruptive innovation capability: a conceptual model. *European journal of innovation management*.
- Belousova, O., & Gailly, B. (2013). Corporate entrepreneurship in a dispersed setting: actors, behaviors, and process. *International Entrepreneurship and Management Journal*, 9(3), 361-377. doi:10.1007/s11365-013-0259-2
- Birkinshaw, J. (1997). ENTREPRENEURSHIP IN MULTINATIONAL CORPORATIONS: THE CHARACTERISTICS OF SUBSIDIARY INITIATIVES. *Strategic Management Journal*, 18(3), 207-229. doi:10.1002/(SICI)1097-0266(199703)18:3<207::AID-SMJ864>3.0.CO;2-Q
- Boyce, C., & Neale, P. (2006). Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input.
- Brown, S. L., & Eisenhardt, K. M. (1997). The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative science quarterly*, 1-34.

- Burgelman, R. A. (1983). A process model of internal corporate venturing in the diversified major firm. *Administrative science quarterly*, 223-244.
- Burgelman, R. A. (1984). Designs for corporate entrepreneurship in established firms. *California Management Review (pre-1986)*, 26(000003), 154.
- Burgers, J. H., & Covin, J. G. (2016). The contingent effects of differentiation and integration on corporate entrepreneurship. *Strategic Management Journal*, 37(3), 521-540. doi:10.1002/smj.2343
- Burgess, C. (2013). Factors influencing middle managers' ability to contribute to corporate entrepreneurship. *International Journal of Hospitality Management*, 32, 193-201.
- Burkhardt, M. E., & Brass, D. J. (1990). Changing patterns or patterns of change: The effects of a change in technology on social network structure and power. *Administrative science quarterly*, 35(1), 104-127.
- Burström, T., & Wilson, T. L. (2015). Intrapreneurial ambidexterity: a platform project, Swedish approach. *Management Research Review*, 38(11), 1172-1190. doi:10.1108/MRR-06-2014-0130
- Calisto, M. d. L., & Sarkar, S. (2017). Organizations as biomes of entrepreneurial life: Towards a clarification of the corporate entrepreneurship process. *Journal of Business Research*, 70, 44-54. doi:10.1016/j.jbusres.2016.07.007
- Cannaerts N, S. J., Henderickx E. (2016). Ambidextrous design and public organizations: a comparative case study. *International Journal of Public Sector Management*, 29, 708-724. doi:10.1108/IJPSM-12-2015-0210
- Cantarello, S., Martini, A., & Nosella, A. (2012). A Multi-Level Model for Organizational Ambidexterity in the Search Phase of the Innovation Process. *Creativity & Innovation Management*, 21(1), 28-48. doi:10.1111/j.1467-8691.2012.00624.x
- Carrier, C. (1994). Intrapreneurship in large firms and SMEs: a comparative study. *International Small Business Journal*, 12(3), 54-61.
- Chandrasekaran, A., Linderman, K., & Schroeder, R. (2012). Antecedents to ambidexterity competency in high technology organizations. *Journal of Operations Management*, 30(1/2), 134-151. doi:10.1016/j.jom.2011.10.002
- Cheng, Y. T., & Van de Ven, A. H. (1996). Learning the innovation journey: Order out of chaos? *Organization science*, 7(6), 593-614.
- Christensen, C. M. (1997). *The innovator's dilemma: when new technologies cause great firms to fail*: Harvard Business School Press.
- Covin, J. G., & Miles, M. P. (1999). Corporate Entrepreneurship and the Pursuit of Competitive Advantage. *Entrepreneurship: Theory & Practice*, 23(3), 47-63. doi:10.1177/104225879902300304
- Covin, J. G., & Slevin, D. P. (1991). A Conceptual Model of Entrepreneurship as Firm Behavior. *Entrepreneurship Theory and Practice*, 16(1), 7-26. doi:10.1177/104225879101600102
- Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative Research Designs: Selection and Implementation. *The Counseling Psychologist*, 35(2), 236-264. doi:10.1177/0011000006287390
- Csaszar, F. A. (2012). An Efficient Frontier in Organization Design: Organizational Structure as a Determinant of Exploration and Exploitation. *Organization science*, 24(4), 1083-1101. doi:10.1287/orsc.1120.0784
- Dai, L., Maksimov, V., Gilbert, B. A., & Fernhaber, S. A. (2014). Entrepreneurial orientation and international scope: The differential roles of innovativeness, proactiveness, and risk-taking. *Journal of Business Venturing*, 29(4), 511-524.
- Delić, A., Đonlagić Alibegović, S., & Mešanović, M. (2016). The Role of the Process Organizational Structure in the Development of Intrapreneurship in Large Companies. *Our Economy (Nase gospodarstvo)*, 62(4), 42-51. doi:10.1515/ngoe-2016-0023
- Deprez, J., Leroy, H., & Euwema, M. (2018). Three chronological steps toward encouraging intrapreneurship: Lessons from the Wehkamp case. *Business Horizons*, 61(1), 135-145. doi:10.1016/j.bushor.2017.09.013
- Dess, G. G., Ireland, R. D., Zahra, S. A., Floyd, S. W., Janney, J. J., & Lane, P. J. (2003). Emerging issues in corporate entrepreneurship. *Journal of Management*, 29(3), 351-378.
- Dess, G. G., & Lumpkin, G. T. (2005). The Role of Entrepreneurial Orientation in Stimulating Effective Corporate Entrepreneurship. *Academy of Management Perspectives*, 19(1), 147-156. doi:10.5465/ame.2005.15841975
- Dess, G. G., Lumpkin, G. T., & McGee, J. E. (1999). Linking Corporate Entrepreneurship to Strategy, Structure, and Process: Suggested Research Directions. *Entrepreneurship: Theory & Practice*, 23(3), 85-102. doi:10.1177/104225879902300306
- Dubois, A., & Gadde, L.-E. (2002). Systematic combining: an abductive approach to case research. *Journal of Business Research*, 55(7), 553-560.
- Duncan, R. B. (1976). The ambidextrous organization: Designing dual structures for innovation. *The management of organization*, 1(1), 167-188.

- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory Building From Cases: Opportunities And Challenges. *Academy of management Journal*, 50(1), 25-32. doi:10.5465/amj.2007.24160888
- Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International journal of qualitative methods*, 5(1), 80-92.
- Ferreira, J. (2009). Corporate entrepreneurship: a strategic and structural perspective. *New England Journal of Entrepreneurship*, 4(2), 14.
- Floyd, S. W., & Lane, P. J. (2000). Strategizing throughout the organization: Managing role conflict in strategic renewal. *Academy of Management Review*, 25(1), 154-177.
- García-Lillo, F., Ubeda García, M., & Marco, B. (2017). *Organisational ambidexterity: a literature review using bibliometric methods* (Vol. 1).
- Garrett, R. P. (2013). Top Management Support and Initial Strategic Assets: A Dependency Model for Internal Corporate Venture Performance. *Journal of Product Innovation Management*, 30(5), 896-915.
- Garvin, D. A. (1983). Spin-Offs and the New Firm Formation Process. *California Management Review*, 25(2), 3-20. doi:10.2307/41165001
- Gelfand, M. J., Nishii, L., & Raver, J. L. (2006). On the nature and importance of cultural tightness-looseness. *Journal of Applied Psychology*, 91(6), 1225.
- Gelfand, M. J., Raver, J. L., Nishii, L., Leslie, L. M., Lun, J., Lim, B. C., . . . Yamaguchi, S. (2011). Differences Between Tight and Loose Cultures: A 33-Nation Study. *Science*, 332(6033), 1100-1104. doi:10.1126/science.1197754
- Ghoshal, S., & Bartlett, C. A. (1994). Linking organizational context and managerial action: The dimensions of quality of management. *Strategic Management Journal*, 15(S2), 91-112. doi:10.1002/smj.4250151007
- Gibson, C. B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of management Journal*, 47(2), 209-226.
- Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British dental journal*, 204(6), 291.
- Goodale, J. C., Kuratko, D. F., Hornsby, J. S., & Covin, J. G. (2011). Operations management and corporate entrepreneurship: The moderating effect of operations control on the antecedents of corporate entrepreneurial activity in relation to innovation performance. *Journal of Operations Management*, 29(1/2), 116-127. doi:10.1016/j.jom.2010.07.005
- Gupta, A. K., Smith, K. G., & Shalley, C. E. (2006). The Interplay between Exploration and Exploitation. *The Academy of Management Journal*, 49(4), 693-706. doi:10.2307/20159793
- Hashimoto, M., & Nassif, V. M. J. (2014). Inhibition and Encouragement of Entrepreneurial Behavior: Antecedents Analysis from Managers' Perspectives. *BAR - Brazilian Administration Review*, 11(4), 385-406. doi:10.1590/1807-7692bar2014130008
- He, Z.-L., & Wong, P.-K. (2004). Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis. *Organization science*, 15(4), 481-494.
- Heinonen, J., & Toivonen, J. (2007). APPROACHING A DEEPER UNDERSTANDING OF CORPORATE ENTREPRENEURSHIP - FOCUSING ON CO-EVOLUTIONARY PROCESSES. *Journal of Enterprising Culture*, 15(2), 165-186. doi:10.1142/S0218495807000095
- Henfridsson, O., & Yoo, Y. (2013). The liminality of trajectory shifts in institutional entrepreneurship. *Organization science*, 25(3), 932-950.
- Hill, S. A., & Birkinshaw, J. (2014). Ambidexterity and survival in corporate venture units. *Journal of Management*, 40(7), 1899-1931.
- Hisrich, R. D. (1990). Entrepreneurship/intrapreneurship. *American psychologist*, 45(2), 209.
- Hitt, M. A., Nixon, R. D., Hoskisson, R. F., & Kochhar, R. (1999). Corporate Entrepreneurship and Cross-Functional Fertilization: Activation, Process and Disintegration of a New Product Design Team. *Entrepreneurship: Theory & Practice*, 23(3), 145-167. doi:10.1177/104225879902300309
- Hofstede, G. (1984). *Culture's consequences: International differences in work-related values* (Vol. 5): sage.
- Hornsby, J. S., Naffziger, D. W., Kuratko, D. F., & Montagno, R. V. (1993). An Interactive Model of the Corporate Entrepreneurship Process. *Entrepreneurship Theory and Practice*, 17(2), 29-37. doi:10.1177/104225879301700203
- Ireland, R. D., Covin, J. G., & Kuratko, D. F. (2009). Conceptualizing corporate entrepreneurship strategy. *Entrepreneurship Theory and Practice*, 33(1), 19-46.
- Ireland, R. D., & Webb, J. W. (2007). Strategic entrepreneurship: Creating competitive advantage through streams of innovation. *Business Horizons*, 50(1), 49-59.
- Ireland, R. D., & Webb, J. W. (2009). Crossing the great divide of strategic entrepreneurship: Transitioning between exploration and

- exploitation. *Business Horizons*, 52(5), 469-479.
- Jansen, J. J. P. (2009). Structural Differentiation and Ambidexterity: The Mediating Role of Integration Mechanisms. *Organization science*, 20(4), 797-811.
- Junni, P., Sarala, R. M., Taras, V., & Tarba, S. Y. (2013). Organizational ambidexterity and performance: A meta-analysis. *Academy of Management Perspectives*, 27(4), 299-312.
- Kanter, R. M. (1983). The change masters New York—Simon and Schuster. *KanterThe Change Masters1983*.
- Karrer, D., & Fleck, D. (2015). Organizing for Ambidexterity: A Paradox-based Typology of Ambidexterity-related Organizational States. *BAR - Brazilian Administration Review*, 12(4), 365-383. doi:10.1590/1807-7692bar2015150029
- Kearney, C., Hisrich, R., & Roche, F. (2007). FACILITATING PUBLIC SECTOR CORPORATE ENTREPRENEURSHIP PROCESS:: A CONCEPTUAL MODEL. *Journal of Enterprising Culture*, 15(3), 275-299. doi:10.1142/S0218495807000150
- Kollmann, T., & Stockmann, C. (2010). Antecedents of strategic ambidexterity: effects of entrepreneurial orientation on exploratory and exploitative innovations in adolescent organisations. *International Journal of Technology Management*, 52(1-2), 153-174. doi:10.1504/ijtm.2010.035860
- Kuratko, D. F. (2017). Corporate Entrepreneurship 2.0: Research Development and Future Directions. *Foundations and Trends® in Entrepreneurship*, 13(6), 441-490. doi:10.1561/03000000082
- Kuratko, D. F., Ireland, R. D., Covin, J. G., & Hornsby, J. S. (2005). A model of middle-level managers' entrepreneurial behavior. *Entrepreneurship Theory and Practice*, 29(6), 699-716.
- Kuratko, D. F., Montagno, R. V., & Hornsby, J. S. (1990). Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment. *Strategic Management Journal*, 49-58.
- Lassen, A. H., Gertsen, F., & Riis, J. O. (2006). The nexus of corporate entrepreneurship and radical innovation. *Creativity and Innovation Management*, 15(4), 359-372.
- Leech, N. L., & Onwuegbuzie, A. J. (2008). Qualitative data analysis: A compendium of techniques and a framework for selection for school psychology research and beyond. *School Psychology Quarterly*, 23(4), 587.
- Linder, S., & Bothello, J. (2015). Antecedents to Autonomous Strategic Action: What About Decline? *IEEE Transactions on Engineering Management*, 62(2), 226-236. doi:10.1109/TEM.2014.2382554
- Liu, L. (2012). Simultaneous Pursuit of Innovation and Efficiency in Complex Engineering Projects—A Study of the Antecedents and Impacts of Ambidexterity in Project Teams. *Project Management Journal*, 43(6), 97-110.
- Longhurst, R. (2003). Semi-structured interviews and focus groups. *Key methods in geography*, 3, 143-156.
- Lubatkin, M., Simsek, Z., Ling, Y., & Veiga, J. (2006). *Ambidexterity and Performance in Small-to Medium-Sized Firms: The Pivotal Role of Top Management Team Behavioral Integration* (Vol. 32).
- Manimala, M. J., Jose, P., & Thomas, K. R. (2006). Organizational constraints on innovation and intrapreneurship: Insights from public sector. *Vikalpa*, 31(1), 49-50.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization science*, 2(1), 71-87.
- Menzel, H. C., Aaltio, I., & Ulijn, J. M. (2007). On the way to creativity: Engineers as intrapreneurs in organizations. *Technovation*, 27(12), 732-743. doi:10.1016/j.technovation.2007.05.004
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*: sage.
- Morris, M. H., & Trotter, J. D. (1990). Institutionalizing Entrepreneurship in a Large Company: A Case Study at AT&T. *Industrial Marketing Management*, 19(2), 131-139. doi:10.1016/0019-8501(90)90037-V
- Morrow, S. L. (2007). Qualitative research in counseling psychology: Conceptual foundations. *The Counseling Psychologist*, 35(2), 209-235.
- Mustafa, M., Gavin, F., & Hughes, M. (2018). Contextual Determinants of Employee Entrepreneurial Behavior in Support of Corporate Entrepreneurship: A Systematic Review and Research Agenda. *Journal of Enterprising Culture*, 26(3), 285-326. doi:10.1142/S0218495818500115
- Neessen, P. C. M., Caniëls, M. C. J., Vos, B., & de Jong, J. P. (2019). The intrapreneurial employee: toward an integrated model of intrapreneurship and research agenda. *International Entrepreneurship and Management Journal*, 15(2), 545-571. doi:10.1007/s11365-018-0552-1
- O'Reilly, C., & Tushman, M. (2008). Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research in Organizational Behavior*, 28, 185-206. doi:10.1016/j.riob.2008.06.002
- O'Reilly, C., & Tushman, M. (2007). Ambidexterity as a Dynamic Capability: Resolving the Innovator's Dilemma.
- O'Reilly, C., & Tushman, M. (2013). Organizational ambidexterity: Past, present, and future. *Academy of Management Perspectives*, 27(4), 324-338.
- Page, L. (2011). More wood behind fewer arrows [Press release]

- Park, S. H., Kim, J.-N., & Krishna, A. (2014). Bottom-up building of an innovative organization: Motivating employee intrapreneurship and scouting and their strategic value. *Management Communication Quarterly*, 28(4), 531-560.
- Pinchot, G. (1987). INNOVATION THROUGH INTRAPRENEURING. *Research Management*, 30(2), 14-17.
- Popadiuk, S., Luz, A. R. S., & Kretschmer, C. (2018). Dynamic Capabilities and Ambidexterity: How are These Concepts Related? *Revista de Administração Contemporânea*, 22, 639-660.
- Puech, L., & Durand, T. (2017). Classification of time spent in the intrapreneurial process. *Creativity & Innovation Management*, 26(2), 142-151. doi:10.1111/caim.12214
- Raisch, S., & Birkinshaw, J. (2008). Organizational ambidexterity: Antecedents, outcomes, and moderators. *Journal of Management*, 34(3), 375-409.
- Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L. (2009). Organizational ambidexterity: Balancing exploitation and exploration for sustained performance. *Organization science*, 20(4), 685-695.
- Rigtering, J. P. C., & Weitzel, U. (2013). Work context and employee behaviour as antecedents for intrapreneurship. *International Entrepreneurship and Management Journal*, 9(3), 337-360. doi:10.1007/s11365-013-0258-3
- Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership. *The Leadership Quarterly*, 22(5), 956-974. doi:<https://doi.org/10.1016/j.leaqua.2011.07.014>
- Russell, R. D. (1999). Developing a Process Model of Intrapreneurial Systems: A Cognitive Mapping Approach. *Entrepreneurship Theory and Practice*, 23(3), 65-84. doi:10.1177/104225879902300305
- Schumpeter, J. A. (1934). *Theory of economic development*: Routledge.
- Seshadri, D. V. R., & Tripathy, A. (2006). Innovation through Intrapreneurship: The Road Less Travelled. *Vikalpa: The Journal for Decision Makers*, 31(1), 17-29. doi:10.1177/0256090920060102
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226.
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, 22(2), 63-75.
- Stevenson, H. H., & Jarillo, J. C. (1990). A paradigm of entrepreneurship: Entrepreneurial management. In *Entrepreneurship* (pp. 155-170): Springer.
- Thompson, J. D. (2017). *Organizations in action: Social science bases of administrative theory*: Routledge.
- Turner, T., & Pennington, W. (2015). Organizational networks and the process of corporate entrepreneurship: how the motivation, opportunity, and ability to act affect firm knowledge, learning, and innovation. *Small Business Economics*, 45(2), 447-463. doi:10.1007/s11187-015-9638-0
- Turro, A., Lopez, L., & Urbano, D. (2013). Intrapreneurship conditioning factors from a resource-based theory. *European Journal of International Management*, 7(3), 315-332. doi:10.1504/ejim.2013.054328
- Tushman, M. L., & O'Reilly III, C. A. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review*, 38(4), 8-29.
- Venkataraman, S. (1997). The distinctive domain of entrepreneurship research. In *Seminal Ideas for the Next Twenty-Five Years of Advances* (pp. 5-20): Emerald Publishing Limited.
- Wang, T., Song, M., & Zhao, Y. L. (2014). Legitimacy and the Value of Early Customers. *Journal of Product Innovation Management*, 31(5), 1057-1075. doi:10.1111/jpim.12144
- Wasserman, N. (2008). The Founder's Dilemma. *Harvard Business review*, February 2008 issue.
- Weiblen, T., & Chesbrough, H. W. (2015). Engaging with Startups to Enhance Corporate Innovation. *California Management Review*, 57(2), 66-90. doi:10.1525/cmr.2015.57.2.66
- Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review*, 18(2), 293-321.
- Yin, R. K. (2014). *Case Study Research Design and Methods* (5 ed.): Thousand Oaks, CA: Sage.
- Zahra, S. A. (1991). PREDICTORS AND FINANCIAL OUTCOMES OF CORPORATE ENTREPRENEURSHIP - AN EXPLORATORY-STUDY. *Journal of Business Venturing*, 6(4), 259-285. doi:10.1016/0883-9026(91)90019-a
- Zahra, S. A., & Covin, J. G. (1995). CONTEXTUAL INFLUENCES ON THE CORPORATE ENTREPRENEURSHIP-PERFORMANCE RELATIONSHIP: A LONGITUDINAL. *Journal of Business Venturing*, 10(1), 43. doi:10.1016/0883-9026(94)00004-E

Appendix 1: Conscious and Unconscious barriers



Based on the interviews with intrapreneurs and innovation managers it is suggested that intrapreneurs run into the following:

Conscious barrier:

- The entry barrier to the NBX process
 - Potential reason: In order to focus innovation, Philips employs a hefty entry barrier to the NBX process. Its aim is to fail early and ensure that all initiatives that are invested in have a great chance of succeeding.
 - Innovation manager:
 - *“Also to be honest: the initial guidance in the beginning when you make a lot of design decisions early in the process and the fact that you know who is the business owner will help you to make the right decisions to find the right fit later. The big challenge is not to come with a good idea, there are many good ideas, but the challenge is to find a good idea in which we have the right to win, and the right to play. We must deliver much higher value to the customer and bring a superior value compared to competitors.”*
 - *“Stopping is not a bad thing, it is a good thing early. Stopping is bad in beta and we find out it is not a strategic fit or there is no willingness to pay or that the amount of people that are willing to pay is very limited. If you find this out in the beginning, it is a very good failure, if you find it out in beta, after you invested millions this is a very bad failure”*
 - *“ Many ideas were continued for too long in the past. A moment will come when too much money is invested and no-one dares to admit failure. (...) So we figured out that those late fails often happened because of a lack of business-interest. So we created a mechanism that forces a fail-early. If you are not able to get a business line interested in Seed, it is a serious reason to stop what you are doing.”*

Sub-conscious barrier:

- Integration problems with individual supporting departments
 - Description: As initiatives mature they need to discuss the various parts of their business model and find a fit within Philips. Intrapreneurs struggle to get the attention of procurement, quality regulatory and architects. Philips seems to be conscious of this barrier and is working on resolving it by providing training to various parts of the organisation in order to teach a more flexible mindset and entrepreneurial orientation.
 - Intrapreneurs:
 - *“You have to know all processes and procedures, and even if you do, you are still running against the wind.”*
 - *“Even when you have a budget, it does not mean you have priority with any of the resources.”*
 - *“Let’s say you start a venture half way through the year. Who is waiting for you? No-one is sitting around and waiting for you to come by with a venture to work on. It is an illusion to think that other departments can easily help you out. It is a tug of war to see if you can free people up to help you out.”*
 - Innovation Manager
 - *“You can’t just say: I need a finance and account person, let me grab one from this pool of people. It is not going to work, you need a mindset change. We have to understand what we need for that and offer it to our intrapreneurs. That is the cycle of learning in which Philips currently resides.”*
 - Potential solution:
 - As proposed before, a change of mindset is necessary for departments to support intrapreneurs. Training of such a mindset change is an important step but Philips could do more to ensure that their initiative achieve the necessary support. Based on the conceptual model it is proposed that supportive departments should also feel the responsibility to renew

themselves and accommodate new initiatives. This can be done using the proper reward systems, and through senior management integration. If Philips truly wants to make sure that intrapreneurs succeed it is worthwhile for supportive departments to invest in procedures or employees that are oriented towards explorative ideas. The size of the organisation might warrant such measures.



Based on the interviews with intrapreneurs and innovation managers it is suggested that intrapreneurs run into the following:

Conscious barrier:

- No official internal sources for legitimacy
 - Potential reason: Even though it can be tough on intrapreneurs, Nedap deliberately chooses to provide little legitimacy to intrapreneurs. Employees need to take their own responsibility and decide what is best for the organisation.
 - Intrapreneur: *"I think that this is the biggest challenge we faced, the recognition you get is very soft, you have to find it between the lines because there is no manager who will say: this is a good idea, you should do this."*
 - Innovation manager: *"Entrepreneurs do not need legitimisation, they can create their own. We just offer them the support to do so."*

Unconscious barrier:

- No support during integration: lack of business model development
 - Intrapreneur:
 - *"I do not know how you validate a business model, or what good business models are. You can read about it all you want but there was too much uncertainty and it was very difficult to determine if we were still on the right path. Because no-one told us if this was a good idea."*
 - [Interviewer: At some point you noticed you needed someone for Sales?] *"Yes, I noticed: this is not my strong-suit."*
 - Potential solution: An effect of the informal control systems at Nedap is that intrapreneurs make progress in some areas and lack behind in others. Intrapreneurs at Nedap seem to first develop a solution, often in collaboration with a potential customer, but do not develop their business model until relatively late in the process, especially compared to Thales and Philips. The peer-support or social support systems are required to have some oriented towards business in order for the intrapreneur to face business model questions. A possible fitting solution might be to provide more support in team formation, in order to combine technological developers with business developers. Another support system could be the use of champions or experts: old-intrapreneurs whom have experience with the development of business models that can provide advice on the background.

THALES

Based on the interviews with intrapreneurs and innovation managers it is suggested that intrapreneurs run into the following:

Conscious barrier:

- Obtaining permission for certain intrapreneurial decisions
 - Potential reason: As a defence contractor the security of their operations and those of its clients of utmost importance. Thales therefore employs a rather hierarchical structure that requires permission for certain business and investment decisions. This means that even if intrapreneurs are allowed certain budgets, they still might need to get permission from higher-up for certain investments, acquisitions or market-entries.
 - Intrapreneur: *“I had my own budget, but the signatory authority at Thales is limited. That is another thing: having to get permission for each part does not stimulate entrepreneurship.”*
 - Innovation manager:
 - *“Our strength is that we are so secure that we actually able to do those updates.”*
 - *“Those are the rules we are committed to. The clients’ primary concern is in security”*
 - *“We have to do it together with the customer. Security plays an important role in this. We have to convince them that it actually fits within their processes.”*

Unconscious barrier:

- Intrapreneurial initiatives contributing of the financial bottom-line: lack of patient resources.
 - Intrapreneur:
 - [Interviewer: “What were your targets when you started?”] *“Crazy high at that moment. Meaning above the 10 million for the first years. Roughly said: earn a lot of money with few people and no product portfolio. They started with a strong believe that the group excelled in this area which should have excelled us as well.”*
 - *“Our boss was interested in sales, because his boss was interested in his sales. That means he delegates it down to us.”*
 - Potential solution: It is important that resource commitments are made for longer periods of time to ensure intrapreneurs the freedom to develop. Thales could employ key performance indicators for new initiatives that allow intrapreneurs time to develop and measure their success not on basis of output measurements, but on development measurements. Specialised ring-fenced innovation budgets for department heads could allows them to grant more lenience to intrapreneurs and tackle this barrier.