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Master Degree Project in Innovation and Industrial Management

Elevating the Work with Inbound Open Innovation

A multiple case study on multinational companies

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ELEVATING THE WORK WITH INBOUND OPEN INNOVATION
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Abstract

Many large companies fail to jump on subsequent technological waves affecting industries in tandem with ever-increasing competitive landscapes. To avoid being outcompeted, companies have to stimulate their innovative and explorative capabilities. One way for companies to do so is by harnessing the external environment of competent partners that is embedded around the focal company. This way of closely collaborating with external partners is called *Open Innovation*, a term coined by Henry Chesbrough in the early 2000's. This thesis aims to examine how large multinational companies ought to work with Open Innovation in order to do so as efficacious as possible. More specifically, it aims to elaborate on what organisational modes of governance and structure, and which partners and practices, that are beneficial to Open Innovation in the context of large multinational companies. Due to absence of academia within the field of how Open Innovation practically should be managed, a qualitative multiple case study research is being conducted. Large multinational companies are being interviewed in order investigate if there are any preferable ways of working with Open Innovation. The main results of this study are twofold. Firstly, increased top-down governance with greater coordination of Open Innovation by top managers seem to be vital for elevating a company's results of Open Innovation. Secondly, while most companies manage to collaborate with their already established partners such as customers and suppliers, they tend to face hardships with harnessing start-ups and innovation intermediaries. Albeit these two partners are being considered as highly important to large companies, especially in the recent time, many large companies fail to implement efficient practices for harnessing them. Nonetheless, large companies must deal with this inevitable challenge in order to stimulate their innovative and explorative capabilities for fostering innovations.

Key words: Open Innovation, Governance, Structure, Partners, Practices

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"No one has monopoly on knowledge"
- Henry Chesbrough

Gothenburg, 30th May, 2017

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1. Introduction

1.1 Background

The world is changing. It has done so for ages. But especially since the dawn of human civilisation around 8000 BC in the region of the Fertile Crescent in the Middle East, change has picked up pace and not slowed down ever since (Maisels, 1998). Change affects human life in many, different ways, and is therefore a factor that every business must consider when constructing strategies for the future. Throughout modern history and especially in the last decades, there are several prominent examples of companies failing to jump on the next technological wave affecting the industry, e.g. Polaroid and Kodak in the photography industry (Zhou & Wu, 2010), and Blockbuster Inc. and Borders Group in the business of physical distribution of media (Braun & Latham, 2012). These companies, amongst others, all failed to innovate, which lead them from being leaders in their industries to bankruptcy in a couple of years. Failing to innovate can be considered a part of the competence trap that companies with strong technological capabilities can get caught in. They are oftentimes strong in exploiting existing technological capabilities, but fail in the explorative aspect of product innovation and thus get stuck with only incremental innovation (Zhou & Wu, 2010).

To tackle the challenge of change and survive in the industry, the development of strategic flexibility in resource allocation and coordination is a necessity. Companies must stimulate greater exploration of new technologies and markets to expand its innovative capabilities, and thereby avoid the competence trap. One way to do so according to Zhou and Wu (2010) is by developing resources that can deal with abrupt changes in the business environment, which increases companies' explorative capabilities. One tool for expanding a company's innovativeness and explorative capabilities is by accessing the external environment that is embedded around the company. This way of working is called *Open Innovation* (OI). This is a new paradigm and is changing the way of how companies perceive the external environment and its different actors. The new paradigm has received a lot of attention by many researchers and practitioners, especially by the founder of the term, Henry Chesbrough from the Haas School of Business at UC Berkeley.

OI is a result of a shift in the knowledge landscape during the last circa 30 years that businesses have been exposed to. Several factors have caused an erosion in the knowledge monopoly that large companies had created for themselves by building their product development on extensive internal research and development (R&D) centres, also referred to as closed innovation. During the age of the closed innovation paradigm, starting in the early 20th century, large corporations had an internal approach to R&D, which fitted well with the existing knowledge landscape at that time. There was, compared to today, a low amount of external knowledge to build upon outside the company and the government funding of R&D was low compared to modern days (Chesbrough, 2003). According to Chesbrough (2003), there are four distinct erosion factors to the closed innovation paradigm. The first factor was the increased availability of college graduates in the post-war period. This increased the employee base for companies that could develop new and useful knowledge for commercial use. The second erosion factor of closed innovation was the venture capital market. In the 1980s, ideas and knowledge of researchers started to leak out of the R&D centres the large organisations possessed, and were developed and commercialised outside of these. The first and second erosion factors also created the third erosion factor. In the

closed innovation system, the tension between the incentives for researchers and product developers created a buffer of ideas between these distinct phases. These ideas and inventions, which were not developed further inside the focal organisation, could be developed outside the organisation, due to the mobility of employees and venture capital. The fourth erosion factor was the increased capabilities of external suppliers. In the last decades, the Internet is considered as the fifth erosion factor for the closed innovation paradigm, as it helps to diffuse knowledge on a global scale (Chesbrough and Bogers, 2014).

The OI paradigm is based on the fundamental fact that the pool of knowledge outside the company is larger than on the inside. The majority of scientists and researchers will work outside rather than inside the focal company. This paradigm implies that the focal company should focus on their core capabilities and use their scarce resources in the most efficient way in tandem with letting external ideas be harnessed. By exploring what is outside the company's boundaries, new possibilities related to innovation can emerge. However, OI creates new requisites, and hence challenges that the company needs to address to establish a well-functioning system supporting the new way of working with innovation. Innovation structures, governance, management and processes need to be reshaped and restructured in order to create a system where OI thrives. (Lakemond & Tell, 2016)

1.2 SCA and Open Innovation

1.2.1 SCA

Svenska Cellulosa Aktiebolag (SCA) is a leading global hygiene and forest product company founded and based in Sweden, with local offices spread across the globe. The company develops and produces sustainable personal care, tissue and forest products. Their product portfolio within these three segments includes a great variety of renowned brands such as Libero, Tork, Libresse and Tena. Every day, more than 500 million people worldwide are users of SCA's different products in approximately 100 countries. The group has around 46,000 employees worldwide and their sales reached SEK 117 billion in 2016 (SCA, 2017a).

Innovation is a top priority at SCA and comprises one of the company's three strategic priorities. According to SCA, innovation is a crucial driver for growth and profitability, and is therefore deeply embedded in the company's strategy and business model. Innovation is essential as it enables them to build their brands, to meet their consumer and customer needs, and hence ensure strong brands and attractive offerings. For SCA, innovation is based on market trends, consumer and customer insights, new business models, and new technologies. Particular attention is paid to exploring new ways of broadening their product portfolio and expanding their range of services (SCA, 2017b).

To support the innovation processes, SCA has built up a well-developed innovation culture where innovation teams across the globe together are working towards the goal to increase the pace of innovation, ensure that all segments have a competitive and balanced portfolio of investments, and capitalise on global economies of scale (SCA, 2017b). As could be viewed in the organisation chart depicting SCA's organisational structure, they have established three global units in addition to their seven business units. The Global Hygiene Category (GHC) unit, highlighted in blue in Figure 1, which constitutes one of the global units, has a global responsibility for innovation and customer and consumer brands in the

hygiene area (SCA, 2015b). Within GHC, a unit is composed of individuals with overarching responsibility of innovation processes across the different business units, as well as approximately 50 innovation teams that are belonging to specific business categories.
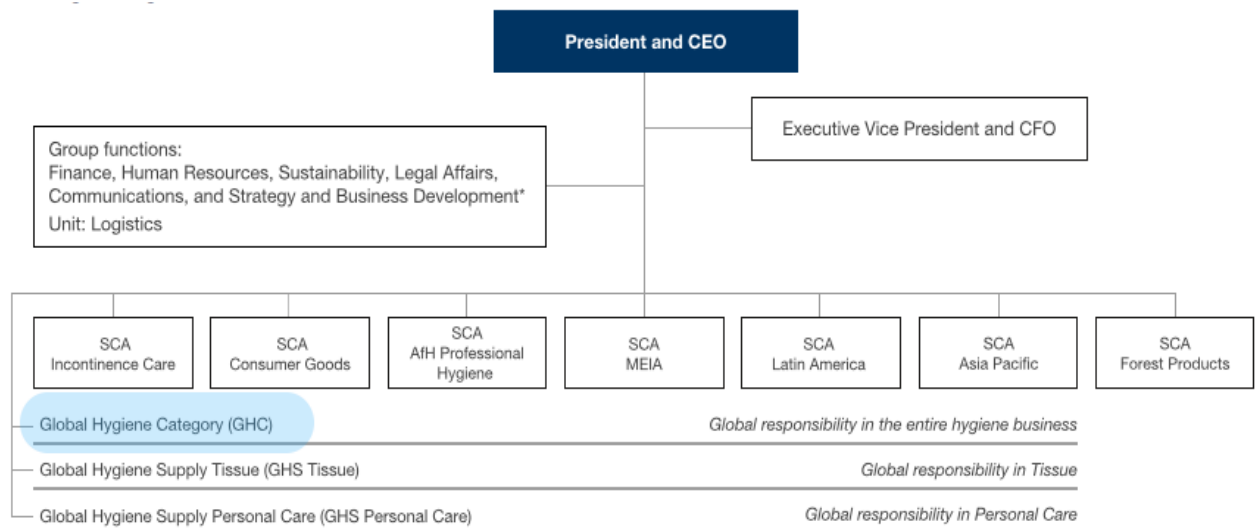
Figure 1 – Organisational Chart SCA (SCA, 2015b)

1.2.2 Open Innovation at SCA

An important feature for SCA in the process of creating innovations is the work with OI, and has been so since 2006 when SCA decided to systematically start to work with it (SCA, 2015a). According to SCA, OI means to cooperate with external parties, and it comes with a number of benefits. For instance, it enables them to speed up their development processes, cut R&D costs and provide input from adjacent industries (SCA, 2017). Also, OI is paramount for SCA when it comes to find novel ways to market their different offerings (SCA, 2016). Their operation of OI has generated some concrete examples of innovations that now are included in their range of customer offerings (SCA, 2015a). One example is Tork EasyCube, an IT-based real-time service that provides oversight of when toilets need to be cleaned or dispensers have to be refilled in public restrooms. Without opening up their innovation processes for external input through OI practices, this innovation, amongst others, would not exist on the market today.

1.3 Problem Discussion

OI has been an important cornerstone to SCA's innovation practices for more than a decade. During this time period, SCA has developed a broad set of OI practices that have generated successful innovations. Albeit SCA possesses a well-developed way of working with OI, they are aware that continuous improvements and adjustments are vital as the external environment constantly changes, and that their way of practicing OI should be developed and enhanced continuously. Thus, SCA is currently revising their way of working with OI, and is about to set a new OI strategy by the end of 2017. Specific issues have yet to be evaluated and revised before the creation of a strategy can take place.

Together with SCA two essential areas particularly important to investigate were identified, which will have potential to contribute with insights to SCA's new strategy. The first area is

concerning the organisational structure and governance of OI actions. The second area is concerning their network of inbound OI partners and practices. For this thesis, it is important for readers to keep in mind that the research scope is defined based on practical reasoning by SCA, and not through academically research and identification of specific areas. One of the main issues is however that there is a lack of academic research in the field of OI on how companies practically should operate their organisations in regards to OI processes, and what set of partners and practices to use in order to get the most innovation for the money invested. A benchmark on other large companies working with OI can bridge the gap of academic literature and contribute to SCA with useful insights on how to elevate their OI.

1.4 Purpose

This thesis aims to provide SCA with further insights for their work with inbound Open Innovation, and provide the Open Innovation-team with concrete measures on how they can elevate their work with inbound Open Innovation. In a larger perspective, this thesis' purpose is to contribute towards the development of the company's Open Innovation strategy which is to be set by the end of 2017.

1.5 Research Question

With the current situation at SCA, combined with the problem discussion, the main research question for this thesis has been formulated accordingly:

● *How can SCA act to elevate their work with inbound Open Innovation?*

The main question is complemented by two subqueries:

○ *What organisational structure and governance modes are beneficial to Open Innovation?*

○ *What partners and practices are beneficial to Open Innovation?*

1.5.1 Delimitation

In this study, we have addressed actions related to inbound OI partners and practices, and organisational governance and structure. An analysis of all possible actions to elevate one's work with OI include a considerably broad range of different activities, such as IP rights, leadership, internal culture, resource allocation, and risk mitigation, among others. Hence, this research will not cover all aspects of actions and thus the reason why other aspects than the two mentioned in the subqueries have been excluded.

1.6 Research Outline

This thesis' research starts with identifying SCA's essential areas of research connected to the company's work with OI, in order to outline a relevant scope useful for SCA. The scope is a result of input from both academia and SCA as an organisation. Once the scope is set, a literature review is conducted to create a theoretical fundament and framework closely tied to the research question. After the literature review, the research strategy is set so the gathering and analysis of the data is as precise as possible. In this step, relevant interviewees at SCA and external companies are decided and contacted in collaboration with the supervisor at SCA. The next step is to gather data from interviewees at SCA and chosen external companies, and subsequently compiling and verifying it. The last step in this research is the analysis of the given data, providing answers to the research question as well as recommendations to SCA.

Introduction

Outline of the thesis' background, SCA, and the related problem discussion.

Theory

Elaborates on relevant theories and frameworks in the field of Open Innovation, related to the chosen research question.

Methodology

Presentation of the overall approach and chosen research strategy and design.

Empirical findings

Compilation and verification of primary and secondary data from SCA and selected external companies.

Analysis

Application of theory to empirical findings, and comparison of SCA's and the external companies 'empirical findings.

Conclusion

Answers to the research question, recommendations for SCA, and future research proposals.

2. Theory

2.1 Open Innovation

Searching for knowledge and innovations outside one's organisational boundaries is not a new phenomenon. Collaboration with external partners to enhance products, services and processes occurred long before the term OI was introduced (Trott & Hartmann, 2009). However, it was not until 2003, when Henry Chesbrough publicly coined the term *Open Innovation*, that it became a fixed field in research. Since then, OI has received great attention among academics and practitioners. Thus, we will use some of Chesbrough's academic work in order to define the core meaning and implication of the term. One of the most used definitions of OI presented by Chesbrough is the following:

> "*The use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. The Open Innovation paradigm assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology*"
>
> (Chesbrough et. al., 2006)

Many revised definitions of OI have evolved since then, both by Chesbrough as well as other researchers. The core idea of OI has however remained stable, built on the notion that there is a wide spread of knowledge in the economy society, beyond the borders of the focal company (Chesbrough & Bogers, 2014).

The emergence of the term *Open Innovation*, supported by the erosion factors of the closed innovation paradigm earlier presented in the introduction chapter, has led to a paradigm shift where many companies move from a closed approach of working with innovation to a more open approach. That is, companies do not any longer solely rely on internal sources of competence. Figure 2 illustrates how innovation processes no longer entirely are maintained internally. The holes in the funnel represent pathways for external ideas to enter the focal company's internal innovation processes, and internal ideas to reach beyond the firm's borders to external parties. This is what is considered to be inbound and outbound OI. The next important aspect of the model is the market where any given technology ends up being used. Earlier, technologies were created internally and more or less resulted in products exclusively for the focal company's markets. With OI, ideas and technologies can still be innovated internally to enrich the focal company's current market, but also be licensed or sold to another company, or even created by an external actor and brought in by the focal company. In an ecosystem of companies, this allows different actors to integrate external and divest internal knowledge. Thus, this funnel should be set into perspective in an ecosystem of many different OI funnels, which all interact to utilise the maximum amount of created knowledge and technologies.
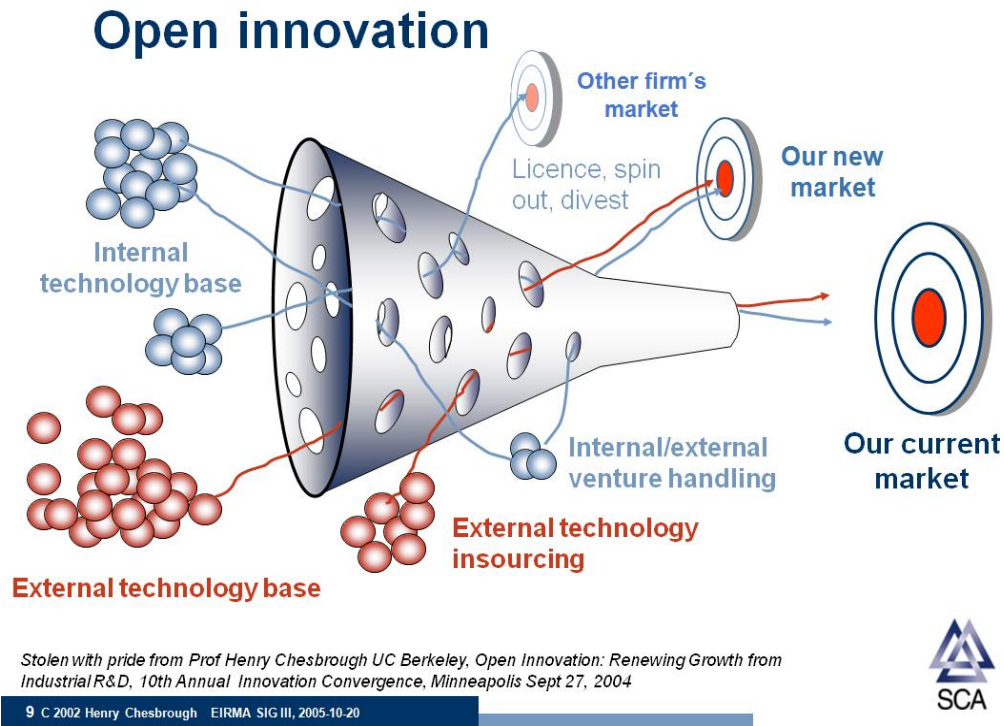
Open innovation

Figure 2 - Open Innovation (SCA, 2013)

2.1.1 Open Innovation in a Business Architecture

According to Enkel, Gassman and Chesbrough (2009), OI is a concept that should not serve as the single approach a company should have to innovation. This would lead to a loss in control and core-competences, and eventually a long-term loss in innovation success. The successful approach is to have a mixed approach of open and closed innovation and to use a broad approach to innovation in order to leverage various channels in the development of new products. According to Chesbrough (2003), internal research plays a critical role in the early stage of technologies' evolution. Internal R&D is suitable for creating an interdependent architecture. This architecture is a theme of immature technologies, where researchers have not fully understood the whole technology and all its parts yet. As the technology evolves and becomes more mature, an interface emerges and the architecture of a technology becomes modular. In this stage, holders of a platform can use external technologies as plug-ins to their existing platform, without the fear of having any effects on other modules of the technology. Especially the inbound process of OI is applicable to modular technologies and products. High knowledge intensity and product modularity are important criteria for the companies that apply this process (Gassman & Enkel, 2004). This is in line with Chesbrough's findings from his book "Open Innovation" (2003), where he states that product modularity is necessary in order to be able to apply external knowledge, as described earlier in this thesis. These companies tend to gain a higher advantage of using inbound OI.

2.1.2 Inbound Open Innovation

One can categorise three archetypes of OI by looking at the concept through a firm's process perspective. OI can be conducted in an inside-out process, outside-in process, and through a coupled process (Enkel, Gassmann & Chesbrough, 2009). According to a review of research on OI conducted by West and Bogers (2014), the outside-in process, also called inbound innovation, is the predominantly researched archetype. Moreover, it is the process

that fits into the scope of this thesis, which is the reason for this chapter putting emphasis on this specific process in the field of OI. An important notice is that in academic research, the terms "outside-in process" and "inbound Open Innovation" are used interchangeably. We have decided to exclusively use "inbound Open Innovation". Inbound OI's purpose is to integrate external knowledge into the focal company in order to enrich the existing knowledge base that the focal company holds. This means that a company will cooperate with e.g. suppliers, customers, and different intermediaries and brokers of knowledge in order to enlarge the knowledge base. There are various partners to work with and practices to integrate external knowledge through, which we will elaborate on later in this chapter.

Chesbrough and Bogers (2014) present a similar view upon inbound OI. They state that this process requires organisations to open up their innovation process to external input and contribution via sourcing or acquisition. After opening up the process, the business model of the focal company will determine which external inputs and contributions will be further developed and brought to the market. An important term in the process of inbound OI is absorptive capacity. In order for an organisation to be able to integrate and utilise external input and contribution, the organisation need to develop this absorptive capacity. Inauen and Schenker-Wicki (2011) give a definition of absorptive capacity, connected to internal research. They define the capacity as "*a firm's ability to recognize the value of new information, assimilate it, and apply it to commercial products, processes, and services*". They state that internal research provides a capacity to absorb external knowledge with sources in the external environment. This indicates that absorptive capacities are developed internally. However, Inauen and Schenker-Wicki (2011) also refer to research where this idea is criticised, proposing that absorptive capacities also can be gained by hiring new employees or by cooperating with external stakeholders or consulting firms. Chesbrough and Bogers (2014) also state that, based on previous research, the internal research is important in order to enable organisation to utilise external knowledge.

2.2 Open Innovation Motives

There are several different reasons why large companies desire to shift from a closed to a more open approach to innovation. Underlying determinants for engaging in OI are important to consider in this research since they have an impact on how companies strategically work with OI on a practical level, e.g. how OI is organised and what network of partners and practices that is utilised.

One distinction of the different determinants for engaging in OI is by dividing them into offensive and defensive motives (Huizingh, 2011; Lakemond & Tell, 2016). Offensive motives are characterised as development oriented, motivating companies to achieve innovation. Such motives are to *access additional competence*, *explore and access new technology*, and *identify new business opportunities*. Defensive motives on the other hand are focusing on the barriers perceived by companies when executing innovation related activities. These motives comprise *reduce/share costs* associated with innovation processes, *shorten/accelerate an innovation's time to the market*, *reduce/share risks* associated with innovation processes, and *increase flexibility* (Lakemond & Tell, 2016). Previous studies have examined what determinants that are motivating companies to work with OI, and are presented in following paragraphs.

According to Huizingh (2011), earlier empirical studies have shown that both offensive and defensive motives are strongly related to the use of OI, but that offensive motives are more important than defensive motives. The same has been found to be applicable to Swedish manufacturing companies. A study on 176 Swedish manufacturing companies that integrate external technology and partners into their innovation processes has shown that the most prominent motives for working with OI are of offensive character (Lakemond & Tell, 2016). The foremost motive is to *access additional competence*, followed by *access new technologies* and *increased flexibility*. In the bottom of the list, i.e. the least emphasised motives for working with OI, are to *reduce/share risks of innovation,* and to *reduce/share costs of innovation.*

Another quantitative study that has examined strategic motives of working with OI is Chesbrough & Brunswicker's (2013) executive survey on OI objectives among large companies in Europe and US. Although not making a distinction between offensive and defensive motives, their result shows that offensive motives, based on above definitions, are the most important motives. According to their study, *establishing new partnerships* is the most important motive, followed by *exploring new technological trends*, and *identifying new business opportunities*. *Reducing R&D costs* per project and *mitigating risks* of innovation projects seem to be less relevant objectives for large companies.

Mortara et al. (2009) have also studied the reasons for adopting OI, but through the use of a qualitative research strategy. In the interviews and workshops they conducted, questions about the advantages of adopting OI compared to the conventional closed approach to innovation were asked. Their findings are based on compiled data of 36 companies, many of which are large renowned FMCG and industrial companies. Similarities to the above-mentioned studies can be detected, yet also some slight differences. *Reducing time-to-market*, *explore new technologies*, and *access to competence and knowledge sources* were highest ranked motives and approximately equally important. The first and third reason were especially important for FMCG companies according to Mortara et al. (2009).

Table 1 comprises a ranking of companies' motives for engaging with OI. It is built upon a combination and aggregation from the above three presented papers, all examining the ranking of OI motives.

High

Importance

| Access to additional competence trough new partnerships |
| Explore and access new tehcnologies |
| Shorten/accelerate time to market |
| Identify new ideas and business opportunities |
| Increase flexibility |
| Reduce/share costs of innovation |
| Reduce/share risks of innovation |

Low

| Offensive motives | Defensive motives |
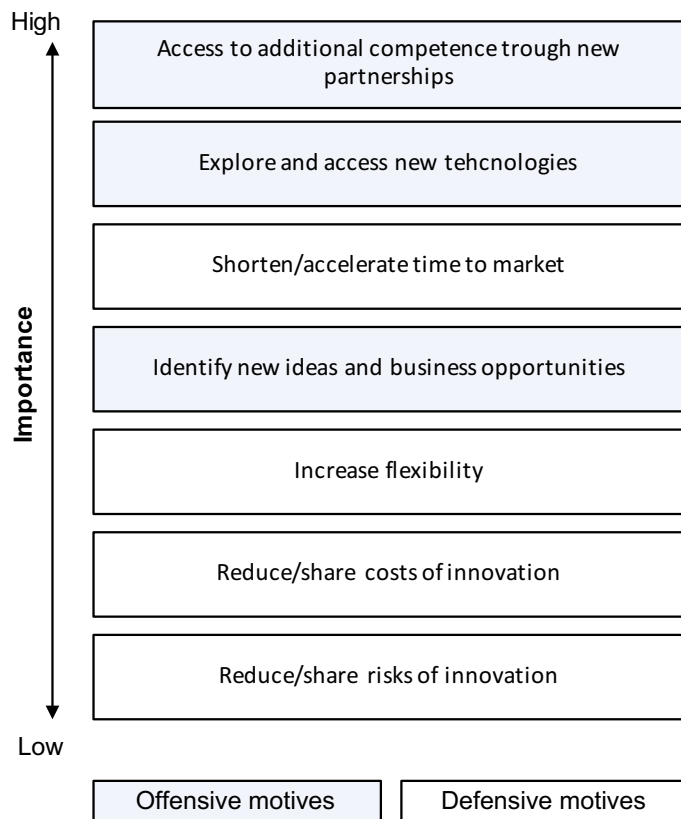
Table 1 - Ranking of OI motives

2.3 Organisational Governance and Structure for Open Innovation

2.3.1 Why Organisational Structure and Governance Matter

To reap the benefits of working with inbound OI, the focal company must establish an organisational structure and system that enables them to efficiently operate with OI partners (Trott & Hartmann, 2009). OI is about integrating external knowledge with the internal knowledge that a company possesses (Lakemond & Tell, 2016). However, the traditional notion among large companies on organisational boundaries has its roots in transaction cost logic. In the emerging paradigm of OI, external partners in the ecosystem are viewed as central sources of knowledge. This is contrasting to the transaction cost logic and the traditional innovation paradigm, where R&D is merely developed internally. This poses challenges to theory about innovation in relation to firm structure and organisational boundaries (Tushman, Lakhani & Lifshitz-Assaf, 2012).

In order to implement an open approach to innovation, one has to recognise that old structures will not change quickly in a radical way. Due to several factors, an organisation can face rigidity and inertia when striving for a systematic change. According to Keupp and Gassman (2009), this internal rigidity in an organisation can be explained by the organisational structure. If the structure does not favour innovation in the first place, this can lead to opposition towards a transition to OI. This is a big challenge for companies to tackle, ranked as the most prominent challenge for companies, both for companies in the start of

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implementing OI and among those that are managing OI (Chesbrough & Brunswicker, 2013).

As mentioned earlier, OI implies that not all innovation activities are, nor should be, "open" to external parties. Some innovation activities should remain "closed" to others but the focal company. The strategic rationale thus is to adopt a mixed approach of open and closed structures (Enkel, Gassman and Chesbrough, 2009). One could say that external relationships and internal capabilities are rather complements than substitutes. Internal R&D has even synergies with openness to external actors. Dahlander and Gann (2010) put forward that investments in internal R&D can have positive impact on a firm's absorptive capacity, which improve results from external idea scouting. Also, companies vary in the extent to which they can leverage external ideas. Organisations should therefore reconcile these divergent perspectives and embrace the notion of a complex organisation structure, where they ambidextrously pursue a range of different boundary options based on what fit them best (Tushman, Lakhani & Lifshitz-Assaf, 2012). For instance, in contrast to traditional firm-centred innovation processes, Tushman, Lakhani and Lifshitz-Assaf argue that OI processes are more decentralised, include intrinsic pro-social motives, and are peer-based.

2.3.2 Modes of Structuring and Governing Open Innovation

A company's OI strategy and the way of working with its associated activities are often managed as a result of the interaction of different organisational factors and mechanisms, much dependent on what drives the impetus of OI (Mortara et al., 2009; Lakemond & Tell, 2016). At the one extreme, OI can be implemented in a very formal and structured fashion, while in the other extreme be informal and subtler. This is illustrated in Figure 3, which is an adaption of Mortara and Minshall's framework from 2009. Their study on how large companies implement and manage OI has been conducted through a qualitative research approach, which partly included qualitative interviews with managers involved in OI.

Firstly, companies set and govern OI strategies either top-down or bottom-up, which is illustrated by the vertical axis. Top-down is when top-level managers consciously set OI as a part of the major innovation strategy, in which OI becomes an essential part of the corporate strategy. Through this mode, OI is governed consciously and in a step-change manner. Bottom-up on the other hand implies that OI evolves evolutionary in the lower hierarchical parts of the company over time, driven by external factors. The idea of OI is thus rather an outcome of environmental causes than top-managers who have been convinced of the idea. From that, a dominant model can evolve and be implemented in a more rational way. (Mortara & Minshall, 2011; Mortara et al., 2009)

Secondly, organisational coordination and structure of OI is either managed through centralised or decentralised methods, illustrated by the horizontal axis. Thanks to the wide recognition OI has received, some companies have instituted central teams to support the change towards a more open approach to innovation. A centralised coordination method implies that the company employs a formal and structural organisational team that is responsible for the OI across the whole company. This approach relies on a central small group of managers who are in charge of the deployment of OI. Activities include e.g. implementation of strategy, guaranteeing continual support for OI from the top of the firm, necessary internal OI training to others, and to develop an internal OI language. One could say that this group act as the company's door to the external sources. On the other hand, a

decentralised coordination method implies that the company is managing OI through some specific functions or processes/products. In other words, it is when OI activities are distributed in different functions or processes/products of the company, and also managed from there. For instance, the different functions operate the OI activities independently, based on their own needs and decisions. (Mortara & Minshall, 2011; Mortara et al., 2009).

According to Mortara et al. (2009), companies that choose a top-driven strategically approach to OI tend to often rely on a centralised OI team that support the OI implementation and develop the strategy.
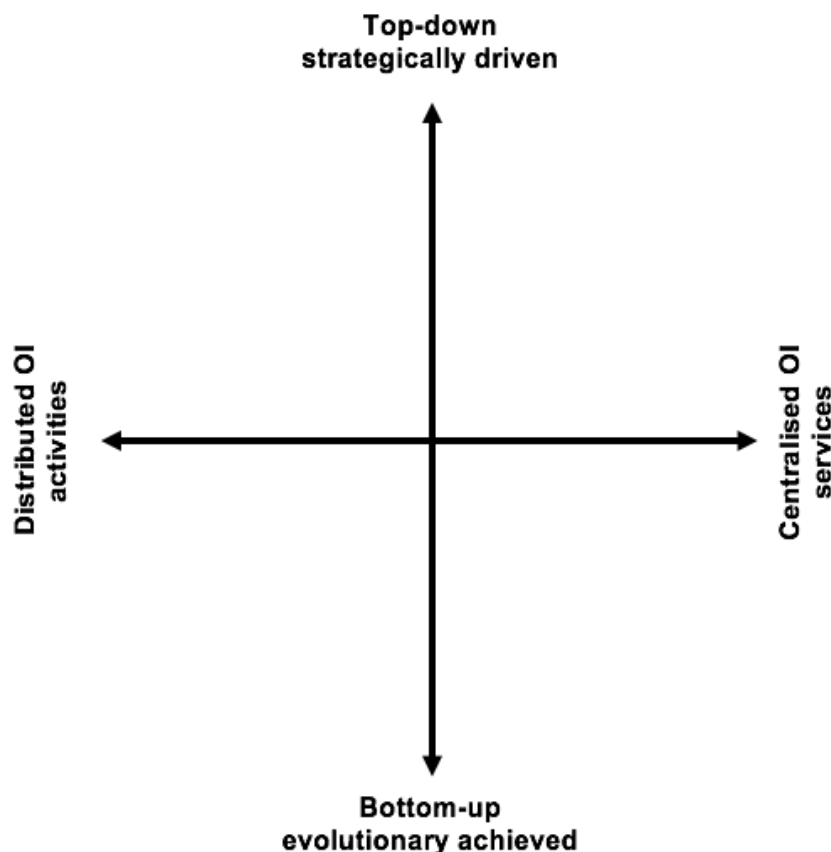
Figure 3 - Ways of governing and structuring Open Innovation (Adapted from Mortara & Minshall, 2009)

Mortara and Minshall (2011) conducted a research based on this particular taxonomy framework, in which they aimed to address the academic gap that prevails in how companies adapt to OI from an intra-organisational perspective. They found that, among FMCG companies including P&G, Unilever and KRAFT, the predominant implementation mode of OI was found to be *top-down centralised*. *Top-down decentralised* and *bottom-up decentralised* were found to be other adopted modes, however not deployed by FMCG companies. The *bottom-up centralised* mode seemed to be less relevant in their study, only adapted by one company in the study, which was an FMCG company. Another interesting finding is that some companies were working on a plan to change their OI implementation approach. A few organisations indicated a desired state of structuring and governing their OI through a top-down centralised approach instead. In other words, they felt the need for more coordination in their work with OI.

In order to facilitate and legitimise the classification of SCA, and the other external companies in the present study, based on this framework, a description of what features and characterizes each quadrant is presented, based on Mortara and Minshall's paper from 2011.

**Top-down
strategically driven**

- OI strategy is initiated from the top, but only happen in particular functions or products/ innovations
- OI is not rolled out across the whole organisation
- Idea of openness contrast with the traditional mind-set of those with long experience in the sector
- Incremental innovation often remained closed

- A group of managers who manages the OI strategy top-down
- Execution of OI relies on a small and central group who rolls out OI to the rest of the organisation
- OI team is responsible of building new relationships with external partners

Distributed OI activities

Centralised OI services

- OI is not formally recognised in the organisation. Not implemented as a strategy, but still used
- External pressure for adopting to OI
- There is no central co-ordination of OI and its activities. It is rather a collection of processes and roles distributed through the organisation

- Some people, e.g. from the R&D department, that consider the usefulness and want to implement OI
- Employees in lower hierarchical levels, e.g. R&D, who are leading the OI thinking. They often work to get management aligned with OI and to push the OI adoption

**Bottom-up
evolutionary achieved**

Figure 4 - Description of structure and governance modes (Adapted from Mortara & Minshall, 2011)

It is difficult to draw any inferences from available literature on how successful companies choose to organise and structure their OI in spite its crucial relation to a successful OI performance. One reason not being able to draw any inferences from the literature is because of the lack of literature on the topic. Furthermore, Chesbrough and Brunswicker (2013) state that there is no dominant mode in how to organise OI. Some companies organise it top-down with little room for financial autonomy of lower managerial ranks, while other companies prefer to organise it bottom-up.

2.4 Partners and Practices for Inbound Open Innovation
In this section, we address two major building blocks that all have impact on how companies practically work with OI. The first building block address the set of partners a company can engage with in order to access external knowledge. The second building block is about what

practices a company apply. Practices are actions a company can take in order to access the knowledge from the external partners. We will look at what partners and practices that do exist according to theory. Further, it will examine what partners and practices that are most important and used among companies based on previous studies.

2.4.1 Open Innovation Partners
The list of potential partners for the focal firm to open up their innovation processes towards and collaborate with when working with inbound OI is long, and stretches beyond traditional first-tier partners. Chesbrough and Brunswicker (2013), Lakemond and Tell (2016), and Schroll and Mild (2011) have all examined what type of partners that exist for larger companies in their pursuit of accessing and internalising external knowledge. Moreover, they have also looked at what partners are more used and more important than other types of partners. Lakemond and Tell, and Schroll and Mild, have examined what OI partners companies *use*, whilst Chesbrough and Brunswicker have studied what OI partners companies consider to be *important.* They have thus used various perspectives on companies' relations to OI partners. Further, each research duo has conducted their studies in different contextual settings and have occasionally used different wordings for similar type of partners. The definitions of each partner in this section will be the same no matter whom we are referring to. That means that some researchers choice of definitions for the different partners have been modified for the convenience of the reader.

In Table 2 of the most important and used OI partners for companies to partner up with is a combination and aggregation of Chesbrough and Brunswicker's (2013), Lakemond and Tell's (2016), and Schroll and Mild's (2011) findings. Despite their studies have been conducted in various contextual settings in terms of countries, sectors and company sizes, many similarities can be detected. Table 2 is following a particular order and starts from above with the most important and used partners.

❏ **Customers**
❏ **Suppliers**
❏ **Universities and Research Institutes**
❏ **Consumers**
❏ **Innovation intermediaries and consultants**
❏ **Other companies (e.g. start-ups)**
❏ **Competitors**
❏ **Communities**

Table 2 – Ranking of partners

However, since the authors have studied OI partners with different approaches, it would be useful to contrast the different approaches with each other. The below analysis has laid the foundation for the matrix that can be found in Figure 5. Chesbrough and Brunswicker's (2013) executive survey on large companies in the European and US market found that, not taking internal employees into consideration, *customers*, followed by *universities*, *suppliers*, and *consumers* to be the most important inbound OI partners. Companies in other sector, specifically start-ups and entrepreneurs, were less important than the previous mentioned, but still considered as important. Less important innovation partners according to them are *innovation intermediaries, competitors* and *communities*. Lakemond and Tell's (2016)

findings on Swedish manufacturing firms, ranging from small to large in size, have identified which partners that are most frequently used in their inbound OI activities. Despite examining the usage and not the importance of OI partners, their ranking has many similarities to the former author duo's findings, yet some differences. Most used partners are, in particular order, *customers*, *suppliers*, and *universities and research institutes.* Less frequently used are competitors, consumers, and companies in other sectors. *Innovation intermediaries* were ranked in between the clusters of more and less frequently used partners. Lastly, Schroll and Mild's (2011) study on companies in different industries located in 24 European countries demonstrates somewhat similar findings. *Customers* are found to be the most used partner, with *consumers*, *suppliers* and *universities* also in the top. *Communities*, *competitors* and *consultants* were found to be less used. Unlike the other two studies, this study shows that consumers are ranked among the most used innovation partner. Conclusively, these three quantitative studies give an indication on what partners to be most important and most used by companies when applying inbound OI as a working method. The differences point out that factors such as the type of companies being studied, geographical scope, and the year of the research might have impact on the findings.
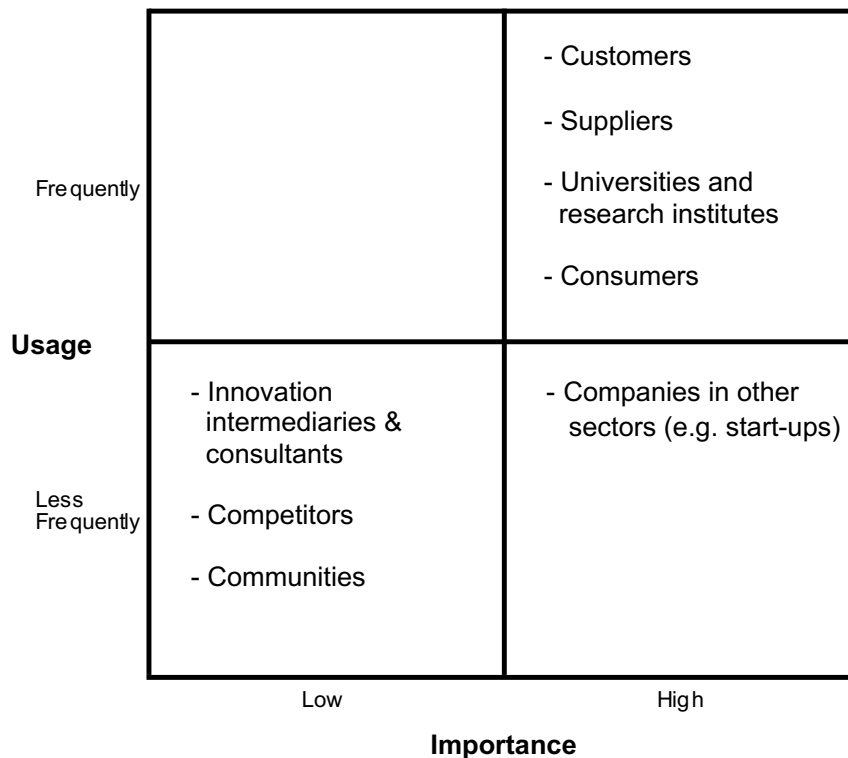
Figure 5 - Ranking of OI partners' usage and importance

2.4.2 Open Innovation Practices

For a company to access external knowledge from an OI partner, practices have to be utilised. In our literature review, we noticed that there are many synonyms for the word *practices*, all of which are used interchangeably. In the present study, we use the term practice, which is a specific OI action that a company performs together with one or more partners.

Companies have a range of different inbound practices to choose among. Chesbrough and Brunswicker (2013) have through their executive survey compiled a list of different inbound practices that large companies can utilise, and which ones that large companies consider to be most important for them. Table 3 is complemented by Mortara et al. (2009) ranking of important practices harnessed by large multinational companies. The list is following a particular order and starts from the top with the most important practices.

- ❏ **Customer and consumer co-creation**
- ❏ **Informal networking**
- ❏ **Sponsorship of selected universities**
- ❏ **University research grants**
- ❏ **Publicly funded R&D consortia**
- ❏ **Contracting of external R&D providers**
- ❏ **Idea and start-up competitions**
- ❏ **Corporate venturing units**
- ❏ **IP in-licensing**
- ❏ **Supplier innovation awards**
- ❏ **Co-branding**
- ❏ **Crowdsourcing (unknown problem solvers)**
- ❏ **Services through Open Innovation intermediaries**
- ❏ **Incubation of start-ups or science parks and external incubators**

Table 3 – Ranking of practices

Customer and consumer co-creation is the highest ranked practice, and comprises activities where customers and consumers are involved in the generation, evaluation, and testing of novel ideas for processes, services, products and business models (Chesbrough & Brunswicker, 2014). Other highly important actions are *informal networking* (e.g. conferences or events), *university research grants*, and *publicly funded R&D consortia* (with other public or private organisations, fully or partly funded by governmental organisations). Other practices included on the list are *contracting of external R&D service providers* (external service providers for specialized R&D service), *idea and start-up competitions*, *IP in-licensing*, *supplier innovation awards*, *crowdsourcing*, and *services through open innovation intermediaries* (contracting services of intermediary organizations specialized in OI) (Chesbrough & Brunswicker, 2013; Chesbrough & Brunswicker, 2014). The list of practices ranked in relative order, which could be found in section 2.3.5, are substantiated by Mortara's et al. (2009) research on what they define as company OI activities. In addition to Chesbrough and Brunswicker's survey, Mortara et al. (2009) add sponsorship of selected universities, corporate venturing units, co-branding and external incubators of start-ups and science parks as inbound practices large multinational companies engage in.

2.4.3 Concluding Remarks and Synthesis of Large Companies Inbound OI Activities
A summary of the two building blocks, namely partners and practices, has been conducted. Earlier studies have shown to provide useful insights in how companies carry OI into effect. However, the studies are conducted on a multitude of different companies, in different countries and different industries, and will in isolation not provide SCA with recommendations on how to elevate their OI performance. Thus, a multiple case study on

other companies will in tandem with these theoretical findings enhance the present study's ability to answer the research question and its subqueries.

2.4.4 Breadth and Depth in Open Innovation Partnerships

It is important to investigate how to collaborate with external partners. Inbound OI implies that the focal firm proactively searches for ideas outside the firm's boundary with the objective to internalise ideas and inventions, and eventually generate innovations from them. It is the focal firm's responsibility, and key issue, to strategically choose what they perceive to be the optimal balance concerning whom to partner with. Thus, the question of governance is a central question to the effectiveness of managing inbound OI. Tiwana, Konsynski and Bush (2010) mean that the type of governance, e.g. to which degree the governance is "open", affect the dynamics of relationships in an ecosystem.

The way firms search for external sources is subject to what Laursen and Salter (2006), among others, refer to external search breadth and external search depth. Breadth is defined as the number of external sources or search channels that a company uses and relies upon in their OI activities. Depth is defined as the level or extent to which a firm draw deeply from the different external sources or search channels. Laursen and Salter describe that previous research supports the fact that a firm's internal search strategy for external sources and search channels has a significant influence on its innovative performance. Firms that have opener search strategies, i.e. those who search deeply and broadly, tend to be more innovative. The benefits are to some extent dependent on the industry in which a firm is present in (Laursen & Salter, 2006). In industries where the technical opportunities are high and where other firms heavily invests in search, a firm often has to search more deeply and broader in order to find the critical external knowledge sources. The opposite applies for industries where technical opportunities are low and where other firms tend to a larger extent focus on internal research. Thus, a managerial implication is that openness should to some degree be based on the industry in which a firm acts. However, another aspect to consider is the cost of search. The benefits of openness in the external search for innovation seem at some point undergo the entailed cost of search, and can be illustrated as an inverted U-shape. Reasons to why increased search costs, in terms of money, time, and effort, at some point exceed the benefits are because companies might over-search the external environment, or maintain too deep links with external sources (Laursen & Salter, 2006). Another managerial challenge is hence to determine what the "optimal" openness in terms of search strategy is.

Laursen and Salter (2006) also put forward that there are different stages of innovation in which the choice of broader or deeper search is crucial. For instance, in the early stages of a product life cycle, when the invention's technological state is in flux, innovative firms should draw more deeply from a smaller number of key innovation partners. As a technology gets more mature and the specialist knowledge is more diffused in the network, a company should search across a wider range of external sources of innovation. This is somewhat in line with Garriga, von Krogh and Spaeth's (2013) research, which found having many innovation partners, i.e. breadth, is beneficial for incremental innovation, whereas a deep collaboration with fewer partners, i.e. depth, is beneficial for radical innovation.

3. Methodology

3.1 Research Strategy

The perspective of the specific topic being researched in this thesis is a rather unexplored field, thus a qualitative research strategy is preferred (Eisenhardt, 1989), and hence employed in this thesis. One of the main characteristic of this particular research strategy is that it emphasises words rather than data in the process of collecting and analysing data. Compared to a quantitative research strategy, a qualitative approach processes gathered data without any predetermined goals, and will therefore not be locked to any new nor unpredicted data. This means that the research will be open to new and not predicted data (Bryman & Bell, 2011).

Moreover, the nature of the relationship between theory and research in this study will have an inductive stance, meaning that theory is an outcome of research. The process of induction implies that generalizable inferences will be drawn out of the observations. For this report, we started by developing and establishing a theoretical body with relevant and accepted theories. Once the process of theoretical reflection on the gathered empirical data was carried out, further data was found necessary to adapt and improve the theory part, i.e. the theory was incrementally developed. Thus, an iterative process was used in this thesis, meaning that we went back and forth between theory and data (Bryman & Bell, 2011).

Qualitative research strategy has its disadvantages that one needs to be aware of. According to Bryman and Bell (2011), one major potential disadvantage is that the results will have to be interpreted and analysed by the researches, which entail a risk of that the results will be biased. Consequently, generalisation of the results will be restricted and should be viewed within the context of the study. Another disadvantage is that qualitative studies might fall victim to subjectivity, they tend to rely too heavily on the researcher's unsystematic view of what is important and significant (Bryman & Bell, 2011).

3.2 Research Design

3.2.1 Multiple Case Study

Multiple case study has been employed as research design in this thesis, which implies that the data has been gathered from a number of studied cases. It is a largely undertaken research design for the purpose to compare different cases included in a study (Bryman & Bell, 2011). It enables the researcher to compare and contrast findings derived from the different cases. This is in line with the purpose of this study, which is to compare specific aspects of SCA's way of working with OI to other case companies. This research design is also promoting theoretical reflection on the findings of SCA and the other cases. Based on this, one will be able to draw inferences on the findings and provide SCA with recommendations on how they can elevate their work with OI.

What has been important to consider is the choice of cases to study. Researchers should choose cases to study where they expect that they will learn the most from (Bryman & Bell, 2011). To ensure this, a list of criteria on what companies to include as potential research objects was developed together with SCA, and is presented more thoroughly later in the methodology chapter.

Each case studied in this thesis has been compared and contrasted to SCA, and to relevant literature included in the theory chapter. An advantage of employing a multiple case study is that the subject being studied in the present study has little earlier academic research on it to sufficiently answer the research question. According to Bryman and Bell (2011), the multiple case study can generate data with more breadth in order eventually be able to draw conclusions.

3.3 Research Method

3.3.1 Semi-structured Interviews
One of the main aims of this study has been to gather practical relevant data on OI partners and practices, and organisational governance modes and structures that support and enhance internal OI processes. This data has been gathered from external companies that we, in collaboration with SCA, perceived as appropriate external case companies for the research purpose and question. To capture this data, a semi-structured interview approach was identified as the most suitable interview format.

The intention of the research is to get a deep and wide understanding of how other companies work with OI. According to Bryman and Bell (2011), this is one of the advantages of conducting semi-structured interviews. A semi-structured interview approach enables the researcher to guide the interview into a specific area and subject with the help of prepared interview guide, while simultaneously leave space for questions that might emerge as the researchers pick up on things said by the respondents. Also, it leaves flexibility for the respondent to fill in with comments and thoughts that not directly is related to the question being asked by the interviewer (Bryman & Bell, 2011). Consequently, semi-structured interviews will provide the research with a more complete picture of the topic. The semi-structured interview approach is also chosen due to the fact that the interview objects have different positions and backgrounds, and thus the questions need to be flexible and adaptable to each of the interviewee's specific knowledge.

3.3.2 Secondary Data
In addition to the interviews, secondary analysis is included to complement the research. A systematic literature review is conducted for gathering the secondary data. Various databases have been utilised for the search of literature. To optimise the search of relevant literature, key- and search words are used in a systematic manner. The secondary data is consisting of academic research papers, books, reports and websites.

3.4 Selection Criteria of External Companies
The process of getting interviews with external case companies, referred to as *external companies* in this study, constitutes of two main steps. Firstly, a list of criteria on relevant companies to include in the study is established together with representatives from SCA. Secondly, out of this list, companies are asked to participate in the study. As mentioned earlier, appropriate companies to interview are identified together with SCA in order to ensure that as relevant companies as possible are asked to participate. Because of the low likelihood to be able to only interview competitors to SCA, or with similar products, innovation typology, or customer groups, extra carefulness is spent on the selection of

external case companies in order to ensure that a relevant mix of companies and industries are included.

Research on OI has showed that a vast number of companies across several industries, ranging from small to large in size, have adapted OI and its paradigm to its businesses. In order to ensure that only relevant companies are studied, with regards to the thesis' research question and the interest of SCA, criteria had to be established. Research on OI has often shown to take its perspective from either large or small/medium sized companies, based on the European Commission's (2017) definitions of what constitutes large or small/medium sized companies. Thus, to ensure relevance, only large companies are allowed to participate as case studies. Further, only companies that can prove documented experience of OI will be selected. Lastly, the interviewee in each interview needs to possess relevant and great insights in the company's OI processes. Since only one interview will be conducted with each external company, it is of high importance that the requested respondents possess overarching knowledge that is relevant to this research. This criterion is ensured through credible secondary data sources and mail correspondence with the asked respondents.

Selection of criteria:
1. Large companies, >250 employees and >50M € in yearly turnover
2. Each case company must work with OI (or equivalent if OI is not used as a term)
3. Each interviewee that represents a case company needs to hold a position with responsibility of the company's OI processes

3.5 Interviews

This multiple case study is conducted through interviews either in person or through video interviews. The duration of each interview was around 50-70 minutes, and each respondent was prepared by receiving the interview guide on beforehand.

In 3.5.1, the interviewees at SCA are listed together with their respective position inside the company. In 3.5.2, the external companies are listed. They are anonymised with names that represent the industry which they are present in due to confidentially reasons. A more thorough presentation of each external company is included in Appendix 1. As for SCA, the respondents are presented with their present position at the respective company listed. The interviews are all conducted in either Swedish or English, which minimises the risk for misunderstanding, since the both researchers are professional in each language. Below, we describe the verification conducted after the interviews.

3.5.1 Presentation of Respondents at SCA

Respondent	Position
Respondent 1	Global Brand Innovation Manager
Respondent 2	Global Director Emerging Arenas
Respondent 3	Global Technical Innovation Manager
Respondent 4	Director Innovation and Knowledge management*
Respondent 5	Innovation Manager

* Former employee, currently working as a consultant for SCA

3.5.2 Presentation of Respondents at the External Companies

Company	Position
Chemical company	Open Innovation Manager*
Industry company	Concept and Innovation Manager*
Telecommunication company	Innovation Program Manager
FMCG company	Director Innovation and Knowledge*
Packaging company	Innovation Manager
Automotive company #1	Corporate Innovation Manager
Automotive company #2	Innovation Manager

* Former employee, currently working as a consultant for the respective company

3.5.3 Verification of Data

To avoid misunderstandings in the interpretation of the data and hence a wrongful analysis, the empirical findings are verified with the interviewees. This is done by email, sending drafts of the data presented in the empirical findings for each company to the respective interviewees.

3.6 Data Analysis

The data has been collected through semi-structured interviews as discussed above. Moreover, for some companies complementing secondary data is used to get a more holistic picture. Each interview was recorded and summarised after the interview in order to verify the data.

After constructing the theoretical framework and conducting the interviews, the gathered data is compiled in running text for SCA and tables for chosen external companies. Here, we focus on compiling important key-takeaways relevant to the research scope and for answering the research questions. The data is structured in the same order as the theoretical framework, in order to create a coherent report. In the analysis, gathered data at SCA is compared to theoretical findings and data from external companies, in order to answer the research questions from the perspective of SCA.

3.7 Research Quality

3.7.1 Validity
Validity refers to how well an indicator that is devised to measure a concept actually measures that specific concept. In other words, validity measures if the research measure what it claims to measure (Bryman & Bell, 2011). A high validity indicates that the results from a research can be generalised and applied to other studies, and hence has a big impact on the credibility.

Validity is often a shortcoming of the qualitative research strategy, especially when the sample size is small. To mitigate the risk of a low validity, external companies have been selected with a great consideration, as been described in 3.4 "Selection criteria of External companies. All respondents included in this study possess relevant and good insights in the OI activities for the respective company they are answering for. They either have positions in their respective companies, or are former employees currently hired as consultants. Selecting appropriate and relevant respondents increases the chance to generate data that will answer the research question that is claimed to be answered.

3.7.2 Reliability
Reliability is concerned with the issue whether the results of a research are repeatable, i.e. if the result can be replicated by other researches (Bryman & Bell, 2011). Reliability is highly concerned with the consistency of a research. If the data gathering would be conducted at two or more occasions, reliability indicates if the exact same data can be gathered. This is problematic in qualitative research where an interview with the same respondent at two different occasions would most likely not result in exact same data. Qualitative studies are highly dependent on the context and setting in which the interviews take place, which is also the case of a multiple case study.

To increase the chance of replicability by other researchers, the semi-structured interview guide has been attached in the Appendix 2. By following this guide, other researchers will increase the likelihood of receiving similar results. The clear description of the different interviews is also contributing to a higher reliability. However, since the respondents' names and companies they work for are not provided to the reader, future research with exactly repeatable results will most likely be difficult to generate.

4. Empirical Findings

This part compiles the data gathered through the interviews at SCA (five interviewees) and external companies (seven interviewees). In order to render the data in a coherent and understandable way, we have chosen to present the data at SCA in running text, and the data from the external companies in tables. We choose this style due to the fact that we have more data at SCA than on each of the external companies, and that SCA is the main object of this study. Running text lets us present the data at SCA in a fair and representative way.

4.1 General Findings about OI

4.1.1 Open Innovation in General at SCA

There are many similarities in how the respondents at SCA interpret and perceive OI, yet also some differences. In essence, they share a similar view on what constitutes and features the fundamentals of OI. It is about tapping external partners' pool of knowledge and leverage it into SCA's business. On the other hand, one of the respondents expresses that OI is a very broad term, it often happens that many people at SCA use the term "as a bucket" for various activities. Further, this respondent means that the term OI gets diluted and loses its clarity among employees. Moreover, two respondents merely discuss inbound activities when talking about the general meaning of OI, i.e. many equate OI with inbound OI. For instance, they argue that OI is a way to leverage external people through collaborations and acquisitions. The rest have a more holistic view on OI, seeing it as the interface of knowledge flow between SCA and external parties. For example, they mean that OI is about moving beyond the traditional buy/sell relationship, and instead strive for co-development where all partners should share the risk, as well as earn from the collaboration through a win-win situation.

According to one of the respondents, SCA's intention with OI is to proactively be present in the interface with external parties. Lately, they have put much effort to become better in reaching out to others who possess knowledge that is beyond the scope of SCA's core competence, and who eventually can provide solutions and new ideas to problems SCA strives to solve. That is, they look to a large extent for applications of external knowledge and technology to their own core technologies, be it on how to solve a problem in a specific production process or to find new applicable technologies. This is partly supported by another respondent who means that SCA possesses high level of competence and a huge resource pool in regards to their core competence area. The probability to find something novel outside SCA in this particular area is very low. Conversely, it is in the area outside SCA's core competence where new ideas can be found, and added onto SCA's current customer offerings in order to create more value for the customer, and thereby also reduce the risk of their products to become commoditised. Further, yet another respondent says that OI helps leveraging internal technologies with external knowledge. This can help pushing SCA to new territories, e.g. through the application of Internet of Things-technologies.

4.1.2 Open Innovation in General at External Companies

Chemical company	- OI is about cooperating, while sharing both risk and return. - OI in its essence is nothing new to the chemical company, since it has cooperated through e.g. joint ventures before.
Industry company	- OI is about not trying to do everything inside the company. OI is the counterpart to closed innovation only putting emphasis on internal R&D. Recognises that not all relevant R&D and innovation work can and will be conducted within the company. - Large companies need help creating new business opportunities, since it is not in their nature to act explorative to radical/disruptive innovations. - The respondent does not perceive OI as something new, and the company does not use the term internally. Chesbrough's definition of OI describes something the company has worked with for decades. - Focuses only on taking in ideas from the external environment, not interested in selling knowledge that does not favour them. - States that there is a need to open up the organisation, and that a willingness to do so is essential, as well as an interest in challenging the internal knowledge.
Telecommunication company	- Does not perceive themselves as mature in regards to OI. In the process of going forward towards how to work with OI. It has been around for approximately 3 years. - OI is not primarily a tool for "solving problems", it is more of getting an understanding of the start-up community and intensify the work there. - Many ideas evolve internally as side tracks to ongoing projects. These ideas are normally not taken further due to lack of time. OI opens up new ways of exploiting these internal ideas. - In the future, the company aims at not only becoming good at integrating external knowledge, but also let internal knowledge grow on the outside.
FMCG company	- OI is about strategically identifying and leveraging external solutions for driving the company's internal innovation portfolio. In a nutshell it is about moving from 'the lab is my world' to the 'world is my lab'. As a consequence working in an OI mode requires significant changes of work practices and structures of the organisation, but also of its innovation culture. This aspect is often being put in the background when discussing OI, but is just as important as the practical work. - "*OI works if it is complementing R&D, providing more options.*"
Packaging company	- OI is about exposing a current, specific issue within a business area to the external environment in order to cooperate with external

	partners to solve it. - Being open is considered a risk, and the company is still careful when deciding which issues to expose to the external environment. - Only new activities, such as working with innovation intermediaries is considered to be OI. Older practices, such as cooperating with suppliers or universities, is not included in the scope of OI.
Automotive company #1	- OI includes every activity the company conducts within the field of innovation outside the boundaries of the organisation. - The interviewee chooses to exclude working with suppliers from the term OI.
Automotive company #2	- OI is the counterpart to the closed innovation paradigm, where all ideas are researched and developed in-house. OI is about cooperating with external actors, and includes inbound, outbound and co-creation of innovation. - It is important to separate OI from a strict buyer-seller relationship.

4.2 Open Innovation Motives

4.2.1 Open Innovation Motives at SCA

The paramount motive of using OI, according to the respondents at SCA, is to explore and access new knowledge to find potential technological innovations. It is about complementing the internal technology base by accessing the external technology base, in order to meet or create new customer and consumer needs. Moreover, one respondent says that OI at SCA is not only about finding complete radical innovations, but rather components to new innovations through e.g. new insights, new lab methods or technologies. To increase the speed of innovativeness, and to become a more interesting business to business partner, are additional important motives according to another respondent.

4.2.2 Open Innovation Motives at External Companies

Chemical company	- Cut lead times, and thereby reduce an innovation's time to market, is the most important short-term motive. - To find new, radical, and disruptive technologies and innovations, is most important from a long-term perspective. - Cost efficient. Nearly always cheaper to further develop or buy an existing technology rather than reinvent it from scratch. - To share risk and reward. Projects with low probability of success are developed externally and taken on-board at higher technology readiness level.
Industry company	- Primary motive is to get access to new technology, foremost new technologies that can be produced and sold, or combined with the company's existing products.

	- Also about exploring new partners to launch new products with.
Telecommunication company	- To exploit and develop technological ideas together with external partners. - Other motives are to access qualified external human resources and shorten lead times.
FMCG company	- To access external solutions which can be reapplied or adapted to provide additional innovation options for them. Knowledge is becoming a commodity, no longer power that large companies possess. Majority of smart people with relevant knowledge do not work for one company, but they exist on the outside. - Shorten/accelerate time to market. Companies tend to reinvent the wheel. Just because they can do it, does not mean they should to it. By leveraging what is already known and at least partially proven feasible, one can save time and get the solution faster. - Cost reduction. The FMCG company is harnessing OI to get more innovation for the same or less costs. - OI will remain a main part of the company's daily business processes. The vision is to become a preferred partner for reapplying or adapting external solutions, who is recognised for its good business values. Thus they come to the FMCG company rather than the FMCG has to look for them in order to enrich its portfolio of innovation options.
Packaging company	- The motive is to find solutions on problems that cannot be solved internally. OI is beneficial for finding more possible solutions. - Primarily looking for technical solutions in less business sensitive areas, normally beyond their scope of knowledge, e.g. new technologies that can complement existing product offerings.
Automotive company #1	- The respondent says they have no outspoken strategic motives with OI. - The world is changing rapidly. They have started to realise that the best way to cope with the change could be to collaborate with the external environment. Automotive company #1 is focusing much on technological issues when opening up their innovation processes to external partners.
Automotive company #2	- The respondents say they have no outspoken OI motives. - To build competence. OI applies when the company is looking for competence outside its core competence area. - Focusing on exploration of new technologies and to find the future solutions for technologies. - Find new business opportunities and new applications for existing technologies. - OI is also useful from an HR perspective, since it could be used for employer-branding.

4.3 Organisational Governance and Structure for Open Innovation

4.3.1 Organisational Governance for Open Innovation at SCA

<u>Governance</u>
At the moment, there are frameworks and recommended ways of working with innovation at SCA, which also include OI. Also, there are some few individuals with top level positions who sponsor the development of OI. On their public website, one can for example find information about innovation and its importance to SCA, as well as about OI. Further, SCA has previously refocused their efforts in OI in order to make it more efficient, and will also do so at the end of 2017 for the Global Hygiene Category. But overall, from a governance perspective, the strategy and support for OI are not set from a top management level according to the respondents. OI at SCA has emerged in lower parts of the organisation and is still governed from there. One respondent says it has to a large extent been a tool used on grassroots' level in the organisation and evolved bottom up. The philosophy is that it is up to specific innovation teams to decide whether OI is a tool they want to use. Contrary to this bottom-up movement, there are no directives from above in a top-down way regarding how OI should be implemented or operated, the respondents say. For instance, the top management does not set any key performance indicators in terms of OI.

The opinions among the respondents differ whether a top-down approach to OI including objectives and measurable Key Performance Indicators would be favourable for the development of the tool in the organisation. Three of them state that it is necessary for OI to be initiated with help of directives from higher up in the organisation in order to change the way of working with innovation at SCA and to spread recognition of this tool. The top-management must legitimate the tool and make it part of employees working objectives so it can gain stickiness in the organisation. Otherwise, they believe there is a risk that it will become a complementary tool that is "nice to have", but not recognised as a valuable way of working with innovation. On the other hand, the remaining two respondents argue that overarching OI-objectives will have a negative impact on SCA. This partly depends on the culture at SCA, where historically a clear majority of the product innovations have its sources in the internal research and development. Also, one interviewee argues that the industry SCA acts in, with the respective product and technology life cycles, is not favourable for an extensive OI focus. There are few technological breakthroughs in the core-competence products and the research is capital intensive compared to certain digital industries for instance. Nonetheless, the two respondents agree that for OI to gain recognition throughout the organisation, there is a need to have best practices and examples of successful projects, where OI have played an important role. These best practices are expected to create a willingness to move towards the usage of OI inside the organisation.

<u>Structure</u>
According to the interviews at SCA, the responsibility and knowledge of OI is, with some exceptions, distributed and isolated in each category, which means that there is only a small common team or OI knowledge pool inside the organisation. The innovation teams working in each unit have to make the decision whether to access the external environment in order to look for solutions for given product development related problems. In the experience of the respondents at SCA, there is a will in the organisation to utilise OI, and a function that

supports OI practices. Today, this function is rather small and only consists of a 1-2 individuals. Also, there seems to be an understanding that certain projects are more suitable for using OI due to their technological level, while some are not suitable at all since these units are able to fully rely on internal research and development.

The opinions on what the most favourable structure for SCA is to succeed with OI differ between the interviewees. One opinion is to create a leading role OI team, which can take on responsibility for OI processes throughout the organisation. In this case, the OI team should take over after a certain need for external knowledge is identified and manage the external knowledge location and integration. Other opinions are that the responsibility needs to be locally distributed in categories and business units, where the customer, consumer and market knowledge is located. This would also make it easier to integrate the innovation and development process with other responsibilities of the category, such as the market launch process. There should then only be a small team working with OI support to the innovation teams and raise awareness about the tool in the organisation.

4.3.2 Organisational Governance and Structure for Open Innovation at external Companies

<u>Governance</u>

Chemical company	- The initiatives for working with OI started in various business units, i.e. lower down in the organisation. It was used as an add-on to traditional innovation work, where specific projects were supported by input from innovation intermediaries such as NineSigma. The subsidiaries in the organisation have high autonomy, and thus there were local OI initiatives long before the corporate management decided to recognise and promote it. - As the success of OI as a tool was recognised by the leading management, it became integrated as a core section in the corporate innovation strategy. - The respondent is explicit with his opinion that a top-down governance approach is required to elevate OI throughout the whole organisation. Otherwise it will not be accepted in the organisation as a viable tool for working with idea development. A local ambassador for OI will not reach far enough in a large organisation.
Industry company	- Does not work with OI as a term internally, thus it is not part of any strategy. But the company has a strategy for working with external partners through the help of a corporate development unit. The size of the unit has changed dependent on the agenda of different corporate management boards. The unit was granted a budget and had to report to top management. They were important since the respondent thinks employees in general are not interested working with innovation if it is not a part of their job descriptions. - The opinion of the interviewee is that top management needs to legitimise and support the unit working with new ideas through OI. Otherwise, the rest of the organisation will not integrate external

knowledge but rather "kill it" since these ideas often are beyond the "normal".

- Important to centrally coordinate OI activities. Not sufficient with R&D managers who only spend a small fraction of their working time on OI activities.

Telecommunication company	- The initial idea of harnessing internal ideas through the help of external partners was initiated from the research organisation, which wanted to become better at dealing with radical ideas not fitting into the current business strategy. - The company has an organised "skunk work" unit working on radical and explorative ideas, backed by the CTO. The CTO invites managers from different business units over the world to come and listen to the relevant projects the unit has worked on. - Entry selection criteria for their incubators are set by a central team, but where the incubators are placed are not decided from the head quarter. Communication between the incubators is managed from head quarter.
FMCG company	- The OI operations were implemented top down, with clear objectives and goals presented by the top management. This was necessary, since OI includes changes in organisation, processes and culture, which cannot grow from the bottom. - As a consultant, the interviewee advices every company to initiate the work with OI top-down, if the goal is to make OI a competence of the company. Otherwise the resistance will be too strong in the organisation. There need to be clear incitements for employees to work with OI. - Puts an emphasis on the shift in culture that needs to occur in order for OI to become a corporate capability.
Packaging company	- There are no objectives given by the top-management to work with OI. There is a unit of middle managers working with OI to increase the acceptance for the process, but only alongside their regular job tasks. So far, a few vice-presidents of business units support the network. - It is important that OI is accepted as a way of working inside the organisation. To reach this acceptance, directives and objectives from top-management would be favourable. - Believes that top-down directives could have a positive impact on the work with OI. It is important to change attitudes, as the current corporate culture does not fit well with OI. Sees potential in exposing more issues the company would need external help with.
Automotive company #1	- OI is coordinated on middle-management level. But there is no single employee with senior level responsibility for OI. - OI is not driven by any corporate level strategy, but it is also not

worked with in ad-hoc on a grassroots level.
- Top-management has started to ask about OI, and there might be a need in the future to employ a senior-employee to work solely with OI.
- There is a need to coordinate the efforts throughout the organisation, but there is no need for control or directives, which could harm the freedom of the business units. The aim is to act as one company when working with external partners.
- Sees more and more companies employing OI managers to cope with this change in the external environments.

Automotive company #2	- OI based on local ad-hoc initiatives rather than on top-down management directives. There are no objectives to reach working with OI, and according to the interviewee it is barely accepted as a way of working with development and innovation. - Top-down strategy would be favourable as long as it does not "kill" the freedom of the individual in the organisation. The respondent states that a given direction of where to go with OI would be a good start, i.e. in which business areas OI should be used as a preferred way of working. - There is a need to diffuse the way of working with OI throughout the organisation, a small supportive unit is not enough. For this, a top-down approach will be necessary, to stake out directions and legitimise OI as a tool.

<u>Structure</u>

Chemical company	- Overall a decentralised company, where the business areas and sub business units have high autonomy. Thus, it is difficult for the management board to dictate how the business areas must manage their operations. - The management board elected one director of OI and one board OI, consisting of an employee from each business area, who worked together to develop OI throughout the whole organisation. - OI is integrated in the stage-gate process, which forces project managers already in the initial phases of a product development project to question whether existing internal knowledge or external knowledge is applicable to the business case. OI is included in the process as a deliverable, which results in an OI assessment already in the feasibility study. This initial assessment is standardised and formalised, should not take longer than 10-30 minutes, and consisted of a few simple questions regarding the project. This has resulted in increased OI activity. - Mentions one common mistake. OI is in many organisations applied when every internal alternative has failed. This leads to the application of OI merely on failure projects. In the interviewees opinion, OI needs to be considered from the get-go in every project

	in order to evaluate it in an objective manner.
Industry company	- The organisation employed a corporate development unit. This unit kept an overview over the whole organisation, and collected and developed ideas other corporate business units drop. The idea was to mitigate the corporate silo effect, which stops knowledge from diffusing between corporate business units. - In the interviewee's opinion, this type of unit should focus on breakthrough projects. There is no need for support to the corporate business units to develop incremental innovation. - Mentions that the organisation should recruit employees with high innovative and networking capabilities to the unit, otherwise it will be hard to get OI to work. Should be a dynamic group of 3-4 full time employees.
Telecommunication company	- Working with decentralised local incubators. These are operating independent from each other, except from when a project in one location gains global status. They consider ideas from any employee inside the organisation that involve external partners.
FMCG company	- Centralised teams, consisting OI managers, connecting internal development needs with external research capability networks through the corporate OI platform.
Packaging company	- There is an internal network working with coordination of OI activities, diffusing local knowledge about OI through the organisation. - In the most important technological business units there are OI champions, which are individuals with an interest in OI who are often good at networking inside and outside the organisation. These OI champions work closely together with the internal network in order to establish an acceptance for OI as a way of working. Moreover, the network tries to facilitate a more standardised process for OI to ease the work for interested employees.
Automotive company #1	- There are local initiatives in business areas where the practice makes the most sense, such as autonomous driving. There is a group trying to coordinate these initiatives, to avoid doing certain operations multiple times and diffuse knowledge about how to work with external partners.
Automotive company #2	- There is a small support group, in total 3 employees in France and Sweden, helping OI initiatives in different business areas to cut lead time by diffusing existing OI knowledge in the organisation. - The group creates internal tools and guides for how to generate ideas with help of external partners. It gathers information from OI activities so it can be applied to future projects.

4.4 Partners and Practices for Inbound Open Innovation

The empirical data in this section is based on the respondents' answers. If considered necessary, it is complemented by secondary data. In the case if any partner were not discussed nor mentioned during the interviews, the answers are stated as "Not discussed".

4.4.1 Open Innovation Partners and Practices at SCA

Customers

Customers are useful partners for SCA in the various stages of a product's or service's development process. They provide with prediction, input and feedback that SCA can use to stimulate ideas, insights, needs, offerings and new business models.

To co-innovate with their customers, SCA works with lead users through specialised networks. They sometimes also take advantage of various market researchers to help building knowledge about customer needs.

Suppliers

SCA works closely with selected suppliers to get access to new products enhancements as well as to gain insights of what the next big trends will be. Emphasis on refined versions of products or materials, i.e. suppliers are often used for incremental enhancements.

Often, SCA posts an inquiry, and the supplier will together with SCA develop what is requested. This partnership embraces more incremental enhancements closer to SCA's core-competence. Collaboration with suppliers are mostly practiced through partnership agreements.

Universities and research institutes

Universities and research institutes contribute with novel knowledge to the industry. By partnering up with them, SCA can more closely get in contact with the researchers behind the findings. Also, it is a potential base for recruitments, basic knowledge, advising, and PR.

Universities possess a pool of knowledge that is relevant for SCA, and is reaching outside SCA's conventional research scope and core competences. By being good and efficient in embracing and absorbing their knowledge and ideas, SCA can access external useful knowledge without risking to lose their internal core competences. However, some respondents argue that SCA has an ad-hoc approach when partnering up with the academic world. A more structured approach would benefit SCA, enable them to more efficiently reap external knowledge while simultaneously focusing on internal core competencies, the interviewees say. One respondent says that it is sometimes hard for a category to work with universities because there is a miss-match in the time frame, i.e. non-matching windows of opportunities.

It is mainly through various cooperation programs that SCA is practicing OI through academy and research institutes. They also host student competitions in selected engineering and business universities, where students compete for internships positions.

Consumers
SCA's view on consumers as an OI partner is very similar to how they work with customers. Some of their products and innovations are more suitable for developing together with consumers than customers, and vice versa. Like customers, consumers are providing SCA with prediction, input and feedback in the various stages of a product's or service's development process. It helps SCA to stimulate the development of novel ideas, insights, needs, offerings and new business models.

Innovation intermediaries and consultants
Innovation intermediaries, also referred to as "innomediaries" at SCA, and brokers, are partners SCA uses in order to get access to external knowledge that can be applied to specified problems SCA seeks to solve. This is a cost-efficient way to reach to a large pool of external parties that possess various expertness that SCA can access, one respondent says. According to SCA, intermediaries and brokers are used as a tool to solve various problems and questions, be it technological solutions, design solutions, business model ideas, new business partners, or to get access to new contact networks.

SCA employs different specialised intermediaries that act as the bridge between the "knowledge-seeker" and the "knowledge-solver" depending on the specific need. One of the intermediaries is InnoCentive. They help SCA to reach a broad community of problem solvers for specific problems. They also provide assistance with problem formulation. Some respondents mention that SCA has still not developed an efficient way in harnessing this type of partners. SCA is still in the process of learning to fully use these partners. More intensified and diversified work with intermediaries and increased number of external requests would be beneficial to SCA according to them. Also, one respondent says they need to move from being reactive to be more active and fully using intermediaries and brokers as a way solve internal issues.

External consultants as an OI partner are useful in the process of technical development in specialised areas outside SCA's core competence, e.g. areas within electronics. Market researchers are another type of partner that SCA works with. They are similar to the external consultants, but with expertise in providing and creating knowledge about customers and consumer needs.

Companies in other sectors
SCA is in their inbound OI activities partnering up with other companies in order to get access to complementing ideas, inventions etc. that can be added onto their customer offerings.

Other companies in regards to OI partnership ranges from large companies in other industries to small start-ups. During the interviews, the by far most prominent example of other companies they are collaborating with are start-ups. All respondents emphasise the importance of working with start-ups in order to be innovative. The importance of this partner to SCA has evolved in recent time they say. Start-ups possess knowledge that reach beyond SCA's core competence, which hence can contribute SCA with relevant knowledge in order to foster new innovations. Larger companies are less involved OI partners by SCA. One respondent thinks it would be useful to intensify collaboration with large companies as partners in order to develop new customer offerings.

SCA has the recent years intensified their attempts in partnering up with start-ups. One example is through the Silicon Valley-based tech accelerator Plug and Play, to which SCA pays a member fee to get access to the network and its services. However, a common opinion among the respondents is that there is room for improvement regarding the development of processes in how to work with start-ups. In some cases the current approach becomes ad-hoc, and more well documented routines about how to deal with start-ups could be beneficial. According to the respondents, this is something that the company is continuously working on, in order to increase the efficiency of the process. Also, improvements in the identification of internal needs and reaching out to start-ups could help SCA to find viable solutions.

Partnership agreements or acquisitions are the practices SCA uses to access start-ups' pool of knowledge and inventions.

Competitors
Collaboration with competitors are at the moment no partner that SCA utilises.

Communities
Communities as OI partners were not discussed.

4.4.2 Open Innovation Partners and Practices at External Companies

Customers	Chemical company: Not discussed.
	Industry company: Building and maintaining relationships with some strategic customers in strategically selected areas. Important to have a dialogue with the right customers, those who are more future oriented and can give indications and predictions on what will be demanded in the future.
	Telecommunication company: Not discussed.
	FMCG company: Works with user-driven innovation by engaging customers as co-designers.
	Packaging company: Not discussed.
	Automotive company #1: Works actively with consumer opinions, and to some extent with ideas. When working with customers in innovation project, they try to loop the input process as many times as possible to continuously get instant feedback.
	Automotive company #2: Not discussed.

Suppliers	Chemical company: Not discussed. Industry company: Important partner since they rely heavily on qualitative components from suppliers and cannot do everything internally. To do so, they have strategically selected suppliers where a buy/sell relationship is replaced with supplier development. Instead of mainly focusing on the cost of the products, together they look for new possibilities that can favour both parts. Telecommunication company: Not discussed. FMCG company: Collaborates with suppliers. One practice to do so is through an online supplier portal where they can share technology briefs with each other. In some cases, they invite suppliers' researchers to work in their labs, and vice versa. Packaging company: Is collaborating with acquaint suppliers, does not expose new needs to unknown suppliers. Does not internally see suppliers as OI partners. Automotive company #1: Not discussed. Automotive company #2: Respondent is unsure whether their work with suppliers is considered as OI. They are to a large extent only setting supplier requirements in mature stages of component development, which is not co-creation. Contrariwise in premature research phases, co-creation of technology is more common.
Universities and research institutes	Chemical company: Partnership with some universities and research institutes. Maintains close relations to various universities and research institutes in several countries, often through tech-scout activities and other informal networking activities. Industry company: Manage some university collaborations, e.g. in Denmark, but not in Sweden. Universities can help with generation of new ideas. The respondent thinks Danish universities are more business oriented than Swedish are. Telecommunication company: A lot of academia collaborations, mainly with large Swedish technological universities. Includes a wide range of activities such as strategic partnership and interdisciplinary research centres. They are also hosting student innovation awards where the winners are offered the possibility to intern at the company and continue developing the innovation together with mentors from the telecommunication company. FMCG company: Has a network of approximately 100 technology entrepreneurs spread across the globe in different hubs. One of their tasks is to create external connections with universities, government labs and industry researchers. Packaging company: Collaboration with research institutes is helping the company to get in touch with a broad innovation network. Regarding universities, they do not see them as OI partners although they have some collaborations. Automotive company #1: Works with universities most often in the very early stages of research, i.e. specific research-based

	collaboration. Few innovation projects are "close" to the market. They are therefore ambivalent if universities are considered as OI partners. Does also take part of research consortia and hosts student innovation events. Automotive company #2: Academic partner program with universities in Europe, Asia and North America. Some universities are research partners, which means that they are conducting research together. Other university partners are either talent partners, which is more student-oriented, or knowledge partners. Automotive company #2 is also part of research consortia together with universities, other companies and competitors.
Consumers	Chemical company: Not discussed. Industry company: Business to business company, blurry line between consumer and customer in OI partnership according to respondent. Useful to work with the consumer, i.e. user, because they can affect the customers, i.e. the buyer. Telecommunication company: Not discussed FMCG company: Not discussed. Packaging company: Not discussed. Automotive company #1: Not discussed. Automotive company #2: Have some "clinics" with consumers, whom they can test new technologies on and gain insights and ideas from. Sceptical about how deeply they work with this partner.
Innovation intermediaries and consultants	Chemical company: Big focus on intermediaries. Useful when searching for answers to unsolved problems. They start by looking into the internal network. First when not being able to solve it internally, they turn to intermediaries. The company utilises a palette of various intermediaries for different tasks. Some intermediaries are used to find solvers that can provide with knowledge and insights to specific questions that are asked. Other intermediaries are used as contest partners, where they together with the chemical company are hosting contests and innovation jams. According to the respondent, the company has an above average success rate with certain innovation intermediaries. Industry company: Is not working with intermediaries. Have experienced many difficulties associated with them as OI partners. The respondent says that they lag behind with this partnership. Telecommunication company: Is collaborating with external accelerators and incubators, mainly in Stockholm, to get in touch with start-ups. FMCG company: Works with a number of intermediaries to get access to a broad network of problem solvers, universities, governments, private labs and consultants. They use InnoCentive, NineSigma, YourEncore and Yet2.com. Packaging company: Works with three to four innovation

	intermediaries for different purposes. Two of them are helping the packaging company to expose their rather small and specific research problems to a broad network of problem solvers, mainly individual researchers. Other innovation intermediaries are helping them to host problem-solving events. Their focus is on having a close relationship with a small number of innovation intermediaries. <u>Automotive company #1</u>: Not working with innovation intermediaries. <u>Automotive company #2</u>: Not discussed.
Companies in other sectors	<u>Chemical company</u>: Is searching for input from individual researchers through an innovation portal on their website. <u>Industry company</u>: Primary addresses start-ups when looking for technology-related matters externally. Early start-ups are useful when searching for more long-term insights, to get a hint of what will be the next needs and trends. Small companies are addressed when looking for technology that is more complete and can be applicable, i.e. less risk than early start-ups. They put less emphasis on OI with large companies in other sectors. The company is looking for technologies in other sectors that can be applied onto their products. To their help, they have technology scouts who are actively looking for other companies with applicable technologies in different groupings, e.g. external incubators. The respondent claims it is important to have a group that is savvy with these concepts and processes since working with small companies is difficult. <u>Telecommunication company</u>: Big emphasis on start-ups. Is inviting them to collaborate by offering resources, physical workspace and mentorship, in one of their worldwide located in-house incubators. Through these partnerships, the company aims to find new radical ideas and innovations beyond their own competence area in the very early research stages. To come into contact with the start-up community, they either reach out to those who can collaborate with them with their internal ideas, or they pitch ideas to start-ups in various incubators and accelerators, to see if there are any who want to collaborate. They are also involved in cross industrial collaborations with other large companies. <u>FMCG company</u>: Is operating an OI website where they invite all types of companies to co-innovate, from individual inventors to large listed companies. Wants its platform to be the preferred destination for other companies and individual inventors that want to co-innovate. Posts current needs and invites external partners to submit ideas. Through this practice, they look for ready-to-go products, unique expertise, innovative technologies or commercial opportunities. Other practices to access external knowledge into the firm is technology scouting and venture capital activities.

Packaging company: Not much work with other companies in other sectors. Is occasionally partnering up with smaller companies and start-ups, but seldom acquiring them.

Automotive company #1: Exploiting external incubators to increase its involvement with early start-ups and smaller companies. When they are a bit more mature, they sometimes partner up with them, normally in "new" areas to the company. Has traditionally faced challenges with this sort of partnership. Regarding entrepreneurs, they are almost not working with them at all. Moreover, they work with other large companies, however mostly in their traditional channels, uncertain whether that is OI. Thinks that a corporate venture capital unit may be the most efficient way to deal with external knowledge, even if this does not ensure the diffusion of working with OI throughout the rest of the company.

Automotive company #2: The respondent believes that it is in the cross-fertilisation with companies in other industries where radical and disruptive innovations can be found. To make this happen, they actively strive to collaborate with start-ups. Partly through venture capital and scouting of small companies. They are also involved in informal events that take place in e.g. science parks, where they get the chance to meet start-ups and small companies. Spin-in processes through online forms, similar to a portal, where lone inventors and start-ups can present their ideas, is a third practice. Further, they are at present in a process where they, together with other cross-industry partners, developing an arena where they can be more open to start-ups. It will be of both push and pull approach, e.g. through innovation challenges and "shark-tanks". Hackathons and bug-bounties are yet other practices utilised, where students, start-ups or any lone developer can attend. They have no formal procedures on how to work with other larger companies.

Competitors	Chemical company: Not discussed Industry company: Not discussed. Telecommunication company: Not discussed. FMCG company: Not discussed. Packaging company: Not discussed. Automotive company #1: Occasionally. In early periods of research, pre-competitive, when it is more useful to innovate together in order to develop systems, standards and platforms. They also work close to some competitors due to their involvement in external incubators. Automotive company #2: Working with competitors to the extent it is legal, e.g. in research consortia and in the development of shared inter-industry standards.
Communities	Chemical company: Not discussed. Industry company: Not discussed. Telecommunication company: Not discussed.

FMCG company: Not discussed.
Packaging company: Not discussed.
Automotive company #1: Not discussed.
Automotive company #2: Not discussed.

5. Analysis

5.1 General Findings about Open Innovation

To answer the thesis' research question and its subqueries, and to provide recommendations for how SCA should elevate their work with inbound OI, first the fundamental reasons for engaging in OI need to be addressed. By comparing and analysing the empirical data of SCA and the external benchmark companies, and the theoretical literature about OI, we construct a fundament to assess similarities and differences. This will assist us to make a more thorough analysis of how OI should be organised and whom to partner with.

To introduce the analysis, we address the fundamental paradigm shift from a closed to a more open way of working with innovation, conceptualised by Chesbrough as *Open Innovation* (2006). Overall, the companies share the view on the changing business environment with Chesbrough. SCA and the external companies all experience a need to increase the inflow of knowledge from the external environment and address the concept of OI, which is relatively new to many large companies. The empirical findings in this report indicate that OI is not just a theoretical concept, but an actual paradigm that SCA and the external companies in this study have experienced a transition towards. Further, our findings also point out that the companies differ in terms of involvement and dedication to adapt to the new paradigm. This will be analysed more in depth in later sections. However, the notion among SCA and the external companies is equal. Large companies cannot know and do everything by themselves anymore, but need to incorporate the external environment to a certain degree in the development of new products. Worth to mention is also that most companies seem more interested in radical instead of incremental innovation when working with OI.

Looking at the theoretical background of OI in general, Chesbrough (2006) defines it as the "*[...] use of purposive inflows and outflows of knowledge [...]*". This means that ideas and knowledge, in an OI ecosystem, flow both into, and out of companies. This definition can be compared to our overall findings for both SCA and the external companies. Among the respondents at SCA, the fundamental view on OI is that it is about integrating external knowledge and ideas to leverage the business of SCA. Some respondents at SCA also state that OI is about the total interface of the knowledge flow into and out of the organisation. Also among the respondents in the external benchmark companies, the general opinion is that OI is about accessing external knowledge and integrating it into the company, which is a similar view to the one SCA presents. Some companies also present a wider understanding, and include inbound, outbound and co-creation of technologies and products in the term OI. Overall, one can say that in its essence, the understanding about OI is mostly focused at inbound OI, both at SCA and at the external companies. But the different perceptions of what to include in the term OI from a perspective of large companies seem to reach from only focusing on inbound OI to a more holistic understanding. This may imply that OI is a concept that is not fully adopted at SCA and among other large companies, which means that the companies may not be mature in the adoption of the paradigm as such.

Furthermore, there seems to be a requirement to combine internal research and development with OI. Internal R&D fills two functions in regards to OI according to our

theory. Firstly, internal research is important to create a modular technology, allowing firms to more effectively apply external technology (Enkel, Gassman and Chesbrough, 2009). Secondly, internal R&D enhances absorptive capacities. An immersive, internal understanding of a company's technology is necessary in order to apply external knowledge and technologies to it (Chesbrough and Bogers, 2014). This theory is confirmed by the data. Companies mention that external knowledge is helpful in improving already existing internal technologies and products. Both at SCA and at the external companies, respondents mention that external technology is used to leverage internal technology, and to help solve issues where the internal competence is not sufficient. Further, one respondent states that OI is a tool to support and complement, not replace internal R&D. Theory by Enkel, Gassmann and Chesbrough (2009) and Schenker-Wicki (2011), and empirical findings, show that the internal research is still essential, and cannot be replaced by inbound OI, which needs to be seen as one tool of many for new product development.

5.2 Open Innovation Motives

Regarding the motives for working with OI, the theory separates it into offensive and defensive motives. While offensive motives are development oriented, defensive motives focus on the barriers perceived by companies when executing innovation related activities (Huizingh, 2011; Lakemond & Tell, 2016). As been put forward earlier in this thesis, the comparison of motives between SCA and the external companies is important in order to ensure whether the companies engage in OI based on the same motives or not. This analysis assesses the degree to which extent the data from the empirical findings is comparable, as underlying motives for working with OI have an impact on how companies strategically choose to work with OI on a practical level.

At SCA, the empirical findings indicate that mainly the offensive motives are important, as the respondents list motives such as exploring new technological possibilities to add value to internal technology, and becoming a more interesting business to business partner. Only one of the respondents mentions one of the defensive motives proposed by the theory, namely cutting lead time of innovation to the market. SCA shares this view with the majority of the external companies, where the prime motives mostly seem to be offensive, connected to accessing external knowledge and technologies to solve internal issues, and to explore new business opportunities. Some companies though also mention defensive motives as important reasons for working with OI, such as cutting lead times and reducing internal R&D costs.

Overall, the ranking of motives based on previous researches in Table 1 is supported by our empirical findings, stating that, in general, offensive motives are of higher importance than defensive motives. Shorten/accelerate an innovation's time to the market is the most important defensive motive. SCA's motives do not differ much from other companies' motives, or the most important motives listed in the theory. This has positive implications on our further analysis of organisational structure and governance, as well as on partners and practices. Another finding worth mentioning is that all the companies list multiple motives for OI. This legitimises SCA to expand their scope of motives for engaging with OI, for instance by putting more emphasis on defensive motives.

Finally, since SCA and the external companies share similar motives for working with OI, these two data groups can further be analysed and compared based on similar fundamental

views of why to work with OI, which we believe will eventually provide more credible recommendations to SCA.

5.3 Organisational Governance and Structure for Open Innovation

To roll out OI as an efficacious working tool, theory suggests that organisational structure and systems favouring OI need to be in place as it is operated differently compared to traditional "closed" innovation processes (Trott & Hartmann, 2009). This implies that companies working with OI should manage their organisation ambidextrously, where open and closed innovation processes can be worked with simultaneously, according to Tushman, Lakhani & Lifshitz-Assaf (2012). SCA has taken actions for developing OI as a working method, yet not integrated it to a full extent. A few individuals on middle management level have been assigned responsibility to support the implementation of OI. This has led to some dispersion of the concept, however not to an extent to which OI has been recognised as a preferred working tool among SCA's innovation and R&D employees. At present, it is rather a concept that is perceived by many as something nice to have, but not fully integrated and recognised as a working method. An explanation to why the concept has not been fully embraced by the organisation is partly due to organisational inertia and rigidity, described by Keupp and Gassmann (2009). They claim that an implementation of an open approach towards innovation can take long time to complete. Organisational challenges are inevitable, and they must be addressed and solved. If the organisational structure and systems do not favour innovation, the transition toward OI will encounter resistance. This is a challenge that not only SCA is exposed to. Some of the benchmarked companies have been, or are at present, in a similar situation where the organisation does not fully embrace and legitimise the concept as a working method due to inertia and rigidity. The FMCG company mentions the cultural resistance as one of the main issues for the transition towards OI.

Based on the interviews of SCA and the external companies, it becomes clear that companies adhere to different approaches in regards to how they implement and manage OI. This is illustrated in Figure 6, where empirical data from the interviews acts as the foundation for our classification of SCA and the external companies into the framework adopted from Mortara and Minshall (2011), and which is in detail described in the theory chapter and in Figure 4. On an aggregated level, one can see that the companies are governing and structuring OI by different means. It is thus difficult to draw inferences based on SCA's way of governing and structuring OI in relation to the other companies. There seem to be no recognised nor dominant way of how companies work with OI from an organisational point of view. Additionally, this finding is in line with Chesbrough and Brunswicker (2013) who found that there are as many companies that are managing OI top-down as there are bottom-up. Mortara and Minshall's (2011) finding points in the same direction, showing that large companies vary in the way they implement OI.
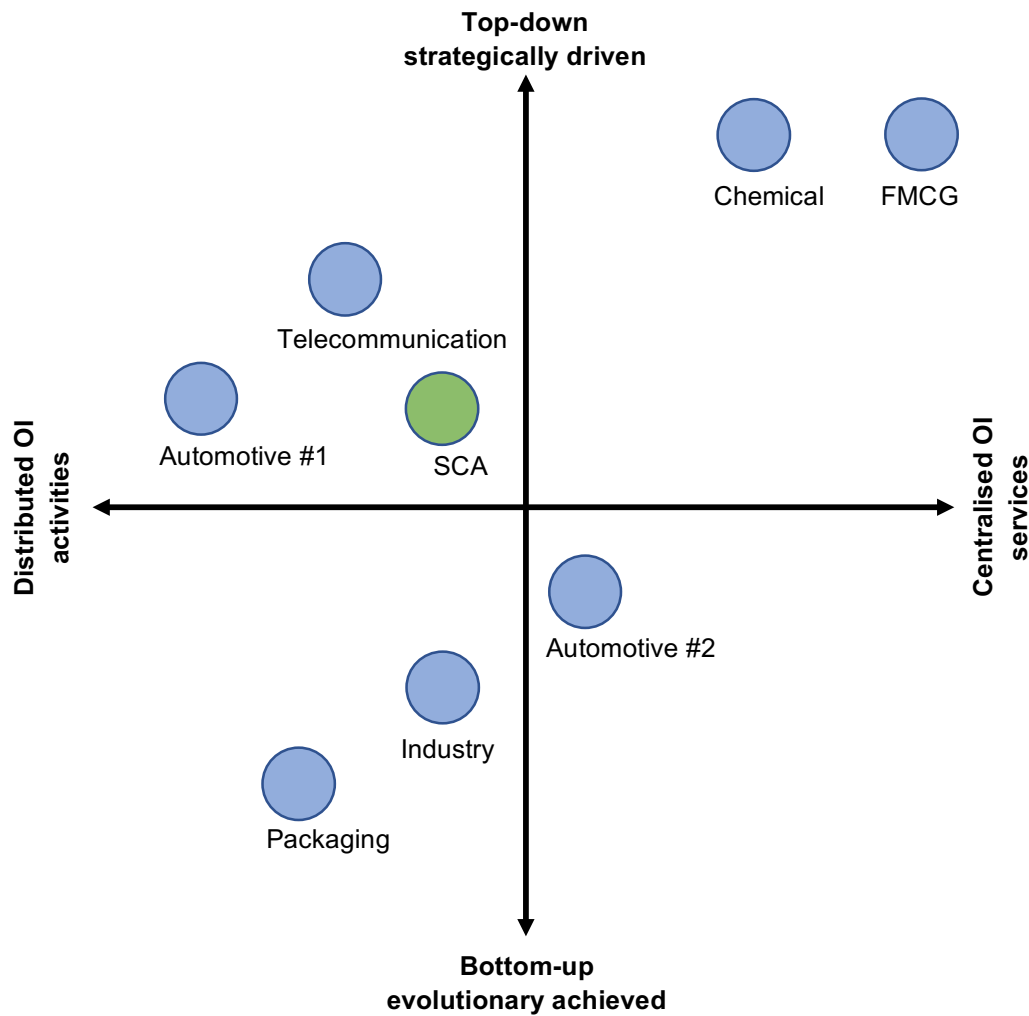
Figure 6 – Classification of organisational governance and structure of OI

The companies that are top-down/decentralised are in the *top-left quadrant.* Neither SCA, or the other two companies, are placed far up on the vertical axis. These companies have to some extent support for OI from top-management, though the bulk of strategy and governance of OI is managed on middle and grassroots levels. Thus, OI is not fully rolled-out throughout the whole company in a conscious step-change manner. Moreover, these companies are not assigning OI activities to specialised OI teams. In Automotive company #1, OI only happens in certain functions where OI is considered useful. Since SCA has a small team responsible for advocating OI and supporting various teams in the organisation with it, they are placed just to the left on the horizontal axis.

Two companies are top-down/centralised, placed in the *top-right quadrant*. They are governing OI with clear directives from top management level. The FMCG company set clear objectives and KPIs the company must work with. Hence, OI is clearly top-down strategically driven throughout the whole company. The Chemical company does not set as clear KPIs as the FMCG company, but they push for OI throughout the whole company by having it as a core part of their corporate innovation strategy. For instance, they have developed clear incentives to propel OI, e.g. through implementing OI deliverables in the stage-gate process,

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which leads to that most projects must assess OI already in the very first project stage. It was through the integration of OI deliverables into the stage-gate where the breakthrough of OI for the Chemical company was realised. The reason for why the FMCG company is placed far right on the horizontal axis is because they have a specialised OI team assigned responsibility for OI activities. The Chemical company also has centralised OI teams, although not to the same extent. The Chemical company is due to its many subsidiaries rather decentralised. The business areas' high autonomy make it difficult for the management board to dictate how to work in projects. Thus, the management board has decided to form an OI board consisting of one employee from most business units. Together this board is developing OI throughout the whole company, which could be considered a centralised approach of working with OI.

The Packing company and the Industry company are bottom-up/decentralised companies, which have not adopted OI as an explicit part of their innovation strategy. The Industry company for instance does work with OI based on how the concept is defined and described, but not formally using OI as a term internally. Further, in the Packaging company, only some individuals work with OI through networks and local OI champions as a side track to their daily tasks, which is why they are placed far left. The Industry company on the other hand have a corporate development unit with an overview throughout the whole company, mitigating the corporate silo effect. However, this central unit's responsibility is not to work with OI, despite that their tasks resemble much of what a central OI team is working with, based on the description of Mortara et al. (2009).

Automotive company #2 is bottom-up/centralised, thus placed in the *bottom-right quadrant,* since there is a lack of top-down objectives and clear objectives of OI. According to the interviewee, OI is based on local ad-hoc initiatives. This company has a small team of innovation managers, which tasks include helping the various business units with OI activities.

As previously stated, the theoretical and empirical findings have shown that companies adhere to different approaches in regards to how to implement and manage OI. There seems to be no dominant mode of structuring and governing OI among large companies. However, interesting is Mortara and Minshall's (2011) finding on the difference between companies' present approach of implementing and managing OI and the desired approach. They found that some companies that manage OI bottom-up see a need for a transition towards a more top-down driven approach with increased coordination of OI, preferably with the help of centralised OI team. Our empirical data indicates similar findings, showing a discrepancy between some companies' present and desired way of working with OI, illustrated in Figure 7.
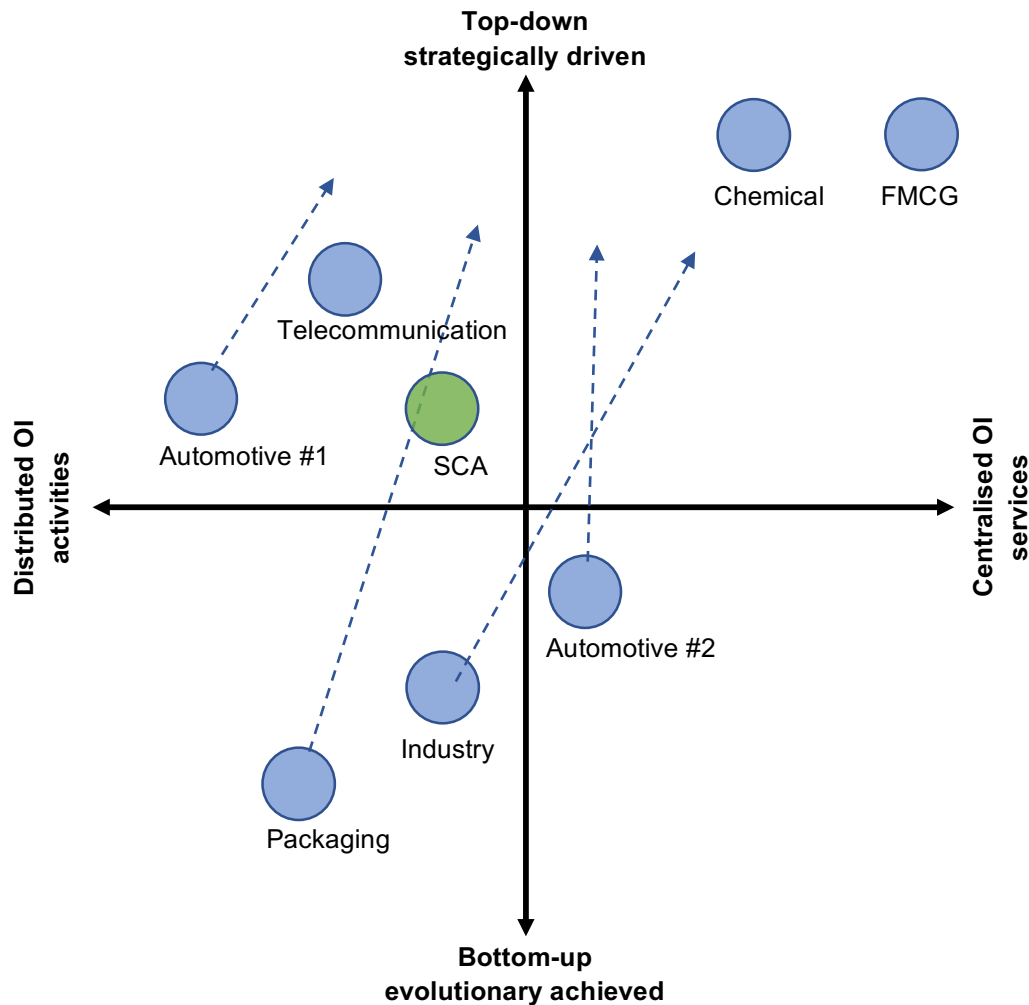
Figure 7 – Desired state of organisational OI governance and structure

The dashed lines provide an indication of the desired state for some of the external companies in regards to how they think that their OI should be governed and structured. The lines and arrows do not indicate the exact state, but give an indication in which direction they want to head in order to elevate their OI. Mainly, the companies that are illustrated with lines do stress the need for increased top-down coordination of OI. The respondents were less explicit whether the respective company should structure OI through centralised OI teams or not. For OI to reach its full potential, they agree on the fact that it needs legitimacy from top managers. Without legitimacy, OI will not be fully accepted as a working method throughout the companies, and hence not reach its full potential, the respondents say. The Chemical company and FMCG company, who already drive their OI efforts top-down, say that it is critical and a requisite for OI to be managed efficiently. These findings have implications on how SCA should overhaul their way of working with OI. By relocating the strategic responsibility for OI further up in the organisation, clearer overarching governance and coordination can be dictated, which hence might elevate the output of OI compared to today. There is no desired state for SCA indicated in Figure 7, since internally the opinions differ on whether a top-down approach to govern OI is necessary or not. The same applies to structure. However, this thesis provides SCA with recommendations in chapter 6, where different possible future states of the company are evaluated.

Certain companies, e.g. the Industry company and the Automotive company #1, also see a need for a specialised OI team in their organisation that can act as a support function for the whole organisation's OI operations. According to these companies such a team should not be too big and consist of employees with a wide external and internal network. A central OI team should also not moderate the creativity among the local R&D and innovation teams. One of the reasons for why a centralised team is beneficial, according to the Automotive company #1, is because such a team can make the work with OI more effective. Automotive company #1 thinks that there are specific tasks and activities in OI that do not have to be done multiple times and appointed employees with OI expertness can support various business teams to improve the processes. This is an aspect of what theory defines as absorptive capacity. Absorptive capacity is a requisite for OI, and through a central OI team, absorptive capacity can be developed internally. A centralised OI team might be particularly beneficial for a company when deciding for implementing a more top-down driven OI approach. Mortara et al. (2009) claim that a top-down strategically driven OI approach often relies on a centralised OI team that support the implementation and strategy. If SCA would decide for a more top-down driven approach to OI, establishing a centralised OI team should be considered.

5.4 Partners and Practices for Open Innovation

As depicted in Figure 5 in the theory chapter, we have developed a matrix based on Chesbrough and Brunswicker's (2013), Lakemond and Tell's (2016), and Schroll and Mild's (2011) theoretical findings. The matrix ranks OI partners after importance and frequency of usage. This matrix will be analysed and compared to the empirical findings, and subsequently provide suggestions for which partners SCA should collaborate with, and through which practices to do so.

In the column of high importance there are five different partners, which differ in the frequency the companies access them. What is interesting to note about the theoretical findings is that companies tend to access the established partners for companies, that is suppliers, customers, consumers, and universities, in a high frequency. On the other hand, companies in other sectors, e.g. start-ups, are used less often, although considered as important. In the other column, including OI partners of low importance, one can find competitors, communities and innovation intermediaries.

There may be several reasons to why previous theoretical findings have found both start-ups and innovation intermediaries to be used less frequently than the established partners. These two partners can be considered more unconventional for large companies, much since they are more novel actors in business environment compared to above mentioned established partners. Start-ups as such are considered an erosion factor to the closed innovation paradigm, emerging in combination with the venture capital industry in the 1980s (Chesbrough, 2006). The innovation intermediaries mentioned in the empirical findings are even younger than so since most of them emerged around the year 2000, e.g. InnoCentive (2001), NineSigma (2000), Yet2 (1999) and Yourencore (2003). Thus, the lack of knowledge on how to work with these relatively new partners may be a reason. Moreover, the reason for theory stating that innovation intermediaries are less important and used, while some companies in this research put great emphasis on them, might be a discovery that large companies fear of opening up due to reluctance of revealing research questions to the public.

The data gathered on SCA is to a large extent in line with the theoretical findings illustrated in the matrix in Figure 5. In the column of high usage, an exception is universities and research institutes, which SCA uses to a moderate degree partly due to the issue of differing time horizons of projects between the company and the academic world. Interesting here is that when discussing companies in other sectors, the respondents state that SCA is still in an early phase regarding the usage of these partners. At the moment, there seems to be a risk that the cooperation with start-ups becomes ad-hoc. Although SCA works with start-ups, the notion is that the cooperation should be intensified. Connected to the theory, this means that SCA realises the high importance of this partner, but uses it in rather low frequency. Regarding the in theory less important partners, there is one significant difference between theory and empirical findings. What stands out is that SCA talks about the importance of innovation intermediaries for accessing external knowledge. With innovation intermediaries, the notion is that SCA is still in a learning phase of how to use them. Despite having ramped up the usage of certain innovation intermediaries in recent time, there is a need to intensify and diversify, and to become more proactive rather than reactive in the work with innovation intermediaries. Just as with companies in other sectors, SCA considers innovation intermediaries as an important partner, but states that the currently the company could develop more efficient ways of harnessing benefits from them. This indicates that, compared to the theory, innovation intermediaries are more important for SCA. Figure 8 is depicting SCA's usage and perceived importance of the different OI partners, according to the same matrix presented in theory and used in Figure 5.

	- Customers - Suppliers - Consumers
- Competitors - Communities	- Universities and research institutes - Companies in other sectors (e.g. start-ups) - Innovation intermediaries & consultants

Usage (Frequently / Less Frequently) — **Importance** (Low / High)

Figure 8 – Analysis of SCA's partners in regards to importance and usage

Scrutinising the external companies' data, there is a clear similarity to SCA when it comes to working with the established partners. The established partners are usually included frequently in a broad range of activities, and are thus an important source of information when it comes to working with OI. Often in the interviews, the companies do not elaborate

much on these partners. In some cases, the companies do even find it difficult to draw the line between general cooperation and specific OI collaboration. Regarding the cooperation with new partners, including innovation intermediaries and companies in other sectors, particularly start-ups, some of the external companies differ significantly from SCA. We argue that SCA can learn from these differences in order to attain a more adequate toolbox of partners and practices matching SCA's current needs. By comparing SCA's and the external companies' empirical data, one can observe that some of the case companies, principally the FMCG, Chemical and Telecommunication, have developed sophisticated ways of attracting, interacting, and integrating knowledge from start-ups and/or innovation intermediaries. These companies, alike SCA and some other companies, realise the importance of these partners, but also include them frequently in their way of working with external knowledge. We will elaborate on this further in below paragraph.

Furthermore, a more overarching pattern is recognisable in the empirical findings. Companies, which organise OI with a top-down strategic approach for OI are also more organised in their work with partners, especially the newer ones. The FMCG company has its online portal through which it connects with start-ups and individuals, and it works with a limited number of innovation intermediaries to broaden its network. The Chemical company systematically work with innovation intermediaries, and involves them in the early phase of the stage-gate process. By doing this the company has experienced an above average success rate through intermediaries, by making the cooperation a viable option in the beginning any project. Lastly, the Telecommunication company has a structured unit to work with ideas connected to external partners. It has built up an organised skunk-work unit and incubator, working solely with a combination of internal ideas and external companies inside the boundaries of the organisation. These findings indicate that a top-down approach is advantageously in order to effectively implement viable and structured practices for working with new partners. To engage with new partners is an additional cost to any company, which may be one reason that the majority OI top-down driven companies work with these partners systematically. Further, the top-down legitimisation of OI as a tool might affect a company's culture and encourage the employees to actually use OI in their projects. Another positive aspect of systemising the work with the new OI partners is the organisational learning and development of absorptive capacities, which might come with dedicated units and processes.

By contrasting the theory on OI partners with the empirical findings from SCA and the external companies, one implication is that SCA should continue to regard the established partners, i.e. consumers, suppliers, universities and research institutes, and customers, as important partners, and continue to work close with them, in line with what theory already suggest. Further, there are clear indications suggesting that a more intensified work with companies in other sectors, primary start-ups, and innovation intermediaries, are vital for elevating the work with OI at SCA, but also at many other large companies. The question about how to harness the knowledge from these partners, i.e. what practices to use, are yet not clear. The empirical findings evidence that collaboration with e.g. start-up and innovation intermediaries are managed by many different means, with practices ranging from in-house incubators (Telecommunication), corporate venturing unit (Automotive #2 and FMCG), hackathons and bug bounties (Automotive #2), science parks (Automotive #2), and competitions (FMCG, Automotive #2 and Chemical). The choice of practices is less generic

compared to partners, and needs to be better matched with the external as well as the internal competencies.

Interesting is the difference between the theoretical findings and empirical findings, illustrated in Figure 9. The dashed circles and arrows are showing that innovation intermediaries and companies in other sectors should be moved into the top-right quadrant according to our empirical findings, which is not in line to what the theoretical findings have found regarding importance and usage of OI partners. One reason for why companies increasingly see the value of these two partners, and that many have intensified their usage of them, might be change in the innovation landscape. Companies feel a sense of urge to leverage knowledge beyond the scope of their core competences, to find ideas on e.g. new technologies and new business opportunities. For this, they need to search outside their own and their established partners' scope of knowledge, i.e. outside their environment of existing suppliers and customers. In order to find novelty, companies in other sectors and innovation intermediaries can help, as they widen the scope and the network of the searching company.
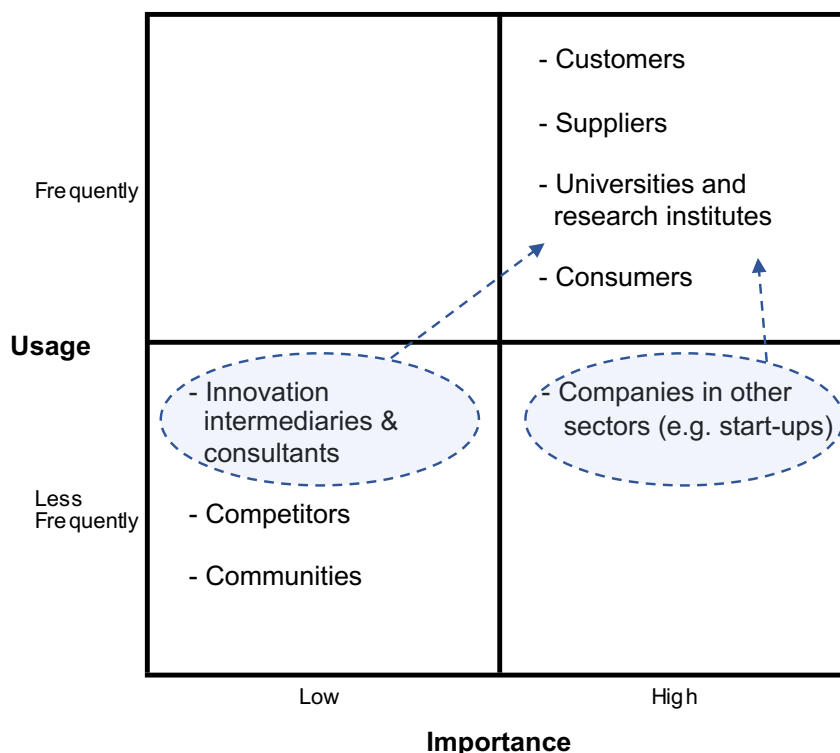

Figure 9 – Analysis of which OI partners' importance based on empirical findings compared to theory

By moving more partners into the top right quadrant, Figure 9 illustrates that many companies, including SCA, utilise, or should utilise, a broad range of OI partners, i.e. a broad search for external sources according to Laursen and Salter's (2006) definitions. Broad collaboration is beneficial according to theory, but not enough for maximising the innovative capability. What SCA needs is a deeper collaboration with start-ups and OI intermediaries, where they can draw deeper from these collaborations. However, deeper collaboration with more partners will inevitably entail increased search costs, which SCA also needs to take into consideration. Thus, SCA should use its potential to be more systematic in the assessment of whom to partner with for each specific project, and more efficient in the work

with respective OI partner, in order to mitigate the increased costs of OI, that otherwise has the potential risk to exceed the benefits. One way to increase efficiency may be by analysing the technological context each business units faces. According to Laursen and Salter (2006), in industries where technological opportunities are high, broader and deeper search is required to find critical knowledge. Given that SCA's businesses face different technological opportunities and contexts, the need for immersive external search and work with OI might differ. This might also explain differing opinions about OI at SCA, where different interviewees face different technological challenges.

6. Conclusion & Recommendations

6.1 Conclusion

In this section, we are concluding our analysis based on the main research question and its following two subqueries. The conclusions will subsequently be used to bring forth practical recommendations to SCA, which is provided in the following section. The main research question for this thesis is stated as following:

- *How can SCA act to elevate their work with inbound Open Innovation?*

Based on the analysis conducted in this research, it has led us into two specific implications that can help SCA to elevate their work with inbound OI.

The first implication is that OI needs to gain legitimacy and recognition in the company by being initiated in more a top-down approach. Working with OI needs to be incorporated in the corporate strategy as well as culture. This will lead to higher acceptance of inbound OI as a tool in innovation projects and also reduce the resistance towards working with it. Moreover, a top-down approach seems beneficial to implement a structured way to work with OI partners, which leads us to the second implication. While SCA needs to continue to work with established partners for inbound OI, their processes of working with new partners need to be improved. To increase the success rate of working with start-ups and innovation intermediaries, more structured processes need to be developed and implemented. A clear strategy and a more structured approach to work with new partners will generate better results than an ad-hoc way of working.

- o *What organisational structure and governance modes are beneficial to Open Innovation?*

In the analysis, we can see that large companies adhere to different approaches when it comes to how inbound OI is structured and governed. However, what may be important to consider is the prevailing discrepancy between companies' present and desired approach of governing and structuring OI. This discrepancy was identified at the Packaging company, Industry company, Automotive company #2, and Automotive company #1, all with clear to moderate bottom-up approaches to OI. A common denominator among them is that they all think OI needs to be governed through a more top-down driven agenda. In other words, the prevailing view is that OI activities need more coordination. With top-level managers supporting and governing OI, it will receive more recognition throughout the company as a viable tool, and hence become more utilised. The theory of OI, and all the companies in this study, give praise to OI's importance to generate innovation, now and in the future. However, the risk with letting OI be governed bottom-up is that it will not get enough recognition in the company, and hence only used by true enthusiast of the OI paradigm. This line of reasoning is supported by the Chemical company and FMCG company, two companies with strong top-down driven approaches to OI. According to them, a top-down driven approach to OI is a requisite for OI to reach its full potential.

Regarding the structuring of OI activities, it is harder to evaluate if the most favourable mode is by operating OI activities through a specialised OI team, or letting the activities be rather

distributed in the company. This seems to be dependent on the context of each organisation, how it is structured, how complex the business is etc. However, based on theory and empirical findings, there seems to be a positive link between top-down governance of OI and centralised OI teams in terms of synergies. If a company decides to deploy a top-down driven strategy for how their OI is governed, a centralised OI team might play a leading role in an effective implementation since they have the ability to create absorptive capacities for OI.

Based on these findings, this conclusion provides SCA with two different recommendations, A and B, on structure and governance modes that can be beneficial to their work with OI, and eventually pave the way for improved work with OI. The dashed lines in Figure 10 are illustrating the two possible options we recommend SCA to consider in order to elevate their work with OI. The recommendations will be presented in more details in the following section "6.2 Recommendations for SCA".
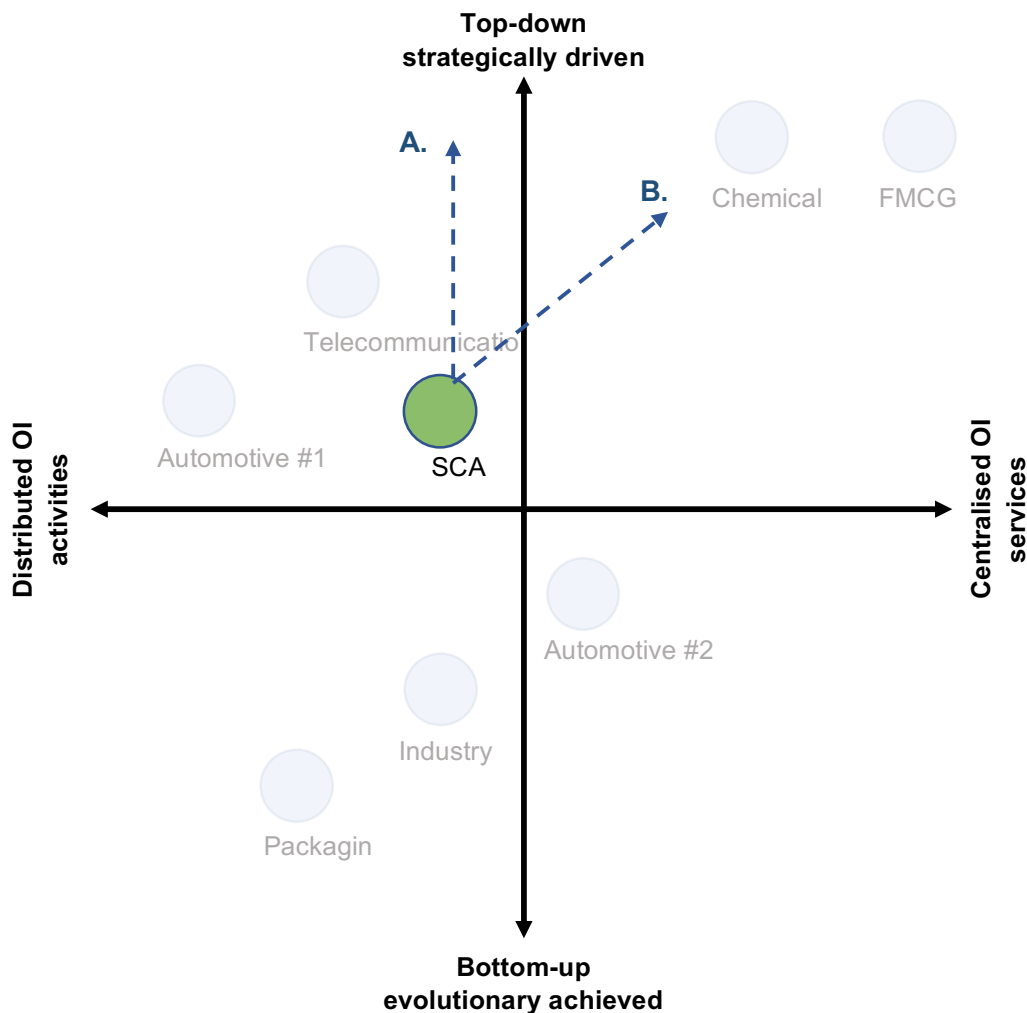

Figure 10 – New structure and governance modes beneficial to SCA

○ *What partners and practices are beneficial to Open Innovation?*

In the analysis we separated *established* and *new* partners. Regarding the new partners, specifically start-ups and innovation intermediaries, the perceived importance seems to have increased significantly lately among the external companies, as well as at SCA. But SCA and some other external companies yet seem to have difficulties to harvest the potential of start-ups and innovation intermediaries by accessing them frequently, although they seem to put a high importance on these. On the other hand, companies such as the FMCG and the Chemical, who are governing OI in a top-down driven manner, have developed processes to access these new partners through more structured processes. One could say that their approach to these new partners is more strategic and conscious, and has proven to be an efficient way of utilising them. This leads to the conclusion that SCA should intensify the work with innovation intermediaries and start-ups, as depicted in Figure 11 below. To do so in an efficacious manner, SCA needs to develop a strategy that entails a broader and deeper collaboration with partners.

Our findings, along with the theory, indicate that the established partners are important, and frequently accessed by large companies, as in the case of SCA. It is easier to collaborate with these partners in a more open way since there in many cases already are well established relationships with them. Nonetheless, these established partners are an important source of external knowledge, since they often possess great knowledge about the focal firm's products, especially costumers, consumers, suppliers. Moreover, universities and research institutes produce significant knowledge, especially important for early stages in new product development, which leads to the conclusion that a more frequent work with them would be beneficial to SCA, depicted in Figure 11.
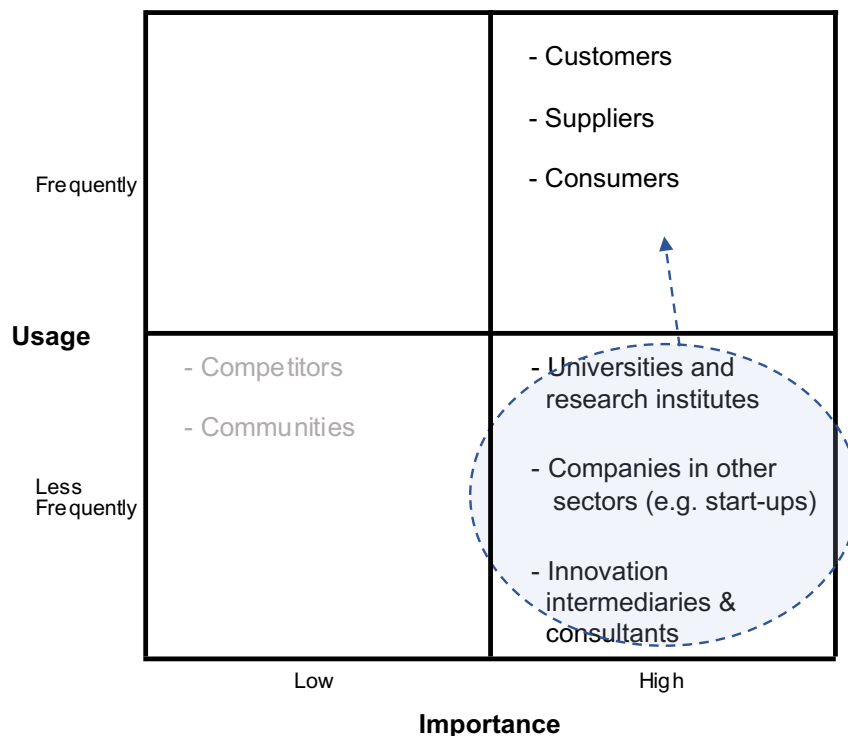

Figure 11 – SCA's current ranking of partners and provided

Regarding practices, it is difficult to draw a generic conclusion on which practices that are beneficial based on the findings in this study. The reason for this is that practices are to a large extent context specific, and hence difficult to generalise.

6.2 Recommendations for SCA

To follow up on the conclusion, this research provides SCA with more practical recommendations. This is done in two steps, in line with the structure of this thesis. The first step is to provide possible recommendations for a transition towards a more top-down driven OI strategy, and to show the distinction between a centralised and decentralised approach. The second step in the recommendation is to highlight specific actions SCA can take into consideration when working with the new partners.

6.2.1 Organisation and structure

For SCA to elevate their work with OI through organisational and structural measures, we see two possible solutions, as depicted in Figure 10. Our first recommendation is *A*. Here, we recommend SCA to relocate the main strategic responsibility for OI further up in the organisation. Nonetheless, the current, small OI team, should operate as it does today, i.e. provide small-scale support throughout the organisation, but let the practical autonomy be maintained in the various innovation teams with only little interference on how the OI activities should be operated. In this case, there is a need to create best practice cases and guidelines to both spread the recognition of OI as a tool, and to make the process of using it as easy as possible without dedicating specific human resources for OI support to the innovation teams. The responsibility for initiating and coordinating the work with OI will remain decentralised in the respective innovation teams. This also includes managing the collaboration with various partners. In this recommendation, the challenge is to drive the implementation of OI as a tool throughout the organisation while not diffusing the knowledge about OI throughout the organisation supporting change.

The second recommendation is *B*. In this case, we recommend SCA to relocate the main strategic responsibility for OI further up in the organisation, and, in addition to that, expand the current OI team. This team should take a bigger responsibility for how OI is managed compared to what it does today. It should act more as a unit responsible for e.g. continual support for OI, internal training, and deployment of new OI practices across the whole company. Further, the central unit needs to develop the external partner network, by tying close contacts to selected partners, where the collaboration is established in a deeper way. The challenge in this recommendation is to create and integrate the hierarchy of OI-employees into the existing organisation. This integration may also challenge the existing corporate culture and require immersive top-level attention and leadership.

6.2.2 Partners and practices

Our recommendation to SCA is to further evaluate partnership with start-ups and innovation intermediaries. To do this, SCA initially needs to establish clear criteria what to search for when accessing external knowledge, which needs to go hand in hand with the implementation of OI throughout the organisation. This can be done by, for example, evaluating in which technological contexts and projects different OI partners and practices might be more appropriate and viable than others. Projects of a higher technological nature should be allocated more resources in order to be able to search for external knowledge more broadly and deeply. A benchmark to other companies can potentially help SCA to find

more immersive ways of accessing these partners more frequently. The challenge with accessing these new OI partners more often, and thus broaden the search, partly lies inside the company. The use of any OI partners can only increase by establishing OI as a more developed and frequently used tool on an operational level inside the company. Innovation intermediaries may be the best way to quickly expand the search network and get in contact with solvers to specific problem. Start-ups may require more time and resources, and one way to access them, if not through innovation intermediaries, may be through a corporate venturing unit or corporate incubator. In the case of a decentralised approach of OI, innovation intermediaries might be the better partner since it does not require the amount of resources and knowledge compared to close collaboration with start-ups that may be dependent of a centralised team maintaining the work with this specific partner. Further, we recommend SCA to maintain the existing relationships with frequently accessed partners, i.e. customers, consumers and suppliers. But since SCA already has well-developed processes to tap the external knowledge of these established partners, there are no further value-adding recommendations we can provide based on this thesis.

As mentioned in the conclusion, it is hard to generalise practices for collaborating with partners based on this thesis. Thus, it will not be possible to provide any specific recommendations.

6.2.3 Key Actions
Although both recommendation A and B differ in aim, and thus also in execution, in combination with our recommendations for partners and practices, there are three key actions that we consider important for SCA to evaluate over short, mid and long-term.
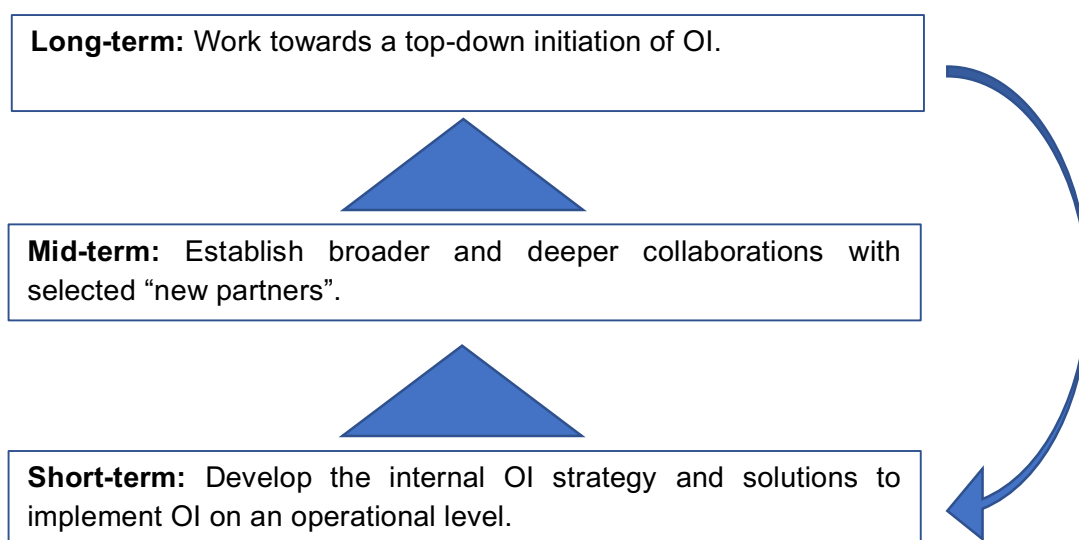

Figure 12 - Key actions for SCA

To conclude, our recommendation to SCA is to start out with developing an internal OI strategy, since this is something that can be conceptualised in near time without the need for external collaboration or top-down approval, at least initially. In this step, we recommend to either evaluate an implementation of an OI deliverable in their stage-gate process, similar to Chemical company, or gather further ideas on measures to enforce an OI strategy on

operational level. The second step, which we believe lies approximately 3-12 months ahead of time, will be to evaluate partnerships with selected new partners. There needs to be clear search criteria established in order to make the search more effective. Also, innovation intermediaries may be easier than start-ups to establish new partnerships with in the beginning, in order to fast build up a broader network among different external actors. The final key action is much in line with the findings of this thesis, namely to work towards a top-down initiation. Such a strategic change takes time and is a continuous process, which is why it is classified as a long-term recommendation. The top-management level is where an OI-strategy needs to be developed, confirmed and implemented from. Also, the top-management needs to have the last word in whether to decide for recommendation A or B mentioned above. Since this step has a high importance, the decisions taken once a top-down initiation is successful will loop back to the work on operational level as well as with partners, depicted by the blue arrow.

6.3 Future research

This research's aim has been to provide a deeper understanding into OI, specifically how different modes of governance and structure, and how the toolbox of partners and practices, can impact large companies work with OI. Further, it has aimed to provide SCA with recommendations on actions that can be taken within these two aspects in order to elevate their work with inbound OI. However, important aspects regarding activities that can elevate one's work with inbound OI have been remained overlooked. Only a relatively limited scope of research within the field of OI could be fit into this study, which leaves room for many other research approaches within the same field. Thus, it would be valuable if academic interest would like to address the overlooked aspects in in this research. For instance, how do leadership and internal culture affect a large company's work with inbound OI, and what measures can be undertaken to elevate OI? By addressing these two interesting aspects, to only mention some of them, a more complete and nuanced picture on actions that can be taken in order to potentially elevate SCA's work with OI can be achieved.

However, it is not only the related aspects of OI beyond this research's scope that is of interest for future research. The nature of this study has been on a rather top level, covering two major aspects, and comparing the findings on these at SCA to other large companies. This has equipped the researchers with relevant data for providing SCA with recommendations on actions that can be taken in order to elevate their work with inbound OI. This provides SCA with a general picture of which strategic directions they should emphasise for their future OI strategy. The next step could be to conduct further research with a more detail oriented stance. This could be of particular importance in order to provide SCA with insights in e.g. *how* OI should be governed and structured at a more operational level, or *how* the collaboration with certain partners should be managed from SCA's perspective. This would provide SCA with yet another dimension on how they should act to elevate their work with inbound OI, and thereby bring forth more credible and helpful recommendations.

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Appendix

1. Presentation of external companies

Chemical company
The company produces everyday essential goods from basic chemical compounds, such as essential ingredients, protractions and colours. The main customers are other manufacturing companies. In size, the company has over 46,000 employees and operates in more than 80 countries, generating a revenue of over € 14 billion. In day-to-day operations, the company's focus lies on sustainability and innovation.

Industry company
The company produces products such as tools and machines to heat, cool, separate and transport different chemical compounds. The main customers operate in the heavy industry sector, food industry and electronics industry. In combination with its subsidiaries, the company reaches 35 national markets and employs over 17,000 people, which in 2016 generated over € 4 billion in revenue. The company puts emphasis on premium, high quality products, with special focus on saving energy and sparing the environment.

Telecommunication company
The company produces equipment and provides services in the telecommunication sector for other actors in the sector, e.g. operators in television and wireless communication. It operates over the entire globe, in 180 countries, with more than 110,000 employees, accounting to more than € 20 billion in revenue. Noticeable is that the company holds over 39,000 patents. The company's current focus lies on Internet of Things, 5G and data cloud services.

Fast Moving Consumer Goods (FMCG) Company
The company mainly produces cleaning, personal care and hygiene products. The company serves customers and consumers around the worlds, employing over 100,000 people, with an annual revenue of € 60 billion. The company has a competitive advantage in identifying consumer needs and combining it with internal technological know-how and external research capabilities.

Packaging Company
The company produces a broad range of packaging and filling products, and provides related services, to main customers in the food, dairy and beverage industry. It operates in over 170 with 23,000 employees, and accounts for a revenue of roundabout € 12 billion. The company works with process and product innovation as well as environmental innovation focusing on sustainability.

Automotive Company #1
The company manufactures automotive products for private customers. It sells its cars through national dealers in more than 100 countries across the globe, employing around 30,00 people, with an annual revenue of € 17 billion. Focus on innovation lies in autonomous driving and connected safety via cloud communication.

Automotive Company #2
The company is active in a broad set of areas. Its main business area is the production, distribution and sales of different automotive products, complemented with different solutions for marine and industrial vehicles. It sells its products on 190 markets, employing 95,000 people while producing and manufacturing its products in 18 countries. Its annual revenue 2016 lies above € 30 billion. Its current focus in innovation lies on autonomous driving and automated functions in vehicles.

2. Interview Guide

<u>Interview chart</u>

<u>Fundamentals of OI</u>
The goal is to get an understanding of why Company X decided to embrace and implement OI.

- What does OI mean to Company X?

- What does Company X want to achieve from OI? We would like to know:
  - o   Main motives and objectives

<u>Organisational structure and governance</u>
The goal is to gain insights in favourable organisational structures and governance modes to support OI and absorptive capacities.

- Does Company X set clear, organisation overarching OI strategies, goals and objectives?

- How is the responsibility for practicing OI distributed throughout the organisation?

<u>Partners and practices</u>
The goal is to identify which partners Company X works with, and how they work with specific types of partners, i.e. what practices they use.

- What types of partners has Company X involved in their inbound OI processes? Also:
  - o   Are some types of partners more frequently involved?

- How does Company X access external knowledge from different partners?
  - o   List of practices for top partners

<u>The future of OI</u>
The goal is to get general insights about the company's future plans of working with OI and how they think the concept will evolve.

- From the respondent's perspective, how does Company X plan to further work with OI in a long-term perspective?