Building Competitive Advantage Through Open Innovation

A case study in the financial technology sector

Erik Jonsson Holm and Felix Andersson
Abstract
The modern financial industry includes fast-changing technology, new regulations, and markets where companies at times find themselves at disadvantage. This study focuses on how organizations can build competitive advantage, particularly by drawing on the open innovation concept. We conceptualize its relationship to competitive advantage as a strategy of using and developing dynamic capabilities in business ecosystems. This view is empirically analysed through qualitative data from four organizational actors in the financial technology (fintech) sector, using semi-structured interviews and a case study approach.

The results of the study show that there is a so-called fintech business ecosystem where collaboration and openness generate new opportunities and new innovations. It also shows that the capabilities networking and scanning, investment processes and an open, agile organizational culture are essential to gain advantage of the opportunities in the business ecosystem. In building competitive advantage from open innovation process, these capabilities provide speed and are necessary to find external resources that can effectively be united with internal key resources, creating unique resource combinations. This indicates that companies should focus on activities that enable these capabilities.

Keywords: Competitive advantage, financial technology, fintech, business ecosystem, open innovation, resources, dynamic capabilities, processes.
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Erik Jonsson Holm and Felix Andersson.
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Terms

Big Tech – Big Technology companies, e.g. Amazon, Microsoft, Apple, Facebook, IBM, Google.

CEO – Chief Executive Officer.

CFO – Chief Financial Officer.

CTO – Chief Technology Officer.

CDO – Chief Digital Officer.

Fintech – Financial Technology.

InsurTech – Insurance Technology.

Open banking – Banking data is shared between two or more unaffiliated parties, through open application programming interfaces (APIs).

PSD2 – Payment Services Directive 2, which will enable access to banks’ customer account information.

RegTech – Regulatory Technology.

R&D – Research and Development.
Table of Contents

1. Introduction ................................................................................................................................. 1
   1.1 Research question and purpose............................................................................................... 3
   1.2 Outline of thesis......................................................................................................................... 4
2. Literature review ............................................................................................................................ 5
   2.1 Open innovation ......................................................................................................................... 5
   2.2 Competitive advantage ............................................................................................................. 7
      2.2.1 Resource based view ........................................................................................................... 8
      2.2.2 Dynamic Capabilities ........................................................................................................ 9
   2.3 Conclusion ............................................................................................................................... 12
3. Research design .......................................................................................................................... 13
   3.1 Research approach .................................................................................................................. 13
   3.2 Research setting ....................................................................................................................... 14
   3.3 Data collection ......................................................................................................................... 15
   3.4 Approach for data analysis ..................................................................................................... 16
   3.5 Source criticism and research ethics ....................................................................................... 16
4. Empirical findings and analysis .................................................................................................. 19
   4.1 Mapping the fintech business ecosystem ................................................................................. 19
   4.2 Innovation within the business ecosystem ............................................................................. 20
      4.2.1 Duality in competition ....................................................................................................... 20
      4.2.2 New value creation ............................................................................................................ 22
      4.2.3 Inspiration from other actors ............................................................................................ 22
      4.2.4 Imitation ........................................................................................................................... 23
      4.2.5 Resource combinations ..................................................................................................... 24
   4.3 Enabling capabilities ............................................................................................................... 25
      4.3.1 Networking and scanning .................................................................................................. 26
      4.3.2 Investment processes ........................................................................................................ 27
4.3.3 Organisational culture .............................................................................................................. 28

5. Discussion and critical reflection ................................................................................................. 31
   5.1 Model of the open innovation process.................................................................................... 31
   5.2 Innovation within the business ecosystem ............................................................................. 32
   5.3 Enabling Capabilities ............................................................................................................ 33
   5.4 Competitive advantage from innovation .............................................................................. 35

6. Conclusions .................................................................................................................................. 36

7. Limitations .................................................................................................................................. 38

References ....................................................................................................................................... 39

Appendix A – Case study actor presentation ............................................................................... 45
Appendix B – Collected data ......................................................................................................... 47
Appendix C - Interview guide ...................................................................................................... 49
Appendix D - Empirical data structure .......................................................................................... 52
1. Introduction

Technological changes continue to transform the financial sector. With the internet revolution and the introduction of customer self-services in banking at the end of the 1990s, new trends include, for example, blockchain, which is a distributed ledger and public database of nodes which verifies changes automatically and allows participants in the market to follow digital cryptocurrency transactions (e.g. Bitcoin) without any central control (Blue Institute, 2017). Another example is Swish, which is a mobile application for monetary transactions started by the six largest banks in Sweden, and that has made everyday life easier for many people. As such, banks, customers, and technology providers, are all subject to collaboration, often in an open context that should benefit the participant. Furthermore, governments play a role in these constellations too, because laws and regulations will meet changes in the coming years. Specifically, the new payment services directive (PSD2), within EU, will be implemented in 2018 and will open the door for all companies who want to use the client information within the banks. The directive was first implemented in 2015 but will be followed by complementing regulation (European Commission, 2017). It means that the banks will not only compete with each other but also with other companies who can offer similar financial services. The future of banking might also transform in a way that companies like Amazon, Google, Facebook and Alibaba will make up the competition to traditional bank services. There are already signs appearing today that shows this (Murgia & Arnold, 2017). Hence, for incumbent banks the key question is not if new financial technologies (fintech) will transform the financial sector, it is to what extent and how they should meet this in order to not only survive, but also to gain competitive advantage.

How to achieve and sustain competitive advantage is the fundamental question in strategic management (Teece, Pisano & Shuen, 1997). The terms competition and competitive advantage has for a long time been discussed widely in the management field, especially strategic management. One of the most notable approaches is the competitive forces approach by Porter (1980), where the strategy formulation of a company lies within its position in relation to the industry. Shapiro (1989) presented the strategic conflict approach, a related approach with market position as key focus. More recent views suggest that firm resources and capabilities are important to analyse the competitive advantage (Barney, 1991; Peteraf, 1993). In rapidly changing environments, other scholars extend these views and emphasize certain types of capabilities, so-called dynamic capabilities, as the source of competitive
advantage (Helfat & Peteraf, 2003; Teece et al., 1997), particularly because the business ecosystem is shifting with the set-up of participant, who owns and or access the resources (e.g. Teece, 2007).

Understanding these concepts is arguably important to competitive advantage in rapidly changing environments. Business ecosystems evolve all the time, as enablers do too by changing – the technology, the regulations, the product-markets, etc. It means that the distribution of the market share can shift vastly in a short time period. The ability to meet change has somewhat become a prerequisite for competitiveness as the technological changes has frequently occurred and has become the new normal for companies. The speed of the change implies that incumbents, for example banks, could be outcompeted within a year, or even sooner (e.g. D’Aveni, 1994; Netz, 2013).

To meet rapid transformations, collaboration in innovation processes, or open innovation, has increasingly received attention. Since not all smart people work inside the company, people inside the company need to work with people outside the company to faster produce strategic changes of the firm with innovation (Chesbrough, 2003). However, as such context is open per se to the use of unique external resources in the innovation process, imitation by competitors and new entrants may become easier and thus leading to loss of value for the incumbent.

Moreover, the basic idea of open innovation is not entirely new. Previous theories include absorptive capacity (Cohen & Levinthal, 1990), which refers to a company’s ability to exploit external knowledge; and complementary assets (Teece, 1986), which are needed to gain profits from innovation. Dahlander and Gann (2010) mean that these are examples of linkages of open innovation into broader debates in the fields of management, innovation, and hence strategy. Similarly, Lichtenthaler and Lichtenthaler (2009) complement the concept of absorptive capacity and develop a framework for open innovation that identifies six knowledge capacities. Yet, the open innovation concept is not properly connected to the theories of the firm and the strategy literature, which represents a weakness in the open innovation literature. In particular, there is a need for more research that explicitly link dynamic capabilities to open innovation (Vanhaverbeke & Cloo7dt, 2014), because per definition these processes involve coordinating and or integrating internal and external
resources (Teece et al., 1997). Moreover, open innovation research has mainly focused on the benefits and less focus has been paid to the downsides (Dahlander & Gann, 2010). Therefore, a better understanding of the possible weaknesses of open innovation regarding its relationship to competitive advantage is important.

While Fasnacht (2009) identifies the transition to open innovation in financial services and stresses that companies need capabilities and resources to master this transition, Schueffel and Vadana (2015) points out that open innovation in the context of financial services has been scarcely studied. Arguably, the two concepts, open innovation and dynamic capabilities, are central to better understand contemporary changes in the fintech sector and explain how competitive advantage can be built.

In addition, the fintech sector is growing rapidly. For example, the global investments grew by 67% the first quarter in 2016 compared to the year before (Accenture, 2016). The transformation is also evident by global investment in fintech ventures, which amounted to $12.21 billion in 2014, three times as much as the year before (Dickerson et al., 2015). Whereas this could turn out to be an opportunity as well as a threat to the incumbent, fintech companies and especially the incumbents of the financial industry need to address it and change, particularly by collaboration for competitive advantage from innovation (Dickerson et al., 2015). Our thesis is an inquiry into this context of theory and practice.

1.1 Research question and purpose

Based on the above problematization and research gap the following research question will be answered by our inquiry:

- How do companies build competitive advantage through open innovation in rapidly changing business environments?

The purpose of the study is to explain the relationship of open innovation and competitive advantage in contemporary business environment, and to further develop the research of open innovation within financial services. The thesis aims to do this by applying theories regarding competitive advantage from the strategic management field to the open innovation context, something that has previously not been done sufficiently. This shortage of research creates a
form of uncertainty of the relation between open innovation and competitive advantage in the fintech sector which means that companies would benefit of knowing how to act in certain strategic situations. The fintech sector is growing rapidly which means that competition will grow and perhaps the stakeholder interest will grow with it. The knowledge produced by this thesis could be used to guide practitioners and provide principles for company management and entrepreneurs.

The research question is answered using a qualitative method through a case study on four actors within the financial sector that use open innovation – two small and growing fintech companies, one large Scandinavian bank and one company that is a platform for collaboration within the, primarily, Swedish fintech sector. Semi-structured interviews with central people in the companies who work with innovation and strategy development are conducted. This is considered the most appropriate, since the phenomena of study is scarcely examined in the literature.

1.2 Outline of thesis
After this introduction, Chapter 2 includes a literature review, which thoroughly explains the main theories that are used for empirical analysis. Chapter 3 reports the research design and method. Chapter 4 presents the empirical findings and analysis that answers the research question. Chapter 5 discuss how the analysis has implications for extant literature. Chapter 6 conclude upon the purpose of study. Chapter 7 acknowledge limitations of the study, suggests future need of research, and provides practical implications.
2. Literature review

This chapter presents theory that will be used as a foundation in order to answer the research question. The chapter covers open innovation, competitive advantage, resource-based view and dynamic capabilities.

2.1 Open innovation

Chesbrough (2003) states that innovation is critical to sustain current and grow new businesses, whether it comes to the products or services, or the company’s business model – both for incumbents as well as new firms. In the beginning of this century, he observed an innovation paradigm shift. Having been a company internal process, his book show that firms are now more and more leveraging the abundant and distributed knowledge in the world and are innovating by and combining external as well as internal ideas in the research and development (R&D) process, he coined this approach of performing innovation open innovation, noting that “Not all the smart people work for us. We need to work with smart people inside and outside our company”.

Chesbrough (2003) further describes that in the old paradigm of closed innovation, companies generate their own ideas and then build, develop, market and finance them internally, an approach that historically has been successful. However, the book show that due to increased mobility of highly skilled people; growing number of people with higher education; increased number of venture capital funded start-ups; the fast time to market of many products and services; and global competition, this approach is being challenged. Open innovation on the other hand, Chesbrough explains, is a paradigm in which both external and internal ideas are combined to create value. Also, he adds that external and internal paths to market are utilised. See Figure 1 for an illustration of the innovation process. The definition of open innovation according to Chesbrough and Bogers (2014) is:

open innovation is a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with each organization’s business model. These flows of knowledge may involve knowledge inflows to the focal organization (leveraging external knowledge sources through internal processes), knowledge outflows from a focal organization (leveraging internal
knowledge through external commercialization processes) or both (coupling external knowledge sources and commercialization activities).

Figure 1: The open innovation process, adapted from (Chesbrough & Bogers, 2014).

Figure 1 further shows that the open innovation process can be divided into three main processes: (1) Outside-in: Adding knowledge to the company by integrating knowledge from customers, suppliers and external sourcing in order to increase a company’s innovativeness. (2) Inside-out: Exploiting ideas externally by for example selling intellectual property (IP). (3): Coupled: coupling outside-in and inside-out processes by working in alliances, joint ventures and cooperations with complementary partners (Gassmann & Enkel, 2004).

A recent literature review on open innovation concludes that most of the research so far has concerned the outside-in mode of open innovation (West & Bogers, 2014). But companies often do not make use of all the wealth of information outside the company and often fail at letting internal ideas be used in other businesses and capturing value from this (Chesbrough, 2003). Gassmann and Enkel (2004) explains that open innovation means a transformation of a company’s solid boundary into a semi-permeable membrane in order to let innovation move between the external and internal environment in an easier way, which is shown in Figure 1.

Chesbrough and Rosenbloom (2002) argue that the linking between technical decisions, concerning how to integrate internal and external research and ideas into systems and architectures, and economic outcome can be performed in a good way with the business
model framework. They further explain that in order to capture value from a technology, the existing business model within a firm can sometimes successfully be used, in other cases managers need to find a new business model or “architecture of the revenue”. Their study elucidate that the term business model is not often clearly defined, however, the functions of the business model are to articulate a value proposition, identify market segment, define the structure of the value chain, estimate cost structure and profit potential, describe the position within the value network and formulate the competitive strategy.

Moreover, Zott, Amit and Massa (2011) perform a review of the literature in business models and note four emerging themes. First, they note that the business model is a new unit of analysis that is separated from product, firm, industry, or network, with boundaries that are wider than the firm’s boundaries. Second, their review show that to explain how firms are doing business, business models stress a holistic, system-level approach. Third, activities between a firm and its partners play a large role. Finally, business models tries to explain how value is created and not just focus on how it is captured. In short, business models is how dynamic capabilities, described in detail in Chapter 2.2.2, materialize business changes by changing technologies through innovation in the firm’s ecosystem of participants, and the business model is therefore an element in building competitive advantage (Teece, 2010).

Although there are advantages with open innovation, there are also disadvantages. Dahlander and Gann (2010) recognize, a possible risk when an inventor licenses its invention, and that the potential licensee may steal the idea. They moreover state that there may be significant transaction costs involved when transferring technologies. Laursen and Salter (2006) also show that even though the initial effect of openness leads to increased innovative performance, and that external search, consisting of networking and scanning, in order to access knowledge outside the firm is beneficial, there exists a tipping point where “over-search” may hinder innovation performance. Thus, the costs of networking and scanning need to be managed carefully.

2.2 Competitive advantage
Strategic management is a wide term and concept that includes many sub-fields. However, the key objective for every company that strives to be prosperous is how to achieve competitive advantage. One of the earlier prominent approaches is the competitive forces approach
(Porter, 1980) which in essence views the strategy formulation of a company, in relation to the industry environment. There are five different industry-level forces – entry barriers, threat of substitutes, bargaining power of buyers, bargaining power of suppliers and rivalry amongst the industry incumbent firms. By analysing the firm’s position in the industry, in accordance to these forces, it is possible to find an approach of which a company can protect itself. A potential shift in one or more of the forces is a signal for the company to analyse itself in accordance to the industry and market. A closely related approach is the strategic conflict approach (Shapiro, 1989) which looks at product market imperfections, entry deterrence and strategic interaction and uses game theory to analyse how firms achieve competitive advantage, through investments, pricing, signalling and information. Market position is a key perspective in both of these two approaches.

Barney (1991) suggests that companies and their resources are heterogeneous and that it is from this that the competitive advantage can be sourced. Teece et al. (1997) argue that the development of dynamic capabilities is the most important factor in this regard. Both views argue that firm-specific resources and capabilities are central. They contrast this factor by explaining alternative approaches in order to explain industry rivalry and strategy.

It is interesting to compare the environmental context between the view of Porter (1980), and his five forces framework, and Teece (2007) dynamic capabilities framework. Teece (2007) argues that the “dynamic capabilities framework represents a strong break with Five Forces.” This due to that the environmental context, in the dynamic capabilities framework, is not the industry as in the Porterian view, but the business ecosystem, which he refers to is the community of “complementors, suppliers, regulatory authorities, standard-setting bodies, the judiciary, and educational and research institutions.” Teece further elaborates that strategy formulation in Porter’s view is about “coping with competition”, whereas with the dynamic capabilities is about “shaping competition itself” - through “selecting and developing technologies and business models that build competitive advantage through assembling and orchestrating difficult-to-replicate assets” (Teece, 2007).

2.2.1 Resource based view

In order to achieve competitive advantage, the way a company exploits its resources is a central theme. This is referred to as the resource-based view (RBV), which determines the
strategic resources accessible to a company. These attributes are not solely the tangible assets but also capabilities, the processes, information, knowledge, and more. They are controlled by the company, which can use them in order to improve efficiency and success of the company. One of the propositions is that companies possess heterogeneous resources, which make the companies heterogeneous – from this it is possible to detect sources of competitive advantage (Barney, 1991).

To hold the potential of sustained competitive advantage, the resource of the company must have four attributes: it must be valuable, it must be rare among the competition, it must be difficult to imitate and there cannot be any strategically equivalent substitutes that are valuable but not rare or difficult to imitate. If all of these are fulfilled, the company can/will achieve sustained competitive advantage. This can be used as a model for assessing the potential in the strategic resources, as described in the paragraph above. In other words, companies should look inside to find the strategic resources for competitive advantage, rather than merely looking at the competition and market (Barney, 1991).

An extension of the resource-based view was made by Lavie (2006) who extends this theory “to incorporate the network resources of interconnected firms”. His proposed model overcomes the problem of RBV that it focuses on resources that are owned, or controlled, by the firm. Lavie (2006) differentiates the resources that are referred to as shared to those that are non-shared. He also recognises new types of rents and, furthermore, demonstrates how firm-, relation-, and partner-specific factors decides the contribution of network resources to the rents resulting from alliance networks. Compared to the traditional resource-based view, which has put the major focus on resources that are owned and/or controlled by a single company, Lavie (2006) argues that the model he presents overcomes this limitation by putting emphasis on that the same resources can be utilised by more than one firm.

2.2.2 Dynamic Capabilities
Teece et al. (1997) developed the dynamic capabilities approach, which emphasizes both internal and external capabilities. It is stated that this approach enables understanding of newer sources of competitive advantage. The meaning of “dynamic” is to renew capabilities in order to follow the changing business environment, whilst “capabilities” highlights the role of strategic management when it comes to adapting, integrating and reconfiguring internal and
external skills to meet the changing business environment (Teece et al., 1997). In this way, the firm's positioning happens through a process, bounded to its historical path of low-imitability combinations of capability areas, such as management, R&D, product/process development, and manufacturing.

Peteraf et al. (2013) explains that the framework by Teece et al. (1997), is complemented by the work of Eisenhardt and Martin (2000), who in turn argues that dynamic capabilities varies with the rate of change in the context; low turbulence implies detailed analytical routines; an increasing turbulence implies simple rules. Both frameworks form the main directions of the concept, and even though there are similarities, as they are based on the same concept, there are a few differences that are relevant to acknowledge. The similarities include the emphasis on the role of organizational routines, managerial/organizational processes and the description of dynamic capabilities as an addition to the resource based-view. They also include a few views that are different but in the same way complement each other. However, the main difference is whether dynamic capabilities explain sustainable competitive advantage in fast-changing environments, which is a key question in the whole framework. Teece et al. (1997) argues that they are much more important in achieving competitive advantage, compared to Eisenhardt and Martin (2000) who states that they are not as significant and even that they perhaps should not be considered.

By combining the views, it is possible, according to Peteraf (2013) and colleagues, to extend the applicability of the concept. Dynamic capabilities can/may enable companies to achieve sustained competitive advantage in certain cases, even though the market environment and nature varies (Peteraf et al., 2013). Furthermore, Teece (2007) explains different elements, which includes concepts of sensing, seizing and reconfiguring (transforming), see Figure 2.
The importance of sensing derives from the fact that the whole industry environment is characterized by high competitiveness and pace, which means that opportunities are constantly open for both incumbent and new firms. In certain markets, these are easy to recognize. However, in most industries these are difficult to see and realize. This means that sensing for new openings requires scanning and learning of these (Teece, 2007). In turn, when a new opportunity is sensed, it is important to seize it. It must be addressed through new products, processes or services. Accordingly, this requires investment (both time and financial) in competence of technology, complementary assets needed, and then in the particular technology/design to achieve success in the market. In order to achieve sustainable profits and advantage in market, the ability to reconfigure assets and structure is central, especially as the enterprise grows and markets/technologies progress with time. Added to this, reconfiguration is also crucial in order to avoid path dependencies that are negative for the company (Teece, 2007). Teece (2007) argues that dynamic capabilities are the central key for competitive advantage, not the least when the technology changes rapidly, these capabilities will decide how successful a company is in creation and utilization of intangible assets when it comes to economic profits.

However, the approach of dynamic capabilities has received quite important critique, which is important to acknowledge. Winters (2003) clarifies, for example, that no company can definitely protect itself from fast-changing environments through dynamic capabilities
through all times. Nevertheless, there is still a potential of achieving continued advantage over time by focusing on the strategic change issue at stake. Barreto (2010) explains in a literature review of dynamic capabilities how different scholars have criticized the concept. Specifically, Williamson (1999) states that dynamic capabilities is linked to success but that central concepts are not operationalized in a proper manner. Related to its possible vagueness, Kraatz and Zajac (2001) stated that dynamic capabilities as a concept is quite unclear and difficult to quantify and measure. This suggests that the field would benefit from a further understanding of the concept of dynamic capabilities, which could include a more concrete analysis of what possible processes and routines are behind or if there perhaps are none, which might be the whole point with the theory. Nevertheless, in order to use and study a concept, it is of high relevance to understand and acknowledge its weaknesses.

2.3 Conclusion
The above review suggests that there are quite a few things for the field and for companies to consider. Open innovation, competitive advantage, resources and dynamic capabilities are concepts that are related, where strategic management shapes the umbrella for these. When there are rapid changes in business environment there is an, arguably, increasing importance of possessing the ability meet change in an effective way in order to create strategies that allows for creation of dynamic capabilities and successful innovation. If this is not accomplished, it might not be possible to obtain any advantage in the market, temporary or permanent. However, this could require innovation not only when it comes to products and processes, but also the business model. Another concluding remark is that viewing the environmental context as a business ecosystem seems like a promising approach, both to understand open innovation, which involves knowledge exchange from different parties, and competitive advantage. A business ecosystem could indicate that the actors in it are more connected with each other than perhaps other theories would suggest, which adds to the interest.
3. Research design

This chapter presents an argumentation for the selection of research approach and method. For clarity, the research question and purpose are restated. The research question of this thesis is *How do companies build competitive advantage through open innovation in rapidly changing business environments?* Moreover, the primary purpose of the study is to explain the relationship of open innovation and competitive advantage in contemporary business environment and to further develop the research of open innovation within financial services. Company management and entrepreneurs will find the results useful as a guidance and will give them increased understanding.

3.1 Research approach

The companies in the fintech industry consists of the technology companies that seeks to compete with traditional and established financial services companies, with the aim to substitute and/or improve financial services in the existing financial companies (Brunsden, 2017). However, it can also include the established actors who develop their products and services by the use of fintech (Blue Institute, 2017). Banks are examples of this.

Because this thesis explores how competitive advantage may be built in a context of open innovation, we attempt to catch the deeper understanding and interpretation of the reality (Slevitch, 2011). It will be done by analysing different actors in the fintech sector, using a qualitative research design (Bryman & Bell, 2015), since we seek data that can describe and provide understanding of an abstract phenomenon, relations and feelings in order to answer the research question.

We attempt to answer the research question through a case study. For case studies to be the preferred research method, Yin (2003) lists some criteria “when “how” or “why” questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context”. Further, he mentions that case studies are used “when the boundaries between phenomenon and context are not clearly evident” (Yin, 2003). All these aspects are fulfilled within this study, hence the case study research method is selected. Moreover, this is a single case study focusing on the fintech sector. Four actors, which are further described in Chapter 3.2, within this sector are chosen, and are embedded units of analysis within this context (Yin, 2003). The reason for selecting
embedded units is that collaborations within open innovation contexts naturally involves several parties and only focusing on one part might be too narrow.

3.2 Research setting
We study four actors in the fintech and financial services sector, see Table 1. Three of the actors, Nordea Bank AB (“Nordea”), Näktergal AB (“Näktergal”) and Zimpler AB (“Zimpler”), are all using open innovation strategies and are in the fintech sector but have different characteristics as the table shows. Stockholm Fintech Hub AB (“Fintech Hub”) is denoted as a platform, and hence the fourth actor, which in this context refers to a physical platform that acts as an innovation hub for fintech companies. The platform will give a better understanding of the relation between the fintech company and the bank. A brief description of each actor is given below, for more details regarding examples of products and services generated through open innovation, and each actor’s competitors, the reader is referred to Appendix A – Case study actor presentation.

Nordea is a large Scandinavian bank, serving approximately 11 million customers, mainly on the Nordic market (Nordea, 2017b). It has recently launched an open banking platform, which will enable third-party developers (i.e. fintech companies) of financial services applications to test and launch their financial solutions (Nordea, 2017a). Näktergal is a start-up but founded by experienced professionals from the financial sector, the company builds systems for consumer lending (Näktergal, 2017). Zimpler is a Stockholm based fintech company, which focuses on mobile payments (Zimpler, 2017). The company is growing rapidly and was this year ranked by Deloitte as the third fastest growing technology company in Sweden (Deloitte, 2017). Fintech hub is a physical platform that acts as an innovation hub for fintech companies. It exists in several of the Nordic countries and it is a place dedicated for collaboration and communication that is designed to meet the specific needs of the fintech community (Fintech Hub, 2017).
Table 1: List of actors in the study.

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Size</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nordea</td>
<td>Bank</td>
<td>Large</td>
<td>Old</td>
</tr>
<tr>
<td>Näktergal</td>
<td>Fintech company</td>
<td>Small</td>
<td>Young</td>
</tr>
<tr>
<td>Zimpler</td>
<td>Fintech company</td>
<td>Small</td>
<td>Young</td>
</tr>
<tr>
<td>Fintech Hub</td>
<td>Fintech platform</td>
<td>Small</td>
<td>Young</td>
</tr>
</tbody>
</table>

3.3 Data collection

Data is generated from semi-structured face-to-face interviews. For case studies, Yin (2003) argues that interviews are one of the most important sources of information. Semi-structured interview means that a set of questions and framework of themes are prepared but the interview is kept open, so that new ideas are allowed to be brought up during the interview, it could be as a result of what the respondent answers (Bryman & Bell, 2015). These aspects are preferable to explore our research question. In order to study the research question from different perspectives and give a more credible and complete explanation, data source triangulation (Bryman & Bell, 2015) is used, involving both primary sources (conducted interviews) and secondary sources (annual reports, newspaper articles and recorded presentations).

Interviews were held with central people of the actors, including a Senior Business Developer and Community Manager within Open Banking at Nordea, the CTO of Näktergal, the CFO at Zimpler and the CEO of Fintech Hub. One or two interview sessions were conducted with each respondent. Each interview lasted approximately one hour. See Appendix B – Collected data for more details.

We created an interview guide to operationalize the research question for the collection of empirical material, see Appendix C - Interview guide. The first five questions seeks to gain an understanding of the competitive situation, within the business ecosystem, and open innovation, for example against whom the competitive advantage is directed and the value distribution in an open innovation process but also if the competition is static or dynamic and if there are any risks and negative aspects of openness, and many other perspectives. The last
three questions focuses on dynamic capabilities and the overall differences between today and the last 20 years. Special interest is put on the processes that are (or are not) behind the dynamic capabilities, on how the companies continuously work on the abilities and what core competencies that are being built.

By finding answers to these questions, the process of answering the overall research question is simplified. Through understanding the character of open innovation, how it differs between the companies and how they utilize it, the purpose of the study will be fulfilled and a more profound appreciation of the relation of open innovation and competitive advantage will be carried out. To understand which dynamic capabilities that are the most important for success will also explain the relation.

### 3.4 Approach for data analysis

When translating the empirical to data into thematic results, the process of getting there is of high relevance. It is started by taking one theme question at a time for every company and see what the different key answers (both words and sentences) are and writing them down. This means that there are many key answers in total, when combining all answers to every question for each company. All these are classified as 1\textsuperscript{st} order concepts (Gioia, Corley & Hamilton, 2013). When looking at all the answers for each question, it is possible to detect a specific theme of what the companies answer for the specific question – these are gathered under key theme words, called 2\textsuperscript{nd} order themes. These 2\textsuperscript{nd} order themes serve the purpose of describing and explaining the phenomenon of focus (Gioia et al., 2013).

When the 1\textsuperscript{st} order concepts and 2\textsuperscript{nd} order themes are collected, a data structure is collected where the concepts leads into themes. From this, new theoretical dimensions are created by collecting the relating 2\textsuperscript{nd} order themes into these dimensions. These theoretical dimensions are the background of how the empirical findings is presented. This process is effective for qualitative studies as it enables for finding many small common denominators into large but fewer themes (Gioia et al., 2013).

### 3.5 Source criticism and research ethics

There are of course many things that should be considered when conducting qualitative analysis with a few interviews as the main empirical material. For example, the question of
bias is always a problem that should be taken into account (Bryman & Bell, 2015). The person that is being interviewed represents something (a company/organisation in this context) and the answers will include bias in the way that what is said will be affected of what the person want its organisation future reputation to be seen. The representative from the bank wants the bank to appear positive from the responses, the same with the representative for the fintech company, etc. When answers from the interviews are accordingly, this bias should be taken into account when analysing the results.

When conducting this type of study, validity is important to be explained. Validity is a methodological concept that can be described as a way to examine the results and make sure that they are reasonable (Bryman & Bell, 2015). In this paper, several individuals have been interviewed from the actors that will make up the empirical material. As a way of complementing this and strengthen the validity, other material has been used. For example, online presentation videos and reports with the same or other important people from the actors of the study are behind. Annual reports and company documents has also been used.

Credibility is another important concept. Bryman & Bell (2015) explains credibility in the way that if the same study would be replicated, the results of the two studies would be approximately the same. However, with the reservation for that interviews with a few individuals might results in a bit varying answers from two studies. To ensure this objective, the authors has provided full disclosure and transparency along the whole paper and when interviewing the people that makes up the empirics. The methodological approach has been described quite clearly in order to explain how the study has been conducted, which enables a replication.

Instead of objectivity and generalizability, which by using qualitative methods are considered impossible to achieve, qualitative methods emphasize transferability, which relates to the degree to which a reader can transfer the results of the study to their own setting (Slevitch, 2011). For this case study, it will be up to the reader to judge the transferability, but the ambition is to try to let the results not only be applicable to the fintech sector but also to industries and sectors outside this, simply because the examined concepts and key driving trends are common for many industries. Moreover, sample size is not an important matter in qualitative methods, what is important is though the ability to provide rich and useful
information (Slevitch, 2011). Therefore, limiting the research objects to three is not an issue, but will allows us go in depth and gain a deep understanding on special characteristics of these companies.

The whole study has been conducted in accordance with the ethical guidelines that ought to be considered. There are a few principles/procedures that Bryman & Bell (2015) advocates. In general, it is all about being transparent and open with what is being done, together with ensuring that the reasonable interests of the participants can be guaranteed. Firstly, there is the importance of informing participants of the study what the purpose is. Secondly, it is important to confirm consent and to inform that participation is not binding and that the participants have the right to discontinue. Furthermore, ensure that anonymity is guaranteed throughout the process by offering confidentiality agreements. Moreover, the empirical data is gathered will be used only for the purpose of the research question and the paper. Lastly, the authors/researchers will not use dishonesty and deception in order to lure the participants of the study (Bryman & Bell, 2015). All of these procedures have been followed throughout the paper which shows that central ethical concerns have been considered.
4. Empirical findings and analysis

In this section, the empirical findings in combination with the analysis are presented. First, the fintech business ecosystem is presented. Then, the innovation within this ecosystem is described. Finally, the capabilities that are enablers of building competitive advantage within this context are presented. The presentation is based on the data structure that was the result from the data analysis and which is illustrated in Appendix D - Empirical data structure.

4.1 Mapping the fintech business ecosystem

Figure 3 shows an illustration of the fintech business ecosystem (Fintech Hub CEO). The actors in this study mainly belong to the units banks, fintechs and accelerators. Moreover, the unit government and regulators include for example the financial supervisory authority (Finansinspektionen), the data protection authority (Datainspektionen) and the European Commission. The figure presents banks and fintechs as separate units but it is possible to argue that the banks are also fintechs, "Start-ups, Big Techs, banks - all work with financial technology. To understand the competition one should probably break down the fintech concept." (Nordea Senior Business Developer). The geographical boundaries are mainly country-by-country at the moment (Fintech Hub CEO). It is also interesting to note that the actors in this study also see themselves as being part of an ecosystem, which can be exemplified with: “Many services in this ecosystem use similar information, but you use it in different ways...” (Zimpler CFO).
4.2 Innovation within the business ecosystem

This section presents the key features of the business ecosystem in order to describe the innovations that are formed in this. These features are the duality in competition, new value creation, inspiration from other actors, imitation and resource combinations.

4.2.1 Duality in competition

Interestingly enough, the companies’ answers regarding the competition and how long a company possess the competitive advantage includes doubts and uncertainty. When it comes to describing if the situation is dynamic or static, it is not apparent which of the two that applies to Nåktergal. The Chief Technology Officer (CTO), Erik Bennerhult, states:

When it comes to the competitive situation with the direct competitors, it is rather static. It doesn’t happen a lot. New actors enter, like us, who shakes the market a bit but we are still small. When it comes to the banks and the big tech companies, it is quite dynamic. The big
Tech companies were not a threat for Nordea for three years ago and today they are starting to get closer. It is about to change. And it can happen fast.

Accordingly, the situation described specifies that the competitive situation for Näktergal is static, while it is dynamic for the banks in relation to the tech companies. The CTO at Näktergal goes further on into the subject: “The customers don’t like the banks and perhaps not Facebook either, but maybe more than the banks. Google Bank – I think it would be fun to keep the money at Google, instead of a traditional bank.” – which is why it can change rapidly.

Camilla Bäck, Senior Business Developer at Nordea, describes a similar situation but added that it is uncertain how much PSD2 and other changes will affect everything.

When these kinds of things have landed and become more mature. Then, a new competitive situation might appear, or rather open a new simpler way in for start-ups, when you know how things work and have a simple dialog with the authorities. No we are in the eye of the storm. Nobody knows anything and implementation differs from country to country. Right now it’s very tough, from a competition perspective, to enter.

She continues by stating that the banks are in general very prepared when meeting these changes because they have departments with lawyers, compliance officers, etc. which a start-up does not. They are not used to handle new regulation or being under inspection of authorities. Rather than that PSD2 will change a lot in the business, the competitive situation changes slowly (Nordea Senior Business Developer).

The Chief Financial Officer (CFO) of Zimpler, Johan Strand, describes how it is different depending on what you compare with: “If you compare within the tech-scene it is perhaps semi-static but if you compare with all industries it is probably extremely dynamic. We could be alone with this for about a half year, that feels like a long time. The last part of the quote would explain how he views dynamic. Further, Matthew Argent, the Chief Executive Officer (CEO) of Fintech Hub states that the competition is different in each segment within fintech,
but continues to give an interesting example for an innovative fintech company that became challenged itself:

When it launched, it became an innovator, it became the provider of choice. Now it is being challenged and disrupted. There are solutions, which work cheaper, quicker, or just as fast, in a compliant manner, without any risk. So, they are having to rechange the way they look. So, fintechs will get disrupted themselves, we get disrupted as a hub. Everybody does, because innovation happen so quickly.

4.2.2 New value creation
It also seems as if there is a new competition developing, where there are not necessarily winners and losers. Andrea Strand, Community Manager within Open Banking at Nordea, believes that all parties gain: “It is becoming more open. It will benefit all parties in the end”. The CTO of Näktergal goes on by saying: “Who gains the most? That is a very difficult question. All three really think that they gain on it”. The three parties that he refers to in this context are Näktergal itself, the firm that they make open innovation with and the bank that buys the service. The CEO of Fintech Hub, has a similar view, even though he believes that banks win the most, because of the customer base:

Start-up or fintech companies partnering with banks is the best that can happen, they get access and everything they can from a big institution. The banks get a reduced cost for their innovation spending. You can choose which company you want to partner with, invest or partner. Doesn’t matter how. The technology is there.

4.2.3 Inspiration from other actors
All companies responded that they do not try to recreate and resemble that much, but are out looking for new ideas and inspiration from actors in the ecosystem. Näktergal tries to copy as much as possible but believe that they are already ahead of the rest (Näktergal CTO). Zimpler’s CFO explains that they look at others a lot, non-competitors primarily though, especially at how other use technology and how they can use it for their business:
However, we look at which technologies are used there, how does it work, how do they think, how can we use this technology in order to perform better? We look at others, absolutely, but we are trying to find a new “twist” to it, I would say.

4.2.4 Imitation
The companies do not see any major risk with the openness and open innovation either, not from losing competitive advantage by for example being imitated. The eventual risks are not of being copied is not related to open innovation.

Copied because of openness? No, I don’t think so. I genuinely don’t believe that people copy ideas. I believe that if we would go around and pitch our idea and try to get others to copy us, if we would sell our idea for free, we would fail. That’s the way I think it is. Because everyone is so busy with their own idea (Näktergal CTO).

The CTO of Näktergal continues to explain that the direct competitors could copy them due to that they are open with their marketing but there are hindering factors:

I think it’s difficult to be transparent with innovation and not be transparent as an organisation.
I think organisation and system mirrors each other… Of course they could copy us. But it falls on two things. One is that they are not open and it’s difficult to emulate an open culture if you are not open… The other is that we have a technical platform that enables this and it is not trivial to build… the idea is not difficult but the implementation is quite tricky.

The CFO of Zimpler explains that it does not matter if they are being imitated, the process of innovation takes a long time which means that they will be further ahead anyway, as a result from being open and applying open innovation which enables speed.

We are not super afraid that someone will copy us or do the same thing, because we work all the time with making things better. There is a greater chance that we can make our product
better quickly than if someone can build the exact same product we have today, they can do that and have that product in a half year because we will have a better product then.

Barney (1991) argues that in order to achieve sustained competitive advantage, the resources of a firm should meet the criteria of value, rareness, inimitability and non-substitutability. The responses from the companies are that the third criterion, that a resource must be difficult to imitate, is not something that they see as a risk. Näktergal is not afraid of imitation since they believe that everyone is occupied with their own idea at the moment, because of that they do not believe that companies copy other companies and because their technological platform and open culture are difficult to imitate. Zimpler had the same opinion but argued that even though another company would copy them, it would take them quite a long time, and during that time Zimpler would make their product even better. They also said that they would not imitate another company because even if they did create a similar product, they do not have the customer relationship and why would a customer switch to get the exact same benefit somewhere else. This indicates that the speed is important, the time it takes to imitate is time where the company that is being imitated can make notable improvements.

The competitive situation with high-pace innovation and fast-changing innovation, that most of the companies agree with, shows an importance of being able to be successful in the ability to meet changes as a company, and renew the competencies to come out well (Teece, 1997). Sources of competitive advantage in fast-changing environments come from being able to achieve and renew low-imitability capabilities of the company in order to meet and follow the changing environment (Teece, 1997). Zimpler are not afraid of imitation because they know that they are able to renew their competencies to meet the new situation and sustain the competitive advantage.

4.2.5 Resource combinations
An apparent mind-set opinion with the studied actors is that it is better and more effective to integrate and build the systems together and that there are unique and complementing resource combinations. For the perspective of Nordea and the banks it was a lot about combining the banks resources of the customer base and trust together with the pace of the fintechs: “Nordea has muscles, data, etc. The fintechs are smart, fantastic developers, fast-moving, high-pace innovation – the combination is very good” (Nordea Community Manager
Open banking). Erik Zingmark, Co-Head of Transaction Banking, (2016) explained that even though the resource combination between the bank and a fintech company is good, it is important to realise that Nordea cannot just give away the access to all the 11 million customers that the banks has to fintechs. This is the main asset of Nordea, and comes from 150 years of relationship building, “...if we lose the [customer] data, we are yesterday's news” Erik Zingmark stresses.

Even though it depends on what business they collaborate with, Näktergal also believes that the combination is efficient. In some collaborations, it is the actual effect of the integration that is the unique combination but in other aspects, it could be the effect of partnering up with a company which brings a brand name-effect. The CTO of Näktergal also states that there can be the other way around, with risks of collaborating with companies that has a bad brand-name effect (Näktergal CTO). The CEO of Fintech Hub argues that the combination of two companies collaborating is very good: “Two companies who have very good products, they work together, not competitive, if you put those two together, it is a better company, 1+1=3. That is starting to happen now.” (Fintech Hub CEO).

All companies in the study answered that it is better and more effective to use integration and build systems together. This creates resource combinations that complete each other in a unique way. As Matthew Argent (Fintech Hub CEO) stated: “it is a better company, 1+1=3”, which would indicate that there are synergy effects of combining resources. In the case of Näktergal the interconnection of several different systems from different partners in their platform is the base of their business model and differentiation. Not owning, but only be in a relation or partnering may not be a basis for competitive advantage according to Barney (1991), who stresses the importance of ownership. But by utilizing the theory proposed by Lavie (2006) and his extension of the resource-based view to also include network resources one can still argue that Näktergal can achieve competitive advantage based on the resource-based view, what it comes down to when using the theoretical lens of Lavie is to what extent the relations are hard to imitate.

4.3 Enabling capabilities
This section presents the enabling capabilities that are found from the empirical data. These capabilities are networking and scanning, investment processes and organizational culture.
4.3.1 Networking and scanning

The CTO of Näktergal explains that they visit fairs and events and similar in order to find new potential partners to collaborate with. He has noted that finding a potential partner is much easier than finding investors or customers, which most other small firms are there for. The Senior Business Developer at Nordea states that it can also be to, as a company, arrange events: “We invite to different events regularly. “Fintech-drinks” in its simplicity, we gather over a beer to meet, seminars with a certain topic to discuss, hackathons for developers. We create forums for meeting or participate at them” (Nordea Senior Business Developer). That is also one of the reasons for Nordea to move in to the Fintech Hub, which Ewan MacLeod, Chief Digital Officer (CDO) at Nordea, elaborates (Fintech Hub, 2017b).

And this is a great opportunity for us to be here and to talk and… you know, the key for us is serendipity. It’s the meeting in the corridor, the talking with individuals and the ideas that spark from the conversations with the start-ups, the fintechs, the regulators, with everyone in one place – and that is why we are here.

From this quote it is interesting to understand that the ad-hoc meetings “in the corridor” are important to enable fast-paced innovations and new setup collaborations. Moreover, it is apparent that even though the meetings are ad hoc there is a formalised structure in place that enables these meetings.

The CFO of Zimpler also points out that they are active in a certain type of knowledge exchange arena, primarily in product development but it could also be within the CFO area. Each meeting focuses on a specific theme and the aim is to learn about the latest trends and exchange ideas. The CFO further elaborates on knowledge exchange, leading in to the importance of being in a region with many start-ups, as Stockholm is: “All these small firms do not have the competence to do everything by themselves, so they hire consultants. These consultants gain experience from several start-ups in a short time, the effect is that knowledge spreads due to the mobility of the consultants”. He also points out that in this type of region, the personal network is important to gain new knowledge. Meaning that if you know someone in a company that may be a potential partner, it is easier to exchange ideas and learn about each other’s opportunities.
Many of the companies are out to find new knowledge and partners through networking. This is a great example of a process involving networking that enables sensing what is happening and shaping it (Teece, 2007). Since the industry and ecosystem is characterised by quite high pace, it is important to be able to sense opportunities and threats. The companies do this by being out and networking, trying to catch new knowledge in that way sense what is happening. That is an important process for them. There is also another advantage from the networking, being that companies gain efficiency by utilizing the competence built up within other firms, i.e., avoiding the reinvention of the wheel. It can also be pointed out that the labor mobility, as the CFO of Zimpler mentions, is one of the factors that lead to the open innovation paradigm taking over from closed innovation (Chesbrough, 2003).

4.3.2 Investment processes

When it comes to the process of investing in new innovations the CEO of Fintech Hub states: “They are still working out if there is a strategic way of doing this rather than an ad hoc or case by case” when explaining how the banks view the process of open innovation. Nordea seems to agree with this and especially regarding the idea phase: “Related to the word ”open” – there is no finished procedure. There are different incentives: new regulation, someone wants to make money, someone has a great idea, making things cost-effective, harmonise, etc.” (Nordea Senior Business Developer). Nordea also mention that rather than processes, the bank has tools and methods, things does not happen without control, the tools and methods should be enablers rather than solid processes, the bank has many tools and this allows the bank to make it “case-by-case”, even if no case is like the other, guided, however, by the company strategy (Nordea Community Manager Open Banking). In other words, the tools and methods allows Nordea to act quickly when needed. A rather new process that Nordea has within open banking, is a plan that the bank will annually produce 1000 ideas, 100 prototypes and 10 products (Nordea Community Manager Open Banking), this ambition a doubling of what Deutsche Bank has formulated (Berger, 2017).

The CTO of Näktergal also explains that there are processes:

The process is partly that we have built a platform, technical and organisational, to be able to tie these collaborations to the company. We have a business model and company culture that
allows and promote it, instead of building on our own. A technical architecture that makes it simple to connect – or else it would be a bad idea. The process is then that we are out as much as we can on fairs, fintech hubs, events; out and lecture and tell about our idea that we want to collaborate and try to find actors that has a function that has a form of synergy effect, which sounds like a cliché, but that is the idea with the system. We scout actively for these. That’s what we do.

In the case for Zimpler, there is a process where the idea comes from two directions. It can either come from scanning what is new on the market, which means that they need to be out and talk to people in the industry and exchange ideas, but it can also come from a technological need (Zimpler CFO). Fintech Hub agrees with that there are processes: “No, it is not ad hoc. There are standard processes, venture capital companies will tell you what you have to do: validating the market, looking at competition, understanding the scale ability of the business, etc.” (Fintech Hub CEO).

This shows that there are underlying for the investment processes, and it also gives examples of what these are that enable companies to meet changing environments and be open in the innovation process. Speed is important for the companies, if they are fast enough it seems as if it will enable an advantage over the competitors. Accordingly, it does not happen from nowhere and it is not ad hoc. Furthermore, after the opportunity is sensed - it is essential to be able to seize it. Teece (2007) stresses that companies ought to implement new products, services or processes, Nordea (Berger, 2017) shows this by the process that is being implemented, where the bank will produce a specific number of ideas, a specific number of prototypes and specific number of products.

4.3.3 Organisational culture

When describing the key competencies that are being built over a period of change, the companies have similar views, and these circle around the organisational culture. The Senior Business Developer at Nordea states: “An agile way of working together with an open company culture”, together with describing that it has changed a lot during the last ten years.

In addition to this, the Community Manager within open banking at Nordea gives an example and describes how Nordea responded to PSD2:
PSD2 and Open Banking is a good example, where we took a proactive approach. New regulation is coming and we are quick to say that we need developers and be out talking with fintechs. To be proactive. We received an unbelievable response when we launched our beta-version of our “developer portal”, we heard from the market that we were the first who did this and reached out our hand to everybody.

Gunnar Berger, Head of Open Banking, also stresses that “Open Banking is not about products, it’s not a new channel, open banking is a new way of thinking and a new way of working in product development” (Finextra, 2017). Nordea’s Senior Business Developer also highlight the importance of collaboration culture:

The banks have a strong history in collaboration and do it in a good way. Also with fintechs I would say… You see it in the Nordics, there are common solutions and jointly owned companies. It looks completely different in other parts of the world, where it may be much more closed, and collaboration is a perceived as something negative. To us, the more collaborations, the better.

Näktergal’s CTO argues that curiousness, openness and creativity are the most important competencies, in order to find new possibilities. Fintech Hub’s CEO emphasises an agile mindset as well, but also what companies should invest in: “Education, pure education”. The last part he mentions is also something the CFO at Zimpler highlighted:

The most important thing we can do every day is to learn things. That should be our goal all the time, learning is a top priority, and we do this through transparency, openness and communication. Just having this as a statement, that it is a goal, means that you will learn. So that is a basic condition…it also makes you less afraid of making mistakes, because if you make a mistake – What have you done? You have learned something.
It seems as if an agile way of thinking, agile organizational structure and an agile business model are all successful key competencies of the companies. That together with an open company culture, which promotes collaboration, enables for meeting fast-changing environments and achieves and sustains competitive advantage. Of key importance is to embrace the relevance of education and appraising a different mind-set about learning through testing new things and by getting quick feedback. This relates to the other important capability, speed, where it appears as if the agility that is expressed enables the companies to act fast and build the competitive advantage.

The above discussion connects to, and gives examples of, the ability to reconfigure, or transform, in the dynamic capabilities framework (Teece, 2007). For example, launching the Open Banking platform, as Nordea has done, is a way of maintaining the evolutionary fitness and avoiding unfavourable path dependencies (Teece, 2007).
5. Discussion and critical reflection

Throughout the empirical findings and the analysis, many propositions support the advantages of being open, in order to survive in the modern competition and gain any competitive advantage at all. This openness is both of about being open towards other actors within the ecosystem but also open within the organisation. By acquiring new knowledge from the outside and promoting new ideas inside the company, a lot of potential is created to be able to build competitive advantage. The two main findings from Chapter 4, the innovation within the business ecosystem, and the enabling capabilities, are discussed in this chapter. In addition, a model is presented that is the basis for discussion throughout this chapter.

5.1 Model of the open innovation process

Figure 4 shows a model of the open innovation process within business ecosystems, based on the findings in Chapter 4, and how it leads to competitive advantage, according to our analysis. It reuses the illustration of the open innovation from Figure 1, in combination with the business ecosystem illustration in Figure 3, in order to visualize the process. Chapter 4.2 shows that there are five different features of the business ecosystem that influence innovation, by creating opportunities for companies. Of course, all opportunities cannot be pursued by a single company, these not taken opportunities are then free for another company to exploit, and hence at the same time represent a potential threat to the company that chose not to pursue this opportunity. This is illustrated with the inner circle in Figure 4. Around this core circles the five features from Chapter 4.2, as the opportunity enablers. The enabling capabilities from Chapter 4.3 are illustrated as inputs, meaning that they are necessary components in the open innovation process for building competitive advantage. As Chapter 4 presents, the competitive advantage, built through the open innovation process, manifests itself mainly as speed and efficiency. Moreover, the semi-permeable boundary in Figure 4, in this case, symbolizes that no business ecosystem is an isolated island, knowledge flows across different ecosystems.
5.2 Innovation within the business ecosystem

The findings suggest that there is a business ecosystem where both competition and collaboration occur, meaning that the value can either come to one party or all parties can gain from the value that is created. It is clear that the assumption of viewing market structure as exogenous as in the Five Forces framework (Porter, 1980) is not appropriate for the analysed environment in this study, since the market structure is developed based on (endogenous) innovations and learning that occur within the companies and within the business ecosystem (Teece 2007). The success will be enabled for one or more companies when they collaborate and are open to the whole ecosystem. This what all of the interviewed companies acknowledged, that it is a win-win for all parties involved in the collaboration.

An interesting reflection is the fact that the companies are not afraid of their products and services being imitated, which indicates that Barney’s (1991) criteria of how to achieve and sustain competitive advantage is not completely relevant for this business environment. The advantages of being open exceed the disadvantages and risks of being imitated. If a company’s resource is imitated, it will still be very difficult for the imitator to catch up because the company will keep developing. It seems as if the overall reason for this is the speed, that the ability to be quick in developing new resources and competencies that can produce new products and services wins over the risk of being imitated. This is an important aspect to acknowledge for the strategic management field, imitation of other resources and
competencies has been seen as a risk, but in this fast-changing environment, it seems as if the threat of this is not significant.

New value creation from innovation, where the value capture is not necessarily equally distributed for all parts in the collaboration, but still a win-win for the collaborating actors, clearly represent opportunities for the companies in the ecosystem. Nonetheless, it is important to understand the duality of competition within financial services, and the static nature of competition, systems once installed are not easily replaced and all the regulations and their differences across regions produce inertia. These aspects, represent both opportunities for the innovator and incumbent, but are also potential threats if created value does not become as high as expected due to above mentioned barriers. There may also very well be so that the rate of change of the environment fluctuates over time, making speed more important during some periods of time, and relying on established systems other times. At those times the scanning of the environment will be even more important, and maybe easier to realise since resources are not as tied up in development process as in more hectic periods, in order to catch the next trend.

It appears as if the integration of systems and building them together makes up for a unique and efficient resource combination that creates sources of competitive advantage. This is a mind-set that the fintech-companies (at least those who are involved with open innovation) seem to find obvious. The resources and competencies in the business ecosystem that are controlled by different actors, can also be shared and in that way bring value for all parties. This is also important to consider for companies that believe that everything should be controlled by themselves and not look at what they can do together with other companies. Lavie (2006) discuss this and conclude that the resources can also be shared, compared to the traditional resource-based view (Barney, 1991). This means that network resources contribute to increased competitive advantage and creates opportunities for the companies.

5.3 Enabling Capabilities
Chapter 4.2 showed that key enabling capabilities are networking and scanning, investment process and organizational culture. These three themes can be related to Teece’s (2007) dynamic capabilities framework, which consist of sensing, seizing and transforming, according to the presentation in Chapter 2.
The capability of networking and scanning has been shown crucial for the studied companies in order for the open innovation to work and produce opportunities. This is done in both formal and informal occasions. Meetings are often held in an ad-hoc manner, however, often enabled by formalized structures, as the Fintech Hub is an example of. It is also important to note that the networking and scanning capability does not only identify an opportunity, but also shape it, through new partnerships and new system integrations that are the result from this activity. The shaping of opportunity is also emphasized in the sensing capability in Teece (2007).

Flexible, yet effective investment processes also seem vital to realize opportunities. Often the initial phase of a new collaboration around a new innovation may be case-by-case, but pre-existing tools and methods needs to be there in the base, the larger the company, the more formalized they oftentimes are.

Effective investment processes and ways of networking and scanning are important to concretize. By being able to sense and seize new opportunities, through networking and scanning, and investment processes, companies can meet the new business environments and still maintain their competitive advantage, primarily in rapidly changing business contexts. To be able to explain and give examples of what meta-processes that are behind this ability to meet change and apply open innovation has been fairly unclear in extant literature. However, it is possible to detect a few processes which are both formal and informal. The processes are not primarily internal R&D activity within the company, as this is a form of “local search” (Teece, 2007). It is rather the processes of being out and networking and scanning that can be referred to as the underlying processes that are difficult to concretise. Nordea’s initiative to enable 1000 ideas, 100 prototypes and 10 products (Berger, 2017) is also a form of process as it is formalised, documented and is planned to be conducted every year. Williamson (1999) criticised the concept of dynamic capabilities for not operationalizing central concepts enough. Eisenhardt and Martin (2000) attempted to describe what the dynamic capabilities actually are, for example product innovation and strategic decision making. However, scholars have still criticised the concept of dynamic capabilities of being vague, Kraatz and Zajac (2001) is still unclear and difficult to quantify. The findings of this paper have given a
few examples, of what the processes of the dynamic capabilities are, which also exemplifies what the dynamic capabilities are. Added to this, the examples are fairly concrete.

In order to continuously transform the company as the environment changes, the organizational culture seems central, based on the findings of this study. The agile mind-set and the openness to collaboration are drivers for change. It is interesting to understand that this process is not a pure top-down transformation approach, led by the senior managers. The transformation stems from all layers of the organization. Teece (2007) argues that organizational units need autonomy, in order to transform rapidly. In his attempt to explicit the microfoundations of the ability to reconfigure an organisation, Teece (2007) includes “embrace open innovation”, which of course all actors in this study do, but it also a mind-set that needs to be included with the organisational culture.

5.4 Competitive advantage from innovation
To sum up the above discussion, the competitive advantage built through the open innovation process seems to derive from the speed generated from both the innovations within the business ecosystem, and the enabling capabilities, which are possible to see as dynamic capabilities. Added to this, there are efficiency gains to be made from the resource combinations, also building competitive advantage. There is a downside from the open innovation process and that is the risk of imitation. However, it seems like the benefits from the open innovation process are larger. Moreover, it appears as if there is a relationship between the openness as an organisation and open innovation: a company that is open can be successful in using open innovation, and the open innovation enables the company to be open.
6. Conclusions

The purpose of this paper is to achieve a deeper understanding of the relationship between competitive advantage and open innovation, applied to fast-paced business environments. This is explored in the financial technology (fintech) sector, as this is a sector that is growing very rapidly all over the world and because it is, arguably, still in the beginning phase of the transformation that comes from the technology shifts. As the business world develops rapidly, innovation and technology are playing an important role in deciding how companies respond to this. By understanding how these concepts are recognised by the actors of focus, how they are related and what consequences that come from them, a more insightful appreciation of how the open innovation enables the development of competitive advantage in fast-changing business environments is possible. If an attempt would be made to conclude “How do companies build competitive advantage through open innovation in rapidly changing business environments?” a few themes could be formulated. These are described more in detail below.

First, there is a fintech business ecosystem and it is shown to be an applicable concept to explain the environment where the innovations are generated and new value is created and captured. The results have shown that in the business ecosystem, competition is both static and dynamic, and collaboration is an equally important concept as competition. Also, opportunities are created that companies can benefit from by being open to the ecosystem and collaborate in innovation with other parties, and receive inspiration from other actors, where it will be a win-win for both parties, where they are not afraid of being imitated. The results of this paper also indicate that sharing of resources can be a major source of harvest. If companies integrate their products and services and build them together, it creates a resource combination that is better than the sum of the individual parts. In a business environment where the pace is high, not the least when it comes to technology, this is important for companies to recognise. By scanning and identifying external resources that can effectively be united with internal key resources, unique combinations of resources and competencies are set up that creates synergies and will be a source of competitive advantage for both parties.

Second, the enabling capabilities that are important to gain value from the open innovation primarily seem to rest on three capabilities. (1) Networking and scanning, which is important to find new partnerships and exchange knowledge, in order to identify and create new opportunities. Meetings, which are crucial for new innovations and new collaborations, often
take place in an ad hoc manner. However, a formalized structure for this to take place may be required. (2) Investment processes, which are necessary to turn opportunities into new products and services, by combining case-by-case approaches with existing tools and methods, grounded in agile development processes. (3) Organizational culture that promotes openness and an agile mind-set, leading to a continuous transformation of the company, which may be necessary, in order to quickly reorganise its resources, when the opportunities and potential threats are difficult to predict. These capabilities are recognized as dynamic capabilities, and are the basis for enterprise success as the business environment changes.

Finally, the competitive advantage that is built through the open innovation process is a result from the business ecosystem and the enabling capabilities, which in turn generate speed and produce efficiency gains through the sharing of resources. The downside of the open innovation process is the increased risk of imitation. However, the benefits of openness seem to be larger than the possible disadvantages deriving from the risk of imitation of company resources. In short, embracing the open innovation process is important for companies that seek to be successful in fast-paced business environments.

For future research, an aspect that raises the curiosity is what the consequences will be when the new PSD2 is implemented, and the open banking platforms have been up and running for a while, with third-party-providers launching their solutions on this. One could argue that it will bring important changes that will have large impacts on the competitive situation and the business ecosystem as a whole. Or it might not. Either way, future research on this is suggested.
7. Limitations

This thesis focuses on providing tools of understanding how companies build competitive advantage. However, there are of course aspects that are important to consider, limitations that ought to be reflected upon. Interviews have been made with four different actors, with one or two representatives per actor. Obviously, this does not mean that the findings of the paper represent all the companies in the sector. By interviewing more companies and more key people, the findings would have been more convincing and further elaborated. Added to this, the observations are concentrated on a very specific time. By studying the phenomenon over time in the actors of focus, more objective findings would be the basis of the analysis and conclusion, which in turn would be more persuasive. This means that generalizable conclusions cannot be made.

Another limitation is bias amongst the interviewed companies and people. At times, it is possible that answers are based on that the interviewed people want the reputation of company they work for to be solid and positive. One of the companies are public and traded on the exchange, which means that whatever is public about the company can affect how the public view is formulated.

It is also of relevance to consider that the paper has been written by two authors with opinions and mind-sets that affects the findings, analysis and conclusions. Even though the results are based on interviews, these are based on the authors screening of what the answers are. Even in this process, there could be sources of bias.
References


Appendix A – Case study actor presentation

Nordea
Nordea Bank AB (“Nordea”) is a Scandinavian bank with some 31 000 employees, it operates in the European market, mainly in the Nordic countries, and has approximately 11 million clients, their internet bank serves half of these clients (Nordea, 2017). The main competitors are the other big Swedish and Scandinavian Banks, which they have been for a long time (Nordea, 2017).

The bank has recently put in place an open banking platform, which will enable third-party developers (i.e. fintech companies) of financial services applications to test and launch their financial solutions. This development is to large extent driven by the new payment service directive (PSD2). The financial solutions will be built through collaboration and partnerships and the bank will actively engage in the orchestration of tomorrow’s banking ecosystem.

Some examples of products and services generated through collaborations and open innovation include the mobile payment solution Swish, which was created through a collaboration between six banks, the central bank and other actors (Nordea Senior Business Developer), and the collaboration with the payment app Betalo (Nordea Senior Business Developer; Leijonhufvud, 2017).

Näktergal
Näktergal AB (“Näktergal”) is a start-up company based in Stockholm. The company, which utilizes its founders experience of 20 years within the banking sector, currently employs six persons and it builds systems for consumer lending. The direct competitors are the system providers - examples include Emric and Banqsoft (Näktergal, 2017).

The company has a deep focus on collaboration with other companies, and through their platform they can integrate systems from different providers of financial solutions and offer unique solution for their customer, which typically is a bank (Näktergal CTO, 2017).
**Zimpler**

Zimpler AB (“Zimpler”) is a Stockholm based fintech company, which focuses on mobile payment solutions and offer other companies to provide their customers with a better experience during online purchases, offering them control over the payment process (Zimpler, 2017). Zimpler now has 35 employees, and is growing rapidly, in fact this year the company was ranked by Deloitte as the third fastest growing technology company in Sweden (Deloitte, 2017). The payment solutions actors are the competitors, these include Klarna, Trustly and PayPal, to mention a few (Zimpler, 2017).

Regarding examples on products or services developed through open innovation, these includes the collaboration with the crowdfunding company Tessin, where Zimpler has developed a payment solution that fits Tessin’s needs (Zimpler CFO). Moreover, Zimpler is involved in several collaborations with their service providers (Zimpler CFO).

**Stockholm Fintech Hub**

Stockholm Fintech Hub AB (“Fintech Hub”) is a physical platform that acts as an innovation hub for fintech companies. It exists in several of the Nordic countries and it is a place dedicated for collaboration and communication that is designed to meet the specific needs of the fintech community (Fintech Hub CEO).

Moreover, Stockholm fintech hub is independent and not-for-profit, its main goal is to foster and accelerate the development of state of the art FinTech, insurance technology (InsurTech), and regulatory technology (RegTech) startups. Because of this, the competition is more difficult to define. However, there are hubs in different countries and regions, the fact that other parts of the world are successful in the sector is a source of competition, banks have their own programs - these are examples of what could be called the competitors (Fintech Hub, 2017a).
Appendix B – Collected data

The table below presents the list of interview participants and the information regarding the interview.

<table>
<thead>
<tr>
<th>Number</th>
<th>Actor</th>
<th>Name</th>
<th>Role</th>
<th>Duration</th>
<th>Type</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nordea</td>
<td>Camilla Bäck</td>
<td>Senior Business Developer</td>
<td>60 min</td>
<td>Face-to-face</td>
<td>2017-12-14</td>
</tr>
<tr>
<td>2</td>
<td>Nordea</td>
<td>Andrea Strand</td>
<td>Community Manager Open Banking</td>
<td>60 min</td>
<td>Face-to-face</td>
<td>2017-12-14</td>
</tr>
<tr>
<td>3</td>
<td>Nordea</td>
<td>Andrea Strand</td>
<td>Community Manager Open Banking</td>
<td>15 min</td>
<td>Phone</td>
<td>2017-11-14</td>
</tr>
<tr>
<td>4</td>
<td>Náktergal</td>
<td>Erik Bennerhult</td>
<td>CTO</td>
<td>45 min</td>
<td>Face-to-face</td>
<td>2017-11-23</td>
</tr>
<tr>
<td>5</td>
<td>Náktergal</td>
<td>Erik Bennerhult</td>
<td>CTO</td>
<td>60 min</td>
<td>Face-to-face</td>
<td>2017-12-15</td>
</tr>
<tr>
<td>6</td>
<td>Stockholm Fintech Hub</td>
<td>Lana Kaupuza</td>
<td>Head of Community</td>
<td>30 min</td>
<td>Face-to-face</td>
<td>2017-11-22</td>
</tr>
<tr>
<td>7</td>
<td>Stockholm Fintech Hub</td>
<td>Matthew Argent</td>
<td>CEO</td>
<td>90 min</td>
<td>Face-to-face</td>
<td>2017-12-15</td>
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<tr>
<td>8</td>
<td>Zimpler</td>
<td>Johan Strand</td>
<td>CFO</td>
<td>75 min</td>
<td>Face-to-face</td>
<td>2017-12-15</td>
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<tr>
<td><strong>Others</strong></td>
<td></td>
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<tr>
<td>9</td>
<td>Nordea</td>
<td>Ewan MacLeod</td>
<td>CDO</td>
<td>5 min</td>
<td>Video clip</td>
<td></td>
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<tr>
<td></td>
<td>Nordea</td>
<td>Erik Zingmark</td>
<td>Co-head of Transaction Banking</td>
<td>40 min</td>
<td>Video clip</td>
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<td>10</td>
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</tr>
<tr>
<td>11</td>
<td>Nordea</td>
<td>Gunnar Berger</td>
<td>Head of Open Banking</td>
<td>1100 words, 3 min</td>
<td>Article and video clip</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C - Interview guide

The following interview questions were used in the conducted interviews. Not necessarily were each and every sub-questions asked, also follow-up questions were sometimes asked depending on the answers. Prior to the interview, a short presentation of the thesis was given.

1. We are studying how companies build and renew competitive advantage, against who is the competitive advantage directed when it comes to your company?
   a. Describe the competitive situation.
   b. In the context of open innovation between two or more companies, what does the value distribution look like? Who is best at capturing the value?

2. Open innovation can be described as an innovation process which involves collaboration between organisations and where there is an exchange of knowledge. Can you give an example of this from your company?
   a. Are there any examples of products/services that has been generated through open innovation or where open innovation has been an important component in the developing process?
   b. Do you have any specific procedure in the process of open innovation? Describe the process.
   c. Is there a closed aspect/part of the developing process where everything happens internally. When does it go from open to closed? Why? Because of competition? How is the transition handled?

3. In collaboration, what are the unique resource combinations? What are the external/internal resources?
   a. Do you often combine resources? How does the collaboration look like in practice, in one project team or formally separated units that communicate formally?

4. Are there any examples of when you have lost competitive advantage during a process of open innovation?
   a. Do you see any risks of being imitated/copied?
b. What are the procedures of handling open innovation? Is it better to acquire, invest or partner-up?

c. How do you view the consideration of costs related to searching, communicating, control compared to self-developing eller cooperating with other known parties?

5. How much do you look at the open innovation that is occurring in your ecosystem/business environment and try to recreate and use what other companies have done and how much do you create new on your own?

6. In fast-changing environments, the ability to integrate/build/reconfigure internal and external resources and competencies becomes more important. This can be broken down into three parts:

a. How do you identify and shape new technological and market-oriented possibilities and threats? (Sense and shape)
   i. How do you work with continuously improving/adapting this ability?
   ii. Are there any examples?
   iii. Are there any specific routines or processes?

b. How do you appropriate new business opportunities? (Seize)
   i. How do you work with continuously improving/adapting this ability?
   ii. Are there any examples?
   iii. Are there any specific routines or processes?

c. How do you reconfigure/adapt the organisation? (Reconfigure)
   i. How do you work with continuously improving/adapting this ability?
   ii. Are there any examples?
   iii. Are there any specific routines or processes?

d. Does the open innovation affect these abilities? Do the abilities affect the open innovation?

e. Do you actively invest in these activities and routines? Which did you invest more in?

f. What are the most important experiences from working with these abilities?
7. What are the most important differences in your procedure for acting strategically in order to become stronger in the competition compared to earlier? For example 20 years ago?
   a. What did it look like earlier?
   b. What does it look like now?
   c. What are the abilities that are being built? What are the unique key competencies that are unique?

8. Thank you for your time, these were all of our questions, Is there anything that we have missed to ask you or anything that you would like to add that would benefit this paper?
Appendix D - Empirical data structure

The figure below shows an illustration of the data structure and the theme classification. All first order concepts that were identified from the empirical data are not shown, rather the figure shows the most important ones.

<table>
<thead>
<tr>
<th>1st Order Concepts</th>
<th>2nd Order Themes</th>
<th>Aggregate Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation is ongoing, innovation happen quickly</td>
<td>Duality in competition</td>
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<tr>
<td>Slow changes in this business in general</td>
<td>New value creation</td>
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<tr>
<td>Competitive advantage sometimes short lasting</td>
<td>Inspiration from others in the ecosystem</td>
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<tr>
<td>The core business is not threatened</td>
<td>Not afraid of imitation</td>
<td></td>
</tr>
<tr>
<td>It can quickly change if tech companies enter</td>
<td>Resource combinations</td>
<td></td>
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<tr>
<td>All parts gain from collaboration, win-win</td>
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<td></td>
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<tr>
<td>Banks gain the most</td>
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<tr>
<td>Look at non-competitors</td>
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<tr>
<td>Use existing technologies, but find a new twist</td>
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<tr>
<td>Need to find something unique</td>
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<tr>
<td>Difficult, not necessary, when ahead of competition</td>
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<td></td>
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<tr>
<td>The gain is higher than the risks</td>
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<tr>
<td>Companies are busy with their own idea</td>
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<tr>
<td>Difficult to imitate culture and core technological platform</td>
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<tr>
<td>Unique and complementing, banks have customers, money know-how; fintechs are fast and creative</td>
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<tr>
<td>Brand effects</td>
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<tr>
<td>Synergies</td>
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<tr>
<td>Meetups, events, hubs, the meeting in the corridor</td>
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<tr>
<td>Labor mobility and contacts</td>
<td>Networking and scanning</td>
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<tr>
<td>Take part in dialogue with legislators</td>
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<td></td>
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<tr>
<td>Initial phase is ad-hoc</td>
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<tr>
<td>Tools and methods that enables case-by-case development</td>
<td></td>
<td></td>
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<tr>
<td>Business development or technological need as drivers</td>
<td>Investment processes</td>
<td></td>
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<tr>
<td>Agile development</td>
<td></td>
<td></td>
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<tr>
<td>Collaboration culture in Sweden</td>
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<tr>
<td>New mindset in new generation - open thinking</td>
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<tr>
<td>Make as much as you can open, do not reinvent the wheel</td>
<td></td>
<td></td>
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<tr>
<td>Curiousness, openness and creativity</td>
<td>Organisational culture</td>
<td></td>
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<tr>
<td>Agile mindset and learning</td>
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</tbody>
</table>