INNOVATION BEYOND THE STAGE GATE

Factors influencing commercialisation phase within financial services and solutions to mitigate barriers

Master thesis

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Innovation Beyond the Stage-gate

Factors influencing commercialisation phase within financial services and solutions to mitigate barriers

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Executive Summary

The financial services industry is in the midst of change caused by the emergence of fintech, regulations and the financial crises. There exist various studies on corporate entrepreneurship, especially on the fuzzy front-end. However, studies on the back-end phase of innovations are still severely limited. Furthermore, the literature on innovation is usually focused on product-oriented companies or other business domain such as manufacturing or construction industry. There exist minimal resources on service innovation, especially those covering the financial services industry.

This study aims to increase our understanding of drivers and barriers during commercialisation, which influences the innovation outcome as well as to explore improvements to increase effectiveness. The study is divided mainly into six-stages methodological approach. The first stage serves more as an introduction and set up the research process, the problem statement, research questions, along with sub-research questions, are being constructed in this phase. The second stage mainly involves a literature study on relevant innovation and corporate entrepreneurship theory, especially on drivers and barriers. The objective of this stage is to increase knowledge on the subject at hand, which will be further explored in the later stages. The third stage is a continuation of a literature study to develop a framework of innovation factors. This literature-based framework will be used as the foundation to answer the research questions.

Based on the literature study in the third stage, a preliminary framework consisting of twelve factors is identified. The twelve factors are commercialisation competences, qualified personnel, decision-making, organisational culture, financial support, key stakeholders support and commitment, organisational structure, IT-system flexibility, internal procedures and processes, innovation governance and processes, market readiness and lastly regulations. Data collection phase consisting of three-part will verify the framework. The first part of data collection involves financial services practitioners. The objective is to perform an initial verification on the framework and enrich it.

The second part of data collection is a case study being conducted at a multinational Dutch bank, ING. A selection of innovation which was developed internally within ING and has passed to the commercialisation phase is drawn up. The project representatives, usually the project leaders, are interviewed using a semi-structured approach. The goal of the interview is mainly to identify commercialisation drivers and barriers they have experienced. Besides that, we also explore possible

impacts of origination and commercialisation path on innovation performance. The last data collection concerns the verification with internal practitioners and academic experts, to gain their perspective on the results as well as the study itself.

The last stage, the sixth is mainly concerned with the analysis of data collected by using a combination of individual and cross-case analysis. In this chapter, commonly found drivers and barriers are identified. A comprehensive discussion will take place to, understand the underlying reasons for the results of all the twelve factors. The impacts of innovation origination and commercialisation path are also addressed by concluding the innovation outcome of the different cases, supplied by the insights shared during the interviews. Furthermore, suggestions received during the interviews on areas for improvement are being elaborated as well.

Several action items which can be enacted by financial services firms seeking to improve their innovation effectiveness include easing up the internal procedures to allow innovation to flourish in their environment. Moreover, preparing commercialisation early on will benefit innovation as it reduces the risk of incompatibility later on. An improvement on firms' existing IT capabilities and a more open mindset towards new technology concept such as cloud storage is also needed, or at least worth to be assessed further. Dealing with the complex organisational structure is also crucial due to the prevalence of silo-thinking within large organisations. Integrating innovation collaboration into performance measurements is a possible approach to be taken.

This research contributes to improving empirical knowledge of drivers and barriers to service innovation as well as the impact of innovation origination and commercialisation path in affecting the relationship between these factors and innovation outcome. Five propositions are derived based on the insights from this research. It can serve as a foundation for future research. A comprehensive study replicating this research with a more significant sample of innovation across different financial services firms is highly desirable.

In conclusion, financial services firms often face challenges in creating a supportive working environment within the larger organisation to facilitate innovation. It is difficult also to communicate and infuse organisational culture within such a large and complex organisation. Thus, a collaboration across all managerial levels is important to ensure the message is delivered. Mastering corporate innovation cannot be achieved in one day, it is a continuous process instead where firms must re-assess their existing strategy, mechanism and procedures along the way to adapt with the changing external environment.

Acknowledgements

I breathe a sigh of relief and happiness now that I am at the end of my thesis journey, the last six months has been a defining experience for me. When I board the plane to come to the Netherlands to study, I never imagine the journey will turn out as it is now. In these two years, lots of things happened, both good and the not-so-good ones. A situation I never imaged to happen did unexpectedly happen at the beginning of my thesis. I felt lost and at one point, unsure whether I will be able to finish it in time. Along this thesis journey, I slowly recover myself and come out as a stronger person than before.

First of all, I would like to express my gratitude to my graduation committee. Dr R.M (Robert) Verburg as my supervisor, has always provided me support and understanding my situation in the difficult times. He is always willing to spare his time to listen to my questions and worries, giving me valuable insights when I am confused. I am also forever grateful for having Ir. P.A.C (Patrick) Das as my external supervisor in ING. Because without a caring and passionate supervisor like him, it would not be easy for me to navigate this thesis journey. His knowledge, experience and sharp input help me in every moment of this process. I would like to also thank Prof. dr. Ir. A. (Alexander) Verbraeck as the chair and second supervisor. His constructive and on-the-spot feedbacks have helped me tremendously in improving my result. Assessments from the three of them over time has helped me shape my thesis as it is now. I cannot thank them enough for being a wonderful graduation committee, and I can confidently say, I am indeed lucky to have them as my graduation committee.

Last but not least, the support from my family back in Indonesia, especially my mum, who always supports me unconditionally, never pressuring me and letting me pursue my aspirations. I would like to also thank my friends at TU Delft for making this journey memorable. A special thank you to Haris for your never-ending support, as well as to my partner-in-crime at ING – Mythili. Thank you also to the other two Graces, Yawar, Altynay and my housemates for all the warm words and happy moments. Thank you for everything!

Two years seems to pass by in a blink but all the memories and the precious people I get to know during these two years will forever be etched in my heart. Their jokes, their laugh, their antics, their criticism, and all the time we spend together is a treasure. Without them, I will not be who I am today. All of us will also be moving on to new challenges and phases in our life. True to innovation itself, in

our life, we will always improve to become a better version of ourselves for us, for our loved ones and for the world. I would like to close my chapter at TU Delft with a favourite quote of mine from Cloud Atlas by David Mitchell,

”No matter what you do it will never amount to anything but a single drop in a limitless ocean.

But what is an ocean but a multitude of drops.”

May it remind us to never belittle ourselves and believe that we have the power to make a difference in the things we are passionate about. Signing off!

Caecilia Grace

Delft, August 2019.

Dedicated to the memory of my late father, who wanted to see me graduate more than anyone in the world.

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1 Introduction

This chapter will cover the background information leading to problem and knowledge gap to be explored in this study, divided into five sections. The first section, the importance of innovation, highlights the reason why performing innovation is necessary nowadays. Innovation is then put into the context of a corporate environment, often termed Corporate Entrepreneurship. The third section will sharpen the information on innovation within the financial services industry, the focus of this study. The last two sections will define the problem statement, along with the existing knowledge gap.

1.1 The importance of innovation

Kodak, once a photography giant, collapsed and filed for bankruptcy protection in 2012 (Jones, 2012). Various analysis has been written dissecting what went wrong and what can be learned from the Kodak lesson. Kodak's failure often attributed to its inadequacy to recognise digital photography as a disruptive technology which may threaten their core film-based photography business (Mui, 2012). It illustrates the urgency for firms to embrace innovation because Kodak's engineers, Steve J. Sasson invented the first digital camera.

Kodak failed to see its potential and Sasson himself said, "But it was filmless photography, so management's reaction was, that's cute—but don't tell anyone about it."(Deutsch, 2008). Throughout the next decades, Kodak failed to increase their innovation effort significantly in the digital

photography realm, choosing to keep focusing on their core business, which was film and photographic chemicals (Mui, 2012).

Another perspective offered by Anthony (2016) argued that Kodak also failed due to its incompetence to embrace the change in a business model that inevitably would happen when disruptive innovation occurs. Kodak was in denial to acknowledge that digital photography is going to unseat film photography and be the new core business, instead of just an addition. The rest is history, Kodak ended up getting left behind, and their market share was eroded by other firms who have embraced digital photography earlier. The lesson to be learned from Kodak is clear; firms need to always be on the lookout for possible changes in their market, continuously innovate and be adaptable to changes.

1.2 Innovation in established firms – Corporate Entrepreneurship

Since the mid-1970s, the needs for established firms to adapt themselves with the ever-changing market environment has been recognised. The term corporate entrepreneurship was ingrained as research on the domain grew significantly in the 1980s with the publication of several works, notably by Burgelman (1983). Corporate entrepreneurship itself can be defined broadly as an attempt to encourage innovation efforts in established firms through entrepreneurial activities: the exploration of new ideas to generate value through the creation or expansion of commercialisation activity (McFadzean, O'Loughlin, & Shaw, 2005; Sakhdari, 2016). This definition reinforces the view that entrepreneurial activities catalyse innovation (Schumpeter, 1981).

The main objectives are often to bring about growth (Fayolle & Basso, 2010) or to create a new line of business for the firms (Covin & Miles, 2007). The potential exhibited by corporate entrepreneurship to revitalise firms' performance has bolstered the interest and study on this domain. Various perspectives are taken by researchers, from evolvement of corporate entrepreneurship strategy (Ford, Garnsey, & Probert, 2010) to study the effect of multiple factors that exist within the corporate entrepreneurship realm: operations control (Goodale, Kuratko, Hornsby, & Covin, 2011), integration mechanism (Burgers, Jansen, Van den Bosch, & Volberda, 2009) and culture (Turró, Urbano, & Peris-Ortiz, 2014).

The development of corporate entrepreneurship as a research domain fall in line with practical needs experienced by established firms due to the emergence of start-ups that threatens their dominance and existence. New firms like Uber, the ride-hailing service, which revolutionise the transportation sector have threatened the survival and profitability of the taxi corporations in several

countries (Bashir, Yousaf, & Verma, 2016). The similar movement could also be felt in other business sectors, such as financial services.

Firms are faced with mounting pressure to stay afloat in the market, which often can be achieved only if they are staying ahead of the competition and sharpening their competitive advantage through innovation (Fayolle & Basso, 2010). Pursuing new business outside of the firm's core was no longer seen as something "nice to have" but a necessity for long-term growth and existence. With this urgency in mind, established firms then increase innovation by formalising their corporate entrepreneurship effort. Corporate entrepreneurship might come in various ways such as cultivating innovation ideas from within the company or striking partnership with emerging start-ups. Various forms of corporate entrepreneurship will be discussed further in Chapter 3.

1.3 Innovation within the financial services industry

The importance of the financial industry has been well-established: it affects economic growth, general employment and is an integral part of the contemporary economic environment (Schueffel & Vadana, 2015). However, the financial services industry has been mostly unchanged throughout the years because traditional players prefer to only do incremental development to their existing services (Das, Verburg, Verbraeck, & Bonebakker, 2018). Moreover, the global financial crisis of 2008 caused the financial services industry to receive more attention and heightened regulation, in effect limiting financial services firms ability to engage in radical or disruptive innovation. At the same time, there were an increasing customer's demands for a better and more sophisticated financial service (Schueffel & Vadana, 2015), thus creating a gap between supply and need to be fulfilled by new players.

Recently, a surge of new players such as technology firms offering financial-related products to digitally-oriented financial start-ups or fintech has started to disrupt the industry increase competitiveness in the financial services market. Digital wallet platform (i.e. Google Pay) and online money transfer platform (i.e. TransferWise) are some examples of digital financial services attempting to provide alternatives to banking services. According to Taavet Hinrikus, CEO of TransferWise, fintech startups can offer faster, cheaper and better services which were not available for customers before (Balea, 2016). With such an environment, traditional financial services firms inevitably need to embrace radical and disruptive innovation to stay competitive and not getting swallowed in the future by new entrants (Das et al., 2018).

1.4 Problem statement

As innovation has been established as the key for survival, large and complex financial services, firms are racing to create their corporate entrepreneurship program and establish an innovation department within the firms' organisation structure. Innovation department or popularly called innovation labs, with varying degree of autonomy, is being tasked to boost and manage innovation efforts in the firms. Recently in the news, three global banks have just opened their innovation labs in Singapore, one of the top financial hub (Lee & Gek, 2018). These corporate entrepreneurial efforts primarily resulted in two types of outcome. The first one was strategic renewal when entrepreneurial effort resulted in changes to the organisation's line of business, structure or strategy (Sharma & Chrisman, 1999). While the second one, termed corporate venturing, usually means the creation of new business organisations related to the firms which are being used to exploit new markets (Sharma & Chrisman, 1999).

Although established financial services firms have opened their doors for innovation, this might not be enough as it is only the first step. Because the innovation needs to gain commercial success for the firms to reap benefits and reach their objective to grow outside of their core business. Unfortunately, successfully delivering innovation is not an easy task to do. Various factors are affecting the effectiveness of corporate innovation projects during the whole process, from idea exploration to development to eventually getting commercialised and being launched in the market. Therefore, comprehensive research studying these influencing factors that drive and hampers corporate innovation projects within the financial services industry is essential to increase the innovation success rate and ensuring as little resources as possible are being spent on a fruitless exercise.

1.5 Knowledge Gap

Even if the field of corporate entrepreneurship is growing and literature is becoming more accessible, comprehensive knowledge of innovation factors, covering both internal and external factors, is still lacking. Researchers are mostly focused on exploring drivers and barriers for the company to start innovating, which concerns the fuzzy front-end of the innovation process such as Kim and Wilemon (2002) who discussed the identifying strategic issues of fuzzy front-end and possible managerial recommendations to solve them.

Meanwhile, innovation is a long process and developing idea to a successful product or services offers many challenges along the way. Little has been discussed in the later stages of innovation, the commercialisation part. According to Luoma, Paasi and Nordlund (2008),

commercialisation refers to the process of launching a new product or services to the market; this signals the final phase of development. Commercialisation is critical in the innovation process because the preparation being undertaken in this phase will either make or break the innovation; it will determine whether the services are going to be launched successfully or fail (Luoma, Paasi & Nordlund, 2008).

Furthermore, literature is usually focused on product innovation than service innovation (du Preez, Louw, & Essmann, 2009) and there is an even less focus on the financial services domain (Schueffel & Vadana, 2015). Thus, there is still a lack of knowledge in terms of factors which influences corporate innovation during commercialisation. This research aims to identify factors influencing innovation commercialisation, whether these factors are usually perceived as drivers – positively influencing innovation progress, or barriers – negatively influencing innovation progress. Furthermore, the cause and effect at play in this particular stage and suggested improvements to overcome the barriers will also be explored and analysed at length. The study is explorative research, combining a review of existing literature and qualitative research through in-depth interview with practitioners to gain understanding on real-setting of corporate entrepreneurship within the financial services industry.

2

Research Approach

This chapter will describe the approach taken to conduct the thesis research, including the objectives; the main research questions and sub-questions to be answered through this research; the research scope; the methodology to be used; and lastly the contributions this research will have in both practical and scientific domain.

2.1 Research objectives

The objective is to contribute to the body of knowledge about the commercialisation phase of innovation in established financial services firms. This study aims to analyse the factors by classifying them as either drivers or barriers and explore possible solutions to overcome the barriers. With this study, I hope to increase understanding of the commercialisation phase, which is still under-explored at the moment, especially in terms of service innovation. This research is an exploratory qualitative study in which commonly experienced drivers and barriers will be gathered through a case study in a large and complex financial services firm, while different perspectives will also be collected through verification. Verification is performed by interviewing innovation managers from various financial services firms and academic experts. The results will be analysed and compared with existing literature to identify running thread on financial service innovation. Afterwards, improvements will be proposed in the hopes of resolving existing challenges.

2.2 Research questions & sub-questions

The main research questions for this thesis is the following:

"How can established financial service firms enable the launch of their internally developed radical service innovation?"

Sub-research questions (SQ) have been formulated to answer the over-arching questions:

***SQ1**: What are the factors affecting corporate innovation during the commercialisation phase?*

***SQ2**: Which factors are commonly found as drivers and barriers during the commercialisation phase?*

***SQ3**: How can these barriers be overcome to ensure future corporate innovation have a higher likelihood to launch their service?*

SQ1 aims to identify factors influencing innovation during the commercialisation phase, as mentioned in the existing body of knowledge. SQ2 is a continuation of SQ1 in which the factors identified from the literature will be validated through a case study to observe how these factors play out in a real-working situation. Meanwhile, SQ3 aims to provide solutions to mitigate common barriers through a review of existing literature and suggestions provided by the interviewee. A set of improvements will be derived in the hope to increase innovation effectiveness and improve results.

2.3 Research scope

Considering the time constraints as this study is a master's thesis research, several limitations are in place regarding the following aspects:

1. Innovation phase

   This research focuses only on the commercialisation phase of the innovation process model
2. Business domain

   The business domain of the financial services industry is the focal point of this research.
3. Geographical location

   Innovation is being developed in Europe, with the majority being in the Netherlands.
4. Corporate entrepreneurship type

   This research will delve only on corporate innovation, which is internally developed by the firms or often called as internal corporate entrepreneurship.
5. Actors

The target of this research is private and established financial firms in the Netherlands, although their innovation sampled are not limited to the Netherlands only considering plenty of financial firms is a multinational company.

2.4 Research methodology

In answering the overarching research question *"How can established financial service firms enable the launch of their internally developed radical and disruptive innovation services?",* it is crucial first to answer the five sub-research questions which have been defined earlier. In answering these sub-research questions, a combination of literature review, interview, and case study with cross-case analysis will be performed. Figure 1 provides an overview of which method will be used to answer each of the sub-research questions.

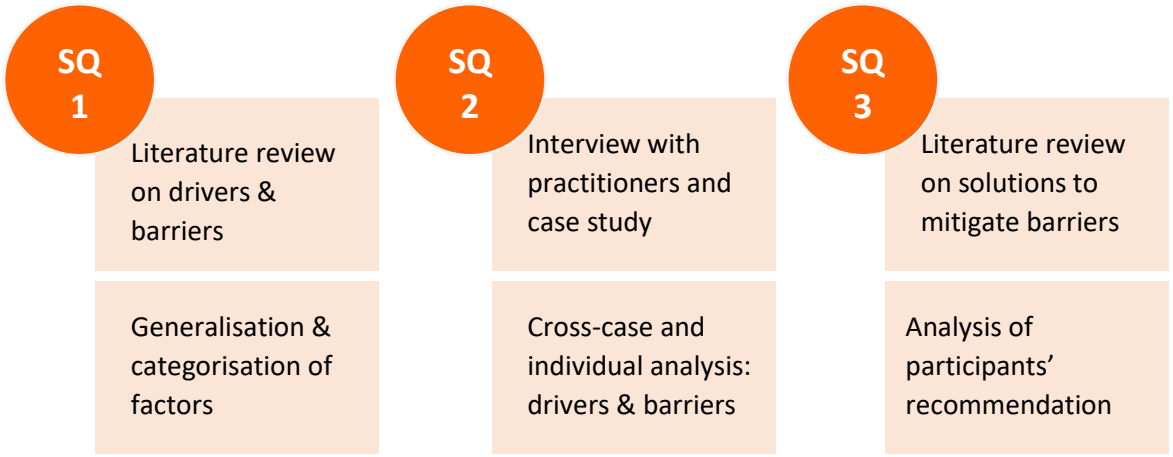

Figure 1. The overview of the methodology used for each sub-research question

In carrying out this study, according to the methodology outlined above, a research structure is developed with six distinct stages of execution. The six stages roughly correspond with the division of chapter in the report. An overview of how the research is going to be performed and the report structure can be seen in Figure 2 below

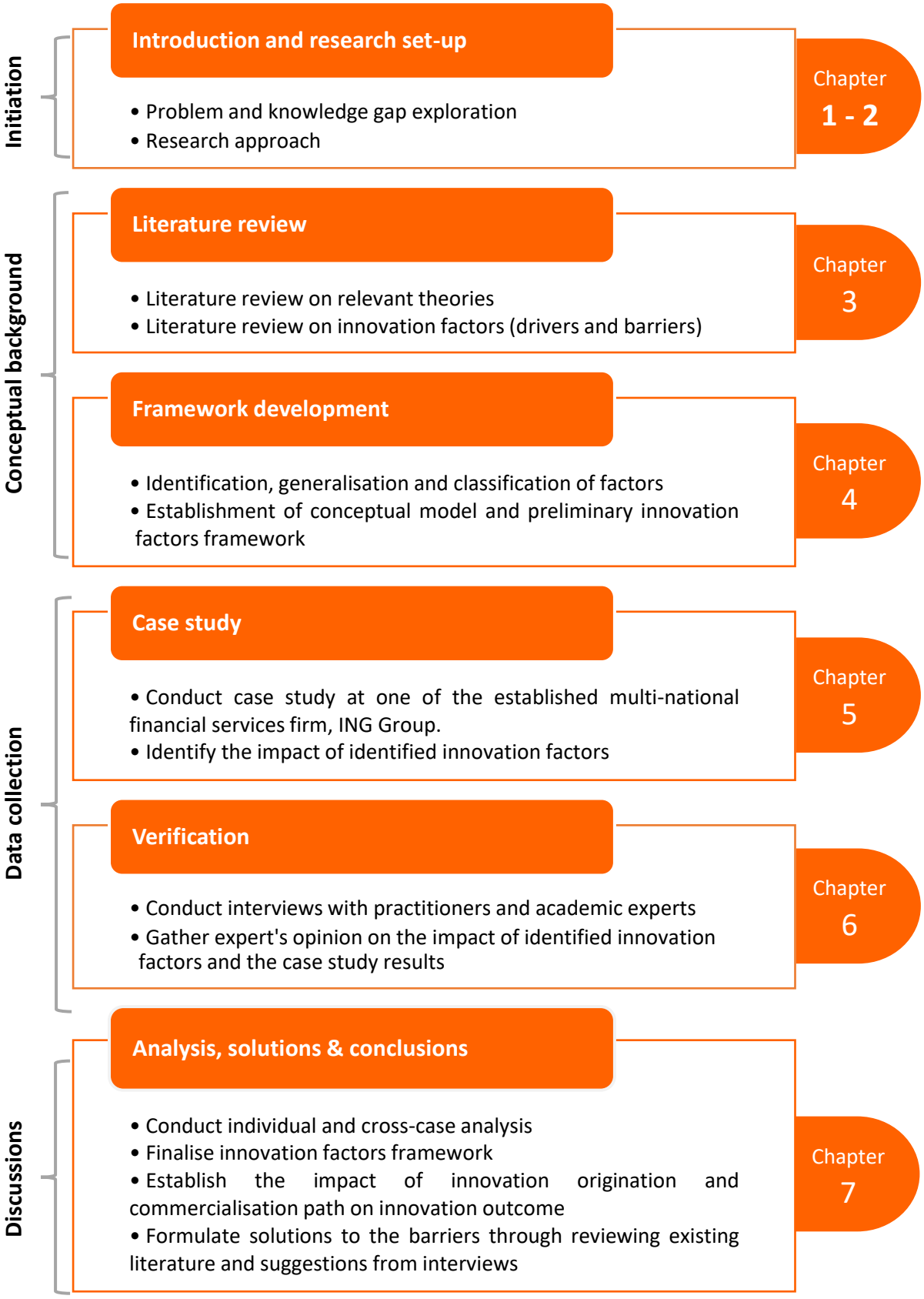

Figure 2. The overview of the research structure

2.4.1 Conceptual background

According to Sekaran and Bougie (2010), literature review itself refers to a step-by-step process to: identify literature work, either published or unpublished from secondary data sources revolving around a specific domain; assess this literature work in conjunction to the problem at hand; and including the documentation of this work. In this study, a literature review is conducted to gain an understanding of the existing knowledge, by reviewing scientific articles available on the internet, especially the TU Delft library database. The literature in use will not be limited only to journal articles, but also include conference proceedings, textbooks, institutional reports as well as previous master thesis report. Based on the literature review, innovation drivers and barriers will be gathered. Although, it is important to note that literature focusing on drivers and barriers on the commercialisation phase of innovation is limited. Thus, the literature search will be expanded. These drivers and barriers will then be combined to form a neutral innovation factors framework. This framework is a centrepiece to be validated during data collection to understand how each factor are perceived during commercialisation.

2.4.2 Data collection

The goals of data collection in this research are three-fold: to identify whether the innovation factors are regarded as drivers or barriers; to understand the impact of innovation origination; and the effect of commercialisation path on the innovation outcome. It is organised as follows.

Table 1. The overview of data collection method

Part	Description	Objective	Target interviewee
1	Initial verification	• Initial verification for innovation factors framework with financial services practitioners • Gather practitioners' opinion on the impact of identified innovation factors • Looking at the phenomena from the perspective of other financial services firms	Innovation managers from different financial services firms
2	Case study: ING Group	• Testing the innovation factors framework with experienced corporate innovators • Gather innovators' opinion on the impact of identified innovation factors • To gain understanding on existing contexts and their impact on innovation outcome • To gather suggestions for future improvement	Corporate innovation projects' representatives
3	Final verification	• Final verification for innovation factors framework and the case study results • Gather experts' opinion on the impact of identified innovation factors • To discuss possible areas for improvement	ING internal practitioners and academic expert

As this study aims to uncover and increase understanding of corporate innovation phenomena, a qualitative method is best suited. The data will be collected using a combination of commonly used qualitative research tools: interview and case study. According to Ryan, Coughlan, and Cronin (2009), interview is suitable to gather various information from the participants, such as experiences; opinion; and beliefs about a specific research landscape. A semi-structured interview will be used as it allows for flexibility but still maintains a structured approach to ensure predetermined questions are covered (Ryan et al., 2009). In combination with interviews, a deep dive into the inner-working of innovation will be carried out through case study. The case study will take place at ING Group, the leading Dutch multinational financial services firms headquartered in Amsterdam. According to Yin (2013), a case study can be defined as "an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not evident". The case study will help towards building a deeper understanding of corporate innovation by taking into account the contextual background as well, which might be unique to the financial services industry.

2.4.3 Discussions

Based on the data collected, the factors will be classified as either drivers or barriers according to the general inclination shared across the board. Furthermore, three top drivers and barriers are going to be determined as well based on the input from interviewees. The objective of such exercise is to provide insights on critical areas where more attention is needed. The cross-case analysis will be performed to look at the similarity and differences of selected cases, aimed to shed lights on the two contextual themes: the innovation origination, and commercialisation path. Afterwards, suggestions from the interviewee and other improvement ideas are explored to mitigate these barriers. The end goal is to increase innovation effectiveness, ensuring the resources dedicated to developing innovation will not go to waste as the services have a higher likelihood to be launched. Considering specific literature covering commercialisation phase of financial service innovation is still limited, we will include similar work on other domain as a reference, to then be adapted and analysed further to fit with the context of the financial services industry.

2.5 Contributions

This thesis will contribute in two ways, both from practical and scientific perspectives. In terms of scientific relevance, this thesis aims to enrich the innovation factors knowledge through an empirical study by looking at the reality of how these factors are at play during commercialisation. It expands

and combines framework of innovation drivers and barriers, mostly from Das et al. (2018) as well as Sandberg and Aarikka-Stenroos (2014), thereby creating a comprehensive influencing factors framework for internally-managed corporate innovation. The framework produced can be used as a basis for future research on innovation in other established financial services firms or even in different types of industry.

The result of this study is also relevant as seen from the perspective of Master programme – Management of Technology. Considering this research is being undertaken at an established firm and aspires to increase understanding on how innovation is translated into practice within the corporate world as well as what factors in relation to team, organization and external environment are at play leading up to its launching. Additionally, this study will also contribute to further enhance knowledge on innovation within the financial services industry, specifically for the commercialisation phase. Similar studies on innovation factors for the financial services industry has not yet been performed or is very limited at the moment, and this study will expand the body of knowledge in this domain, as well as providing the basis for future research.

In terms of practical contribution, the result from this study will be relevant for established firms, especially within the financial services industry and generally in other sectors as well, to effectively manage their internal corporate entrepreneurship mechanism. The three main results are:

1. The framework of innovation factors in the commercialisation phase
2. Commonly identified innovation drivers and barriers during commercialisation
3. Proposed improvements to minimise barriers

Moreover, the outcomes derived from this study will also be useful for firms seeking to understand the success and failure to launch ideas behind their innovation mechanism. Equipped with these three results as guidance, firms now possess a foundation from which they can assess themselves on the existence of innovation factors and how they are perceived within the firms, as well as pointers on what can be improved for better performance

3

Theoretical Background

This chapter will provide the existing theoretical knowledge in this research domain, such as the classification of innovation based on its degree of the novelty and the definition of service innovation. Afterwards, the innovation paradigm is explained to understand the underlying concept of innovation, as well as the relevant process model to illustrate the innovation journey and the specific phase this study is focusing on. The stage-gate concept will also be explored due to its vast application in corporate settings. Lastly, an explanation of different types of corporate entrepreneurship will be presented before delving deeper on the specific form of corporate entrepreneurship.

3.1 Innovation definition and classification

Innovation is an extensive term with various meanings and convoluted terms used interchangeably. According to O'Sullivan and Dooley (2009), innovation is defined as changes to products, services or processes with the intention to introduce new concepts for the organisation, which eventually will both add value to customers and increase the organisation's body of knowledge. The changes might be large or small, radical or incremental, and sustaining or disruptive. Innovation can be categorised based on several aspects, such as by basic type or the degree of novelty (Kuratko, Covin, & Hornsby, 2014).

Defined based on its basic type, innovation can be classified into three categories in relation to products, services, and processes. As such, product innovation deals with creating changes to a

physical product with the goal to increase its value and services innovation can be broadly defined as a transformation to services rendered for customers (Kuratko et al., 2014). Meanwhile, process innovation encompasses changes to processes that create the products or services itself (Kuratko et al., 2014). In the later part, more emphasis will be placed on service innovation as the research focus is on service-oriented firms, specifically within the financial services industry.

Another classic classification of innovation is based on the trajectory it brings about to the organisation or current market environment, resulting in two innovation dichotomies: sustaining-versus-disruptive innovation and incremental-versus-radical innovation. Sustaining and disruptive innovation is concerned more on the degree of transformation occurring on the market, compared to the degree of novelty that characterises the incremental-versus-radical differentiation. Further explanation of these innovation categories will be presented in the latter part of this section. These convoluted views on innovation are understandable, considering research on this domain is still developing at the moment.

3.1.1 Service Innovation

Defining service innovation in one sentence is arguably impossible because there is no consensus on its meaning and theoretical study in this area is still novel (Flikkema, Jansen, & Sluis, 2007; Witell, Snyder, Gustafsson, Fombelle, & Kristensson, 2016). Several authors tried to define service innovation, such as Toivonen & Tuominen (2009) who describe it as "a new service or such a renewal of an existing service which is put into practice and which provides benefit to the organization that has developed it; the benefit usually derives from the added value that the renewal provides the customers."

In this study, service innovation will be defined broadly along the lines of the definition provided by Toivonen & Tuominen (2009) that refers to a new service or significant improvement of existing service to give benefit to the organisation through serving its customer better and will. Meanwhile, in this research, the focus will be on service-oriented innovation projects inside financial services firms with a high degree of novelty which might expand the firms' market or bring about significant changes for the firms' strategy and business model.

3.1.2 The innovation trajectory

As previously mentioned, based on the trajectory of the impact that innovation might have, two dichotomies arise, sustaining-versus-disruptive and incremental-versus-radical. Based on the novelty degree of the offerings, the terms incremental-versus-radical innovation exist. According to Kuratko et al. (2014), incremental innovation is minor changes in the evolution of a product or service to

increase its value and eventually expand the existing market. Conversely, radical innovation refers to significant departure or breakthroughs in the development of a product or service. Incremental innovation is the most prevalent in the corporate setting because it presents fewer uncertainties and costs. Meanwhile, radical innovation is highly uncertain due to its high degree of novelty or newness.

Looking at the degree of transformation an innovation brings into the market and business landscape, the sustaining-versus-disruptive dichotomy exists. Christensen (1997) described sustaining innovation as changes to existing products or services which produce values that are historically accepted by the mainstream customer, while disruptive innovation offers significantly different value proposition which might destabilise the existing market and bring about the appetite for a new market. As consequences, the business practice and landscape of industry might change drastically

Personal computer (PC) is touted as an example of radical (Kuratko et al., 2014) and disruptive innovation (Christensen, 1997). The rationale behind such classification can be contributed to the fact that PC is a radical technology change from its predecessor and, at the same time, offers new value proposition as it is intended for individual use, largely different from mainframe which was mainly used for organisation's purposes. Figure 3 below illustrates the two dichotomies of innovation.

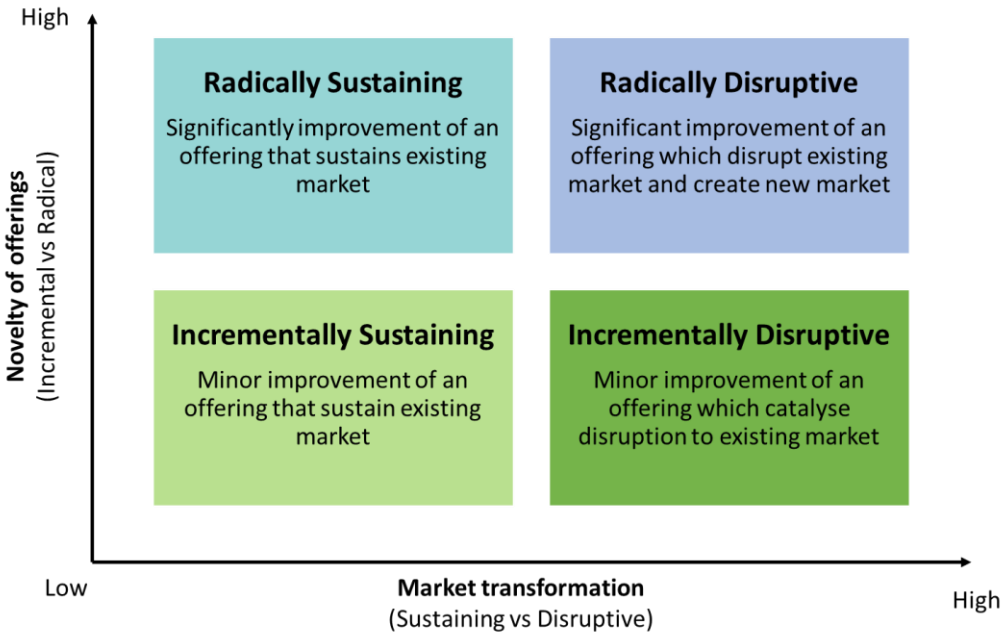

Figure 3. The innovation matrix

There exists an urgency for established firms to shift their strategy from doing mostly incremental innovation to explore further new opportunities beyond their enclosure, thus transforming their competitive advantage before others do it first. The majority of established and complex organisations acknowledge these needs and have put effort towards building a sustainable environment to cultivate radical innovation. Thereby, the central focus for this research is on radical

corporate innovation, those that might expand the firms' existing market – sustaining, or bring about breakthrough changes to the ecosystem which possibly alter the business landscape – disruptive, as there remain many rooms for improvement on the practice in order for firms to truly reap the benefits of their effort.

3.1.3 The three horizons model

The classification of innovation based on its degree of novelty is also applied in a real corporate setting. The work from Baghai, Coley, & White (1999), consultants from McKinsey & Company, is a key concept that has shaped corporate innovation over the years. Its popularity probably can be attributed to how it can visualise the ambidextrous organisation clearly and how it provides a clear framework in managing the company investment portfolio by classifying innovation into three horizons.

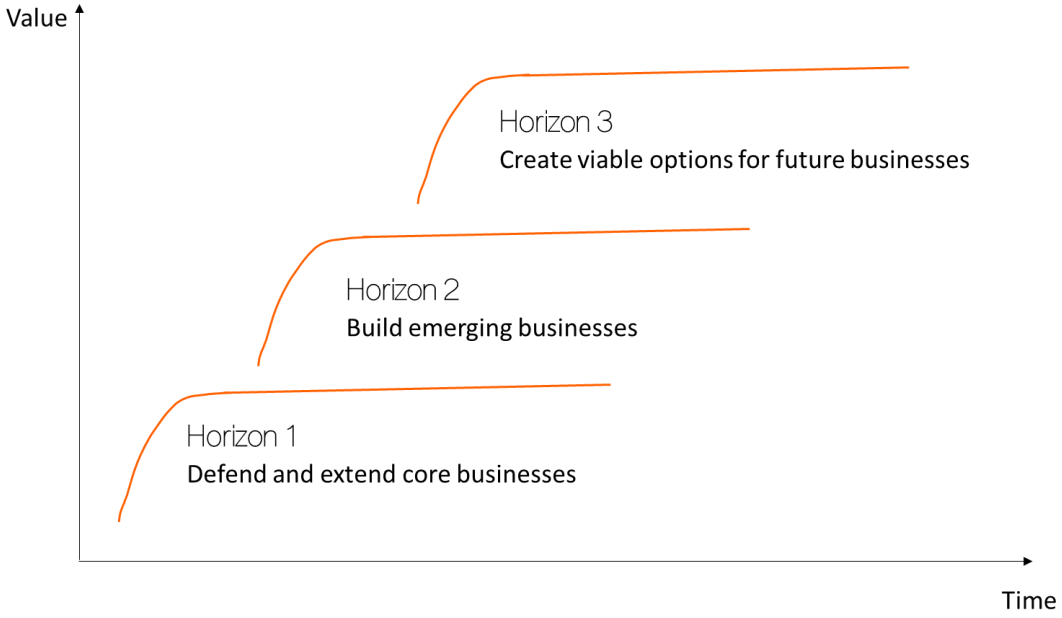

Figure 4. Three-horizons innovation model (Baghai et al., 1999)

In this model, each of the horizons symbolises different focus of innovation, which are:

1. Horizon 1 – Defend and extend core business

   Innovations in Horizon 1 is incremental to improve the firms' established offerings for their existing customer base. Usually, the main focuses for Horizon 1 initiatives are cost-saving and improving performance efficiencies. Delivery time typically ranges from 3 to 12 months.

2. Horizon 2 – Build emerging business

   Horizon 2 is more of a transition zone where emerging business ideas are explored, which can disrupt or replace the existing core business in the future. Innovation in Horizon 2 typically extends the firms' current business models and core competencies to target new customer segments. Delivery time usually ranges from 24 to 36months.

3. Horizon 3 – Create a viable option for future business

   Horizon 3 signifies the distant future, usually used to classify innovation, which is radically different from the firms' current core competencies. In this horizon, firms are encouraged to explore distant ideas and opportunities, which might be a possible key to success in the future. Delivery time usually ranges from 36 to 72 months.

The three-horizons model provides, quite simply, how to categorise the company's projects and allocate resources based on the organisation' focus. Although the model is not without its flaw. Blank (2019) suggests that the delivery time usually assigned to each horizon might not be applicable in the 21st century anymore, based on the arguments that Horizon 3 innovation might take shorter time to be deployed in the market. Several cases, such as Uber and Airbnb, demonstrate that delivery time might not be that strict anymore.

3.2 The innovation paradigm

Innovation needs structure to thrive, and sound innovation mechanism is essential because it serves as the foundation for any innovation programme. For firms to reap the benefits of their innovation effort, sound innovation management with conceptual models, covering development or idea generation until the commercialisation of such idea through successful launch in the market, is critical (du Preez et al., 2009; Verworn & Herstatt, 2002). Innovation paradigm or model itself has evolved over the decades, corresponding to changes within the firm's environment and in the wider society.

Throughout the years, two widely known innovation model can be observed, closed and open innovation model. Early on the 20th century, closed innovation model is the prevalent one, characterised by the philosophy of self-reliance in which the firms need to explore ideas for improvement and then subsequently develop, produce, market and service it all on their own (Chesbrough, 2003b). In this model, firms rely heavily on the existence of internal R&D department to usher in a new innovation. Companies such as DuPont in the chemical industry employed this model and established a central research facility to develop diverse new products.

This model, however, started to be neglected towards the turn of the century. Chesbrough (2003b) contributes the shift to several factors, such as increased mobility of knowledge workers which creates difficulty for firms to control ideas and retain expertise. Furthermore, the rise of venture capital firms provide alternatives to finance and commercialise new ideas, providing competition for firms in pursuing innovation. If firms do not acknowledge and pursue an innovative idea, then the innovators can pursue it on their own instead, with the support from venture capital. Xerox and its Palo Alto Research Center (PARC) is an example of how closed innovation model no longer works in

the majority of the industry. Ethernet was one of the innovative ideas that originated from PARC. However, this idea was not viewed favourably by Xerox and eventually being commercialised by other firms to tremendous success.

As a result, a new model emerged, one that allows several pathways to market, called the open innovation model (Chesbrough, 2003b). This model attempts to broaden the playing field by allowing the firm to not only generate ideas internally but also adopt external ideas. Afterwards, these ideas could either be commercialised and deployed by the firm themselves or through outside channels and partnership with other organisation (Chesbrough, 2003a; du Preez et al., 2009). The strict boundary between firms and its encompassing environment is no longer as strict and rigid as in the closed innovation model, allowing more flexibility to facilitate interaction between entities. Figure 5 below provides illustrations on the two innovation models

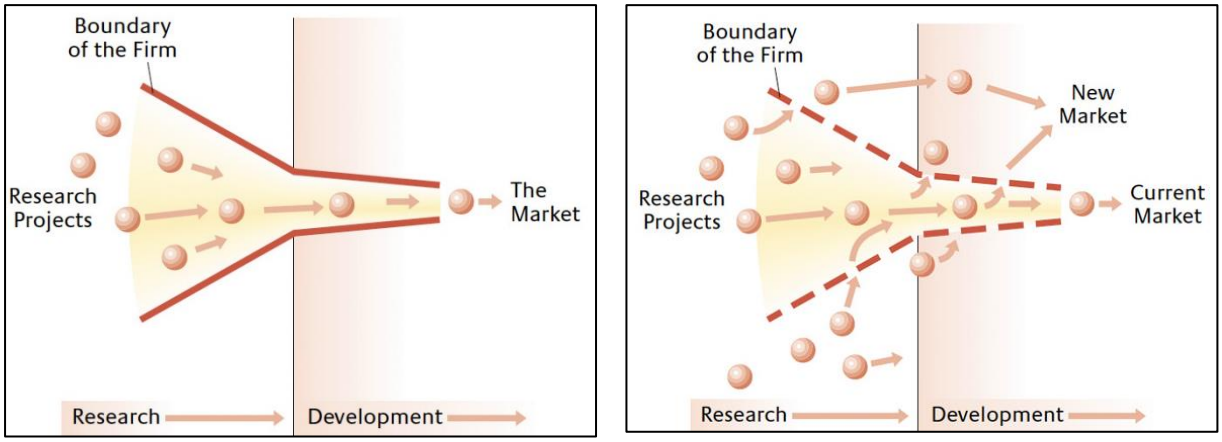

Figure 5. The two innovation models: closed (left) and open (right) (Chesbrough, 2003b)

The open innovation model is widely used in the corporate setting currently. Firms within the financial services industry usually employ this model in dealing with innovation, considering the interconnected network of the financial environment, especially the banking sector. Consequently, the open innovation model and the combination of its philosophy with another concept will be explored deeper throughout the course of this research.

3.3 The innovation process

The innovation process is a journey through which ideas move to become a tangible offering ready to be launched to the market for further exploitation through various activities (Schumpeter, 1981). Although various interchangeable terms to define these activities exist in the literature, they can be broadly arranged to three major and distinct phases: The front-end phase, development phase and commercialisation phase or back-end phase. Figure 6 below illustrates the innovation process combined with the concept of open innovation model

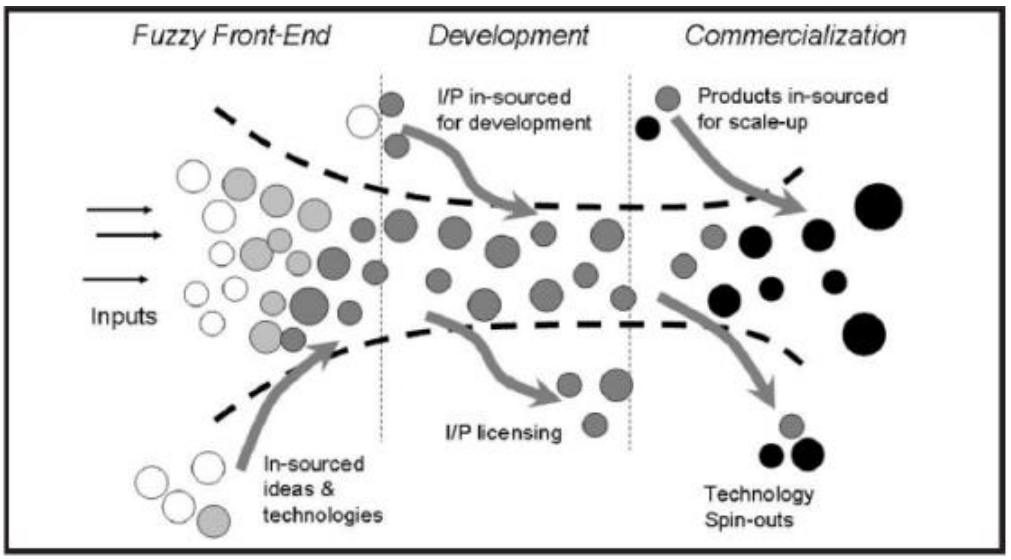

Figure 6. The open innovation process model (du Preez et al., 2009)

The front-end phase typically phase covers idea generation and concept verification to its approval for further development (Herstatt & Verworn, 2001). Termed 'fuzzy front-end' as it is often a chaotic period where a new product or service development starts. This phase is usually characterised with a high degree of freedom and low cost of changes, hence lots of uncertainty. The second phase involves the development of an idea into a product or service, resulting in a minimum viable product (MVP) for pilot testing. After the development phase is completed, the commercialisation phase then begins. In the commercialisation phase, the idea is launched to the market to fully realised its economic benefits (Luoma, Paasi, & Nordlund, 2008).

3.3.1 The stage-gate concept

One of the most prevalent used idea-to-launch process application in project management is the stage-gate framework by Robert G. Cooper, first published in 1986. In its basic form, the stage-gate process primarily consists of: a series of Stages – phases where the team perform several work activities such as: obtaining required information, collect data, integrate and analyse data; and Gates – phases that follow after each stage, where decisions to either Go/Kill the project will be taken. Once a project is being given the green light to Go, it will then enter into the next stages of work.

In the beginning, the activities were arranged consecutively in a linear fashion. However, with the rise of open innovation and the understanding that such processes are often characterised by iterative and overlapping stages in real-life practice, the framework is continuously adapted and made more flexible (Cooper, 2008). Figure 7 outlines the typical application of the stage-gate concept for major project management within organisations.

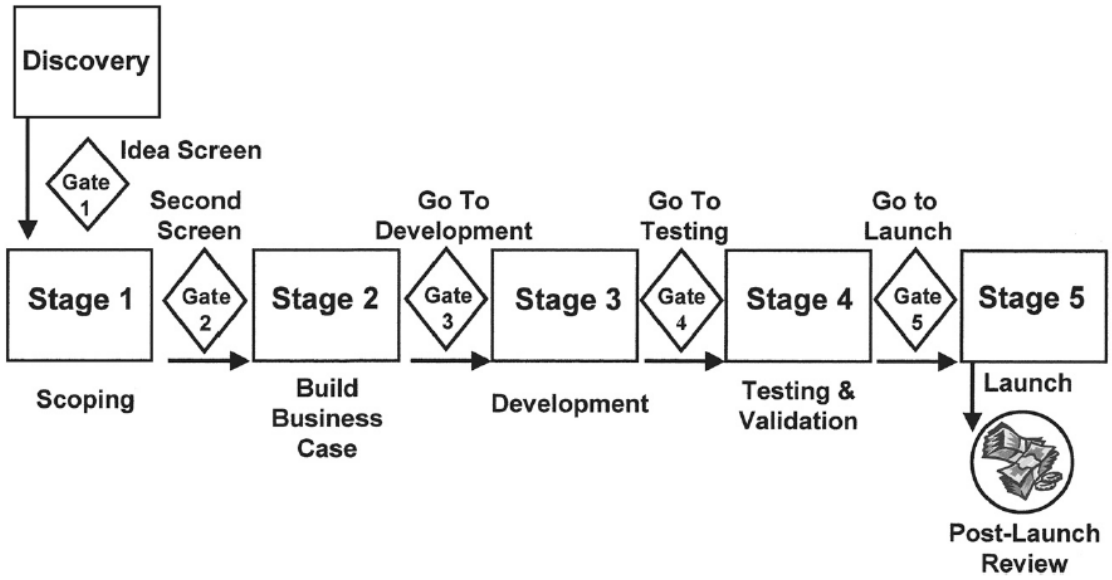

Figure 7. Typical stage-gate concept application (Cooper, 2008)

3.4 Types of Corporate Entrepreneurship

The notion of corporate entrepreneurship has risen rapidly in recent years as new players emerge and threatened established firms with their daringly radical innovation. It is often proclaimed as a viable course of action that established firms should take to stay competitive. The term is commonly used interchangeably with corporate innovation or corporate venturing because there is no conclusive definition on it yet. To successfully implement innovation, it is imperative for firms to clearly understand the specific type of innovation suitable for their needs. Predominantly, there are two primary types of corporate entrepreneurship: External Corporate Entrepreneurship (ECE) and Internal Corporate Entrepreneurship (ICE)

3.4.1 External Corporate Entrepreneurship

External Corporate Entrepreneurship occurs when a firm partakes in entrepreneurial activities where new businesses are created by outside parties. Various means exist in which firms can engage in this activity, including investment and acquisition of young ventures offering technologies desired by the incumbent firms; or partnership with other incumbent firms to combine several resources in the creation of new business Kuratko et al. (2014). The creation of new business can be achieved by utilising one ECE mode, the combination of two methods or all three.

The application of ECE mechanism often boils down to the establishment of a venture capital firms which is partially related or under the supervision of the core organisation, supplied by funding from the firms. Likewise, the goal of these venture capital arms is to invest smartly in promising and

often potentially disruptive start-ups, which are aligned with the firms' strategic objectives and needs. Corporate venture capital (CVC) practice can be traced back way beyond, such as the establishment of Steamboat Ventures as The Walt Disney Company's investment arm. However, it has started to gain momentum in the last decade, with 75 out of 100 large corporations listed in the Fortune 100 have established their venture capital arms (Himler, 2017).

Financial services firms are following this trend as well and pouring their resources for venture capital (VC) investment, considering the rapid rise of FinTech start-ups. In Asia, SoftBank from Japan is one of the biggest donors of VC investment, pumping nearly $100 billion through their CVC arm called Vision Fund. It massively invests in Alibaba – the Chinese e-commerce giant, and Kabbage – an online lending platform for small businesses (de Leon, 2019). In the Netherlands, the practice is also prevalent with the Dutch banking sector, as evident in the three leading banks: ING Bank with ING ventures, ABN AMRO's Digital Impact Fund and Rabobank's Rabo Frontier Ventures (Fincog, 2019)

3.4.2. Internal Corporate Entrepreneurship

Differs from ECE, Internal Corporate Entrepreneurship (ICE) is more focused on efforts to develop new business opportunity and expanding into the new market territory by organically growing it from within. Synonymous terms usually used interchangeably is intrapreneurship (Burgelman, 1984). ICE effort is generally embedded within the firms' broader organisation structure, often as a semi-autonomous innovation department tasked to drive innovation by leveraging existing resources and competencies.

Whichever approach a firm may end up choosing, the most critical part in corporate entrepreneurship however is to balance the exploration and exploitation efforts within the organisation and avoiding the pitfalls of heavily focusing on either one. When firms focal point is merely to exploit their existing expertise and competence, they might get trapped in their hole of existing knowledge and unable to catch up with the changes in technologies and markets thus eroding their competitive advantage. On the other hand, exploration activity, which is pivotal for firms wishing to survive the changes in macro-environment, can have its own downsides as well because the nature of exploration itself which is uncertain, hence having firms rely heavily on exploration activity for short-term success will bring catastrophic result in most cases (Keil, 2001). Coordination and cohesiveness are critical to achieving the company's shared vision.

The scope of this study is on internal corporate entrepreneurship or intrapreneurship, as this type of corporate innovation is highly connected with the core organisation. Thus, it is interesting to see the juxtaposition of the innovation process against the backdrop of traditional structure and governance in a large organisation.

3.5 Management of Internal Corporate Entrepreneurship

The motivation behind choosing internal corporate entrepreneurship (ICE) often lies in the fact that firms would like to grow in other business domain because their core business has matured enough to the point of near-stagnation (Block & MacMillan, 1993). Established firms which have used ICE method for exploration of radical and disruptive innovation are 3M, GE, and Hewlett Packard (Maine, 2008). Several benefits of engaging in ICE are the potential increase in growth, profits and knowledge management with a higher likelihood to integrate the innovation projects into mainstream business units after completion of the development process (Block & MacMillan, 1993).

In terms of management, firms usually apply corporate entrepreneurship through innovation department, specifically tasked to manage innovation. The corporate innovation centre is a commonplace nowadays, functioning as an incubation environment to develop innovation. The methodology used to cultivate and develop the idea itself may vary from firms to firms, although generally, the innovation process model described previously can serve as a general representation. The innovation funnel concept, covering idea generation in the front-end phase until development, is used to illustrate the journey of internally developed innovation.

The outcome itself may vary; innovation killed during development time in the funnel will not proceed to the next stage of the innovation process, the commercialisation. Meanwhile, innovations which have completed development within the incubation environment might have several commercialisation trajectory options available to be implemented during the commercialisation phase. Burgelman (1984) proposes a mechanism for organisation designs of corporate innovation. This mechanism is based on two dimensions: Strategic importance and Operational relatedness.

In assessing the strategic importance, management should consider the implication of such innovative ideas and what kind of opportunities or threats might exist if the innovation comes to fruition. The degree of operational relatedness is divided into unrelated, partly related and strongly related, resulting in an assessment of administrative linkages between core organisation and the innovation project. Whereas, operational relatedness is concerned with the impact such an innovation might have on the firms' current capabilities. Similarly, the degree of strategic importance is divided into very important, uncertain and not important, resulting in an assessment of operational linkages. The combination results in nine possible ways to commercialise and grow the innovation, as well as providing an illustration on the ideal arrangement for transferring the innovation past development phase within the incubated environment of the corporate innovation centre.

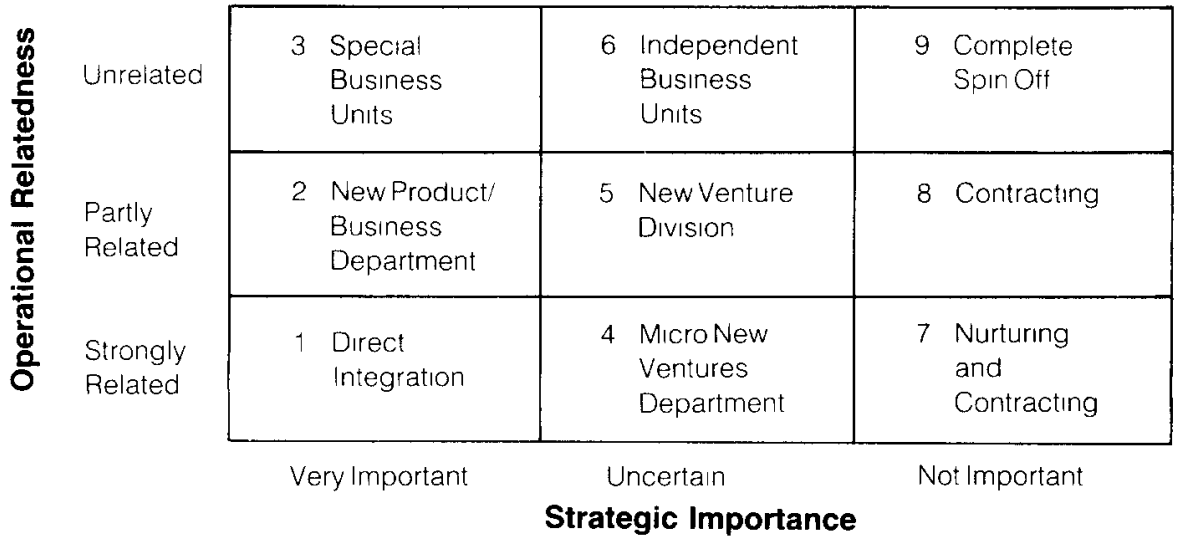

Figure 8. Organisation design for corporate entrepreneurship (Burgelman, 1984)

In practice, the above design is likely to be adapted to the firms' own environment and needs at the moment, thus possibly not all nine options are available. Although, determining this innovation path is an essential factor to further exploit the innovation as it will shape the appropriate plan of approach to the first launch and commercialise the innovation. This basic philosophy of the design will be used in this study to broadly categorise commercialisation path usually available in practice. The differing commercialisation pathway might provide additional contexts and insights to understand the perception of innovation factors. In this study, the length of the commercialisation phase until the project is launched to the market is defined as a maximum two years after it has completed incubation process or being transfer from corporate innovation centre.

4

Framework Development

In this chapter, a framework of innovation factors is constructed based on previous theoretical background and further literature study on innovation drivers and barriers. The first section will delve into the identification of literature-based innovation factors, drawing from both innovation drivers and barriers. Afterwards, a logical process generalisation and classification of these identified factors are performed, resulting in a preliminary framework in the third section. These elements will then build towards the conceptual scheme of this research, outlines in the last section.

4.1 Identifying innovation factors in the literature

Bringing innovative ideas to launch is a complex and arduous journey characterised by the interplay of both internal and external factors within the environment where it resides which influence its development and eventual outcome. Factor presents during the innovation process is termed as innovation factors in this research. As the saying goes, there are two sides of the same coin; it is true as well in this context of innovation factors as they are crucial in determining innovation success or failure (Baporikar, 2014). Thus, in this study, the influencing factors are categorised into two opposite ends of a spectrum: those that influence the innovation project in a positive way, and those that influence negatively.

4.2.1 Selection guidance

In carrying the literature review to identify innovation factors, a selection of literature is determined to be the primary reference in this study. Due to the nature of the research, which is a deep dive into a specific phase of innovation journey in a specified sector, there exists a constraint in obtaining literature discussing a similar topic. Thus, literature search guidance is established to ensure relevancy. The search guidance is divided into two categories:

1. General criteria: A "must-have" criteria which need to exist in the selected literature
2. Specific criteria: Certain criteria which bring closer the relevancy of the chosen literature with the purpose of this research. Due to the knowledge gap, highly likely, such literature will be scarce. Thus, these criteria are not a "must-have" aspect for the literature reviewed.

By establishing these criteria, a line has been drawn on what constitutes suitable literature for this study, as it needs to satisfy at least the two general criteria referred in Table 2 below.

Table 2. List of literature selection criteria

Criteria	**Relevancy degree**
Discuss radical and/or disruptive innovations	General criteria
Dealing with innovation factors (drivers and barriers) in firms	General criteria
Dealing with service innovation	Specific criteria
Distinctly focusing on the financial services industry	Specific criteria
Differentiate innovation factors per phase of the innovation process, especially for the commercialisation	Specific criteria

4.2.2 Initial identification of drivers

Body of knowledge on innovation drivers keeps expanding, although somewhat fragmented. Literature such as Dasgupta (2016) is exploring drivers to innovation, in essence, which factors contribute to the decision for firms to start innovating. While in this study, the focus will be on firms which have already embraced innovation but still struggling to get the maximum desired impact from these innovation initiatives. Thus, the drivers who will be identified in this study can be broadly defined as factors which positively influence the progress of corporate innovation projects.

Often, factors which drive forward the progress of innovation projects are discussed rather broadly by generalising the different phases of the innovation process as one entity. In reality, it is highly likely going to vary slightly between phases. Drivers during exploration phase might revolve

more on creative mindsets of the team, while competencies to commercialise the product (i.e., identify partners, build a business case) will be more impactful in the later phases. To sharpen our definition, the drivers explored in this study will be focused explicitly on the commercialisation phase.

Another limitation appears because the literature on innovation drivers usually focus on product innovation such as Cooper and Kleinschmidt (1996), with only a limited number focusing on service innovation drivers. Few that do discuss service innovation are focused on service sectors other than financial services, such as the healthcare sector. This demonstrated a gap in the existing body of knowledge on drivers for innovation commercialisation within the financial services industry, which is going to be addressed by this study.

In the search process, firstly an internet search is being performed on scholarly literature search engine – Google Scholar and TU Delft library website with keywords: "innovation drivers", "innovation success factors", "innovation enablers", and "corporate innovation drivers". Secondly, based on the search results, literature with titles that contain some of the keywords are being investigated further by reading the abstract. Usually, I also make use of the recommended articles feature available in the research database website a la Elsevier's ScienceDirect to check related articles. Exploring through specific journals (i.e. European Journal of Innovation Management, Journal of Change Management, International Journal of Information Management) is another way of finding suitable literature source. Based on the literature's title and abstract, I will then read the selected literature, using Table 2 above as guidance. Literature is then selected accordingly if they satisfy at least the general criteria. Table 3 below detail the literature selected as primary sources of this study.

Table 3. List of selected literature on innovation drivers

Literature	**Fulfilling specific criteria?**
Ozorhon, B., & Oral, K. (2016). Drivers of Innovation in Construction Projects	Yes. Dealing with innovation drivers in service innovation, although specified further for the construction sector.
Cooper, R.G., & Kleinschmidt, E.J. (1996). Winning Businesses in Product Development: Critical Success Factors.	No. Dealing with innovation factors for new product development.
Fortuin, F., & Omta, S. (2009). Innovation drivers and barriers to food processing.	No. It deals with innovation drivers for the organisation in general. As the focus on firms in the Netherlands, it increases relatedness with the subject of this study.

There is a lack of literature studying drivers for service-oriented innovation, especially those that focus on the financial services industry. Hence, this study is expanding the search and includes drivers from literature, which might not be identical to the research area, the process of which has been explained in the previous chapter. Adjustment is applied logically during the selection process to ensure the drivers selected are fit for purpose. In this part, a setlist of drivers is gathered in Table 4 as identified from the literature sources mentioned in Table 3.

Table 4. List of selected innovation drivers

No	**Selected drivers**	**Literature source**
D1	Qualified and cross-functional team members	(Cooper & Kleinschmidt, 1996; Fortuin & Omta, 2009)
D2	An organisational culture that is open, tolerant and supportive to change	(Cooper & Kleinschmidt, 1996; Fortuin & Omta, 2009; Ozorhon & Oral, 2016)
D3	Adequate funding	(Cooper & Kleinschmidt, 1996; Fortuin & Omta, 2009)
D4	Senior management commitment	(Cooper & Kleinschmidt, 1996)
D5	Effective Innovation strategy and process	(Cooper & Kleinschmidt, 1996; Fortuin & Omta, 2009; Ozorhon & Oral, 2016)

4.2.3 Initial identification of barriers

Radical innovations tend to have a high risk of failure due to various obstacles along the journey. These obstacles often termed as barriers in literature. Innovation barriers itself are defined as a factor which hinders innovation activities (D'Este, Iammarino, Savona, & von Tunzelmann, 2012; Sandberg & Aarikka-Stenroos, 2014). It is critical for firms to pinpoint existing barriers to understand their effect better and eventually work to resolve these issues (D'Este et al., 2012). In the context of this study, the barriers which will be discussed are factors that impede corporate innovation projects of financial services firms during the commercialisation phase.

Although, as is the case with literature review on drivers, several limitations exist in finding relevant literature that deals explicitly with the commercialisation phase, service innovation or financial services industry. Thus, the literature search is being expanded with the criteria as guidelines. The search process is roughly similar with innovation drivers above, involving mainly an internet search with keywords including "innovation barriers", "service innovation barriers", "innovation challenges", "commercialisation barriers", and "corporate innovation barriers". Selected literature and the reasoning behind their selection are detailed below

Table 5. List of selected literature on innovation barriers

Literature	Fulfilling specific criteria?
Das, P., Verburg, R., Verbraeck, A., & Bonebakker, L. (2018). Barriers to innovation within large financial services firms.	Yes. Dealing with service innovation, focusing primarily on the financial services industry. Although, internal barriers presented are for innovation in general
Oke, A. (2004). Barriers to innovation management in service companies.	Yes. This study deals with service innovation, although not specifically on the financial services industry. Internal barriers presented are for innovation in general.
Sandberg, B., & Aarikka-Stenroos, L. (2014). What makes it so difficult? A systematic review of barriers to radical innovation.	Yes. Differentiate internal innovation barriers according to the stages of the innovation process. Although, it neither distinguish between product and service innovations nor focusing on the financial services industry.
Fortuin, F., & Omta, S. (2009). Innovation drivers and barriers to food processing.	No. It deals with innovation barriers for the organisation in general. As the focus on firms in the Netherlands, it increases relatedness with the subject of this study.

Only the study by Das et al. (2018) covers specifically innovation barriers in the financial services industry. Similarly, in terms of distinguishing the barriers according to the innovation phases, only one article by Sandberg & Aarikka-Stenroos (2014) that provides such level of granularity. Logical adjustment is exercised during the process to ensure barriers selected are fit for purpose. This literature review produces a setlist of barriers to developing a preliminary framework.

Table 6. List of selected innovation barriers

No	Selected barriers	Literature source
B1	Lack of commercialisation competences	(Sandberg & Aarikka-Stenroos, 2014)
B2	Lack or misallocation of qualified personnel	(Fortuin & Omta, 2009; Sandberg & Aarikka-Stenroos, 2014)
B3	Conservative decision-making or risk-avoidance	(Das et al., 2018; Sandberg & Aarikka-Stenroos, 2014)

B4	Restrictive organisational culture	(Das et al., 2018; Oke, 2004; Sandberg & Aarikka-Stenroos, 2014)
B5	Lack or misallocation of financial resources	(Sandberg & Aarikka-Stenroos, 2014)
B6	Unsupportive organisational structure	(Das et al., 2018; Sandberg & Aarikka-Stenroos, 2014)
B7	Inertia caused by the (local) system architecture	(Das et al., 2018)
B8	Excessive administrative regulations and procedures or unsupportive government	(Fortuin & Omta, 2009; Sandberg & Aarikka-Stenroos, 2014)
B9	Ineffective innovation strategy and process	(Fortuin & Omta, 2009; Oke, 2004)
B10	Customer resistance	(Sandberg & Aarikka-Stenroos, 2014)
B11	Undeveloped network and ecosystem	(Sandberg & Aarikka-Stenroos, 2014)

4.2 Establishing innovation factors

The drivers and barriers identified from literature are being logically examined and adjusted to ensure they are aligned with the context of this study and well-suited to be included in our framework

4.3.1 Generalisation of factors

A combined list of innovation factors is generated using the "top-bottom" approach based on the selected drivers and barriers identified previously. By using this approach, we will first examine the identified barriers and then review the drivers for any overlap in definition and nature of the factors. As mentioned beforehand, drivers and barriers are essentially two sides of the same coin in which drivers has a positive impact, while barriers are inherently negative. With the generalisation, the resulting list of factors will be neutral. The process approach is summarised below

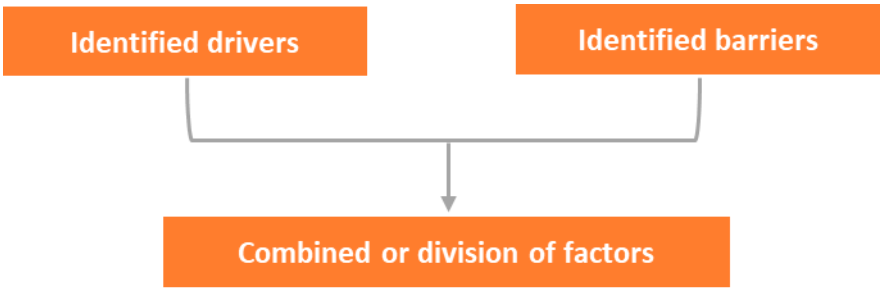

Figure 9. The generalisation process with the "top-down" approach

Table 7 provides an overview of the input and output from the process. The second and third column displays each driver and barriers respectively, with those that are corresponding to each other being placed in the same row. The fourth column contains the neutralised innovation factors. Further explanation of the process will use F5 as an example, the barrier – (B5) lack or misallocation of financial resources and the driver – (D3) adequate funding is two opposing facets of the same factor thus it is being translated into one factor – financial resources. Note that not all drivers have corresponding barriers and vice versa. For instance, F6 where it only originated from the driver – (D4) senior management commitment, resulting in a factor called management support & commitment.

Although, there are two outlier cases in which the barriers or drivers are either combined as one factor or split into two factors after careful consideration. In F11, identified barriers: (B10) customer resistance and (B11) undeveloped ecosystems are being combined as one innovation factor – target market readiness. The reasoning behind it is due to the customer and network actors who are inherently part of the whole market ecosystem. In contrast, barrier (B8) excessive administrative regulations and procedures are being split into two factors – F9 and F12, considering it might originate from both internal and external environment.

Table 7. List of selected barriers and drivers neutralised into factors

No	**Selected barriers**	**Selected drivers**	**Translated into factors**
F1	**(B1)** Lack of commercialisation competences		Commercialisation competences
F2	**(B2)** Lack of misallocation of qualified personnel	**(D1)** Qualified and cross-functional team members	Qualified personnel
F3	**(B3)** Conservative decision-making or risk-avoidance		Decision-making
F4	**(B4)** Restrictive organisational culture	**(D2)** An organisational culture that is open, tolerant and supportive to change	Organisational culture
F5	**(B5)** Lack or misallocation of financial resources	**(D3)** Adequate funding	Financial support
F6		**(D4)** Senior management commitment	Key stakeholders (sponsors and management) support & commitment

F7	**(B6)** Unsupportive organisational structure		Organisational structure
F8	**(B7)** Inertia caused by the (local) system architecture		IT-system flexibility
F9	**(B8)** Excessive administrative regulations and procedures		Internal procedures and processes
F10	**(B9)** Ineffective innovation process	**(D5)** Effective innovation strategy and process	Innovation governance and processes
F11	**(B10)** Customer resistance		Target market readiness
	(B11) Undeveloped ecosystem		
F12	**(B8)** Excessive administrative regulations and procedures		External (government) regulations

After the generalisation of factors is performed for all the identified drivers and barriers, a total of twelve factors were identified. Table 8 provides a description of each factor.

Table 8. List of innovation factors and their description

No	**Innovation factors**	**Description**
F1	Commercialisation competences	The team's ability to significantly grow fledging business until it can gain a footing on its own.
F2	Qualified personnel	The presence of skilled employees with suitable abilities within the team.
F3	Decision-making	The process by which key decision is taken and the nature of the decision itself, is it leaning more towards risk-avoidance or risk-taking.
F4	Organisational culture	Belief and values of the organisation that defines the way things are usually run.
F5	Financial support	Allocated funding or budget to finance innovation activities.

F6	Key stakeholders (sponsors and management) support & commitment	The level of support and commitment given by the relevant management bodies to enable commercialisation of innovation projects
F7	Organisational structure	A specific model in which the organisation is organised and run.
F8	IT-system flexibility	The degree of flexibility and capability of existing IT-system to cope and integrate with emerging technology utilised by innovation projects.
F9	Internal procedures and processes	The organisations' existing internal procedures and processes which governed how certain topic is expected to be executed.
F10	Innovation governance and processes	The organisations' innovation strategy, including how it is being operationalised to provide structure on the way innovation process should be performed.
F11	Target market readiness	The level to which customer and other factors constituting the target market (i.e. distribution network) are ready for the launching of innovation projects.
F12	External (government) regulations	Official (government) regulations which concern the domain where the organisation and the innovation projects operate.

4.3.2 Classification of factors

The generalisation saw the drivers and barriers being combined into a single list of innovation factors, with twelve factors in total. Afterwards, these twelve factors are going to be classified further to facilitate better analysis and understanding. The classification will use the "bottom-up" approach on two levels, according to the intrinsic nature of the factors. Figure 10 below details the flow of the classification process to be performed.

In the first level – categorisation, several innovation factors are grouped based on their contextual similarity. To illustrate, three elements: organisational structure; IT-system flexibility; as well as internal processes and procedures are factors concerning the working environment in which the projects operate. Thus, these three factors are placed under the same umbrella category – working environment.

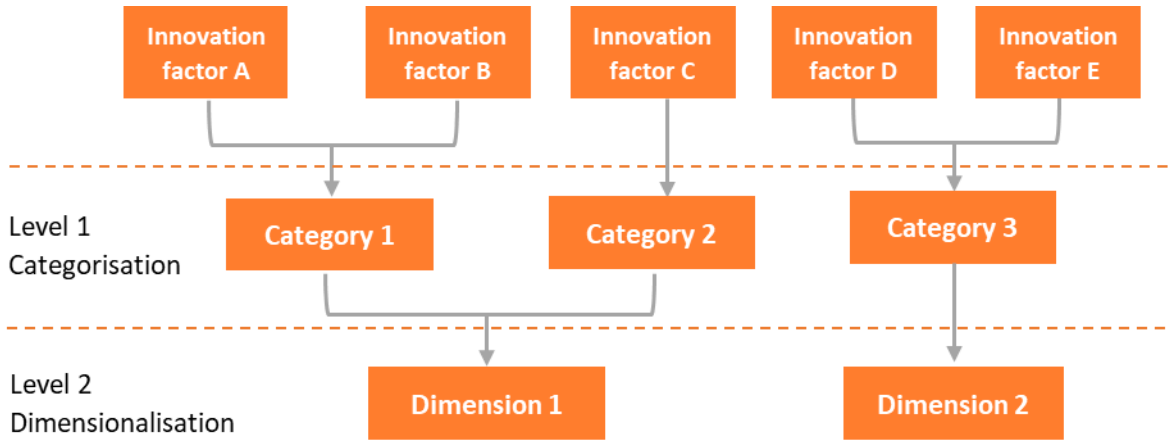

Figure 10. The classification process with the "bottom-up" approach

The second level of classification – dimensionalisation, will see these factors being classified further into three dimensions where they operated in, based on the classification by Ozorhon & Oral (2016), which are: team-related factors; organisation-related factors; industry-related factors. Table 9 below summarises both the input and output of the classification process. In the second column, the twelve factors previously identified are listed down. After categorisation process in level 1, several factors are combined, resulting in eight categories. These eight categories, then being classified further into the three dimensions, as mentioned above.

Table 9. List of innovation factors along with their respective categories and dimensions

No	Innovation factors	Level 1 – Category	Level 2 - Dimension
F1	Commercialisation competences	Competences	Team-related
F2	Qualified personnel	Resources	
F3	Decision-making	Mindset	Organisation-related
F4	Organisational culture		
F5	Financial support	Organisational support	
F6	Key stakeholders (sponsors and management) support & commitment		
F7	Organisational structure	Working environment	
F8	IT-system flexibility		
F9	Internal procedures and processes		
F10	Innovation governance and processes	Innovation mechanism	
F11	Target market readiness	Market environment	Industry-related
F12	External (government) regulations	Regulations	

4.3 Framework of innovation factors

After identification, generalisation and lastly classification, a framework of innovation factors during commercialisation is derived. The framework consists of twelve factors under eight categories across three dimensions. These factors will be validated through empirical study within the financial services industry and adapted by identifying which factors are deemed as either drivers or barriers based on the result. Figure 11 below displays the framework of innovation factors.

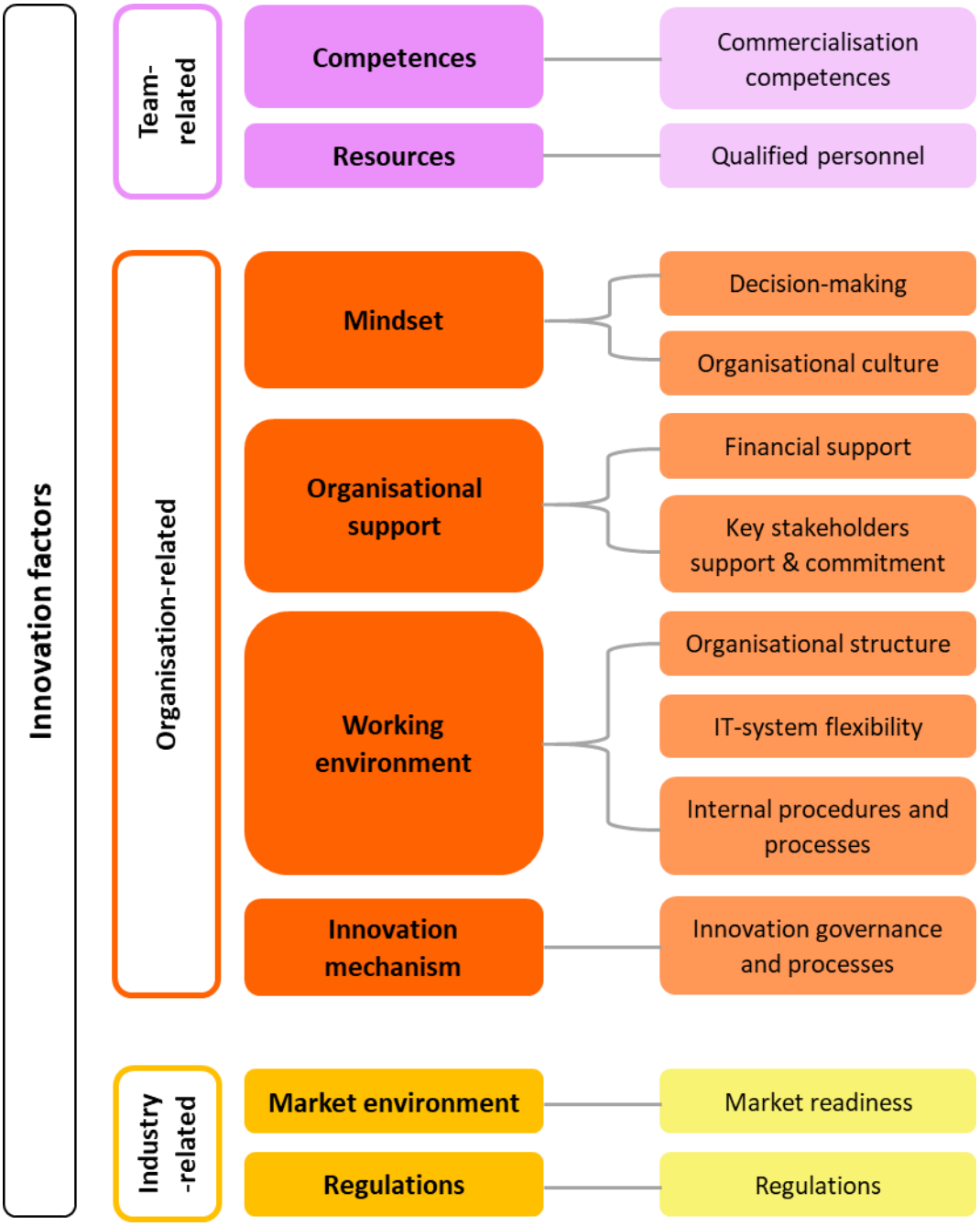

Figure 11. The preliminary framework of innovation factors

4.4 Contextual antecedents

In designing the conceptual scheme for this study, it is important to recognise that each innovation is inherently unique that operates in a different context. As discussed previously in Chapter 3 on the management of internal corporate entrepreneurship, two concepts proposed by Burgelman (1983b, 1984) are the foundation of contextual antecedents for this study.

The first concept concerns the interaction between various elements resulting in the certain course of action an idea is propagated – termed as innovation origination in this study. Adapting the model of the strategic process by Burgelman (1983b), we divide innovation origination into three categories:

1. Bottom-up: idea originates from the employee, often through ideation contest
2. Middle-out: the initiative is started by middle management of a particular business unit, often to specifically solve the units' problems or to increase performance.
3. Top-down: top management of the organisation took a more active role in initiating or endorse the innovation.

The second concept concerns the pathways available to commercialise the innovation, specifically the type of arrangement better suited for further exploitation. Burgelman (1984) proposes the organisation designs as explained in Chapter 3.5, with nine possible commercialisation paths. In this study, we will simplify the arrangements considering its applicability in practice, thus dividing the commercialisation path into three categories:

1. Integration into the existing business unit

   The transfer of innovation to existing business units within the core organisation deemed suitable for commercialisation and further exploitation.
2. Creation of a new business unit

   A new business unit is being created within the core organisational structure specifically devoted to commercialising the innovation.
3. Spin-out as a separate entity

   Innovation is commercialised outside the core organisation as a separate entity, such as venture. Degrees of involvement from the firms might vary from partial contribution to full ownership, often in the form of equity as shareholders.

Admittedly, the three categories above are a broad classification and highly possible different variations of them exist in practice. However, considering the limitation in this study, those variations will not be discussed in-depth as they do not fall under the scope of this research. Figure 12 outlines

the two contextual antecedents along with their relation to the innovation process. Innovation origination is specifically involved in the front-end phase. Whereas the application of commercialisation path usually takes place at the end of the development phase and the start of commercialisation. In terms of corporate entrepreneurship practice, it is usually characterised by the transfer of innovation from its incubation environment – the corporate innovation centre, to its eventual destination.

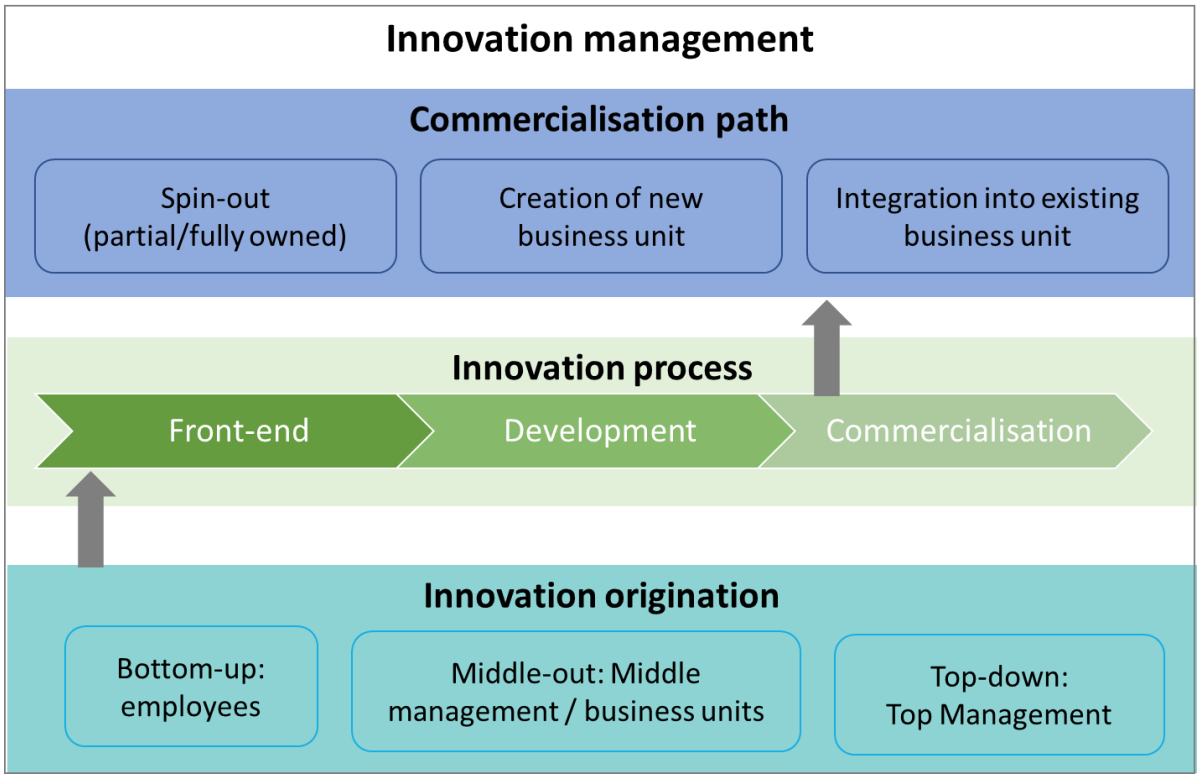

Figure 12. Contextual antecedents of innovation management

4.5 Innovation factors scheme

Based on a theoretical foundation, a scheme is proposed to encapsulate the important elements explored in this study, outlines in Figure 13. The scheme combines innovation factors framework which has been established previously and the contextual antecedents. The framework will be further validated during the data collection phase to understand whether these factors, in reality and for the specific case of the financial services industry, influence innovation positively or negatively towards its launching and further establishment.

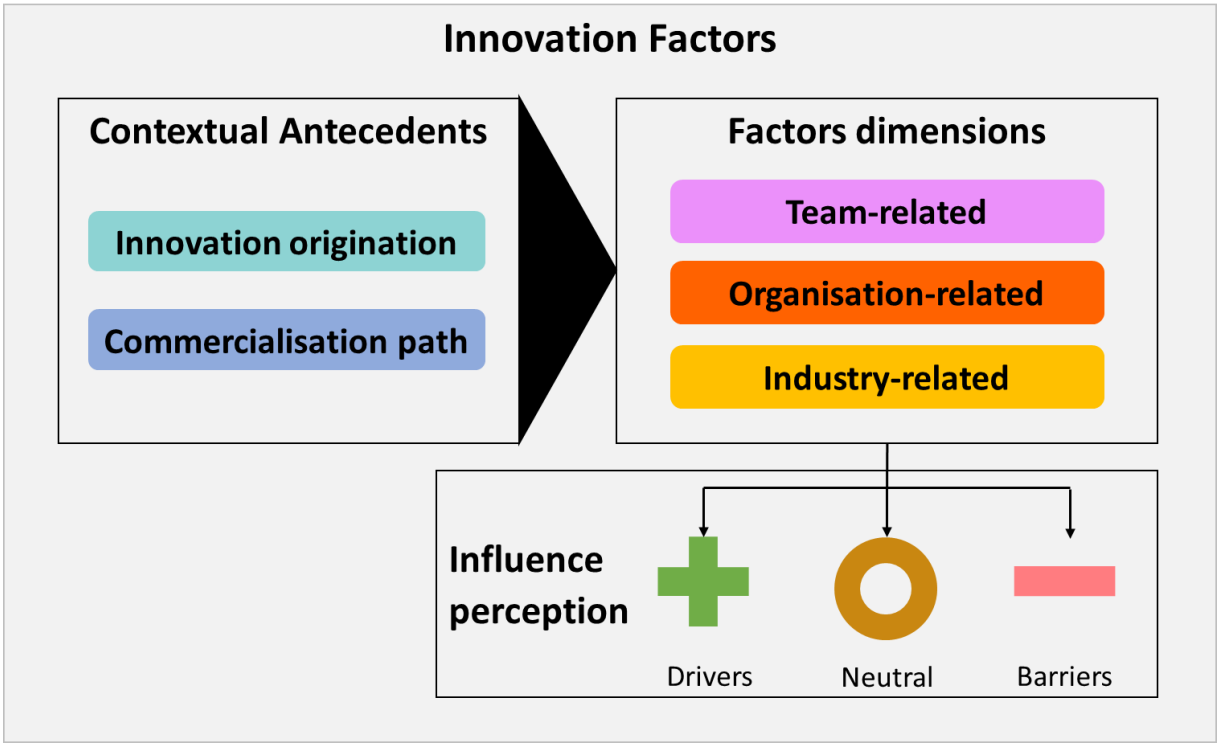

Figure 13. Innovation factors scheme

The inclusion of two contextual antecedents can add further aspects to the insights gathered, thus enriching our analysis and explain the reasoning behind the different perception of certain factors for various innovation projects. These two antecedents will also act as guidance in classifying the cases selected for data collection.

5

Case Study

This chapter will discuss the second part of data collection through a case study at ING, one of the largest financial services firm in the Netherlands. The first section details the interview structure. While the second section will explain further on the logical reasoning behind the case selection. Before examining the interview result, however, it is vital to understand the contextual background of the firm itself, as it will help to put the results into perspective. Lastly, section four will provide an overview of the case study result.

5.1 Interview structure

The structure of the interview is mostly similar to the first part of data collection, where the interview is divided into five steps. The difference can be seen in step one, as the introduction is used mainly to gain a deeper understanding of the innovative ideas and the innovation journey directly from the interviewees. Several exhibits are used to aid the interviews:

1. Exhibit 1: ING innovation process models to highlight the research area.
2. Exhibit 2: The list of questions defined for this interview can be seen in Appendix I.
3. Exhibit 3: interview cue card containing twelve innovation factors according to the framework. The interviewee will be asked to rate each of the factors using a 1 – 7 Likert scale and then select the top 3 drivers and barriers. Refer to Appendix II.

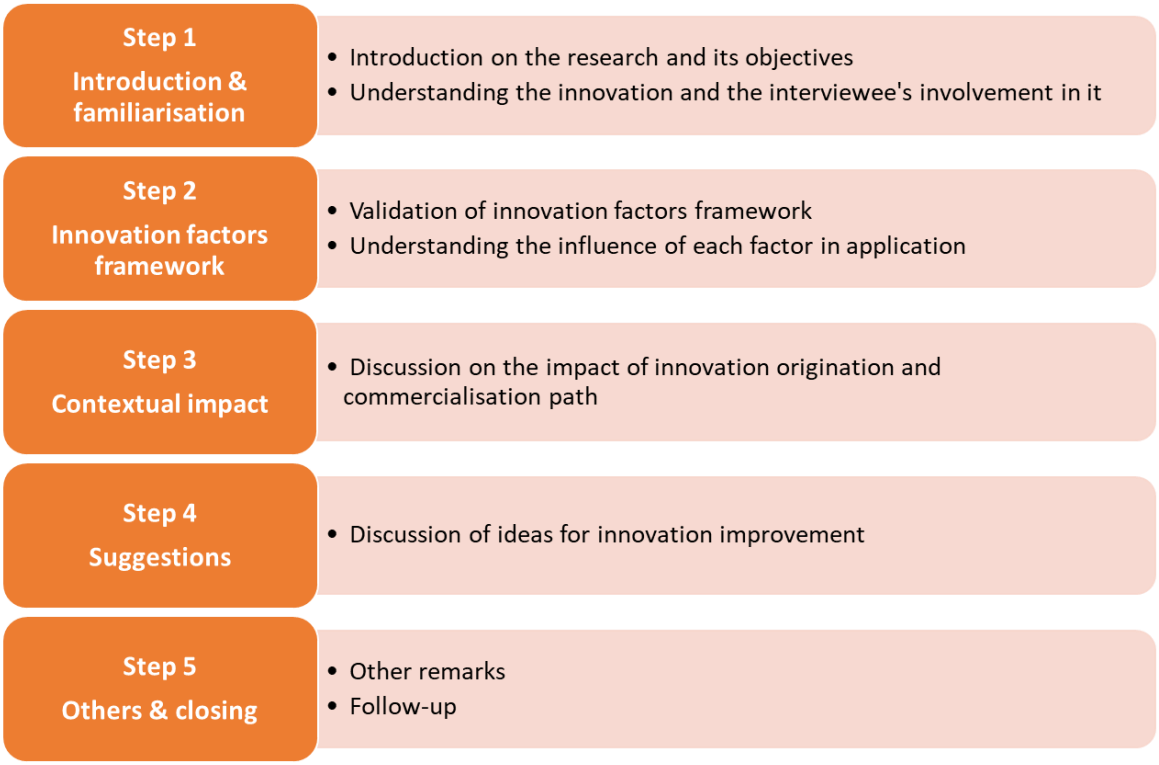

Figure 14. Case study interview structure

5.2 Contextual background

The case study is conducted at ING Group. Considered as the largest bank in the Netherlands, ING has an international presence in more than 40 countries with more than 38 million customer and 54,000 employees around the globe (ING Group, 2019). Innovation has been at the forefront of ING priorities since 2014, with the launch of the Think Forward strategy. The Think Forward strategy aims to revolutionise customer experience in this digitalisation era. In that same year, an innovation office is established at ING to set innovation strategies and drive innovation effort across the bank. The existence of a separate innovation department gives a clear signal that ING is serious in developing its corporate entrepreneurship program.

The innovation office is spearheaded by a Chief Innovation Officer and manages various channels of ING innovation effort. As explained previously in Chapter 3, there exist two broad types of corporate entrepreneurship: external (ECE) and internal (ICE). ING execute its innovation strategy through both channels. Its corporate venture capital arm, ING Ventures is a manifestation of ECE. At the same time, it also develops innovation internally through its innovation incubation centres, usually called *ING Labs* which have a presence in various locations. A governance structure and procedures concerning this ICE has also been established, although there are still plenty of rooms for improvement.

5.3 Case study participants details

For the case study, innovations need to be selected carefully to ensure a decent representation of all cases. The cases are selected based on the innovation factors scheme explained in the previous chapter, by considering their contextual characteristics, as detailed in Figure 12. The innovation database tool of the firm is used as a source to obtain information on all innovation which has graduated from *ING Labs* and being transferred to their destination place, totalling to 30 innovations until April 2019. The list is further refined by eliminating innovations categorised as H1, thus leaving 12 innovations as the sample. Out of the 12 innovations approached, 9 agreed to participate in the interview and shared their experiences, as detailed below.

Table 10. Description of selected cases

No	Innovation name	Innovation description
1	Project A	Money management mobile application, empowering consumers to stay on top of their money, all in one application. Features offered including a comprehensive view of users' bank accounts; income, expenses and budget tracking; and users' behaviour insights.
2	Project B	Mobile payment applications allowing consumers to pay using their smartphone easily and securely in various vendors. The application functions in a similar way as a debit card.
3	Project C	Person-to-person (P2P) mobile payment application facilitating money transfer between different banks. Innovating money transfer process in an easy, instant, secure and social way.
4	Project D	Behavioural analytics innovation providing insights on financial markets. Improving process and increasing market trading performance.
5	Project E	Smart transaction filtering solution using the concept of Artificial Intelligence. Empower the company to better control its transaction flow.
6	Project F	Administrative processing solution for trade commodity finance domain utilising new technological advancement. Providing a better and more secure way in transmission and authentication of trade documents.
7	Project G	Analytical tools providing an overview of available funding options for the customer, equipped with personalised advice.
8	Project H	A virtual assistant solution utilising artificial intelligence to aid the customer with a variety of tasks.

9	Project I	Shared savings solution to facilitate easy money management for group activities.

Furthermore, the characteristics of selected cases in relation to two contextual antecedents – innovation origination and commercialisation path described previously are outlined below.

Table 11. Contextual characteristics of cases

No	Initiative name	Innovation origination	Commercialisation path
1	Project A	Top management	Spin-out
2	Project B	Top management	Spin-out
3	Project C	Top management	New business unit
4	Project D	Business units	Integration
5	Project E	Business units	Integration
6	Project F	Employees	Spin-out
7	Project G	Employees	Integration
8	Project H	Employees	Integration
9	Project I	Employees	Integration

In approaching these innovation cases, we simultaneously select suitable representatives which we assume will be able to provide sufficient insights. For each case, we consciously select one team member who was involved throughout most of its journey, usually the innovation leaders. In several cases where the innovation leader is unreachable or has left the organisation, we select other managerial representative or the innovation coach with direct involvement in the cases.

Table 12. Overview of case study participants

No	Initiative name	Position of the representatives
1	Project A	Operations lead
2	Project B	Product lead
3	Project C	Innovation leader
4	Project D	Innovation leader
5	Project E	Innovation leader
6	Project F	Innovation coach
7	Project G	Innovation leader
8	Project H	Innovation leader
9	Project I	Innovation leader

5.4 Overview of case study results

Nine interviews are conducted for the case study with the main interview questions revolves mainly on the validation of innovation factors framework. To organise the results better, interviewees were asked to rate each innovation factors on 1 – 7 Likert scale. Answering with scale 1 – 3 means the factor is perceived as a barrier, with scale 4 indicating neutral and scale 5 – 7, meaning as a driver.

Negative			Neutral	Positive		
Extremely	Moderately	Slightly		Slightly	Moderately	Extremely
1	2	3	4	5	6	7

Figure 15. Explanation on the Likert scale used in the interview questions

The rating is used as an indication of the general perception towards the factors existence and initiator for further discussion. The case study results are presented in Table 13.

Table 13. Overview of case study results

				# of interviewee perceiving the factor as			
Dimension	**Category**	**#**	**Results / Factors**	**Barriers**	**Neutral**	**Drivers**	**General indication**
Team-related	Competences	F1	Commercialisation competences	1	0	8	Drivers
	Resources	F2	Qualified personnel	3	2	4	Inconclusive
Organisation-related	Mindset	F3	Decision-making	3	2	4	Inconclusive
		F4	Organisational culture	4	1	4	Inconclusive
	Organisational Support	F5	Financial support	3	1	5	Drivers
		F6	Key stakeholders (sponsors and management) support & commitment	2	0	7	Drivers
	Working environment	F7	Organisational structure	5	1	3	Barriers
		F8	IT-system flexibility	6	2	1	Barriers
		F9	Internal procedures and processes	7	2	0	Barriers
	Innovation mechanism	F10	Innovation governance and processes	1	0	6	Drivers
Industry-related	Market ecosystem	F11	Target market readiness	0	2	7	Drivers
	Regulations	F12	External (government) regulations	3	5	0	Neutral

Based on the results, several general indications can be drawn where the outcome is leaning moderately to heavily in one direction. Meanwhile, other factors whose results are split will be marked as inconclusive. It is important to note for F10 and F12, the total number of answers are less than 9 as interviewees refrain from rating it due to lack of knowledge on that specific factors. The case study

results indicated that the existence of commercialisation competences (F1); financial support (F5); key stakeholders commitment (F6); innovation governance and process (F10); and target market readiness (F11) are sufficient and commonly perceived as a positive influence for corporate innovation. On the other hand, factors such as organisational structure and collaboration (F7); IT-system flexibility (F8); as well as internal procedures and processes (F9) are considered insufficient and often negatively influence innovation to perform well after the last stage-gate.

One factor – external (government) regulation (F12) is found to be neutral by most of the participants, which means it is generally perceived as neither helping nor impeding their commercialisation progress. Meanwhile, four factors do not have a clear indication due to split results across the board. A multitude of reasons contributing to such perception of influence might exist, such as the nature of innovation being pursued, their degree of relatedness to the core organisation and others, which will be discussed in-depth in the later part. Below figure provides an overview of commonly perceived drivers, barriers and neutral factors.

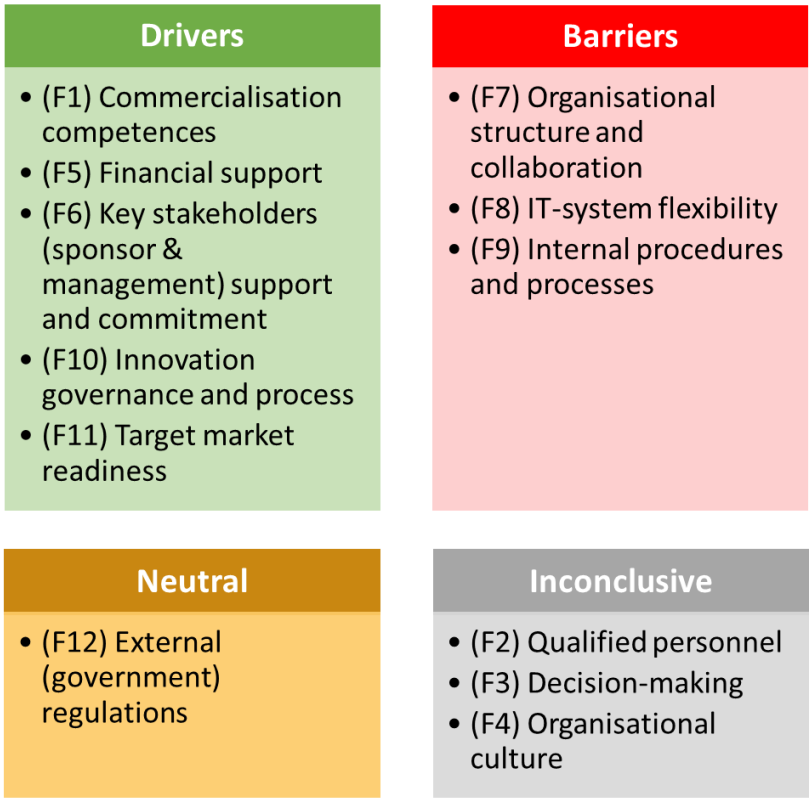

Figure 16. Overview of case study results for each classification

6

Verification

This chapter will explain in detail the two-step verification of data collection phase, the initial verification performed before the case study and the final verification afterwards. The first section is devoted to explaining the initial verification – interview with financial services practitioners. Meanwhile, the second section will explain the final verification performed at the end of the data collection phase – interview with ING internal practitioners and academic experts. Both section will provide necessary information on the interview content; the process of selecting suitable interviewee; interviewees details; and lastly any other background information.

6.1 Initial verification

As the first part of data collection, this initial verification serves two major purposes: to validate the innovation factors framework by gathering the opinion of practitioners from other financial services firms on its existence, as well as to understand how these factors are influencing innovation in the other firms. The insights gleaned will be used two-fold: as a generalisation of the phenomena within the financial services industry, and as a comparison between firms.

6.1.1 Interview structure

The type of interview used is a one-on-one semi-structured interview with predetermined questions. In ensuring the discussion is effective and efficient, an interview plan is drawn up to facilitate a better

flow and full coverage of the topics at hand. The figure below outlines the structure of the interview. In conducting the interview, a set of tools, including recording devices, stationery, as well as a list of exhibits, will be used to facilitate visualisation of the research better.

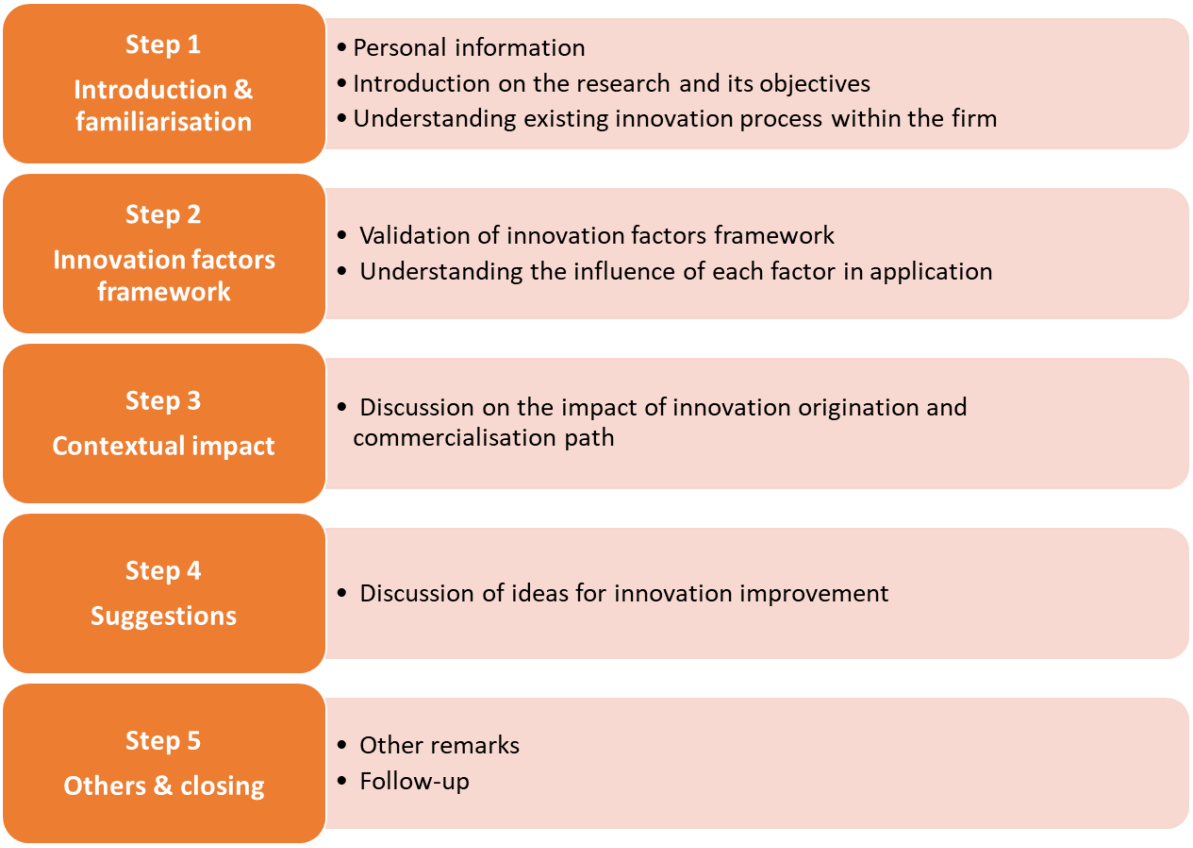

Figure 17. Initial verification interview structure

The list of exhibits are as follows:

1. Exhibit 1: standard innovation process models with stage-gate to highlight research area. Refer to Figure 7.
2. Exhibit 2: Nine interview questions in total, please refer to Appendix III.
3. Exhibit 2: interview cue card containing twelve innovation factors according to the preliminary framework. The interviewee will be asked to give a rating on each of the factors using a 1 – 7 Likert scale and then select the top 3 drivers and barriers. Refer to Appendix II.

6.1.2 Participants details

Besides content preparation, it is crucial to select the interview participants carefully. The aim is to assure the right kind of information is collected. As this part one of data collection revolves on gaining industry-wide insights from different financial services firms, a list of criteria has been established to guide the selection process.

Table 14. List of participant selection criteria for initial verification

Criteria for participants
Currently working in an established financial services firms (i.e. insurance companies or banks)
Currently holding a position as innovation manager
Possess more than two years of experience on the firms' internal corporate innovation program

Various financial services practitioners are contacted either through a professional social network (i.e. LinkedIn) or connection from ING. Once agreed to participate in this research, further details on the practicalities and outcome of the study are shared. The interview usually takes around 60 minutes. As a result, two financial services practitioners from different firms are interviewed, as planned. Details on the participants are summarised in Table 15.

Table 15. Overview of initial verification participants

No	Characteristics	Interviewee 1	Interviewee 2
1	Firm sector	Insurance	Banking
2	Current position	Innovation manager for the central innovation department (mostly dealing with H3 innovations)	Innovation manager for the specific business unit (mostly dealing with H2 innovations)
3	Years of working at the firm	> 4 years	> 6 years
4	Years of involvement within the innovation program	> 2 years	> 3 years

6.1.3 Contextual background

Comprehending the underlying organisational context which shaped the experiences the of two interviewees is critical to discern on which aspects do these firms aligned or divert. This contextual background information aims to provide a glimpse of the financial services industry, outside of the case study boundaries. In this part, we will unearth possible common threads shared by the financial services firms, as well as distinctive dispositions making each of these firms unique in their own way. Table 16 summarises the facts and figures of these two financial services firms.

Table 16. Description of firms interviewed for initial verification

No	Characteristics	Firm 1	Firm 2
1	Main business sector	Insurance	Banking

2	Market presence	More than 5 countries in Europe, America and Australia	More than 10 countries across Europe, Asia, America and Australia
3	Total employee FTEs	> 13,000	> 18,000

Similarities between the firms

In terms of the firms characteristics itself, several similarities are evident. Both firms have their headquarters in The Netherlands and mainly operates in Europe. Therefore, in terms of the external environment, they are facing a more or less similar condition. These two firms are highly likely to be subjected to identical government regulations, for instance, from the Dutch government or the European Union. Considering both firms are operating in various countries with more than 10,000 of employees, the organisation scale is also similar in this regard.

When observing deeper on the similarities between their internal corporate innovation program, several points arise. In terms of innovation governance, they are mostly similar as both are using the concept of McKinsey's three horizons model. The general implications include: Horizon 1 (H1) innovations are usually considered as an incremental innovation to existing services, thus this type of innovation is integrated into part of the "business-as-usual" routine within the business units. During the interviews, these H1 innovations are not discussed at great length as this study focuses more on radical innovation, hence Horizon 2 and 3 innovations.

In terms of Horizons 2 and 3 innovation management, both firms are once again quite similar in the sense that they manage innovation through separate innovation centre, usually called innovation labs. Furthermore, both firms separate between H2 and H3 innovation labs by placing H2 innovation labs within the business units, while H3 innovation labs are placed at the group level. In Firm 2, the H2 innovation labs are treated more or less as another standalone division within the business units. Such structure means that the innovators working inside the H2 innovation labs are fully focusing on innovation and not treating it as a side activity only.

About financial matters, both firms have separate budget earmarked for innovation. It is not clear in Firm 1 case whether this budget is shared for H2 and H3 innovations or not. Meanwhile, in Firm 2 case, this innovation budget is a decentralised one. Each innovation lab possesses its own budget, with the amount allocated depends on the decision taken by the respective business units' management. The views of the interviewees concerning the adequateness of this financial support differ, however, and will be further discussed in the next section.

Differences between the firms

Several differences can be observed when we compare the two firms' characteristics. The main difference between the two is the main services they offer. Firm 2 is one of the leading banks in the Netherlands, while Firm 1 primarily operates in the insurance market. Due to the different core business, the service innovation areas they are focusing on is also different. In defining its innovation strategy, Firm 1 aims to expand its value proposition, not only to provide insurance to cover the risk and damage but also offering means of risk prevention and daily support. In doing so, Firm 1 chooses to focus on areas relevant to its core insurance business, such as healthcare, safe living environment, and retirement service. Meanwhile, Firm 2 focuses on reinventing their customer's banking experiences with a heavy emphasis on moving towards digitalisation. One success instance is its digital payment platform which has amassed a huge following. Other innovative services including a financial management platform providing customers with a combined overview of their financial activities, which is fast in gaining traction in the market.

6.1.4 Overview of initial verification results

The practitioners indeed agree that the above framework contains factors that they have seen influencing the performance of corporate innovation. Out of the twelve factors, five are agreed by both practitioners as barriers, with one driver and the rest is inconclusive. There is a plethora of reasons why this might happen by taking context into account. Although, financial services firms do use specific standards that are applicable throughout the industry, however, each organisation is still unique in their way. These specific organisational contexts, such as knowledge and working environment, might have contributed to the difference in answer between the two interviews.

On the driver side, both of interviewee agrees that innovation teams do have the capabilities to commercialise innovation (F1), based on their experiences Firm 1 and Firm 2. They pointed out the fact that the innovators, at least the internal employee, already possess pre-existing knowledge on the product domain and to some extent, on the commercial aspect of it due to their previous positions. In that regard, commercialisation competences are usually sufficient. In contrast, five factors are agreed by the two interviewees as lacking in their respective firms, thus classifying it as barriers. Those five factors are qualified personnel (F2); decision-making (F3); IT-system flexibility (F8); internal procedures and processes (F9); as well as innovation governance and processes (F10).

In terms of qualified personnel, both practitioners are of the same opinion that it is difficult to get qualified internal employees to join innovation despite the abundance of them within the organisation. This situation can possibly be attributed to the fact that way of working in innovation is

usually more dynamic and different than usual business as usual routine, thus it will be quite a departure from comfort zones for many. Moreover, working as part of the innovation team is a full-time job, meaning the employee has to leave their usually stable position in exchange for a more precarious position which is highly dependent on the innovation performance.

Concerning decision-making factors, the current practice at both firms indicates that political and subjective opinion still plays a huge role in the strategic decision of innovation during commercialisation. The decision on commercialisation path, for instance, can be contentious if the innovation in question does not have a significant relation to core business units' objectives. Pertaining to IT-system flexibility, Interviewee 2 offers insight that the cause seems to be a misfit between financial services firms' IT procedure which has a huge emphasis on security compliance and the new technologies often used by innovation which, highly likely are not yet mature and uncharted territory for the IT department. Additionally, Interviewee 2 provides another perspective, commenting that the IT department often does not have the capacity to accommodate various innovation needs as they are already fully loaded with the daily task to keep the existing system running.

Previous explanation on the misfit between procedures and innovation needs also occurs for other internal domains (i.e. Legal/Risk/HR, etc.). These internal procedures and process within financial services firms are usually designed to be risk-averse due to the highly regulated nature of the industry itself. Therefore, such bureaucratic processes are often at odds with the agile way of working usually employed in innovation. In relation to innovation governance and processes, the two innovation managers find this factor a barrier because they both viewed the back-end phase of innovation – the commercialisation, as uncharted territory for their firms. Compared with mostly structured governance of the front-end and development phases, the commercialisation phase is still hazy. Contributed in part by the fact that only a small number of innovations are able to make it until the end of the stage-gate, thus firms are still learning by trial and error.

The rest of the factors are inconclusive as both interviewees provide differing views. We will discuss each of the factors one by one to understand what causes the differences in opinion as it might provide insights on factors which are highly dependant on the firms' contextual background. Organisational culture (F4) is deemed as barriers for Interviewee 1 due to the prevalent mindset within Firm 1, which is not yet fully opened to change. On the other hand, Firm 2 has a more open culture towards innovation. Contributed substantially by the successful experience of an innovation and as stated directly by Interviewee 2 is, "*People need to see a successful example. After we hit it big with [payment innovation – actual innovation name anonymised], then the (people's) mindset start to change*".

Financial support (F5) is also a divisive finding. It is considered as a driver for Firm 2 as Interviewee 2 cited the fact that his/her specific business unit is providing adequate funding, due to the units' management appetite for innovation and significant revenue from its business operations. Although, Interviewee 2 also points out that even within the firm, this might not be the same case for every business unit as it will depend largely on the business units' management decision and its financial condition as well. Key stakeholders support and commitment (F6), organisational structure and collaboration (F7), target market readiness (F11) and external regulations (F12) are also viewed differently by both firms

6.2 Final verification

The last part of data collection as well as step two of verification is concerned mainly with obtaining opinions on the case study results. In addition, this verification aims to also discuss possible solutions which might be applicable to mitigate the commonly identified barriers. The verification is performed by interviewing ING internal practitioners – innovation managers well as academic experts. Although, compared to a more structured way of the initial verification and case study part, this final verification is more flexible and similar to a discussion. Several prompts to initiate discussion are constructed: the overview of case study results as outlined in Table 13 and summary of proposed solutions which will be discussed in the last chapter The opinion gathered during the final verification interview will be included in the discussion of results in Chapter 7.

6.2.1 Participants details

The interviewee selected for this round of data collection is chosen both from internal ING and external environment, in order to provide a balance of opinion and general views on innovation factors as well. Table 17 below is the list of participants approached for the final verification. It is important to be noted that discussion with Prof. Burgelman is conducted via email due to distance. Detailed questions for final verification can be seen in Appendix IV.

Table 17. Overview of final verification participants

No	Interviewee name	Position	Institution
1	Interviewee 3	Innovation program manager	ING
2	Interviewee 4	Innovation fund manager	ING
3	Interviewee 5 – Prof. Jan van den Ende	Professor of Management of Technology and Innovation	Rotterdam School of Management, Erasmus University
4	Interviewee 6 – Prof. Robert A. Burgelman	Edmund W. Littlefield Professor of Management	Stanford Graduate School of Business

Both internal ING practitioners are selected due to their breadth of experience in dealing with innovation within ING and because they were involved or at least have interacted with the 9 innovations interviewed during the case study part. Meanwhile, both academic experts are selected due to their similar research area and research experiences within the domain of innovation management.

7

Discussions

After the results from data collection has been gathered, a thorough discussion to analyse the information collected is important. The first section will explain every innovation factor being identified in the framework. In the second section, cross-case analysis will be performed to look at the impact of two contextual antecedents on the perception of innovation factors. Once the analysis has been completed, a series of propositions will be drawn. The fourth section in this chapter aims to consolidate the suggestions gathered during the interviews into a comprehensive detail. Meanwhile, conclusions will be reached, and reflection on the current study is explained.

7.1 Analysis of innovation factors framework

The underlying reasons contributing to a particular factor becomes identified as drivers will be analysed in this section, by taking into consideration as well the context of this research: internal corporate entrepreneurship ecosystem within the financial industry. Verification of the case study result with both initial and final verification as well as existing literature will also be conducted, which might produce insightful knowledge on innovation across the spectrum.

7.1 1 Commercialisation competences

The majority of case study participants consider this factor as drivers because they view their team as having the required commercialisation competences to scale the project. Although, it is important to note that one participant, from Project E, rate it as a barrier for his/her specific case because the innovation originates from a technical business unit and the team is composed by mostly technically oriented members. Therefore, the technical part is becoming their strongest front at the expense of the commercialisation aspects.

The underlying reason why commercialisation competences are overwhelmingly seen as drivers can be attributed to the fact that this study focuses on corporate innovation. Thus, all innovation is part of an internal corporate program within a bank. Hence, the team composition is a mix of internal bank employees, often in a leading position within the project, and external freelancer. With such a team composition, their commercialisation competences are highly likely to have been well-formed and in use even before the innovation started.

Compared with the results from initial verification, this factor is also categorised as drivers. Considering all three firms are service-oriented companies, which, in contrast with a product-oriented company, typically do not drive a hard-line separating production and business functions. In service-oriented companies, these functions are intermingled and often managed by the same business unit. Product managers, for instance, will have an encompassing knowledge on the features as well as the business ecosystem (i.e. relevant partners, pricing strategy, etc.) of their service offerings. During the final verification, Interviewee 3 agrees that this factor can be constituted as drivers.

Meanwhile, Prof. van den Ende is of the opinion that commercialisation competencies are indeed an important factor although whether it can be perceived as drivers or not will depend on various contextual factors which are highly likely to differ between industry. Looking at existing literature, especially those used as a foundation of the innovation factors framework, this result shows a stark difference. Sandberg & Aarikka-Stenroos (2014) cite commercialisation competences as one of the barriers, backed by the findings from Birkinshaw, Bessant, & Delbridge (2007). Although arguably, contexts such as firms, market and industry environment play an important role here, as previously mentioned by Prof. van den Ende. Previous research from Sandberg & Aarikka-Stenroos (2014) is a systematic review of innovation barriers in general. While Birkinshaw et al. (2007) findings, although based on an empirical study, mostly interviewed representatives from product-oriented companies, such as BMW, IBM and Procter & Gamble. As previously mentioned, how product-oriented and service-oriented firms are organised is inherently different. Thus, while it might have been categorised a barrier for product-oriented firms, it is seen as drivers instead for service-oriented firms, especially within the financial services industry.

7.1.2 Qualified personnel

In ensuring the team is staffed with talents, the view is split across the board. Three case study participants consider it a barrier, two think it is neutral, while four say it is a driver. The reasons behind might have been related to the type of innovation being developed, the skills needed and the leadership inside the innovation team itself. Having a cross-functional team member is also a crucial factor for success (Fortuin & Omta, 2009). Reinforcing this belief is project E, who realised a little too late of the need to diversify their team composition and include more commercial-minded members as the initial team consists of more technology-oriented people.

On the other hand, Project F does not find any difficulty in getting the qualified personnel, mainly due to the innovation leader ability as a seasoned project manager that he knows the right people and recruit them into his team. Project B also shares the same view, they do not face any difficulty in staffing their start-up with qualified personnel because of the flexible nature, and the novel idea of innovation attracts a different kind of talents. The rising popularity of the start-up scene also draws young professionals and qualified graduates to their company. Likewise, Interviewee 4 also shares the same opinion that qualified personnel is a driver for innovation within ING.

The initial verification interviews offer different insights into this situation. Interviewee 1 and 2 stated the difficulty in recruiting internal employees to join innovation due to a different way of working as well as the unstable nature of the job. In a nutshell, joining innovation requires a different mindset and conviction as it is quite a departure from normal business as usual routines. Likewise, literature is often divisive in classifying this factor as drivers or barriers, which is reflected as well in the result of this study. As noted above, various aspects which are often specific for the innovation themselves might contribute to this phenomenon, causing it harder to draw a definite conclusion on whether it is drivers or barriers for financial services innovation.

7.1.3 Decision-making

The case study results indicate that three participants consider it barrier, with two participants think it as neutral and four participants consider it a driver. The divisive results can be boiled down to a major theme running across these innovation projects, which relates to its stakeholders. Project B and F, for instance, are being commercialised as a separate entity with a multitude of stakeholders, or more specifically, shareholders. The presence of many shareholders often complicates the decision-making process as politics is rife due to their interests. The representative from project F, which is being scaled as a consortium with other banks, emphasises that "*It is important to be aware of the costs in inviting other parties to join the project*". The consortium, on the one hand, might boost the

financial resources of the project. However, it also cripples and slows down the decision-making process.

Meanwhile, another innovation such as project C does not face a significant challenge in terms of the decision-making process. Going through the route of being commercialised as a new business unit under the core organisation and enjoying support from top management, the decision-making process for them can be described as transparent. Concerning the reliability of the decision itself, both project A and H, which are operating in yet to mature market, express the scarcity of reliable data to aid in the decision-making process. As such, although there is a preference to take decision based on facts instead of subjective opinion, it is challenging for them. Therefore, the decisions made are usually more conventional and risk-averse.

Initial verification interviewees consider it as barriers because they view that the current process of decision-making within their respective firms is unstructured, often not fact-based and mired by political undercurrents. Literature often cites conventional and risk-averse decision-making as one of the innovation barriers (Das et al., 2018; Sandberg & Aarikka-Stenroos, 2014). However, the results from this study indicate that it is not a definite barrier and there are underlying reasons why firms might do so, as illustrated by project A and H on the difficulty to provide reliable data in making an informed decision. Another innovation, however, in which there is a strong backing from key stakeholders and operate it in a more mature market is highly likely to have an easier time convincing the decision-maker of their potentials, thus resulting in a more informed decision being taken.

7.1.4 Organisational culture

The result on organisational culture is highly divisive, considering four participants view it as a driver and the same number also see it as a barrier, only one participant regard it as neutral. Such contrasting views also happened with the financial services practitioners interviews. It is interesting to see through the case study, that even within the firm itself, whether organisational culture is deemed as supportive towards innovation or not differs from people to people, and from business unit to the business unit. The views toward this culture seem to be based on individual perception, whether this innovation has a prospect to become successful or not.

In the case of project F, it enjoys a high level of commitment from its stakeholders and from early on can attract external banks to invest in them. Thus, the people mindset is quite receptive for this specific innovation project. For others, however, it might be different. Project I, being integrated into a business unit whose priority is mainly to cut costs, rate this factor as a barrier. Because it becomes apparent to them that innovation is not welcome for this part of the organisations, there is simply no

appetite for entertaining any innovation because they dedicate themselves thoroughly on the current business and needs.

The study by Das et al. (2018) also mentions the phenomena of "not-invented-here" syndrome in established firms. This view is being reinforced by one of the case study participants, project C, as its huge innovation expenditure with little gains so far create a cynical mindset towards innovation. Project A shares a similar experience that this notion of short-term profits is quite prevalent in the organisation. The project representative shares that, "*The traditional banking thinking on return on investment is a trap that comes back pretty quickly. We can sense the growing question from our colleagues, 'so how much profit can they bring?' Almost immediately*".

In contrast, when innovation is proved to be successful in the market, it might go a long way towards changing the organisation culture. As evidenced by the opinion of Interviewee 2 who shares the huge success of one innovation from the firm is a significant boost for innovation, changing people's mindset to be more receptive of innovation. In the final verification, Interviewee 4 noted that the organisational culture within the firm can now be categorised as a driver.

7.1.5 Financial support

A small majority – five participants consider financial support as a driver, while three participants view this as barriers and one sees it as a neutral factor, in the sense that there is financial support, although not as significant as expected. The results can be attributed to the fact that innovation which views it as a driver also indicate support and commitment from key stakeholder as drivers. Most of these innovations have since gone live, with 4 out of 6 (projects A, B, C, and F) either being scaled as a separate entity or in a new business unit. Those who see it as barriers (projects E, H, and I), mostly consider support and commitment from key stakeholders negatively.

The minority who rate it as barriers are all being integrated into business units, hence highly dependent on support and commitment from relevant business units. Therefore, the perspective varies according to the commercialisation path taken, which will be further explored. As also emphasised by one of the participants (project H) that are integrated into a business unit which possess limited financial resources and not yet making a considerable profit, it is even harder for them to obtain sufficient support in this regard.

By diving deep into the firm-level itself, it can be seen that several factors are at play here. How much money is willing to be shed for specific innovation projects depends on: how strong is the commitment to bring this idea to launch, as well as on each business unit conditions and priorities, in the case of integration into a specific unit. The commitment itself usually stems from the stakeholders' (sponsors and management) view on the idea itself, especially on how much revenue it might generate

in the future and the level of the contribution this project might give for their respective units' performance, the ubiquitous KPIs. Insight from Interviewee 2 illustrates well how varied the conditions across the business unit as well, even though under the same company. At Firm 2, the decentralised structure of H2 innovation labs is creating a variance in the amount of innovation budget. Financial support for the innovation lab where Interviewee 2 works is adequate due to two major elements: the unit is a significant revenue generator and the high level of commitment displayed by the unit's senior management. The same condition might not apply for the other innovation labs across Firm 2.

Such results can be considered as a reflection on the literature as well, where financial support is a double-edged sword. It can be seen either as drivers (Cooper & Kleinschmidt, 1996; Fortuin & Omta, 2009) or as barriers (Sandberg & Aarikka-Stenroos, 2014), highly dependent on the organisational context where the innovation is taking place. Factors such as the firms' financial condition at that specific point in time or its strategic direction over the next couple of years play significant roles in determining the level of financial support.

7.1.6 Key stakeholders (sponsors & management) support and commitment

Seven case study participants view this factor as a driver, while two participants consider it a barrier. Innovations that view it as drivers are those whose ideas are closely related to a specific business unit or being endorsed by the banks' top management. Those that view it as barriers, in this study, are innovations whose commercialisation path is being integrated into existing business units (project E and I). They failed to get strong commitment due to a myriad of reasons, often because of the stakeholders' view on the strategic importance of the innovation to the respective business units.

Innovations which enjoyed a high level of commitment from key stakeholders are mostly those that are being spin-out or being turned into a new business unit (4 out of 7). For the spun-out initiatives, opening their doors for external stakeholders beside ING allows them to gain more commitment as these external stakeholders would naturally only invest if they consider the innovation worthy. Project B, now a venture on its own with their respective stakeholders, does not face a severe challenge in terms of commitment. Likewise, project F, initiated by ING but later being spun-out as a consortium with other banks, enjoys a high level of commitment that translates to sufficient financial support. Although, having various stakeholders also has its downside, turning specific factor into a barrier, to be discussed later.

In contrast, Project E and I are stopped because their ideas are not a significant revenue generator and different priorities the business unit has at the moment. Especially in the case of the project I, cost-cutting is now the main focus of the unit where it belongs. Thus, innovation like the project I do not have a place to grow there with both the human and financial resources being

dedicated elsewhere. Looking deeper, the decision to focus on cost-cutting can also be attributed to the hostile market environment at the moment. Low-interest rates squeeze the profit of this business unit, specifically. Hence, the usual management reaction is to tighten the belt. It can be concluded that the external environment possibly also plays a role in this factor, albeit indirectly.

From an academic point of view, Prof. van den Ende emphasises the criticality of this factor to innovation success, deemed it as the most important factor in the framework. Cooper & Kleinschmidt (1996) argue that this factor is an innovation driver; the result of this study also indicates the same conclusion. The answers from financial services practitioners, however, are split. Again, it is often not black and white, because a myriad of underlying aspects is usually present: the nature of the ideas; value proposition; and the degree of relatedness with the key stakeholder's strategic goals are significant in indicating on how strong the commitment will be.

7.1.7 Organisational structure for collaboration

A small majority of case study participants (five participants) rated this as barriers, while three participants view this as drivers, and one considers it neutral. The underlying reason why this factor is mostly seen as barriers can be traced back to the typical characteristics of established firms themselves. With thousands of employees, these firms are a giant, and such enormous size often posed a problem due to the complexity of how this type of organisations is structured and traditionally run.

Intra-and inter-organisational collaboration is challenging due to the departmentalised structure. Half of the projects which ended up being integrated into the core organisation face this obstacle often when a cross-business units collaboration is needed. Highly likely that this barrier can be attributed to the silo-thinking, which is still rife in a large organisation. The whole organisation might not fully adopt the open-minded mindset to change and innovation. In the words of the innovation leaders of project H, as spoken to him by one of his colleagues, "*Innovation is always beautiful, but first, we need to ensure our bank is running.*"

For innovation, which is spun-out, being viewed as a separate entity, exacerbate their challenge. Collaboration inside the separated entity themselves is a breeze due to the small size and more flexible approach. However, it turns into a headache when they need to collaborate with the core organisation. Project B, now considered as a separate entity, further adds that the sprawling and multi-national nature of the firm creates further complexity because the approach to achieve the same goal might be different from countries to countries, and the people often do not talk to their counterpart in the other country within the bank. It is time-consuming and hard to get an overview

and to connect with all the right people for collaboration, possibly slowing down their growth trajectory.

Literature such as Das et al. (2018) and Sandberg & Aarikka-Stenroos (2014) often cite this factor as a common barrier experienced by innovation. This study reinforces the current view that innovation in a large established firm often hit a wall in terms due to the complicated organisational structure, hierarchical management of authority and lack of coordination. Furthermore, Prof. Burgelman also shares the same view that this factor is a critical barrier to corporate innovation.

7.1.8 IT-system flexibility

The case study results show six participants view this factor as barriers, with only one who regards this as drivers, while two participants neutral. Mostly seen as barriers due to the inflexibility of the existing corporate IT-system to cater to emerging technology. The current IT capability of most established firms is not up-to-par and outdated, while innovation such as project E often needs sophisticated IT-system and infrastructure to enable their performance. The prevalent mindset in established firms is to protect their IT-castle (Das et al., 2018) and this is proven to be correct with the reluctance to shift to a different concept of IT accessibility, such as the usage of cloud computing.

The bank also has a high standard or regulation on what is acceptable for integration into the existing IT architecture. Such bank standards are vital to mitigate the bank's risk, but they are often at odds with innovation needs. Innovation leader of project D said, "*What it is acceptable for Innovation Fund (ING innovation committee overseeing the bank's innovation portfolio) during the stage-gate and for ING after the stage-gate is different, getting your project to 'production-acceptable' grade is tough.*"

As shared by both interviewee from the initial verification round, there is a misfit between highly security compliant IT procedure and the explorative nature of new technologies where security might not yet be established and proven to the degree that financial services firms usually required. Besides, in financial services firms that are heavily reliant on digital platform nowadays, the IT department day-to-day task is already fully loaded to keep the system running, maintain the infrastructure and its premises as well as incremental enhancement. It is no wonder that they do not have a lot of breathing room left to cater to other things, such as innovations, outside of their business as usual routine. During the final verification, Prof. Burgelman also shares the same view that this factor is a critical barrier to corporate innovation.

7.1.9 Internal processes and procedures

An overwhelming majority – six participants consider it as a barrier with one participant views it as neutral, and none think of it as a driver. The shared insight shared by the case study participants the internal process and procedures is designed to back then to cater to the bank's needs. With the agile way of working of innovation, extensive procedures and inflexible processes do not match anymore. Fortuin and Omta (2009) also provide the same view that excessive administration is one of the highest burdens that impede innovation success. The lengthy process of risk management, abundant of IT-related requirements to be fulfilled, and legal-related processes hamper innovation progress towards market launching due to the need to comply with these internal procedures. It is often energy and time-consuming exercises. As the academic expert, Prof. Burgelman also agree that this factor is often becoming a barrier for corporate innovation

To quote one of the participants, innovation lead of project E, "*Doing innovation in the labs (ING innovation centre) is essentially working in a bubble that pops when you go one step further outside (describing other parts of ING outside the innovation environment)".* Primarily due to the fact that ecosystem created within the innovation centre is facilitating the innovation and stimulate them to experiment and iterate quickly based on the concept of lean start-up and design thinking, however, once they graduate from the innovation labs and being placed in the business units, these internal processes and procedures started to appear.

Innovation lead of project D illustrates this hassle, taking an example of risk management assessment forms he had to fulfil once the project graduates from ING innovation labs. At that time, there is no clear overview of the steps he must take to complete this exercise, thus resulting in a back-and-forth with the risk management department on paperwork matters. According to him, this process costs him significant time delays and halts their momentum towards launching.

Interestingly, those who view it as neutral are the one being spun-out, such as project B. The representative of project B being interviewed for this study expresses his views that one of the benefits of becoming a separate entity is they have greater freedom to manage their internal process, and they have a tendency to be more flexible in this regard as start-ups, a stark contrast to the core organisations rigid procedures.

7.1.10 Innovation governance and processes

The case study result shows innovation governance and processes are being seen as a driver with an overwhelming majority (six participants), while one participant see this as a barrier. The underlying reason being stated by most of the participants are the firms' innovation governance, and processes are quite sufficient and structured for them to navigate the innovation journey, especially with the

application of stage-gate which covers exploration until the end of development. Although, there is room for improvement in terms of the transition process itself after it is decided that the innovation is to be handed over for commercialisation.

Often the innovation experiences a shock, mostly due to the difference in the working environment. Especially for projects integrated into the core organisation, they have to adjust from usually working in an accommodating and fast-paced environment within ING innovation centres to the highly regulated business units. These relate quite significantly with the three factors under working environment category, which will be discussed at length on its own. Project C and E emphasises that the transition process could have been handled better. Possible issues ranging from commitment to launch the innovation; pending actions; down to internal procedures to be dealt with during the commercialisation should have been addressed.

The process, the measurements, the requirements and best practices on how innovation can build up their momentum towards market launch are still unclear. There is also no industry-wide standardised approach to tackle this part of the innovation journey at the moment. This reasoning is also brought up by both Interviewee 1 and 2 during the initial verification. Compounded by the fact that not many projects will proceed until this last phase due to elimination in the earlier phase. As a result, firms do not have much opportunity to experience with this phase and learn from past mistakes. Literature also does not offer much in this regard yet.

7.1.11 Target market readiness

The majority of case study participants (seven participants) rate target market readiness as a driver. No participants view this as a barrier. Instead, two participants consider it neutral. The participants regard their target market mostly as ready, and although most of the ideas are disruptive, it revolves around financial services in which the actors and ecosystem have already been in place. Project F rated this factor as extremely positive for their case. Looking at the innovative idea being put forward by project F, they are targeting a more mature market (Trade Finance) with a strongly validated problem statement and can offer well-rounded solutions. Although there are still lots of room left for improvement, the network of actors (i.e. banks, clients, etc.) is reacting well and supports the innovation tremendously.

One initiative in particular (project A) offered more insights into the current market state, they are targeting. By using the analogy of the airline industry, the participant explains that in the early days of flying, the focus is more on convincing people that it is safe to fly. While in the later days, airlines are focusing more on better services, cheaper fares because customers already have a good understanding of the offerings and their appetite to consume it has been steady, thus the market has

matured. Currently, in the target market, the appetite for the solution is growing, although customer understanding is still relatively low, indicating it is still the early days for this market.

This result is a striking contrast to the literature, which often cites this factor as a barrier. Sandberg & Aarikka-Stenroos (2014) argue that the radically different experiences and unclear benefits might deter potential customer because of the difficulty in appraising the innovative offerings. This might echo the insights being given by project A. However, the consensus for corporate innovation shows that market readiness is being seen as drivers, which might be because firms often attempt to innovate closer to their customer base. Sometimes, while the idea itself is new, the target market is not entirely foreign, as in the case of project F. Thus, these firms can utilise their solid foundation of partners and demand to drive their innovation commercialisation.

7.1.12 Government regulations

Five case study participants view government regulations neutrally, in the sense that this factor has neither a positive nor negative impact on their performance. The rest, three participants view this as barriers. For project A, government regulations concerning their market at the moment do exist, although not yet sufficient since it usually takes longer for the government to adapt their regulations with the fast pace of technology development. He describes the current regulation as "*trying to build a city in the desert, without proper infrastructure*".

Others, such as project G, an innovation dealing with customer lending market, feel that government regulations are quite restrictive and limiting their ability to provide customers access to different funding options available. Likewise, project E is an innovation project exploring the use of customer data with advanced analytics. However, the recent highlight on customer data protection such as the issuance of General Data Protection Regulation (GDPR) by the European Union might limit such foray.

Besides the evident impact of government regulations, there is also an indirect impact which can be felt, such as conflict of interest. Project B, for instance, is a fintech venture with ING as its principal shareholders. As an innovative digital payment platform, it is also being impacted by the European Union's Payment Service Directive 2 (PSD2). The conflict of interest arose when ING, lobbied the government for the application of PSD2, to limit the playing ground for fintech like project B. It is interesting to see this phenomenon, which is a dilemma for the core organisations themselves. As on the one hand, they would like to do radical and disruptive innovation, but fear of cannibalising their own core business is still very much present.

The result collected by this study concludes that this factor is considered neutral, although literature such as Fortuin & Omta (2009) and Sandberg & Aarikka-Stenroos (2014) find it a barrier. The difference is highly likely because each innovation is targeting different markets. Thus the presence of government regulations is varied across the spectrum. Although, standard regulations concerning organisation such as GDPR can be considered as an impediment to innovation progress, as stated by project E's innovation leader.

7.2 Adapted innovation framework

According to the case study result at ING and the verifications, which has been discussed in detail, an adapted framework can be derived. In this modified version, the factors identified as common barriers and drivers for corporate innovation in the financial services industry are indicated as such. While other factors in which conclusions cannot be reached or deemed as neutrals are not included in the framework. The adapted framework presents an indication of innovation commercialisation situation within the financial services industry, which can be explored more in-depth in future studies.

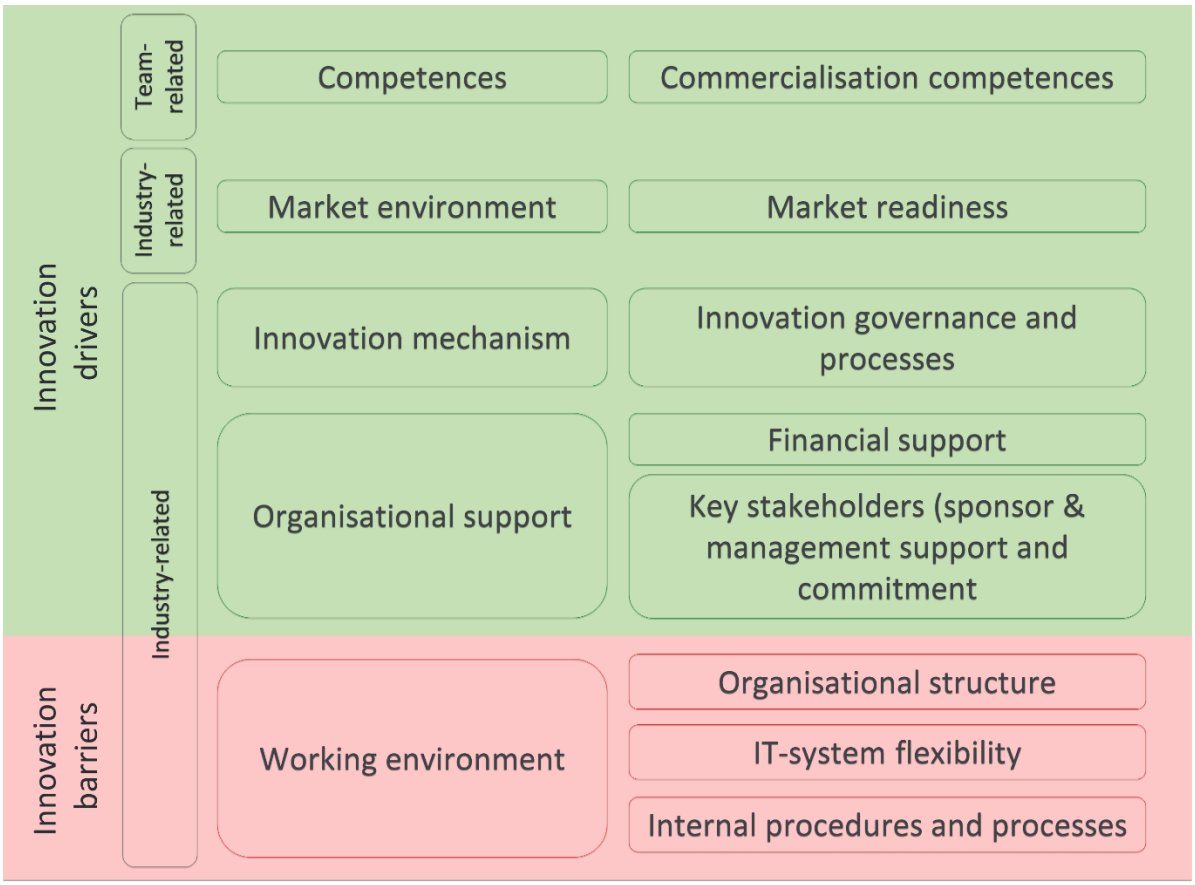

Figure 18. The adapted framework of innovation factors for the financial services industry

7.3 Further analysis

In selecting participants for the case study, a carefully selected list of projects is drawn. Upon conducting the interviews and based on the innovation outcome of this innovation at the moment, an analysis can be derived by taking into account contextual antecedents: innovation origination and commercialisation path.

Table 18. The current outcome of case study participants

Subset	No	Initiative name	Innovation origination	Commercialisation path	Current status
1	1	Project A	Top management	Spin-out	Live
	2	Project B	Top management	Spin-out	Live
	3	Project C	Top management	New business unit	Live
2	4	Project D	Business units	Integration	Live
	5	Project E	Business units	Integration	Stopped
3	6	Project F	Employees	Spin-out	Live
	7	Project G	Employees	Integration	Live
	8	Project H	Employees	Integration	Stopped
	9	Project I	Employees	Integration	Stopped

7.3.1 Impact of contextual antecedents

By looking at the innovation within the first subset, it can be argued that innovation origination plays quite a significant role in ensuring innovation gets launched to the targeted market. As stated by project A, the endorsement they obtained from the highest management body in the organisation to help them tremendously since such approval translates to sufficient financial support and commitment to see the innovation go through until launch. The risk of being killed during the stage-gate for such project is minimal.

In comparison, the second set of projects that originates from business units initiative has a mixed bag of results. In the case of these two innovations, project D has an easier time to go live with the commitment from relevant business units as the innovation helps to radically improve the employee work efficiency and the units' revenue performance. Meanwhile, project E, although being initiated by a business unit do not guarantee it will fare well like project D. The project leader herself admitted that one of the biggest reasons for its failure is because the idea is not a money maker. Thus, it is hard to commercialise and above all, convince the sponsors to support this innovation until fruition.

The third set of projects contains bottom-up innovation, which originates from the employee, often through an innovation workshop called ING Innovation Bootcamp. The innovation outcome in this set is also a mixed result. Based on the insights provided by the teams, it is clear that, again, stakeholders commitment and even financial support plays a significant role in contributing to project success. Thus, it can be concluded that innovation origination does affect the relationship strength of certain innovation factors, notably key stakeholders commitment and financial support. Based on the case study conducted, it is safe to say that unless innovation is being endorsed by the top management, the chance of success and failure is pretty much 50-50.

If we are looking at a different viewpoint, the commercialisation path. It can be seen that all of the innovation projects which are being spun-out or created as a new business unit, can be considered a success as they are all now operating in the targeted market. As shared by project A's representative, he felt that the big overarching problem is the governance structure and bureaucratic processes within the bank and if project A is being integrated into ING instead, they would have to invest an enormous amount of money, time and energy to ensure they get all the requirements in order. This view is also shared by the majority of projects being interviewed, as explained earlier. The innovation leader pf project H, in hindsight, think his project might have an easier time and higher likelihood to achieve success if only they are spun-out instead of integrated into the existing business unit. He argues that by being spun-out as a separate entity, they will enjoy more freedom, especially in IT-related matters, which is currently their biggest obstacle.

Although project B is satisfied with the commercialisation path they have taken, being spun-out also present its downside sometimes. In terms of competencies, he illustrates that if project B is being integrated into the core organisation, it will be easier to connect with capable personnel on legal matters, for example. While, with their current condition as a separate entity, if they need any questions concerning legal issues, they need to hire a consultant who will cost them as well.

In conclusion, the commercialisation path taken does affect the relationship strength of certain factors, notable factors under the category of the working environment. This is due to the fact that by being spun-out, they will be able to enjoy a higher level of freedom compared with innovation that is being integrated into the core organisation.

7.3.2 Cross-case analysis of innovation factors

To further analysis how context plays a role in influencing the perception of innovation factors, the innovation subset previously determined in Table 18 will be used to generate the results indication

per subset and compared between the subsets as well as with the overall results shared previously. Table 19 below outlines the comparison between different subsets' results

Table 19. Comparison of case study results per subset

Dimension	Category	#	Results / Factors	1st subset indication	2nd subset indication	3rd subset indication	Overall indication
Team-related	Competences	F1	Commercialisation competences	Drivers	Inconclusive	Drivers	Drivers
	Resources	F2	Qualified personnel	Barriers	Inconclusive	Inconclusive	Inconclusive
Organisation-related	Mindset	F3	Decision-making	Inconclusive	Inconclusive	Inconclusive	Inconclusive
		F4	Organisational culture	Barriers	Inconclusive	Drivers	Inconclusive
	Organisational Support	F5	Financial support	Drivers	Inconclusive	Inconclusive	Drivers
		F6	Key stakeholders (sponsors and management) support & commitment	Drivers	Inconclusive	Drivers	Drivers
	Working environment	F7	Organisational structure	Barriers	Barriers	Inconclusive	Barriers
		F8	IT-system flexibility	Inconclusive	Barriers	Barriers	Barriers
		F9	Internal procedures and processes	Barriers	Inconclusive	Barriers	Barriers
	Innovation mechanism	F10	Innovation governance and processes	Drivers	Inconclusive	Drivers	Drivers
Industry-related	Market ecosystem	F11	Target market readiness	Drivers	Inconclusive	Drivers	Drivers
	ois	F12	External (government) regulations	Neutral	Inconclusive	Inconclusive	Neutral

Out of the 12 factors, only decision-making (F3) which are similar across the three subsets, although the indication given is inconclusive. It can be argued that the inconclusive indication is due to the fact that decision-making the industry and type of innovation being pursued are more influential for the decision-making process being taken.

On the other hand, the striking difference between subsets' results can be observed in organisational culture (F4) in which for the 1st subset, the indication is leaning towards driver while the 3rd subset is leaning towards the barrier. The difference is noticeable because logically if we see from the innovation outcome of the first subset where all of them managed to get launched, the organisational culture should be positive. However, the context of commercialisation path might explain this remarkable result.

For commercialisation, two innovations are spun-out and one is a new business unit, thus it is highly likely the culture within core organisation is no longer receptive towards these innovations, possibly considering them as "not one of our own". In contrast, the 3rd subset indicates organisational structure as drivers and three out of four innovation there are being integrated into the core organisation. Meanwhile, no other factors are displaying noticeable differences

7.4 Solutions to overcome barriers

Based on the results, several recommendations can be derived from specific areas which are identified as barriers. These suggestions, including those suggested by the participants, need to at least overcome the three critical barriers: organisational structure and collaboration; IT-system flexibility; and internal procedures and processes. The suggestions aim to be applicable to the financial services industry in general.

Table 20. Overview of proposed solutions

#	Factors	Challenge	Proposed solutions
S1	F8 - IT-system flexibility; F9 - Internal procedures and processes;	Abundant internal procedures to be completed	Prepare for commercialisation early: 1. Determine early on the possible commercialisation path (integration to core organisation or spin-out) 2. An early transition period, especially for innovation which is going to be integrated internally
S2		Rigid internal procedures and security measures (i.e. IT / Risk / Legal / HR)	Strategic level overhaul of internal procedures. Discussion with top management. The objective is to reassess part of the procedures which can be made flexible to accommodate innovation
S3	F7 - Org. Structure and collaboration;	Difficult collaboration with other business units after the transition	Embed innovation into each unit performance matrix. To facilitate a more seamless collaboration between business units and innovation.
S4	F7 - Org. Structure and collaboration; F4 - Org. culture	Innovation mindset is not yet deeply embedded into every part of the organisation	Increase innovation accessibility to the wider organisation: 1. Creating test and feedback tools for internal organisation 2. Encourage employees from all levels and units to be involved in the initiative development

S5	F10 – Innovation governance and procedures	Harsh transition from controlled environment within the innovation centre to core organisation or outside.	A dedicated acceleration function to manage the transition process. The main objective is to help innovation adjusting to navigating their destination place, either within or outside the organisation, and build the business. The responsibilities might include: • Be a bridge between the innovation and core business units • Provide support for innovation in dealing with internal procedures • Facilitate business coaching that focuses more on specific problem solving • Progress tracking and reporting

The first solution– S1 proposes the idea to prepare for commercialisation early in the innovation process to reduce the risk which might be faced during commercialisation (Luoma et al., 2008). Delving further into the solution to prepare commercialisation early, the assessment framework proposed by Burgelman (1984) can be applied in this situation. The proposed framework stresses the importance of assessing strategic importance and operational relatedness of innovation to thus come up with possible design alternatives. After discussion with Prof. Burgelman on this concept, he reiterates that the framework should be continuously used throughout the innovation process, being re-assess especially during key milestones of the innovation, possibly can be included as one of the exercises during the stage-gate meeting. Further elaboration on the assessment framework can be seen in Appendix V.

In this way, since early on the innovation pathway has been determined – whether the innovation will be eventually transferred outside or inside the organisation. This will allow relevant stakeholders during commercialisation to be involved early on, thus increasing their commitment to seeing the innovation going through launch. Another implication concerns the operational linkages which need to be established. Innovation which will be spun-out as a separate entity might have a different set of rules with less internal procedures that they need to comply to. In contrast, innovations destined to be integrated into an existing business unit might have to comply with all internal procedures applicable to them.

As indicated by the result, IT-system flexibility seems to be a recurring challenge for innovation. Therefore, an overhaul of the organisations' IT-system capability is needed and its flexibility also needs to be further assessed based on prediction for future conditions. Often, the organisation only thinks in terms of "now" regarding their IT sufficiency. However, with the advance of technology and the increasing need for firms to innovate by adopting this technology, a more sophisticated system is needed. The use of public cloud especially has been debated at length, as it often comes into conflict with the organisation risk management concept. In this digital era with lots of concerns over data privacy and cybersecurity, using public cloud storage is deemed as highly insecure from the perspective of conventional enterprise risk management perspective, especially for financial services firms that deal with highly sensitive data. The misfits between innovation needs and organisation control, however, is not only happening on IT-related matters. In other areas where internal procedures are quite strict, such as legal, an internal process is seen as a barrier due to their restrictive nature that provides little room for flexibility.

The second solution – S2 suggests that the core organisation should also re-assess their internal procedures and process in an attempt to make it more flexible for innovation. Internal procedures exist for a reason and should not be completely disregard even when innovating, however, there needs to be an acceptable level where procedures can be relaxed to some extent, without exposing the organisation to more vulnerability. Internal procedures are often originated from way back when at a time when maintaining the status quo is essential and not many radical innovation occured. However, with the changing time, a comprehensive look into these procedures are needed, organisation wide. Starting from areas that are heavily involved with innovation, a more relaxed approach is required, with less bureaucracy but still accurate and proper.

Eventually, the effort needs to come from both sides. The first solution is suggesting an improvement effort from the part of the innovation as well as the innovation department, while the second solution suggests an active effort from the broader core organisation. A sort of agreement in the middle needs to be reached, accommodating the innovation needs while still maintaining the firm's risk at an acceptable level and without causing disruption to the core business processes.

The third solution – S3 concerns about the fact that collaboration between units is often hampered due to strict procedures or workload problem, as helping innovation is not part of their job objective. Employees, especially those working in the core business sector, works according to performance rating. As collaborating with innovation usually does not count towards their performance, there is no incentive to go the extra mile and facilitate this innovation. Thus, embedding innovation measurement into all business units' performance indicator might help towards creating

awareness and give the push needed for better collaboration. Furthermore, coordination between all levels of the organisation is important to ensure innovation is not only the responsibility of selected units within the organisation.

Although, it is important to be noted that such a strategy needs to be carefully implemented. During the final verification interview, Prof. van den Ende notes that this seems to be a logical solution to the problem and several pieces of literature have also proposed a similar idea. However, he emphasises that the implementation within the corporate context might be different and several ramifications might arise, which will be interesting for future study. From the point of view of financial services practitioners, Interviewee 4 expresses his concern that such a method might backfire in practice. The question of what kind of measurement to be used is an interesting one. Should the organisation measure the innovation performance indicator based on effort or outcome? Both are a double-edged sword. On one hand, measuring based on effort might create a condition where employees half-heartedly innovate in order to fill a quota. However, measuring based on the outcome is also tough, as radical innovation is a long process and the outcome might not be visible fast. Furthermore, the productivity level on business as usual routine might be affected due to the heavy focused on innovation.

Kuratko et al. (2014) mention that the coordination of managerial roles is essential to avoid implementation issues. He outlines the distinct responsibilities of each level. The top management is largely responsible to recognise the effort and value of innovation arises from the employees, properly endorsing and directing them to the proper path. Middle-level managers, meanwhile, are arguably the most critical part in this chain as they are acting as the link connecting the ideas from operational-level employees with strategic objectives set out by the top management. In reverse, they also play a role in communicating the organisations' innovation strategy to operational-level employees, inspiring them to innovate and providing ample opportunity to explore their ideas.

The fourth solution – S4 is attempting to infuse innovation culture within the core organisation. Due to the large size of the established firms, it is understandably difficult to ensure every employee embodies the innovation mindset and embrace the innovation culture. Communication from the top management is important in this sense to get the message across. However, it is also important to involve the employee in the activities and getting them more invested in innovation. Encouraging internal employee as testing participants for the solution prototype might go towards creating a balanced innovation culture.

Savoia and Copeland (2011) noted that this practice is being performed at Google through the creation of internal testing and feedback environment, allowing easy access for employees to look at

the innovative solutions being developed and even test the one which sparks their interest. Furthermore, Interviewee E points out that it is crucial to *"celebrate failures as much as you celebrate success."* By doing so, employees are encouraged to innovate and building from past experiences, without having to fear the possibility of failing.

The fifth solution – S5 proposes a smoother transition process for innovation by having a dedicated team to deal with the exploitation phase. The team will support the innovation to commercialise their solutions, connecting innovation with either the external or internal parties which will be involved during commercialisation. Although an innovation project might not receive as many supports compared to the incubation process, several critical supports can still be extended during this phase. For example: business coaching which works more as a consultation session between innovation teams and the coach, brainstorming together to solve a problem. Furthermore, exploitation team will be a link between innovation team and the innovation department as support from innovation department to navigate the organisation is significant and provide more validity for innovation in facing sceptical views from existing business units.

Providing a framework for innovators on scaling options to ensure they understand what to be prepared for each of the options. A handover guide with complete information on how to proceed will also be helpful to provide an overview on the process to be kickstarted. With such an overview in mind, the innovation leaders have a better grip on the tasks ahead and are able to start planning how to approach these sets of regulations and procedures.

Admittedly, the general solutions need to be tailored further to suit the specific needs of the organisation. However, the philosophy behind these solutions can be used as guidance and pointer to continuously improve the firms' innovation management. It is important as well for innovation practitioners to avoid the trap of self-confidence by always striving to improve their innovation mechanism and never satisfied with the current performance. Innovation is rapidly developing, and corporate practitioners should not be boxed by the current routines but living the innovation mindset itself by always innovating their processes.

7.5 Propositions

Based on the results and analysis being discussed in the previous sections, several propositions can be drawn concerning corporate entrepreneurship in the financial services industry:

P1: Commercialisation competences of the team are commonly found to be sufficient in corporate innovation within the financial services industry

P2: Financial support provided often relies heavily on the level of support and commitment displayed by the key stakeholders at the firm-level

P3: Operational working environment within the organisation at large is not yet supportive enough during the commercialisation phase. Common issues include inter and intra-organisational collaboration, IT-system flexibility and strict internal regulations

P4: Innovation which originates or endorsed by the firms' top management has a higher likelihood to launch their service

P5: Spin-out innovation projects have a higher probability of launching their service as they generally enjoy greater freedom and are not heavily dependent on the internal situation of the core organisation.

These proportions are mainly drawn based on the case study results and verification with industry practitioners and academic experts. Due to the limited number of sample, these propositions merit further investigation in future studies.

7.6 Conclusions

By drawing from all the insights and lessons learned during this research, it can be concluded that although large financial services firms have embraced innovation, there are still many areas to be improved in the commercialisation phase if they want to achieve the desired results. Creating a separate innovation department to drive this innovation is a noble idea; however, relying only on it is not sufficient. Referring back to the research questions being identified at the beginning of the study; several answers can be identified during the research.

***SQ1**: What are the factors affecting corporate innovation during the commercialisation phase?*
Based on a literature study, twelve factors influencing corporate innovation in the commercialisation phase can be derived. These factors are combined into a single framework which provides an overview of their categories and dimensions. Refer to Figure 11.

***SQ2**: Which factors are commonly found as drivers and barriers during the commercialisation phase?*
Based on the case study results, five drivers and three barriers are commonly found to impact the commercialisation phase of financial services innovation. These drivers and barriers are outlined in Figure 18.

SQ3: *How can these barriers be overcome to ensure future corporate innovation have a higher likelihood to launch their service?*

Based on the suggestions collected during the interviews, the list of solutions is derived by focusing on the three critical barriers: organisational structure and collaboration; IT-system flexibility; and internal procedures and processes. The proposed suggestions can be seen in Table 20.

RQ: *How can established financial service firms enable the launch of their internally developed radical service innovation?*

Firms need to understand the type of innovation it pursues and build a mechanism which will allow them to flourish. In practice, there are many variations along the way and the innovation department should ensure its mechanism is flexible enough to accommodate them. The spin-out and integrated into business unit innovation, for instances, might differ in several aspects of innovation governance (i.e. risk or legal procedures). Therefore, the way firms perform innovation should be continuously assessed to ensure it serves the purpose effectively.

There also needs to be a constant endorsement and highlight using a combination of a top-down and bottom-up approach to ensure the whole organisation is willing to change and embrace innovation, that it is a shared responsibility and not only the burden of the innovation department. The view is in line with the suggestions that all levels of the organisation need to be involved for innovation to effectively work (Kuratko et al., 2014).

As emphasised by Prof. van den Ende as well, an endorsement from top management is critical, but they should not be the only entity that drives innovation. Considering the size of traditional financial services firms, such an effort will take years until the effect can be seen. However, it is important to ensure firms longevity. Being an ambidextrous organisation is indeed not an easy feat, but with the current external climate, is the way to go forward.

7.7 Limitations and recommendations

The study has enriched the body of knowledge on corporate entrepreneurship within the financial services industry, especially on factors influencing commercialisation. This research, however, has its limitations. It studies in details corporate innovation mechanism in one of the largest financial services firms in Europe and attempts to draw insights from other firms have been made. However, due to time constraints, the data collected from other firms are limited and not enough to provide further generalisation on the industry trend.

For future research, this study is highly advisable to be replicated across different financial services firms through longitudinal research. The aim is to increase generalisability and the ability to

draw a more accurate depiction of the state of corporate innovation within the financial services industry. The innovation framework derived from this study can also be used for a similar study in different industries, to shed light on its innovation situation. Furthermore, future researchers can also focus on validating the five propositions drawn from this study, especially on studying the strength of the relationship between the contextual antecedents and innovation outcome.

7.8 Reflections

After six months of performing this research, I have come across various personal learnings which I hope going to improve myself as a better researcher. The data collection phase is especially the most remarkable as I get to interact with various people I might not have encountered on a daily basis. From the case study itself, the opportunity to encounter colleagues from different units and learning their experiences have been impressive. From interviews, it is clear that one factor can mean a myriad of things for people in a different situation. Approaching external practitioners and expert for verification is also one of the learning points for me where I learned that it is important to be resourceful and utilise effective way to connect with like-minded people.

When analysing my results, I also become aware that an interview is a proven method to deeply explore the reasoning behind certain phenomenon. However, it is important also as a researcher that I take into account that the interviewee's personality and judgement are mixed into their answers. Thus, in this type of research, subjectivity is part and parcel of the whole package. The researchers' ability is really tested to ensure the results are as objective and general as possible.

If I have the change to do the research again, several things I would like to do differently include putting more focus on external factors as well as they are often indirectly influence internal firm decision. Furthermore, having the chance to interview several representatives from one innovation might help to enrich the insights and help to provide different perspectives. It will also help to reduce subjectivity which is unavoidable in interview

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Appendix I

Interview questions for case study

Below is the list of pre-determined questions asked during the case study interview.

Table 21. List of questions for case study interview

#	Questions	Duration
1	How long have you been involved in *[project name]* and what is your role?	2 mins
2	Do you feel any difference in support before and after the initiative handover from the Innovation Fund/Innovation Labs? Can you elaborate?	5 mins
3	Several aspects affecting innovation during scaling are identified *[Refer to question deck in the next slide]*. Based on your experience, can you state whether is it a problem for your initiative to go live or not, on a scale of 1 - 7? 1 – negative, 4 – neutral, 7 –positive Phase: first 6 months after handed over, after the support from Innovation Fund/ING Labs	20 mins
5	Can you rank these aspect according to their impact on the scaling process, from the biggest to the least impactful? *[Rank the question paper]*	5 mins
6	Your initiative originates from *[ING Group Management/BU/Innovation Bootcamp]*, does it changes how the factors affect your project?	5 mins
7	Your project is scaled by being *[integrated into existing BU/new BU/spin-off companies]*, in hindsight, do you think that was the best option? Why?	5 mins
8	Do you think being *[integrated into existing BU/new BU/spin-off companies]* changes how previous factors affect your project?	
9	If you can change the way we are doing scaling for innovation, what will you change? Why?	5 mins

Appendix II

Interview cue card on innovation factors framework

In operationalising the innovation factors for interview, the twelve factors are translated into a series of questions for easier understanding which will be given to interviewee to be filled in.

Table 22. List of questions on the innovation factors

No	Answer / Questions	Scale 1 - 7
1	Does the team possess commercialisation competences (i.e. identify relevant partners, business plan) for your initiative?	
2	Is qualified personnel sufficiently available to scale your initiative?	
3	Is there sufficient financial support to scale your initiative?	
4	Does the management decision-making process in your unit reliable?	
5	Is the organisational culture supportive enough (i.e. "not-invented-here syndrome")?	
6	Is there enough support and commitment from key stakeholders?	
7	Does org. structure allow for seamless collaboration / clear roles & responsibility?	
8	Is the existing IT system architecture flexible and supportive enough?	
9	Are internal operational processes (i.e. Legal/IT/Risk/HR) being optimised enough to meet your innovation needs?	
10	Did the organization provide you enough guidance to scale your initiative?	
11	Is the target market ready (i.e. supporting technologies, supplier network etc.) for your initiative to go-live?	
12	Do regulations allow room for your initiative to flourish?	

Below is the explanation on the use of Likert scale to rate the above questions, the legends are shared with interview along with the cue card to facilitate the assessment process.

Table 23. Legends on Likert scale

Legends

Negative			Neutral	Positive		
Extremely	Moderately	Slightly		Slightly	Moderately	Extremely
1	2	3	4	5	6	7

Appendix III

Interview questions for initial verification

Below is the list of pre-determined questions asked during the initial verification interview with financial services practitioners.

Table 24. List of questions for initial verification interview

#	Questions	Duration
1	Why do *ABC company* decide to do these innovation projects? *[Intro on the research – looking at innovation effectiveness]*	2 mins
2	*[Present slide Contextual Background]* According to literature, stage-gate is commonly being used for corporate innovation. How is the case with your company?	3 mins
3	*[Emphasize on the Launch stage in slide Contextual Background]* A focus point in my research will be the last phase in the innovation process, towards market launch and beyond. Once you know an idea is good and developing well , what are the option for scaling it? How do you decide?	5 mins
4	According to literature, several aspects affecting innovation are identified, in these question deck. Based on your experience, can you rate them on a scale of 1 – 7 ?	20 mins
5	Based on your answer, can you rank these aspect according to their impact on the launching process, in order from the biggest to the least impactful? *[Rank the question paper]*	5 mins
6	Is there any other aspects that you think affect the launching process greatly?	5 mins
7	Reflecting back to the scaling option discussed previously, do you find the different scaling path greatly affect the perception of drivers and barriers? Are they facing a different set of factors?	5 mins
8	If you can change the way you are doing innovation, what will you change? Why?	5 mins
9	Any other remarks?	5 mins

Appendix IV

Interview questions for final verification

Below is the list of pre-determined questions asked during the initial verification interview with financial services practitioners.

Table 25. List of questions for final verification interview

#	Factors	Description	Commonly regarded as	To be filled: Do you agree? (Yes/No)
F1	**Commercialisation competences**	Team ability to significantly grow fledging business until it can stand on its own	Drivers	
F5	**Financial support**	Allocated funding or budget to finance innovation activities	Drivers	
F6	**Key stakeholders (sponsors and management) support & commitment**	The level of support and commitment given by the relevant management bodies to enable commercialisation of innovation	Drivers	
F10	**Innovation governance and processes**	Innovation strategy and the way innovation process should be performed	Drivers	
F11	**Market readiness**	Level of acceptance from perspective of customer and other factors in the market	Drivers	
F7	**Organisational structure and collaboration**	A specific model in which the organisation is organised and collaboration between units	Barriers	
F8	**It-system flexibility**	Flexibility and capability of it-system to cope with innovation and emerging technology	Barriers	
F9	**Internal procedures and processes**	Internal procedures and processes which governed how innovation operates	Barriers	
F12	**External (government) regulations**	Official (government) regulations affecting the organisation and innovation	Neutral	
F2	**Qualified personnel**	The presence of skilled employees with suitable abilities within the team	Inconclusive	
F3	**Decision-making**	The process by which key decision is taken and the nature of the decision itself	Inconclusive	
F4	**Organisational culture**	Belief and values of the organisation that defines the way things are usually run	Inconclusive	

Appendix V

The framework for assessing internal entrepreneurial proposal

(Burgelman, 1984)

The framework is based on the assessment of two elements: Strategic importance and Operational relatedness. The outline of the process until resulting in one of the nine design alternatives is outlined below

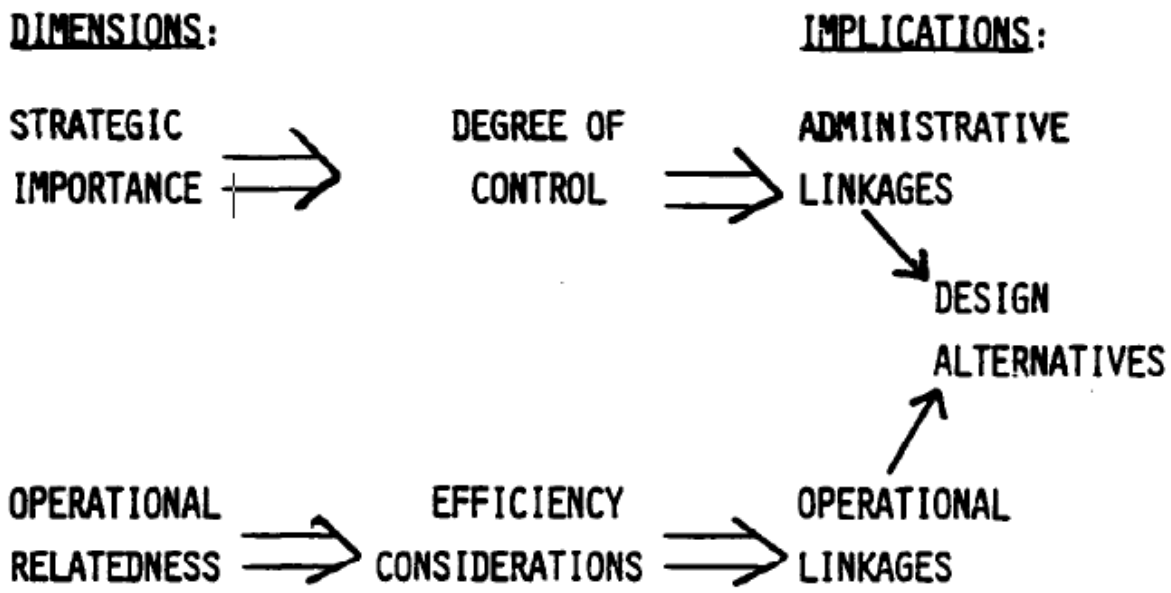

Figure 19. Assessment framework process (Burgelman, 1985)

Several questions can be utilised as a prompter to assess both dimensions as proposed by Burgelman (1984). To assess strategic importance, checklist of questions below might help to determine the degree of control a firm should exercise for this specific innovation endeavour:

- How does the initiative maintain our capacity to move in areas where major competitors (current or potential) might move?
- How does this initiative help to identify areas where we should not proceed?
- How does this initiative help to create new niches?
- How will it help to mobilise the organisation?

- What are the risk posed by this initiative? And to what extent?
- What can we gain out of it if this initiative seemingly does not work?
- What is the possible missing elements in our analysis?

Likewise, a checklist of questions to assess operational relatedness is available to aid in the assessment process:

- What are the key capabiltiies needed to ensure this initiative is successful?
- Do we have those key capabilities?
- If not then how, where and when should we obtain these capabilties? At what cost?
- Who else is potentially able to do this, maybe even better?
- What are the effect of these new capabilities to out current mainstream business capacities?
- What other areas are likely required to be improved if we proceed with this innovation?
- What is the possible missing element in our analysis?


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