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The Dilemma of Collaboration for Innovation

Innovation with each other or past each other?

| Author:     | Henrike Hedel       |
|            | 19901110            |
| Tutor:      | Lena Olaison        |
| Examiner:   | Saara Taalas        |
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Henrike Hedel
Linnaeus University, Växjö
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Abstract

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Background: Innovation and collaboration are deemed popular terms that are widely used and agreed on. It is implied that innovation without collaboration seems to be unlikely (Deichmann et al., 2017, Haanæs et al., 2018, Innov8rs, 2018). However, the meaning behind innovations of disruptive, incremental, or radical character remains vague and presumably differs between practitioners, just as it differs among scholars. Also, the literature only implies how collaboration can be used effectively for innovation, whilst focussing more on what forms of collaborations are existing.

Research questions: How is innovation understood in the CIC? How does the CIC work together in order to realise cross-industry collaborations for innovation?

Purpose: This study aims at investigating the variety of innovation understanding and how it is applied in collaborations, based on the views of practitioners from different companies that are part of the Cross Industry Club.

Method: This research is designed as an exploratory case study and follows a qualitative strategy with abductive reasoning. Data is collected through nine semi-structured interviews with representatives from five different companies.

Conclusion: The study revealed that practitioners have other aspects in mind which define their understanding of innovation compared to scholars. By that, the usage of innovation terminology is rather arbitrary in practice. The influence of innovation frameworks on the understanding of innovation and the collaborative work have been revealed. Innovation in a cross-industry collaboration, in its purpose and characteristics, is similar to the work of communities of practice. Challenges that appear during the emergence of a collaboration like the CIC, and values that affect the initial work towards cross-industry projects, have been identified.

Keywords: Innovation, disruptive vs. sustaining innovation, radical vs. incremental innovation, collaboration for innovation, open innovation, interorganizational networks, communities of practice, innovation ecosystems
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<th>Full Form</th>
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<td>CIC</td>
<td>Cross Industry Club</td>
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<td>CoP</td>
<td>Communities of Practice</td>
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1 Introduction

In today’s business life, one cannot ignore innovation and collaboration. Both are widespread but yet confusing terms and practices, since they both allow room for interpretation and expectation. The following introduction chapter presents the problem of implicit assumptions of what innovation and collaboration are about, separately as well as in relation to each other. This is because nowadays innovation happen mainly through collaboration than isolation. Hence, one cannot go without the other. In order to understand collaborations for innovation, one need to understand innovation in the first place. The background chapter looks at this topic from a practical point of view, whilst the problematization discusses the views of different scholar’s. Eventually, this leads to the purpose of this study which is to contribute to the understanding of innovation in collaborations, by investigating a concrete case example. The chapter concludes with an outline of the research study.

1.1 Background

Everybody is talking about disruptive innovations, but all they do are incremental innovations. Why is that?

That was one of the first questions my company supervisor asked me at the beginning of my research based on my decision to study the participation of companies in innovation collaborations. In other words, when he thought about collaborations for innovation he immediately started to reflect upon the definitions and views on innovation, as this consequently affects the work of the collaboration itself. Hence, in order to study the practices of an innovation collaboration, it appears necessary to study the understanding of innovation among the collaborating partners beforehand.

First of all, it seems popular to talk about “disruption” in various aspects of business life, which makes it difficult to put it in the right context in the first place. For instance, during a recent online summit about innovation, Terry Howerton, CEO of TechNexus, explained that we are living in the most disruptive period of global economic history. He states that instead of focussing on what one’s company is good at, it is important to look at the disruptions that are happening in the industry around it (Howerton, 2017). As such, Howerton uses the term “disruption” in relation to two different aspects, first the
development of global economies and second, in relation to advances and changes in industries. However, whether this is in relation to a certain degree of technological progress, adapted or newly created business models, or a combination of all, remains unclear. Still, all of it could “disrupt” the current state of the art and leaves room for interpretation what Howerton actually mean when he used the term “disruption”.

As a matter of fact, there is a need for established companies to remain adaptive to changes in the industry, while at the same time not giving up on what they have been good at in the past, based on a study from the Boston Consulting Group (Haanæs, Reeves & Wurlod, 2018). According to the Boston Consulting Group, only 2% of 2,500 public companies have succeeded at this challenge so far, which can be further defined as exploring the outside world whilst simultaneously further exploiting internal processes and resources for improvements. The difficulty in this challenge is due to the contrasting character of both activities, the different time horizons and the different skills that are required. Driving innovations and exploring new ideas, demand an external focus, patience, and a large time horizon as the benefits of these activities are not visible immediately. On the other hand, exploitation and improvement of existing practices provides a multitude of benefits in the short term, mostly related to a company’s internal efficiency. This is the reason companies often choose exploitation over exploration activities. In order to reach a balance of both activities, Haanæs et al. (2018) emphasize the importance of a constant outward gaze and an openness towards external perspectives even in times of success. Many companies tend to lose this “outside in” focus when they are successful at what they are currently doing and as a result miss out on fundamental changes in the industry that might affect their future success.

What is notable here is that Haanæs et al. (2018) assigns the term “innovation” only to exploration activities. In other words, innovations only happen when a company goes beyond its company borders. It is a questionable notion. Innovation that are created inside company borders might differ in how experts assess their “innovative” character, but nevertheless can be an innovation.

However, the “outside in” focus, mentioned earlier, can take different forms. Haanæs et al. (2018) mentions the need for companies to look at themselves through the eyes of the customer, in order to detect changes in what the customer is demanding. At the same time,
they need to engage in some kind of collaborations, as disruptive innovations are more likely to occur through collaborations than isolation (Haanæs et al., 2018). The latter is partly supported by Innov8rs (2018), who state that typically it takes several stakeholders of different sizes to create innovation together, which can be said to be a collaborative approach. However, Innov8rs do not say what kind of innovations will be created as a result. In contrast to this, Giles (2018) says that working together with external stakeholders to jointly develop successful ideas is necessary to create radical innovations. While all three authors consider an “outside in” focus for companies, this focus can either lead to disruptive, radical or “simple” innovations. Do they mean the same thing?

According to Deichmann, Rozentale and Barnhoorn (2017), business to business collaborations continue to increase in practice, as companies can benefit from cost savings and “out of the box” thinking. They further emphasize, that if ideas are generated from the different views of several stakeholders, they are stronger and more convincing in terms of their future success. The same benefits are stated by Giles (2018) who explicitly talks about open ecosystems in this regard. Being engaged in such an open ecosystem, requires regular feedback among all participants, a supporting attitude and the willingness to re-think one’s own processes and behaviour. As such, Giles (2018) also emphasises the increasing network effect resulting from an open ecosystem, which is in itself another collaborative approach.

What is striking at the end of this background chapter is that innovation and collaboration are deemed popular terms that everybody uses and agrees on nowadays. It is also implied that one cannot go without the other, meaning that innovation without collaboration seems to be unlikely (Deichmann et al., 2017, Haanæs et al., 2018, Innov8rs, 2018). Or in other words, that collaborations are needed to be innovative. However, what these terms actually entail, does not only remain vague but most likely also differs. Innovations of disruptive, incremental, and radical character have been mentioned, as well as networks and ecosystems as collaborative approaches. But if companies in practice join forces to be innovative, do they know if they are pursuing the same goals? Do they mean the same thing when they talk about “disruptive innovations”, as mentioned in the introducing quote? Consequently the understanding of innovation can affect the collaborative work, whether the partners inside the collaboration share the same general understanding or reveal diversity among their views.
Within the following problem discussion, I want to see how scholars deal with this topic in order to refine the problem in practice and derive the actual purpose of this study.

1.2 Problem discussion
When looking into “innovation” in theory, one gets exposed to multiple terms used for definition and distinction: radical, fundamental, revolutionary, incremental, sustaining, continuous, ground-breaking, and of course disruptive, to name a few. What makes this even more complex is the fact that they seemed to be used in a rather arbitrary fashion when describing innovation. Just by looking into the definition of radical innovation given by Dewar and Dutton (1986), that is explained as being fundamental and revolutionary changes in technology, makes one wonder if it is the same as the revolutionary innovation described, for example, by Abernathy and Clark (1985) and if so, why it was named differently.

Also, Christensen’s classification of innovation, initially from 1997, which distinguishes between sustaining and disruptive technologies seems important to consider in this regard. Sustaining innovation essentially means to focus on the improvement of existing products, and to develop an updated and revised product (Morrish, Whyte & Miles, 2017). Sustaining innovations can be of discontinuous, radical, or incremental nature, but, regardless of the type, all focus on the improvement of products that have been valued by customers over a long period of time (Christensen, 2013). On the contrary, a disruptive innovation is more radical, leads to a completely new value proposition and makes previous products or services ineffective (Christensen, 2013, Millar, Lockett & Ladd, 2018, Morrish et al., 2017). Additionally, Millar et al. (2018) claims that disruptive technology is characterized by its capability to create disruptive innovation, but also by the uncertainty regarding the emergence, level, and timing of the disruptions.

The same complexity appears in scholar’s attempt to clarify the types of collaborations in innovation activities. Lee, Olson and Trimi (2012) distinguish, among others, between collaborative and open innovation. Collaborative innovation includes partnerships, joint ventures, and strategic alliances with other companies. Open innovation, however, extends the circle of involved stakeholders from other companies to research institutes, universities, and individuals alike and with this builds a broad innovation ecosystem. In contrast to this, Smorodinskaya et al. (2017) talk about innovation ecosystems when
describing collaborative networks. According to them, collaborative networks are characterized by people and organisations working together on projects with an innovation focus. An example of such a collaborative network is Wenger’s (2000) “community of practice”, that is developed to build and exchange knowledge whilst bound together by a shared passion (such as “innovation”) and identification with the expertise of the other participants. At first glance it appears that what Lee et al. calls “open innovation” is equivalent to Smorodinskaya et al.’s explanation of “collaborative networks”. However, both authors look at the terms from a rather general perspective, not going into detail about aspects such as local, regional, or global diffusion of the stakeholders, or whether they are based in similar or different industries. In the end, it remains unclear to which kind of innovation activities the collaborations are ultimately applicable.

Zeng, Hu and Ouyang (2017) distinguish between innovation activities that can either be of an explorative or exploitative nature. They say that the exploitation of company internal resources leads to the improvement of existing products, which they equate with incremental innovations. In contrast to this, the exploration of new technologies and the usage of resources external to the company leads to ground-breaking innovations. As such, they refute the statement from the Boston Consulting Group study (Haanæs et al., 2018) mentioned earlier, which states that innovations only happen when a company goes beyond its borders. However, even though it is a first attempt to clarify the kind of innovations that happen inside or respectively outside the company borders, other questions remain open. For instance, it does not give clarification on whether networks, ecosystems or any other type of collaboration might be useful for their exploration attempt.

Reflecting upon what has been said so far, it does not come as a surprise that the usage of innovation and collaboration terms is quite confusing among practitioners, as it appears just as confusing among scholars. In addition to this, how to actually make use of it in combination appears to be implicit.

This study offers an approach that uses the diversity of a cross-industry collaboration, to add to current discussions that appear in theory and in industry collaborations alike and to offer insights that try to consolidate them: Firstly, the introductory question of this
“Everybody is talking about disruptive innovations, but all they do are incremental innovations. Why is that?”, which deals with the variety of interpretations of innovation terms. Secondly, this variety of understanding affects the usage of collaborations for innovation activities and consequently the work of the collaboration itself. Previous research from Lee et al. (2012) and Smorodinskaya et al. (2017) discusses collaborations types in regard to open innovation, without indicating how to actually use them for innovative outcomes.

1.3 Purpose
This study aims to contribute to the complex discussion about collaborations for innovation by conducting a case study on the Cross Industry Club (CIC), a newly developed innovation collaboration. This requires to explore the understanding of innovation in the CIC beforehand, since innovation is the reason for the different members to participate in the CIC, which will determine their practices to reach collaboration for innovation accordingly.

Thus, the purpose of this study will be achieved by investigating the variety of innovation understanding in the CIC, before looking into how the CIC works with it. For the latter, I will investigate collaborative approaches that foster innovation (e.g. innovation ecosystems and communities of practice), in order to analyse the CIC in relation to it. As such, the study adds one concrete practical example of how innovations are distinguished and applied in collaborations, based on the understanding of each member of the CIC.

1.4 Research questions
Two main research questions can be derived from the previous problematisation whilst also meeting the purpose of this study:

1. How is innovation understood in the CIC?
2. How does the CIC work together in order to realised cross-industry collaborations for innovation?

1.5 Delimitation
Through its case example, this study focuses on collaborations between companies from different industries, rather than between companies and consumers, or companies from
the same industry. That is to say it looks into collaborations from a network perspective, including multiple companies, rather than solely bilateral partnerships.

1.6 Outline of the study

Chapter 1 Introduction

The introduction chapter investigates why “Everybody is talking about disruptive innovations, but all they do are incremental innovations.” This is done by looking into how innovation and collaboration are addressed in practice and among different scholars. The introduction reveals that one cannot go without the other, that means innovation without collaboration seems to be unlikely. However, it lacks research on how collaborations can be used effectively for innovation efforts. As such, it leads to the purpose of this paper which is to investigate the variety of innovation understanding in the CIC as the case example, before looking into how the CIC works towards cross-industry collaborations.

Chapter 2 Conceptual Framework

This chapter creates an understanding what innovation and collaboration mean and how it is differentiated. The literature shows several innovation concepts and terminologies that have been introduced over the years, which aim at clarifying what innovation is about, but actually diffuse it even further. Collaborative approaches in innovation studies are based on the paradigm of open innovation but can be either looked at from an ecosystem perspective, which includes multiple networks and communities, or from a more detailed network perspective. The latter will be applied in this case study with a special focus on communities of practice.

Chapter 3 Methodology

The methodology chapter presents the exploratory case study approach of this study. The CIC is a newly established innovation collaboration and serves as the research subject. It is studied through nine semi-structured interviews with representatives from five different companies. The research scope of this study developed over time, which is why abductive reasoning was applied.
Chapter 4 Analysis
The analysis of the findings from the interviews follows the same structure as the conceptual framework. That said, it starts with analysing the understanding of innovation in the CIC, before it continues with looking at the work of the CIC in order to reach cross-industry projects. Based on the young character of the CIC the case deals with the emergence of cross-industry collaborations, whilst illustrating the beginning and initial activities of the CIC as well as the challenges that occur. The chapter ends with a summary reflection on the results of the analysis.

Chapter 5 Discussion
This chapter aims at looking at the findings and the analysis from this study from a holistic perspective and tries to make sense of the research phenomenon in general. The two aspects of innovation understanding, and collaboration for innovation are discussed and help to identify implications for management and future research.

Chapter 6 Conclusion
The last chapter concludes the study by summarizing the key findings from the analysis and as such answers the research questions. Reflections on management implications and future research are consolidated likewise.
2 Conceptual framework

The focus of this study is to investigate the case example of an innovation collaboration. The purpose of the case collaboration is to foster innovation. Hence, in order to put the case example into perspective, it is important to understand what innovation means and how it is differentiated at first. This chapter therefore starts with a brief literature review on innovation definitions and distinctions, including Christensen’s concept of sustaining and disruptive technologies. In principle, sustaining or disruptive innovation efforts can happen inside or outside company borders. However, nowadays most innovation efforts are collaborative and are referred to as open innovation. Consequently, this chapter continues to explore research about open innovation in innovation ecosystems. After that, I am looking into communities of practice as one concrete example of an organizational network that can take place inside companies as well as in external collaborations. Based on this, the structure and setup of the case example can be analysed later in connection with the literature.

2.1 Understanding of innovation

2.1.1 Definition of innovation

Based on the Latin word “innovare” innovation, from its word origin, simply means “to make something new”. However, within business studies the definition of innovation has evolved and been refined over the years.

In 1974, Rowe and Boise stated that, for an organisation, innovation means to introduce a process or start to use a product which is new to them.

Abernathy and Clark (1985) describe innovations in a more detailed way by saying that the design of a new product or process differs radically from previous practice. It is based on scientific progress and, once introduced, makes existing practices obsolete.

Dewar and Dutton (1986) define innovation as an idea, practice or material artefact which is perceived to be new to the organization that uses it. They also add that the degree of novelty needs to be considered which they distinguish as radical and incremental, both in relation to changes in technology (Dewar & Dutton, 1986).
Fischer (2001, p.200) connects innovation further to technology by calling it “the heart of technological change”, which is dependent on a variety of knowledge that is accumulated and developed. He describes innovation as an interactive process of science and technology related activities, which lead either to a new combination of existing knowledge or the creation of new knowledge. He adds that these interactions can happen within or among companies.

As it can be seen over the years different authors have brought in different aspects of what must be considered when defining innovation. While at the beginning innovation was simply related to what was perceived to be new to a company - but not necessarily new in general - over time characteristics like a more specific degree of novelty and the technological significance were added. Fischer (2001) also includes the relevance of collaborations in his definition, by saying that innovation happens through interactions of different parties. Later on, we will see that by looking into literature on collaborations the relation to innovation practices becomes obvious as well. However, for the moment, I will further continue to look into innovations and how they can be distinguished to become clearer and more tangible.

### 2.1.2 Distinction of innovation

#### 2.1.2.1 Based on market and technology perspectives

It is not just the way innovations are defined that slightly differs among scholars, but also the way they are classified and distinguished. However, what is common for many innovation concepts is their relation to knowledge about markets and technologies, as can be seen hereafter.

For instance, Afuah (1998, cited in Popadiuk & Choo, 2006) distinguishes between technological, market and administrative innovations, based on the knowledge each entail. Technological innovations can be a new product, service or process and are based on the knowledge of how to combine new or existing components, methods, and techniques. Market innovations are based on new knowledge about components of the marketing-mix: product, price, place, and promotion (Kotler & Armstrong, 1993, cited in Popadiuk & Choo, 2006), e.g. new insights about distribution channels, customer expectations and needs. Lastly, administrative innovations relate to new knowledge about strategies, structures, or people within an organisation.
In contrast to this, Abernathy and Clark (1985) combine market knowledge and technological competence to differentiate between architectural, niche, regular and revolutionary innovations. *Architectural and niche innovations* both break with existing market knowledge, hence creating new market opportunities. Whereas architectural innovations are based on new technologies to ultimately create new or at least renew existing industries, niche innovations use established technologies and refine them to reach the same outcome. In contrast, *regular and revolutionary innovations* both preserve existing market knowledge, but differ according to the technological capabilities that are used. Regular innovations describe improvements of existing technologies, while revolutionary innovations break with them and create new technological competences.

2.1.2.2 *Based on technological progress*

Even though the market perspective is important to be able to map innovations into the business context, it often plays a subordinate role. In those cases, scholars distinguish between innovations mainly based on their technological progress. Widely used terms are thereby radical and incremental innovations.

In the simplest sense, radical innovation is defined as fundamental and revolutionary changes in technology, whilst incremental innovations are referred to as minor adjustments of existing technologies (Dewar & Dutton, 1986).

Panagopoulos (2011) points out that radical innovations require a higher willingness to take risks, as they challenge the status quo by creating new technological borders and are therefore rather unpredictable. Opposed to this, incremental innovations are more predictable, require a less risky innovation strategy and aim to improve the status quo within existing technological borders.

Stamm (2003, cited in Popadiuk & Choo, 2006) differentiates both types of innovation in a more comprehensive way, based on various factors like timeframe, development trajectory, process, business case, development structure and resource and skill requirements, amongst others. For instance, incremental innovations often happen in the short term, meaning within a 6 to 24-month time horizon. The level of certainty is rather high, in terms of critical events. This is due to a continuous, formal process that develops the technology step after step and is able to anticipate risk factors along the way.
Furthermore, incremental innovations are mostly embedded and performed within an existing business unit, based on a complete business plan and with the help of existing skills and competences from internal resources. In contrast to this, Stamm (2003, cited in Popadiuk & Choo, 2006) explains that radical innovations happen over a longer time horizon, meaning 10 years or more. This is, among other reasons, the result of a discontinuous and iterative process without predefined process gates and with unexpected twists and turns along the way. Hence, the business case is not complete from the beginning and evolves over the time. As a result of this informal and spontaneous process, it is difficult to predict the competences and skills that might be needed throughout the development. Thus, external resources are likely to be required at one point or another.

One thing that becomes clear from looking into literature on how innovations can be classified is the fact that it is still confusing. While the authors of the reviewed articles all attempt to clarify the term “innovation”, they actually diffuse it even further. It is not enough to include the same perspectives, such as the market situation and the degree of technological novelty and significance, when new terms are further introduced along the way. By that, it can be said that each concept and terminology stand for itself rather than contributing to the overall understanding of innovations.

See Appendix A for a comprehensive overview of the previously explained innovation classifications, including the concept of Christensen, which will be focussed on in the following chapter.

2.1.3 Christensen’s concept of sustaining and disruptive technologies
One of the most widely used distinctions of innovation in academia as well as practice is based on Christensen’s book “The Innovators Dilemma”, first published in 1997, which defines different kinds of technologies, which are the basis for innovations of the same name. As can be seen in the previous chapters, technologies are an influential factor for, and closely connected to, innovation. However, what is striking about Christensen’s concept of sustaining and disruptive technologies is his attempt to include the previously used terminologies of incremental and radical innovations. As such, his concept will be explained in more detail hereafter.
2.1.3.1 Distinction of sustaining and disruptive technologies

According to Christensen (2013), *sustaining technologies* can be defined as technologies that enhance the performance of an existing product. They can have a discontinuous, radical, or incremental character. Meaning they can either develop step-by-step (incremental) or mark a technological breakthrough and result in what Christensen and Raynor (2003, p.34) call a “leapfrog-beyond-the-competition” product. Notable here is that Christensen clearly explains the incremental character of sustaining technologies, whilst not differentiating discontinuous from radical. However, what unites all three is their ability to improve products that have already been valued by main customers over a long period of time. Including the market perspective, Christensen (2013) also emphasizes that most technological improvements that happen in existing markets have a sustaining character. Usually industry leaders are more versed and successful in their sustaining innovations effort, as this leads to better products for which they can get higher profit margins (Christensen & Raynor, 2003).

Opposed to this, *disruptive technologies* happen occasionally and, in most cases, start off with a deteriorated product performance (Christensen, 2013). Due to their lower performance they cannot compete with established products on existing markets (Christensen & Raynor, 2003). Instead, they offer new features that often new, less-demanding customer groups value first. Christensen (2013, p.xv) describes products that are based on disruptive technologies as being “cheaper, simpler, smaller, and, frequently, more convenient to use”. By that, products based on disruptive technologies not only have lower margins, but also do not attract the most profitable customer groups. As a result, following a disruptive innovation strategy is more attractive and manageable for market entrants. Once products based on disruptive technologies settle down in new, low-end markets, the speed of technology helps to eventually cross with more-demanding customer groups. This ultimately provides the “disruptors” or market entrants with a competitive advantage towards industry leaders (Christensen & Raynor, 2003). In general, as long as companies solely listen to their best customers and focus on identifying new products that promise a higher profit based on this, they will not be able to develop disruptive technologies (Christensen, 2013).

The following table provides an overview of Christensen’s classification of sustaining and disruptive technologies. However, it is not entirely based on the explanations given
in “The Innovators Dilemma” (Christensen, 2013) and its successor “The Innovators Solution” (Christensen & Raynor, 2003). As already mentioned, in his attempt to include previous used terminology like incremental, radical, and discontinuous innovation, Christensen remains vague about what these terms entail. To show a more comprehensive picture of his concept in the following Table 1, characteristics mentioned by other authors, which were presented in Chapter 2.1.2, are included and summarised.

<table>
<thead>
<tr>
<th>Sustaining Technology</th>
<th>Disruptive Technology</th>
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<tbody>
<tr>
<td><strong>Incremental</strong></td>
<td><strong>Radical &amp; Discontinuous</strong></td>
</tr>
<tr>
<td>Adjustments of existing technology in existing markets</td>
<td>Fundamental &amp; revolutionary changes in technology, in existing markets</td>
</tr>
<tr>
<td>Existing business plan</td>
<td>Evolving business plan</td>
</tr>
<tr>
<td>Step-by-step approach</td>
<td>Iterative process</td>
</tr>
<tr>
<td>Low risk, high predictability</td>
<td>High risk, low predictability</td>
</tr>
<tr>
<td>Internal resources</td>
<td>Internal &amp; external resources</td>
</tr>
<tr>
<td></td>
<td>Happen occasionally</td>
</tr>
<tr>
<td></td>
<td>Start off with a deteriorated product performance but entail new features</td>
</tr>
<tr>
<td></td>
<td>At the beginning: lower profit margins</td>
</tr>
<tr>
<td></td>
<td>Therefore, not able to compete on existing markets</td>
</tr>
</tbody>
</table>

What is notable when including the previous literature with Christensen’s concept, is that there is no clear statement of how significant the changes in technology must be, in order to be perceived as disruptive. Whilst sustaining technologies are either based on small adjustments or fundamental changes in technology, disruptive technologies are purely defined by their outcome, which is a lower product performance. Furthermore, it is striking that there is no clear statement about whether disruptive technologies can be developed by using internal resources alone, or if external resources are partly/completely needed.

After Christensen’s introduction of sustaining and disruptive technologies, other authors have further reflected and commented on his concept. For example, Christensen’s (2013) remark that if companies only listen to their best customers, they won’t be able to develop
disruptive technologies, was challenged by a study from Reinhardt and Gurtner (2015). They conducted a research on how to improve consumer involvement in relation to both sustaining and disruptive innovation efforts. They concluded that companies in fact should not address consumers who are too close to the product itself when attempting disruptive innovations. However, those consumers who feel knowledgeable about the product domain can actually be of help. In addition to this, Nagy, Schuessler and Dubinsky (2016) extend the common definition of disruptive innovation, as according to them, they primarily consider external factors like cost, performance level or customer expectations. By that, they only point out the changes around the innovation, instead of giving a clear picture of how the characteristics of the innovation itself have changed. Reinhardt and Gurtner (2015) add that by calling it “disruption” this indicates the desired outcome of an innovation, rather than the actual outcome. Referring to Christensen’s definition of disruptive technologies, Reinhardt and Gurtner (2015) state that even innovations that do not meet those characteristics can disrupt markets and businesses. Nagy et al. (2016) suggest including intrinsic factors such as radical functionality, discontinuous technical standards, and ownership, when defining disruptive innovations (Nagy et al., 2016), which, however, blurs again the boundaries to Christensen’s sustaining innovations. Eventually, Brown (cited in Chesbrough, 2003) states that disruptive innovation goes beyond innovation by changing our social practices, e.g. such as the telephone changing how we communicate with each other and the automobile changing our mobility. The challenge in this regard is not necessarily the breakthrough technology, but rather the prediction of technology-in-practice and in what way it will affect our way of living (Brown, cited in Chesbrough, 2003).

2.1.3.2 Managing sustaining and disruptive innovations

Based on his research on why big companies fail despite their development of new technologies, Christensen (2013) drew 7 conclusions, which combine technological, market and leadership aspects in relation to the management of sustaining and disruptive innovations. These will be summarized hereafter.

The first conclusion relates to the different speed of market and technology development, meaning that technologies can develop faster than the market needs. Relying on customer inputs during the innovation management process is essential for sustaining innovation efforts, whilst also being the false approach for disruptive technologies. Customers
simply cannot lead a company toward innovations that they do not need in the present but will need and appreciate in the future.

*Secondly,* innovations are highly dependent on a company’s resource allocation process. It is common to allocate financial and human resources to ideas that are the most promising in terms of their profitability. This, in itself, makes it difficult to further develop disruptive technologies.

The *third* conclusion is related to the market introduction. Sustaining technologies can be easily matched with existing markets by knowing the needs of the customers and offering them improved products or services. However, disruptive technologies do not match with what the customer thinks they need. Hence, a new market needs to be created which ultimately challenges the marketing strategy.

The *fourth* aspect emphasizes the limits of a company’s capabilities, which are often related to specific contexts defined by previous challenges, and which differ in different market situations. Bringing a disruptive innovation to a new market requires different capabilities than bringing sustaining innovations to familiar markets. Other examples are related to accepting failures, or the ability to manufacture different volumes and order sizes in a profitable way.

The *fifth* conclusion deals with a company’s willingness to take risks. Due to the unpredictable character of disruptive technologies, management cannot make its decisions based on comprehensive information they usually have at hand for sustaining technologies. Also, if a company has difficulties in taking risks or tolerating failure in relation to sustaining innovations, it is even more difficult to innovate disruptively.

The *sixth* aspect is related to a company’s positioning strategy according to the type of technology. Whilst it offers big advantages to take over the leading role in relation to disruptive innovations, it does not matter for sustaining innovations. As a matter of fact, companies who focus on continuous improvements of existing technologies (followers) often do just as well as companies who focus on big technological leaps (leaders).
Finally, the seventh aspect is related to traditional market entry barriers. In contrast to established and mature companies who might have a lot of experience, strong brand names and the latest technological equipment giving them strong advantages for sustaining innovations, new entrants have the benefit of being agile and flexible to test things out, regardless of whether they make sense. Christensen (2013, p.228) summarizes this ability as “powerful and pervasive” for managing disruptive innovations.

Additionally, Reinhardt and Gurtner (2015) investigated the differences that need to be considered in relation to a company’s marketing strategy. Whilst sustaining innovations are better advertised in mainstream channels, disruptive innovations are better placed in niche channels and journals which are consumed by market experts.

In between conclusion
Chapter 2.1 is closed by revisiting a quote mentioned at the beginning of the introduction: “Everybody is talking about disruptive innovations, but all they do are incremental innovations. Why is that?” After reviewing different literatures about innovations, two possible answers appear:

1. Since there is already a lot of diffusion among scholars about what innovations can mean and entail, it is reasonable to assume that this variety of interpretations and understandings also appears among those who actually work with innovation. This can be influenced by the company strategy and the context in which the people deal with the innovation terms. People might talk about disruptive innovations, but actually refer to what Christensen calls “radical innovations”. Also, even if companies initially aim for disruptive technologies as defined by Christensen, just because they do not follow the approach does not necessarily mean they are innovating incrementally instead. The opposite to disruptive is sustaining technologies which entail either incremental or radical efforts.

2. The general connection of innovations to collaborative efforts was pointed out by Fischer (2001), Stamm (2003, cited in Popadiuk & Choo, 2006) as well as Christensen (2003, 2013). Sometimes it is meant in relation to customers, in other cases the author refers to other companies as collaborative partners. But as can be seen in Table 1 for disruptive technologies, it is not clearly mentioned whether or not collaborations are needed and to what extent. Looking at the introductory quote (“Everybody is talking about disruptive innovations, but all they do are
incremental innovations. Why is that?”), another possible assumption is that these loosely drawn connections in the literature make it difficult for companies to make use of their various collaborations in practice. This means that they do not know how to use collaborations in the most effective way for their current and future innovation efforts. Additionally, the variety of how innovation is understood in the first place also determines how innovators work with it in innovation collaborations.

It will not be possible to further substantiate the second point without the case example. However, in order to relate the case example to theory later on it is reasonable to first look into collaborative approaches in innovation studies, which will be done hereafter.

2.2 Collaborative approaches

As mentioned in the introduction to Chapter 2, innovation of various kinds can happen inside or outside company borders. However, nowadays it is common to be engaged in external collaborations, dedicated to foster innovation, such as the case example that will be investigated later on. As shown as a result of Chapter 2.1, the understanding of innovation can be diverse, which ultimately can affect the work of collaborations. If collaborative partners assign different meanings to innovation, without knowing about these differences, they might be engaged in collaborations together but talk past each other. Also, similar to the term “innovation” there are also several ways to define “collaborations” in business studies. Companies often start with their target group and the way in which the collaboration can take place. For instance, a company can collaborate with customers (e.g. through the joint development of a product), academia (e.g. university partnerships for dual degree study programs) and/or with other businesses (e.g. with start-ups through accelerators and incubators, or with companies through industry roundtables). The possibilities are diverse.

In general it is often referred to as open innovation, if a company is engaged in innovation collaborations. For this reason it is important to understand what open innovation actually means. This will be done in broader terms, whilst linking it to innovation ecosystems. After that, I am investigating communities of practice as one concrete example of an organizational network that can take place inside as well as outside company borders, and therewith offers a framework that the case example can be related to in the analysis.
2.2.1 Open innovation in innovation ecosystems
Nowadays scholars often refer to ecosystems and their associated collaborative networks when describing open innovation (Vanhaverbeke, 2006, Vanhaverbeke & Cloodt, 2006, Lee et al., 2012, Pera, Occhiocupo & Clarke, 2016). But what does open innovation actually entail? And what is meant with innovation ecosystems? The following two sub-chapters are about to look into both aspects, open innovation and innovation ecosystems.

2.2.1.1 From business ecosystems to innovation ecosystem
Based on biological ecosystems, the term “ecosystem” describes a community of living organisms in a certain area, and the way in which they affect each other and the non-living environment (http://www.dictionary.com/browse/ecosystem). In business studies, ecosystems are often seen as “open systems with blurred organisational boundaries”, where different companies collaborate and affect each other (Wulf & Butel, 2017, p.1413). According to Wulf and Butel (2017), organisational networks are considered to be one structural part of a wider business ecosystem or, in other words, one business ecosystem can entail multiple formal and informal networks. They have one defining element that justifies their place within this business ecosystem. Wulf and Butel (2017) also state, that innovations happen at the points at which those networks intersect.

As defined in the previous chapter, knowledge exchange is one of the main tasks of networks. In the following figure Wulf and Butel (2017) visualize the difference in knowledge exchange depending on the openness of the network.

![Definition of the relationship between network openness and knowledge exchange](image-url)
It can be seen that the more strongly the network is governed by its ecosystem, the less knowledge can be shared among all actors. Hence, the higher the degree of openness, the more knowledge is transferred and exchanged.

**Innovation ecosystems**

Derived from the previous definition, an innovation ecosystem is one form of business ecosystem, in which the defining element is the innovation efforts of the affiliating networks. Based on the definitions from Song (2016) and Smorodinskaia et al. (2017) innovation ecosystems can be described as follows:

*Innovation ecosystems are a self-organized and self-governed variety of stakeholders, both organizations and individuals alike, who interact and cooperate with each other to reach a shared goal.*

The shared goal might be the co-creation of innovation or the development of new products, which all stakeholders can bring to market together, as well as the development of an innovation-supporting environment (Song, 2016, Smorodinskaia et al., 2017).

According to Smorodinskaia et al. (2017), the term “innovation ecosystems” represents the shift from hierarchical organizational structures to dynamic network-based structures in the 21st century. They can have different sizes and structures, just like regional innovation hubs, national innovation communities, local cross-company networks, small network-based ad-hoc groups of individuals, or global innovation networks (Smorodinskaia et al., 2017). Since networks, and the ecosystems they belong to, serve the same purpose, Smorodinskaia et al. (2017) state that both terms can be in fact used synonymously.

**2.2.1.2 Chesbrough’s concept of open innovation**

The term “open innovation” was coined by Chesbrough in 2003 and depicts that, in open innovation communities, new ideas come from inside and outside the company and go to market from inside and outside as well. Both externally and internally developed ideas are treated with the same importance (Chesbrough, 2003) as a result of the underlying view that “not all the smart people work for you” (Chesbrough, 2006, p.22). This means
that companies must realize that valuable resources for idea generation are also present outside their company borders.

Connected to this, in open innovation external R&D is perceived to be of vital importance to gain value out of internally and externally created ideas. However, to take advantage of this value internal R&D is used. In other words, it can mean that a company does not necessarily have to start research about a topic themselves in order to profit from it later on. Hence, with open innovation others are also no longer excluded from using new technology and exploiting breakthrough ideas. This means intellectual property is shared among all participating entities that helped to realize the breakthroughs, or one company makes intellectual property available to others and benefits from their attempt to use it for further business model developments (Chesbrough, 2003). Intellectual property, in general, involves patents, copyrights, trade secrets and trademarks, based on new and useful ideas that have been applied to practice (Chesbrough, 2003).

Just like Fischer (2001) in Chapter 2.1.1, Chesbrough (2003) emphasizes the relation between research activities and knowledge creation and operation. He points out that research in open innovation is not just about focusing on the internal invention of new knowledge, but rather accessing and integrating external inputs to combine both in smart ways that can ultimately lead to new innovative products and services.

However, it is not enough to merely connect and value internal research and external ideas (or the other way around) regarding their technological potential, without knowing how to make money out of it. This means that the economic value of these openly developed technologies remains hidden until they are commercialized in some way (Chesbrough, 2003). Chesbrough (2003) points out three ways for companies to commercialize their technologies: integrate the technology into a current business model in an existing market, license it to other companies, or outsource the technology to company-owned startups or ventures that make use of it in new markets and through new business models.

2.2.1.3 Open innovation principles in relation to innovation ecosystems
As mentioned earlier, the open innovation paradigm from Chesbrough is often the basis for other scholars to further investigate and refine the understanding of innovation ecosystems and the associated collaborative networks in business studies. In line with
Chesbrough’s concept is the conclusion of Normann and Ramirez (1993, p.69), that states, „a single company rarely provides everything anymore. Instead, the most attractive offerings involve customers and suppliers, allies, and business partners, in new combinations”. Thanks to the rapid development of information and communication technologies (e.g. Web 2.0, online social networking) it is much more common for companies and their collaborative partners to compete equally and easily in a global marketplace (Romero & Molina, 2011; Lee et al., 2012). But it also makes it possible for research institutes, universities, and individuals to take part in such collaborations (Lee et al., 2012). The core of such an open ecosystem is its internal dynamic, meaning that with every new partner and value creation process, the system is further developed and changed (Pera et al., 2016).

The selection of stakeholders to take part in such an ecosystem is dependent on the current target that shall be achieved. If a company wants to explore new technological possibilities and the commercial potential entailed, they partner up with universities and research institutes (Vanhaverbeke, 2006). If, on the other hand, the focus lies on more radical changes, e.g. a new business model or a new product that shall be introduced to the market, the collaborations are established between start-ups, suppliers, and individuals (Vanhaverbeke, 2006). Also, the size of the ecosystem, a unified vision and leadership style, market coverage, technological means and no internal rivalry between partners are all important factors for its success (Gomes-Casseres, 1996, 2003, in: Vanhaverbeke & Cloodt, 2006). Pera et al. (2016) further emphasize that the degree of correlation within the ecosystem impacts the loyalty of the stakeholders and with this their willingness to share information with one another. The input each stakeholder gives to the ecosystem is intentional, as they expect a certain output. However, it cannot be foreseen what other partners within the ecosystem actually make out of it which results in an unintended, yet added, value (Pera et al., 2016).

When it comes to the management of innovation ecosystems, Vanhaverbeke and Cloodt (2006) point out that one company needs to orchestrate and organize the network. With that, two issues appear. Firstly, all collaborating partners need to be organized and structured in a way that the network achieves the best possible result. This gets even more complex when multiple networks are part of the innovation ecosystem, as mentioned by
Secondly, sharing the intellectual property needs to be defined and agreed on, as mentioned by Chesbrough (Vanhaerbeke & Cloodt, 2006).

2.2.2 Communities of Practice as an interorganizational network
The previous Chapter 2.2.1 reasons the trend of being engaged in external collaborations for innovation. Whilst saying that collaborations with academia (universities and research institutes) are useful for exploration activities in new technological fields and collaborations with other companies or individuals are useful for exploring new business models (Vanhaerbeke, 2006), it does not provide an in-depth view on how to assemble the collaboration and what is needed to make it work. For this reason, I now want to look into communities of practice as an interorganizational network, that provides a framework of how an innovation collaboration needs to be setup and what needs to be considered.

2.2.2.1 Interorganizational networks
Interorganizational networks, together with intraorganizational networks are two different directions of an organizational network. First of all, the term “organizational network” is derived from the term “network”, which is used to describe the relationship of individuals that belong to a certain community. Hence, organizational networks describe the relationship of companies that belong to a certain industry or geographical location (Conway & Steward, 2009). In both cases, according to Conway and Steward (2009), the network setup can usually be narrowed down to four main components: actors, which are the members of the network; links, which describe how the members are related to each other (e.g. formal or informal); flows, which describe what kind of exchange is performed among the members (e.g. ideas, information, money, etc.) and mechanism, which are the types of interactions used throughout the network (e.g. face-to-face, email, phone, etc.). Even though the setup might be the same, one organizational network does not necessarily resemble the other.

For instance, a network can be either based on actors that belong to the same organization (intraorganizational network) or based on actors that belong to multiple organization (interorganizational network) (Bussmann, Panz & Schweighofer, 2014). Since this study looks into the collaboration of different companies through its case example (see Chapter 1.5 Delimitation), interorganizational networks are of interest.
Sydow (1992, cited in Bussmann et al., 2014) further distinguished interorganizational networks into regional and strategical networks, for which he took into consideration the size and structure of the companies involved in the network, their relationship to each other, their geographical distribution, as well as the leadership of the network. The following table summarizes both types according to Sydow (1992, cited in Bussmann et al., 2014), including the goals that each of them pursues:

Table 2 Interorganizational network types (adapted from Sydow, 1992, cited in Bussmann et al., 2014, p. 14)

<table>
<thead>
<tr>
<th></th>
<th>Regional Networks</th>
<th>Strategical Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size of companies</strong></td>
<td>Small- and medium-sized companies,</td>
<td>Companies of different sizes</td>
</tr>
<tr>
<td><strong>Structure of companies</strong></td>
<td>Emergent and informal structure</td>
<td>Intentional and formal structure</td>
</tr>
<tr>
<td><strong>Network relationships</strong></td>
<td>Changing network relationships</td>
<td>Stable network relationships</td>
</tr>
<tr>
<td><strong>Geographical distribution</strong></td>
<td>Regional concentration</td>
<td>Regional and often international distribution</td>
</tr>
<tr>
<td><strong>Strategical leadership</strong></td>
<td>No strategic leadership of a single company</td>
<td>Strategical leadership by a large-scale enterprise</td>
</tr>
<tr>
<td><strong>Goals</strong></td>
<td>To strengthen the competitiveness of all the members through communication and information exchange</td>
<td>To strengthen the market position of leading enterprise</td>
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</tbody>
</table>

Romero and Molina (2011) refer to strategic networks as collaborative networks between organizations or between organizations and their customers. These networks share their individual knowledge, skills, and technologies, as well as market risks, to jointly foster innovations in an open environment. Romero and Molina (2011) further state that strategic networks are continuously changing and adapting to short-term business opportunities. Thus, they try to react to changing consumer needs in order to strengthen their market position.
2.2.2.2 Communities of Practice

While Bussmann et al. (2014) differentiate organizational networks based on whether they are rooted inside or between organizations, Conway and Steward (2009) mention “communities of practice” (CoPs) as a network approach that works in both an inter- and intraorganizational manner. The concept was originally developed by Wenger, who said that CoPs are an informal group of people coming from different departments within an organization (Wenger & Snyder 2000). However, Wenger and Snyder (2000) also explain that they do not only exist within a business unit, but rather exist cross-divisionally or even across different companies. What characterizes CoPs is a common area of interest and a trusting relationship between all members (Hemmasi & Csanda, 2009). The latter is important since meetings are used for sharing expertise, knowledge and lessons learnt with each other (Conway & Steward, 2009). The importance of trust is supported by Wenger (2000, p.230), who states that: “People must know each other well enough to know how to interact productively and who to call for help or advice. They must trust each other, not just personally, but also in their ability to contribute to the enterprise of the community, so they feel comfortable addressing real problems together and speaking truthfully.”

Bertels, Kleinschmidt and Koen (2011) explicitly link trust among the members of CoP to higher risk-taking in innovation activities, such as idea generation and conceptualization of innovation ideas. Trust and risk-taking are both dependent on an open mindset of the participating parties, i.e. supporting the idea of CoP leads to a higher impact on the outcomes of innovation activities, compared to not supporting CoP (Bertels et al., 2011).

Wenger and Snyder (2000) emphasize that the number of members can vary between 10 and several hundreds of people, but that usually a core team of people drive the collaboration. Also, the bigger the CoP, the more likely they are to be subdivided by region or special subjects. This is to avoid losing focus or to avoid that members do not identify themselves with the community anymore, which both can happen if the group is too big (Wenger, 2000). One goal of a CoP is to develop joint projects, with shared resources and tools (Hemmasi & Csanda, 2009). The main output, however, is knowledge that can help improve the performance of an organization by solving existing problems, distributing best practices, or even developing new business lines (Wenger & Snyder, 2000). How, when, and how often meetings take place varies and can change over time. Wenger (2000) states that formal and informal meetings, problem solving sessions or
guest speakers are all possible events that can be organised. In order to have community members attending it, the event must fit the need of the CoP and should follow a rhythm that allows the members to attend, taking into consideration the other responsibilities they have.

Regardless of whether a CoP is supported by management or not, it is difficult to integrate it into the wider structures of the organizations. Conway and Steward (2009) state that this is due to their informal and rather spontaneous character, which makes it difficult to govern them. Instead, they establish their own leadership and organize themselves (Wenger & Snyder, 2000). Wenger (2000) mentions multiple forms of leadership, which can be coordinators that take care of the daily work, leaders, networkers, and those who document minutes of meetings. The roles are not necessarily spread over the whole community, sometimes one or two members feel responsible for it. However, over time this might change. (Wenger, 2000).

Nevertheless, management support is crucial to enable the work in the long run and to solve obstacles. According to Bertels et al. (2011), managers must give their employees the freedom to participate in CoP and ensure that they have what it takes to foster collaborative work in this kind of setting, such as maintaining communication over long distances. Even though CoPs do not have dedicated budget available, management can ensure that the work is integrated into the business of the companies, that IT support is ensured to help employees overcome communication issues caused by the widely distributed locations of the CoP participants, and that CoP’s are linked to other internal initiatives (Wenger & Snyder, 2000, Bertels et al., 2011). That, of course, entails an investment of time and money into the CoP which will only be realized if the management sees the value of the collaboration. Wenger and Snyder (2000) admit that this can be difficult since it is hard to determine whether a good idea that evolved during a CoP meeting would have been possible in any other, internal setting. Especially because the tangible results mostly appear later in the work of the business units that take the ideas and develop them further. That is why systematic listening to the stories of the members of the collaboration is a non-traditional, but rather meaningful, way for management to understand the complexity of the collaborative work and how the activities and the knowledge exchange within the CoP favours the performance of the company (Wenger & Snyder, 2000).
Wenger and Snyder (2000, p.142) summarize, that the purpose of a CoP is to develop the capabilities of its members, based on building and exchanging knowledge. The membership of the CoP is self-selected, rather than people being assigned to it. They emphasize that the members know if they can contribute to the CoP and whether they will get something out of it themselves. The collaboration is bound together by a shared passion, commitment, and identification with the expertise of the group. Due to its independent character, the collaboration does not end with a reorganization or the completion of a project, but rather lives on until the group decides to stop it.

2.3 Conclusion of the conceptual framework
The first part of the theoretical framework revealed that the variety of how innovation is understood in the first place determines how innovators work with it later in innovation collaborations. I finished Chapter 2.1 by assuming that it is difficult for companies to make use of collaborations, due to loosely drawn connections between the desired innovation efforts and the kind of collaboration that is needed to achieve them. In detail, how to use collaborations in the most effective way for their innovation efforts now and in the future.

Chapter 2.2 now illustrates that the literature in fact focusses more on “what” kind of collaborations are existing, in terms of who are the collaborative partners that companies can choose depending on their innovation strategy. Once that decision is made, the literature barely explains “how” to actually make use of the collaboration.

In fact, an open innovation mindset nowadays determines the work of innovation collaborations, i.e. that is it common to be engaged in various forms of collaborations outside the company borders to work on innovation activities. However, from the reviewed literature only the concept of CoP provides a concrete example of how this collaboration can be setup and organized. CoP’s are interorganizational network that is based on a trustful and open mindset among the participants in order to generate and conceptualize innovation. In its core, CoP’s depend on a shared passion of its members and their identification with the purpose of the CoP. As long as every member knows what they can contribute and what they can get out of it in return, this identification can be maintained.
Going back to the problematization around the understanding of innovation and the variety of interpretations that exists, it is reasonable to assume that this identification and therewith the work of the CoP is affected if differences occur in relation to how innovation is understood and what kind of innovation each member is actually aiming for (i.e. what innovation strategy the companies pursue). The case example in this study therefor will continue to follow the logic of the conceptual framework. As such, a first look into the understanding of innovation of the collaborative partners will be done, before investigating the actual practices of the collaboration.
3 Methodology

The methodology chapter includes the research strategy and the research design of this study. It motivates the chosen method for data collection, analysis and the philosophical aspects that influence the interpretation of the results.

3.1 Research design

The choice of research design reflects the general orientation of the research, i.e. the research strategy (presented in detail in Chapter 3.2), and the philosophical considerations that have been made, e.g. how the researcher sees the world and the relationship between their research and theory (research approach). It provides the framework for the collection and analysis of empirical data (Bryman & Bell, 2011) that is needed to answer the actual research problem.

This study follows a case study design, which can be defined as “an exploration of a ‘bounded system’ or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context” (Creswell, 1998, p.61). The boundaries, in this regard, are mainly time and place. This study is conducted during the period January 2018 to May 2018 and with focus on one innovation network in particular. Hence, one case is explored in this research. The multiple sources that will be used are the different participants of the collaboration, which represent different international companies (see Chapter 3.1.1) each located in central Europe. In fact, the participants are located in Germany and Switzerland.

Yin (2009) emphasizes the usefulness of case studies when the “how” and “why” of current, non-controllable phenomena are investigated. By that, multiple sources of evidence are handled often at the same time, such as interviews, observations, documents, and artefacts (Yin, 2009). In general, they can be of exploratory, descriptive, or explanatory nature. However, explanatory and descriptive research designs are both based on structured research problems (Ghauri & Grønhaug, 2010), whereas this study is more unstructured as it stays adaptive during the research process. This aligns with the definition of Alvesson and Sköldberg (2009, p.55) of exploratory research design as a “flexible method of data collecting, whereby the principles of selection are successively revised in the course of the research process”. Hence, this study follows an exploratory case study design.
3.1.1 Research subject
The subject of this research, or respectively the unit of analysis as described by Yin (2009), is the Cross Industry Club (CIC), a newly established innovation collaboration, represented by various representatives from different companies of different industries. These are Airbus Defence and Space, Cisco, SAP, SBB Cargo (Swiss Federal Railways), Rolls Royce, Merck Group, BMW, and Nestlé Health Science. To ensure anonymity of the interviewees in the further course of this study, whilst still emphasizing potential differences that might appear between the companies they represent, I will continue referring to company A, B, C etc., instead of revealing the actual company name (see also Chapter 3.4 Research ethics).

The CIC was founded in late 2016 to jointly establish cross-industry collaborations within various innovation projects. For this, the representatives from each company try to meet on a regular basis whilst at the same time testing online platforms to collect project ideas, discussing, and developing innovative ideas. At the moment, the collaboration is still at an early stage, being predominantly focussed on knowledge exchange and idea generation.

At its core, the CIC represents a network of mature companies, each of which is in possession of its own partner networks. Hence together they build a greater innovation ecosystem. It is because of this special constellation that the CIC was chosen as the object of this case study. It enables an insight into the ambition of each company, why they take part in this network and their understanding of innovation in general. Hence, it allows me to investigate whether all of them work on innovation together or past each other.

When it comes to the data collection in relation to the research subject, Yin (2009) differentiates between data that is connected to the actual phenomenon and data that helps us to understand the overall context. Applying this to the CIC as the research subject it means that the data collected through interviews with members of the collaboration represents the actual phenomenon. In contrast to this, documents about the individual innovation efforts of the participating companies, or interviews with employees of the companies who are not involved in the CIC, are external to the case but can help to understand the wider context of the study.
3.1.2 Researcher subject relationship
As described by Bryman and Bell (2011), qualitative researchers have a closer relationship to their research subjects than quantitative ones. Since I have been familiar with one of the stakeholders within the CIC for several years, a collaborative and participatory research is suitable for this study.

My relationship to Airbus Defence and Space (Airbus DS) differs to the other participants of the collaboration and has directly influenced the process of this study. I started my educational and professional career at Airbus Defence and Space (formerly Astrium) in 2010 as a Bachelor student trainee. For 3.5 years I gained an insight into various departments of the company (e.g. HR, training, purchasing, communication, logistics, R&D etc.) whilst pursuing my Bachelor studies at the same time. After graduation, I took over the role as a full-time student supervisor within the HR department. After a year, I changed my job and became a consultant within Airbus DS’ in-house consulting unit. Currently, I am employed as a Master thesis student within the innovation and incubation department. Throughout the years and the variety of departments that I have worked for, I have gained a lot of experience and an extensive knowledge about the company, which has not just influenced the direction of the research in terms of its strategy and philosophy, but also the research design and the case study choice.

3.2 Research strategy
A research strategy provides a general orientation to the researcher whilst conducting a social and organizational research. Usually there is a distinction between qualitative and quantitative research strategies. The way in which the researcher collects the data and how the data are analysed mainly characterizes the difference between the two approaches (Ghauri & Grønhaug, 2010). Even though it is often the case that a solely quantitative, or respectively qualitative, research strategy is appropriate, a combination of both can also be reasonable sometimes (Alvesson & Sköldberg, 2009).

This study follows a qualitative research strategy, aiming at understanding a particular innovation collaboration as the study object (Bryman & Bell, 2011). The focus is to study the participants of the CIC and investigate their understanding of how innovations are distinguished and applied in collaborations. By that, the study does not intend to compare the participants and their relationship to one another, for which a quantitative study would
be more suitable (Creswell, 1998). Instead, a detailed view on the intention and ambition of the collaboration, in terms of joint innovation efforts, is investigated. This is done by analysing data in the form of words and views from the research participants, which calls for a qualitative research approach (Creswell, 1998).

According to Alvesson and Sköldberg (2009), a common view is that the choice of research strategy is dependent on the research problem and the research object. For instance, quantitative research looks into many different cases with few variables in order to test a given theory (Creswell, 1998; Bryman & Bell, 2011). The purpose is to verify a research problem based on facts and logical derivations (Ghauri & Grønhaug, 2010). In contrast to this, qualitative research aims at generating new theories (Bryman & Bell, 2011) whilst focusing on a few cases with a variety of variables (Creswell, 1998). Thus, the purpose is to understand processes, institutions or relationships through observation and interpretation (Mason, 2002). The latter supports the choice of a qualitative research strategy for this study, since the focus will be on the CIC as one case example. This research will look at the phenomenon of collaborations in practice through the lens of the CIC.

3.2.1 Ontological aspects
Despite the differentiation between quantitative and qualitative research strategies, Alvesson and Sköldberg (2009) point out the importance of ontology and epistemology in social science. Saunders, Lewis and Thornhill (2009) summarize both terms as research philosophies that relate to the development of new knowledge. Ontology deals with the question “what assumptions do we make about the way in which the world works?” (Saunders et al., 2009, p.110). It describes a theory of the nature of social entities, which can be characterized by objectivism or constructionism (Bryman & Bell, 2011).

I presume that everyone shapes and modifies their own perception of what is reality, i.e. the interviewees, I as the researcher and the readers of this study alike, and therefore align with a constructivist research philosophy (Creswell, 2007). The aim of the study is to investigate the understanding of each participant in terms of innovation and collaboration, explicitly in relation to their ambitions and motivational factors as a member of the CIC. Presuming differences related to their role within their respective companies, as well as within the CIC. Thus, this study considers several perspectives and respects the different
views of the research participants. At the same time, the study is ultimately influenced by how I perceive the realities that I investigate, which most likely differs to how other researchers would interpret them. Whilst following a qualitative research strategy, multiple realities will be recorded and interpreted, through the words of the interviewees, as summarized by Creswell (1998). In other words, my intention is to represent the realities of the people I talk to by using their words, not mine.

In general, constructionism means that individuals add their own meaning to a social phenomenon (Saunders et al., 2009). In other words, social interactions create and modify social phenomena (Bryman & Bell, 2011). In the case of the CIC, each representative interprets their individual role differently and also participates with their own motivations, which is not necessarily the same as the others. As Saunders et al. (2009, p.111) describes it, “these different interpretations are likely to affect their actions and the nature of their social interaction with others”. This means the roles and responsibilities are diverse and together create the dynamics of the CIC.

3.2.2 Epistemological aspects
Epistemology is defined as a theory of knowledge and describes what is perceived as acceptable knowledge in a study field (Saunders et al., 2009). According to Creswell (2007), epistemology addresses the relationship between the research subject, the CIC, and the researcher, myself, as interrelated. This is already established due to my long relationship between Airbus Defence and Space as one member of the CIC. Epistemological positions are positivism, interpretivism or realism (Bryman & Bell, 2011).

This study tries to grasp the CIC as a social phenomenon. By talking to different participants, I try to understand their motivations and ambitions and with this the dynamics of the collaboration itself. Hence, the study will have an interpretive orientation. Saunders et al. (2009) point out the focus on situational details and the reality behind these details, which will be investigated through the lens of each research participant. Since I am already an insider within Airbus Defence and Space as one of the participating companies, i.e. already having a close relationship to one participant, I try to minimize the distance to the other collaborative partners through collaborative interviews and therefore understand their reality in a similar way. I admit that my values and my bias
cannot be excluded from this study since I interpret the collected data. As described by Creswell (1998, p.77), “the stories voiced represent an interpretation and presentation of the author as much as the subject of the study”.

All in all, the knowledge I am seeking in this study is to understand practitioners views on innovation and the complexity around the usage of collaborations for innovation. The interpretivist approach is applicable as I try to make sense of the research phenomenon.

3.2.3 Axiological aspects
Axiology deals with the researcher’s view on values and their role within the research (Saunders et al., 2009). As already mentioned in the previous chapter, I admit that my values and my bias cannot be excluded from this research, neither can the values of the research participants. This needs to be taken into consideration when interpreting the empirical material. My choice of following a constructivist research philosophy already reflects my own values as a researcher. It demonstrates that I place greater importance on individual views of roles and responsibilities within the CIC than claiming that they are all acting in the same way. Saunders et al. (2009) state that if a researcher is clear about his or her own value position then this helps to define appropriate research ethics. The research ethics of this study can be found in Chapter 3.4.

3.2.4 Abductive approach
The relationship between theory and research is often either of deductive or inductive nature. When the research is based on the theory and aims at testing it, it is known as a deductive approach, whereas inductive means that the new theory is the result of the research (Bryman & Bell, 2011). Abductive reasoning is a third approach that tries to overcome the limits of inductive and deductive research. The choice of which to use within research has an influence on the research design, i.e. the way the data is collected, analysed, and interpreted (Saunders et al., 2009).

If the research scope will develop over time and is not fully defined at the beginning of the process, an abductive approach is useful. The latter is the case for this study. “Abduction starts from an empirical basis, just like induction, but does not reject theoretical preconceptions and is in that respect closer to deduction”, as explained by Alvesson and Sköldberg (2009, p.4). The collected empirical data is seen as the starting point of this study and depending on that, the literature that I will use for the analysis will
be adapted over the research process. I thereby try to unveil patterns that help to understand the ambitions and dynamics of the CIC. Theory should help in the understanding of the empirical material and vice versa, or, as Alvesson and Sköldberg (2009, p.4) describe it: “both are successively reinterpreted in the light of each other”.

3.3 Data collection circle
The collection of relevant data is a process that requires several interrelated activities. The starting point within the data collection circle, as described by Creswell (1998) and illustrated in figure 1 below, can vary among researchers. But each step needs to be considered at one point during the research.

Figure 1 Data collection circle: research subject identification (based on Creswell, 1998, p.110)

Creswell (1998) suggests starting with finding either an individual or a site that will be investigated within the study (marked in Figure 1). As described in the previous chapters, this study will investigate the CIC as a case study, consisting of multiple organisations that collaborate together.
3.3.1 Access

Once the researcher knows what individual or site to study, the next step is to get access to it. The accessibility to the study object is one of the most crucial tasks and requires “strategic planning, hard work and dumb luck”, as described by Van Maanen and Kolb (1985, cited in Bryman & Bell, 2011, p.428). However, that does not mean that it’s always a complicated process. One of the most fortunate scenarios is when the researcher already knows an individual within the research subject, who can act as a gatekeeper. For me, that was the case for this study, as I could utilise a gatekeeper of the CIC from my personal network at Airbus Defence and Space. A gatekeeper does not just provide names of other potential informants but, more importantly, can establish a connection with the informants (Creswell, 1998). For this research, my gatekeeper sent out an information email to all members of the CIC before I contacted them directly. In this way they were already informed about who I was, why I approached them and how they could support my study. This is consistent with the view of Saunders et al. (2009), which is to always state the research purpose to the potential informants, together with an explanation of how they can be helpful to the study and how their information will be handled in terms of confidentiality and anonymity. The latter was covered when I established contact with each potential interviewee myself. By doing this, I wanted to ensure that the first email they received from the gatekeeper was not too overwhelming but gave them the necessary background information. Furthermore, since data handling and anonymity are important aspects for the interviewees prior to a confirmation for participation, I wanted to address this myself and not via a third-party. Hence, the purpose of this approach was to establish the needed credibility to convince them to actually share information with me.
3.3.2 Purposive sampling

Sampling deals with questions like who to select as informants, how many interviews to conduct or how many documents to collect (Mason, 2002). Whereas quantitative research often uses random, probability sampling, qualitative research widely uses purposive sampling (Bryman & Bell, 2011). Purposive sampling selects the research participants and organisational documents strategically, based on the individual relevance to the understanding of the research question (Bryman & Bell, 2011). For instance, I chose the interview partner based on their role as a company representative within the CIC as well as their qualifications and experiences in the field of innovation management within their respective company.

Due to this selection strategy and the young character of the network, the sample of this study is rather small, as the number of participants within the innovation network is limited. In general, the sample size is dependent on the purpose of the research, the availability of resources and the given time to actually collect the data (Saunders et al., 2009). The latter was rather short for this study, since the overall time for the research project was only 4.5 months. In total, I contacted 14 potential interviewees, from 9 different companies that were considered to be part of the CIC. As mentioned earlier, a gatekeeper was used establish the initial contact but also to provide me with the necessary contact information (e.g. names, e-mail addresses and phone numbers) so that I could follow up on them myself. Eventually, out of the 14 people contacted, 12 responded and 10 agreed to participate in an interview. Unfortunately, one interview had to be cancelled by the interviewee and it was not possible to reschedule it within the tight time schedule of this research. This resulted in a total of nine conducted interviews. The two people that declined did not feel able to support my research. This was because they were not dealing with innovation projects in their respective companies and still were figuring out whether it made sense for them to stay in the network or not. Thus, eventually there were eight companies that were confirmed to be part of the case network, out of which I was able to talk to five.
3.3.3 Semi-structured interviews

Data that is originally collected to answer a specific research question is called primary data. Within qualitative research it is common to conduct interviews, observations or focus groups in order to collect primary data (Hox & Boeije, 2005). In this regard, this study will solely conduct one-to-one interviews. This was accepted by most participants without a comment. Only one participant asked whether I, as the researcher, would prefer a group interview with several representatives from that company due to the reduced time required. However, I preferred one-to-one interviews since other forms like group interviews or focus groups can lead to discomfort in really opening up and also in sharing pain points (Bryman & Bell, 2011). Five interviews were held via phone and four face-to-face (including video telephony). Due to the fact that I met most of the interviewees only in relation to the interview, observations within their companies and workplaces were not possible and could not be collected as a second source of primary data.

Since I aim for in depth rather than quantifiable data, I have renounced a highly structured interview guideline and tried to follow a more open approach. Knowing that this can lead to more time-consuming interviews, but also to unexpected results (Alvesson & Deetz, 2000). Scholars distinguish between unstructured and semi-structured interviews in that regard. Unstructured interviews are of informal nature, which of course need a clear interview topic, but comes without a prepared list of questions (Mason, 2002; Saunders et al., 2009). In contrast to that, I used a prepared guide with 17 interview questions, to ensure similarity among all conducted interviews, but picked up new questions in the course of each interview, as it is characteristic for semi-structured interviews, according to Bryman and Bell (2011). The set of questions that have been the same among all interviews can be seen in Appendix B. Saunders et al. (2009) adds that the order of the questions can vary between the interviews, as well as that questions are left out or respectively added, depending on the course of the interview. When I was able to talk to...
more than one representative of a company, the information from one led to additional questions for the other. This was to follow up on interesting aspects or for clarification. In addition, I tried not to use too much terminology that is used in the literature, as I want to know how the interviewees describe the investigated phenomenon, as suggested by Gioia, Corley and Hamilton (2012).

The order of the interviews is based on the availability of the interviewees. By being located at different places in Europe, not all interviews could be conducted face to face but via video or phone calls instead, as described earlier and suggested by Mason (2002). Following Saunders et al. (2009) suggestion, each interview was documented through audio-recordings and note taking. In total, I gathered 90 pages of transcript and notes. The following table summarizes the interview characteristics, such as the date of the interview and the length. To ensure anonymity, fictional names are assigned to the interviewees, and the companies they work for are numbered.

Table 3 Overview of the conducted interviews, with fictional names assigned to the interviewees

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Company</th>
<th>Date</th>
<th>Length</th>
<th>Total Number of Pages (Transcript + Notes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leon</td>
<td>A</td>
<td>15.03.2018</td>
<td>51:18 min</td>
<td>13</td>
</tr>
<tr>
<td>Fabian</td>
<td>B</td>
<td>20.03.2018</td>
<td>45:53 min</td>
<td>12,5</td>
</tr>
<tr>
<td>Carsten</td>
<td>D</td>
<td>29.03.2018</td>
<td>67:47 min</td>
<td>11</td>
</tr>
<tr>
<td>Sandra</td>
<td>A</td>
<td>03.04.2018</td>
<td>52:30 min</td>
<td>11</td>
</tr>
<tr>
<td>Thomas</td>
<td>A</td>
<td>04.04.2018</td>
<td>51:15 min</td>
<td>12,5</td>
</tr>
<tr>
<td>Bastian</td>
<td>C</td>
<td>05.04.2018</td>
<td>27:44 min</td>
<td>6</td>
</tr>
<tr>
<td>Marie</td>
<td>C</td>
<td>06.04.2018</td>
<td>40:49 min</td>
<td>7,5</td>
</tr>
<tr>
<td>Felix</td>
<td>B</td>
<td>09.04.2018</td>
<td>30:33 min</td>
<td>6,5</td>
</tr>
<tr>
<td>Thorben</td>
<td>E</td>
<td>11.04.2018</td>
<td>45:33 min</td>
<td>10</td>
</tr>
</tbody>
</table>

All interviewees worked within the field of innovation of their respective company. Still the roles were diverse, as different levels of responsibility were existing among them. For instance, the range included Head of Innovation, Innovation and Program Manager, Technical Leader, and Innovation Relation Manager, focusing either on customer or business relations.
3.3.4 Recording, field issues and data storage

Creswell (2007) suggests using a predesigned protocol of 4-5 pages for each interview, including the interview questions and appropriate space to fill in notes. However, since the conversation cannot be predicted, the researcher must be aware that by asking one question the interviewee might give answers to two or more questions on the guideline. Hence, having a fixed protocol requires to take notes for several questions at the same time (Creswell, 2007). While conducting the interviews for this study I decided to use the interview guideline (see Appendix B) only to check off all questions that were already asked and took notes on a separate notebook.

In addition, audio recordings were made if the interviewees allowed it. That was the case for all interviews of this study. The audio recordings were transcribed to complete the handwritten notes and to ensure to not miss out on important information. The literature does not give clear instructions on how the transcription needs to be done. Often it is only mentioned as one step without further explanation (Creswell, 1998; 2007). In general, I have chosen content based over literal transcribing. First, this is because the interpretation of filler words and unfinished sentences was not the intention of my case study. Second, it also requires a lot of time which is not given in a short research like this one. Through content-based transcribing I was able to skip irrelevant parts of the interview, which I marked in the text as “[...]” and to just write down the essential content. All that helped to grasp the actual messages of the interviewees, while at the same time be more efficient and reach a smoother reading flow of each interview transcript. For a few interviews I also used an online transcribing software that develops written text out of the audio recording. The quality of the written text highly depends on the sound quality of the recording. Only the face-to-face interviews could deliver the needed quality and favoured the usage of the software. Appendix C displays one transcript as an example.
Creswell (2007) states that researchers also need to anticipate issues that can occur while collecting the empirical material. Such a field issue can be to run out of time at the end of an interview. To avoid missing out on vital information due to too short interview time, the time frame was calculated generously with one hour, allowing some buffer time. This was useful at least once when the interview had to start later than planned. Furthermore, questions that were considered vital to answer the research question were marked in colour on the interview guideline. By that I was able to quickly check whether at least all of the important questions were asked before the time was running out. Moreover, it also helped to focus on the important questions first when the interview had to be shorter anyway.

The decision of how and where the researcher stores the collected data is the last activity on the data collection circle. This is not just important in relation to damage and loss prevention, but also to avoid unauthorized access (Creswell, 2007). As suggested by Creswell (2007), I followed along the same set of principles regarding the storage and handling of my collected data:

1. If possible, I recorded the interviews on two devices, my private laptop as well as on my phone. In any case, I uploaded backup copies of the digital files into my private cloud.
2. I saved the interview transcriptions on my laptop and uploaded backup copies into my private cloud. Within the transcriptions, I already used the pseudonyms of the interview participants, as well as the respective code for the company they work for. This was to ensure anonymity already in the raw material.
3. My handwritten notes were numbered according to the order of the interviews, to ensure that I can connect them to the right transcript, without revealing the identity of the interviewee.
4. In order to avoid mixing up the interviewees and their pseudonyms, the order of the interviews and the company codes, I used a data collection matrix.

By that, it becomes obvious that data storage and handling are directly connected to research ethics, which will be discussed more detailed hereafter.

3.4 Research ethics
Ethical considerations are important throughout the entire research process and affect the research design, accessibility, data collection, data storage as well as how the researcher
analyses the data in the end (Saunders et al., 2009). Research ethics are dealing with the appropriate behaviour of the researcher in relation to the rights of everyone involved or affected by the study (Saunders et al., 2009).

This starts with informing each participant about the purpose of the study and how anonymity will be ensured prior to the actual interviews. This was done in this research and then concluded by asking each participant for their consent to participate voluntary in the study (see the blank consent form in Appendix D). Furthermore, to comply with legal data management and storage laws, all audio recordings and notes taken during the interviews and comprising sensitive information will be destroyed after completion of this study. Up until then, the raw material will be available to no one else except me. In addition, pseudonyms are used for the informants and numbers are assigned to the company they work for, as suggested by Creswell (2007). This is to ensure anonymity of the interviewees and to avoid that information can be affiliated to them. By that, it provides security that is needed to receive open and truthful answers (Alvesson & Deetz, 2000).

3.5 Data analysis
In qualitative research, data analysis is generally a process that starts with the preparation of data, which in this study is the transcription of the interview files, before it continues with using a coding technique to cluster the material into different themes and then representing it in figures, tables, or a discussion (Creswell, 2007).

Grounded theory is thereby the most widely used framework for data analysis in social sciences (Alvesson & Sköldberg, 2009), and is often referred to as an inductively based process (Saunders et al., 2009). Glaser and Strauss, who developed the grounded theory methodology in 1967, emphasize its aim to generate theory out of empirical material (cited in Alvesson & Sköldberg, 2009). The latter does not fully apply for this study, since the aim is to unveil patterns that help to understand the dynamics of the case and put it into perspective with the help of the conceptual framework, rather than developing a new theoretical model out of it. However, the iterative character of data collection and analysis within grounded theory (Bryman & Bell, 2011) fits to the exploratory research design of this case study and therefore reasons the decision to loosely follow its logic as the basis to structure my data.
Open Coding

The first step that I used to structure and break down my collected data was to look for statements that can be used to create initial, salient categories, which can be referred to as first order themes. This is a process referred to as open coding within grounded theory (Creswell, 2007, Gioia et al., 2012). The coding already starts soon after the first data is collected and then further develops with every new interview made (Bryman & Bell, 2011). Gioia et al. (2012) thereby emphasize the importance of using terms from the interviewees for the naming of the categories, even though this can lead to an overwhelming number of initial themes. After all interviews were conducted and all notes comprised, I started to screen the collected data. Since I had gathered a total of 90 pages of empirical material (see Appendix E), I decided to create simplified documents roughly based on the overarching categories that I had used in my interview guideline (see Appendix B): innovation understanding and internal usage (referred to as “Innovation/Company” in guideline), and importance of external collaborations and the CIC (referred to as “Ecosystem” in guideline). This step helped me to reduce the data. After that, I identified statements from all interviewees, which I was able to group into first-order themes.

Axial Coding

The second step I took was to identify similarities and differences among the first-order themes, searching for patterns and connecting factors, regardless the order of occurrence and thereby developed more abstract second-order themes. In grounded theory this process is called axial coding and leads to a reduced, manageable number of categories (Gioia et al., 2012). The identification of relationships among the first-order themes was an iterative process. For instance, looking into the following statement from Bastian (see Appendix C), related to the importance of external collaborations, already provides two ways of searching for patterns:

“We collaborate of course a lot with universities, especially in the very early stages for research purposes to find out what are new technologies that might be relevant”.

First, one could emphasize on what the collaboration is used for (“research purposes to find out what are new technologies”) and trying to connect it with another interviewee who is mentioning the same. The second option is to emphasize with whom the company
collaborates ("with universities") and then connect it to the university collaborations of the others.

Simultaneously I investigated existing literature to see if the emerging second-order themes are already covered in theory which might help me explain my research phenomenon. Usually within grounded theory the next step would be selective coding, which basically means to identify one core category that can be used to relate all other categories to it (Saunders et al., 2009). However, since I do not seek to develop a new theory at the end of my study, which is the desired outcome of this coding process, this step was not applied. Instead, I derived central concepts which I will use as a basis for my analysis and discussion.

Figure 6 shows the final data structure that illustrates the relationship between first-order (extract of words and phrases from interviewees) and second-order themes (words and phrases from interviewees summarized and conceptualized according to the literature), as well as the derived, nine central concepts (also, summarized and conceptualized inputs from the interviews and the literature). The nine central concepts are based on the empirical material and conceptual framework alike, hence they build the basis for the actual interpretation of the data.

The first five concepts deal with the understanding of innovation in the CIC and help to answer the first research question (How is innovation understood in the CIC?):

1. *Degree of novelty and process perspective* shortly explains the initial explanation of innovation as being based on “new” or “existing” inputs that lead to “new” or just “revised” outputs. The innovation process in between is not in focus for the interviewees, but if considered, described in a general manner.

2. *Influence of well defined innovation framework*, used by some of the collaborative partners of the CIC, shows and explains the impact on their understanding of innovation, compared to organizations that do not use a distinctive framework.

3. *Incremental technology acceleration vs. disruptive business model change* presents “incremental” and “disruptive” as the most popular and widely used terms to differentiate innovation (among scholars and practitioners alike), whilst showing the different contexts in which the terms are used.
4. **Technology in use and social changes** highlights two important aspects, mentioned by the interviewees, that do not get much attention neither in the companies participating in the CIC nor in the literature about innovation.

5. **Consumer adoption vs. product performance** contrast one aspect that is important to the interviewees to distinguish innovations from each other (degree of consumer adoption) with another aspect highlighted in the literature especially through Christensen’s concept of sustaining and disruptive innovations (high or low level of product performance).

In contrast to this, the following four concepts deal with the collaboration practices of the CIC and help to answer the second research question (*How does the CIC work together in order to realise cross-industry collaborations for innovation?*):

6. **CIC as a community of practice** analyses the purpose and motivational factors of the case collaboration and contrasts it to Wenger’s concept of CoP’s.

7. **Acting vs. listenting** shows the differences in the understanding of the interviewees role in the CIC, influenced by the innovation strategies of their respective companies and in regards to the management of the CIC.

8. **Togetherness, openness and trust** describes the lived values and perceived intangible benefits of the collaborative work in the CIC, which are contrasted to collaborative values and benefits described in the literature.

9. **Get commitment from all parties** comprises the challenges and factors that the CIC management has to deal with (communication barriers, lack of time and money to meet etc.) influenced by the participating companies (own targets over collaboration targets, lack of management support, no authorization for company representatives to act on opportunities evolving in the CIC etc.).
<table>
<thead>
<tr>
<th>1st order term</th>
<th>2nd order term</th>
<th>Central Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;T related projects</td>
<td>New versus existing</td>
<td>Degree of novelty and process perspective</td>
</tr>
<tr>
<td>technology-driven company</td>
<td>Mix between structure, process, and chaos</td>
<td></td>
</tr>
<tr>
<td>what is existing already</td>
<td></td>
<td></td>
</tr>
<tr>
<td>new business models</td>
<td>To me personally or to the company?</td>
<td>Influence of well defined innovation framework</td>
</tr>
<tr>
<td>new technologies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>enter or transform markets</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incremental innovation</td>
<td>Incremental technology acceleration vs. disruptive business model change</td>
</tr>
<tr>
<td>Knowledge &amp; best practice sharing</td>
<td>Disruptive innovation</td>
<td>Technology in use and social changes</td>
</tr>
<tr>
<td>learning from each other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>exchange on innovation strategy &amp; processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>launch joint projects</td>
<td>something that makes us behave and use technology in a totally different way</td>
<td>Consumer adoption vs. product performance</td>
</tr>
<tr>
<td>uncover connection points and synergies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>connecting people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>find a solution for a need</td>
<td></td>
<td></td>
</tr>
<tr>
<td>find a use case that is relevant for both companies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>reflect and improve own work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inspiration for ideation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>all are impacted by blockchain, AI, fog computing</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>we all have the same role in the club</td>
<td></td>
<td></td>
</tr>
<tr>
<td>strategic partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>give others access to my experts, network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>facilitator, bring in people, listening mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>different to others, bring in people, set up follow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sometimes it's the little chats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>makes you feel a little better</td>
<td></td>
<td></td>
</tr>
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*Figure 6 Data structure (own illustration)*)
3.6 Quality criteria
As a matter of fact, the outcomes of this exploratory case study are unique, and most likely will be different if the study was conducted again. Among others, this is because of the constructivist approach of the study that accepts multiple realities, including the researchers’ reality, and that would eventually lead to different interpretations if the study is conducted again by someone else than me. Hence, the criteria suitable for assessing the quality of the study differs from the widely used validation and reliability criteria in quantitative studies. As suggested by Guba and Lincoln (1994, cited in Bryman & Bell, 2011) this study will rather be assessed regarding its trustworthiness and authenticity.

Trustworthiness
According to Bryman and Bell (2011, p.395), there are four aspects to ensure trustworthiness of a study, which are credibility, transferability, dependability, and confirmability.

For instance, by describing in detail the research subject, my relationship to one stakeholder and how I conducted the study, I want to ensure that the reader feels like experiencing the study themselves. Thus, making the study comprehensible and credible, as explained by Creswell (1998). Further details about the setting in which the study was conducted, such as the timeframe, location, and context, help the reader to judge a possible transferability (Bryman & Bell, 2011). Even though the context in which the study was conducted and interpreted most likely cannot be replicated, the methods that I applied are transferable. The confirmability of this study is influenced by the earlier mentioned relationship to Airbus Defence and Space, which prevent complete objectivity (Bryman & Bell, 2011). Objectivity in that regard is based on relationships, insights, and experiences prior to this research. Hence, I can only ensure objectivity in terms of a strict research relationship to the other participants of the CIC. I haven’t encountered them prior to this research and therefore I had no other insights about them other than the interviews. Eventually, even though the raw material of the interviews will be destroyed after completion of this study (i.e. notes and audio recordings), I can ensure dependability by keeping the anonymised transcripts accessible, as suggested by Bryman and Bell (2011).
**Authenticity**

Other than trustworthiness, which assesses the quality of a study more in terms of methodological aspects, authenticity looks into actual outcomes and the impact of a constructivist study (Lincoln, 2001, Lincoln, Lynham & Guba, 2017). There are five sub-criteria that help to ensure the authenticity of a study: fairness, ontological authenticity, as well as educative, catalytic, and tactical authenticity.

**Fairness**

Fairness relates to the balance to which each interviewees’ voice and opinion is equally represented (Lincoln, 2001). Since my knowledge about the CIC, together with how innovations are understood and applied in practice were limited, I was constantly exploring the phenomenon, without putting emphasis on a few loud voices over many quiet ones. My relation to Airbus Defence and Space as one participating company might have influenced aspects like the strategy and philosophy of this research. However, it did not affect the balance of the empirical material since all voices are considered equally important and represented accordingly in my study. **Ontological authenticity**, as defined by Lincoln (2001) and Bryman and Bell (2011), deals with the question whether my research helps the participants of the CIC to better understand their own thinking and acting. Already by requesting an interview date with each representative, I made them aware that they were contacted for a purpose, in relation to their role and contribution to the CIC. Then, throughout the interviews, by asking them about their understanding and perception I made them aware how they can contribute to the study, not just why. **Educative authenticity** also wants to raise awareness among the interview participants, but more in terms of the thinking and acting of others. By sharing the results of this study with all interview participants, I hope that this study can contribute to a common understanding and thus support the future work of the CIC in a positive way. The latter entails that I do hope to reach a certain level of **catalytic authenticity**, even though it is not the main purpose of my study. First and foremost, I want to explore the understanding of my interview partners without interfering. However, after they read my paper I hope it influences future actions related to innovation in general and the collaboration within the CIC in a positive and helpful way, rather than leaving them wondering “So what?”, after all (Lincoln, 2001, p.46). Eventually, **tactical authenticity**, which aims for empowerment of the study participants to take actions, e.g. via training and further involvement of the researcher in the CIC, is not applied here (Lincoln, 2001).
4 Analysis

The aim of this chapter is to reflect upon the data that has been collected in nine interviews and to analyse it with the help of previous research. First I am going to explore how the CIC understands innovation. In short, this is mainly driven by the degree of novelty and the consumer adoption of an innovation, influenced by innovation frameworks, differentiated by incremental and disruptive characteristics and desired to have a social impact. The understanding of innovation marks the basis of how the CIC actually works, as it influences the purpose and motivational factors of each participant, the understanding of each members role in the collaboration and the challenges and influencing factors that the CIC has to face. All of which is presented accordingly in the second part of the analysis.

4.1 Understanding of innovation in the Cross Industry Club

The structure of this chapter follows two different styles. While the findings that I analyse throughout the Chapters 4.1.1 and 4.1.2 are mainly empirically driven with fewer connections drawn to the literature, the analysis becomes more conceptualized throughout the Chapters 4.1.3 – 4.1.5 with stronger connections drawn to the literature.

4.1.1 Degree of novelty and process perspective

First of all, many of the interviewees start off simply and refer to the degree of novelty of the input as well as the output of an innovation process. The understanding of innovation is explained with what needs to be invested in order to get results, rather then the process in between. Either an innovation is based on “new” or “existing” factors, and lead to “new” or only “revised” results. For example, one interviewee said:

“Innovation for me is when I sometimes bring two new ideas together and make it to one unique solution” (Thomas).

Another one said:

“Innovation means to come up with new ideas that can be realized into concepts so that products and services can come up. It is also a tool that people start to think in new dimensions” (Felix).

Finally, Thorben states:
“Innovation to me is bringing in something existing, reframing it and making it new, putting it into a new perspective, a new context. So that you can create something new out of something existing.”

This view is close to Fishers’ (2001) definition of innovation, which points out that either the combination of existing knowledge or the creation of new knowledge is considered to be innovative. Generally speaking, the interviewees say the result is something new, that can be developed out of something that is itself new, as well as something already existing.

Carsten, who works for company D, describes innovation as a

“combination of […] information streams with a mix of insights and outlooks. [...] It is also a mix between structure, process, and chaos. Visually, I like to relate it to “squiggle”, it’s a lot of interrelations happening, very chaotic at the beginning but after a while the relationships get a bit more harmonized up until a point where it becomes a straight line.”

Carsten generalizes this process as being typical for work with innovation and therewith also simplifies it. Stamm (2003, cited in Popadiuk and Choo, 2006), however, distinguished between a discontinuous, iterative process with unexpected twists and turns along the way as typical for long-term, radical innovations, and a continuous, formal process typical for short term, incremental innovations.

In general, it can be seen that the interviewees reflect upon innovations more in terms of the degree of novelty of input and output rather than by looking into the process required to get there. The innovation process has been mentioned by one interviewee alone, but also in a generic way. The “squiggle” process, with its different stages of confusion and structure, is perceived to be part of every innovation development journey, regardless of the type of innovation.

4.1.2 Influence of well defined innovation framework

The interviewees revealed that their personal views on innovation do not necessarily match with the views of their company. This is in respect to the kind of innovation they personally would like to work on and what they perceive to be “true innovation”, which
in some cases contradicts with the innovation strategy of their companies. Also, when I was asking the interviewees what innovation means to them, one interviewee asked in return whether I am interested in the personal opinion or the company view. This example indicates that this dissent also appears in other companies, which is why I would like to take a detailed look into four examples from the interviews.

*First example of company B*

Fabian personally describes innovation as something

“linked to entrepreneurship, so people having ideas and pushing these forward.”

He also says that within company B they are

“talking about incremental innovation, so making our existing products better, adding features, or solving small pain points of our customers […]”.

Fabian contrasts the current, incremental innovation efforts with the more disruptive innovations as what he desires. He states that entering a new market with what the company already has at hand would be disruptive.

Fabian also says that in company B the

“willingness to have disruptive ideas, the willingness to take risks [...] is decreasing”.

Both Fabian and Felix look at incremental innovations from a technological perspective, which is reasonable considering the research and technology (R&T) focus of company B.

“The focus is strongly on those activities that scream loudest. [...] there was a shift from real innovative focus projects to projects that are more of incremental nature. And the easiest way to do incremental projects is to look into what is existing already and what kind of structures and systems are existing. [...] Therefore, it was a logical development that it would end up in R&T related projects and ideas.” (Felix)

Even though he considers it as a logical development, Felix does not really agree with the current focus on incremental innovations only. The “real innovative focus projects”,

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mentioned by Felix, are explained as being new business options in a sense of new products and services, that are currently neglected.

It can be seen that company B does not have a distinctive framework to differentiate innovation types internally. In fact, they are just focussing on innovations that are of incremental nature. Felix and Fabian define incremental innovation by looking at the changes in product features, like the correction of flaws so that the existing product gets improved. However, both interviewees distance themselves from the company focus on these. This indicates that innovations are perceived to be about novelty but are actually about minor improvements. The people who work with innovation desire it to be about “real innovative projects” that can be characterized by their high degree of novelty. This finding brings me back to the initial question of my paper as it responds to the conflict between what people talk about and what they actually do:

\[
\text{Everybody is talking about disruptive innovations, but all they do are incremental innovations. Why is that?}
\]

Second example of company A

Innovation within the innovation centre of company A means to improve existing products and simplify complex processes, based on consumer challenges and existing technology as an initial starting point. Innovation to Sandra, Thomas, and Leon, however, goes beyond this and also slightly differs between them. All three renounce the use of specific innovation terms. Two of them describe innovation as being something that changes the current business model of a company tremendously, whilst at the same time changing the behaviour of society likewise.

Sandra said:

“\text{So innovation for me is something really life-changing, influencing the population. [...] It has to be something that hasn’t been there before.}”

Thorben adds:

“\text{And this is innovation, something that makes us behave and use technology in a totally different way.}”
In contrast to this, Leon describes innovation as the creation of new business models whilst breaking through one’s own, familiar industry and combining it with a new one. To underline his point, Leon mentions a sport shoe manufacturer who partnered with a public transportation company to integrate a year-long travel pass into the tongue of their shoes. The main product remained the same, a sport shoe, but the company looked at it from a different perspective and empathized with the consumers.

The company is

“[…] now also part of the transport industry, making their product focussing on the consumer. Before, it was just about the style and sport, but now it tackles a completely new aspect. What is the consumer actually doing?” (Leon)

Hence, this feature was added to support the customer’s usual journey while wearing the shoes. Leon argues that for some it is probably only a marketing ploy, but for him that is true innovation.

This example also indicates that company A does not use a distinctive framework to separate different types of innovations. Neither do any of the interviewees talk about specific innovation types. It is noticeable that all three interviewees have a slightly different view on what innovations means, in contrast to each other as well as to the company. What can be seen here as well is that what innovation is and what it should be differs between the company and the interviewees.

Third example of Company C

Bastian and Marie both used to work within the innovation centre of company C, a company that focusses on technology-driven, disruptive innovations. They explain consistently that innovation is “invention plus adoption” (Bastian) or respectively “invention gets market adoption” (Marie).

The company they work for uses a framework to distinguish between particular innovation types and where they are happening within the company. The types of innovation are: incremental/continuous innovations (improved product functionalities) inside the business units, disruptive innovations (new business models, new technologies,
to transform existing markets) inside the innovation centre, and adjacent innovations (close to core business) in mixed teams.

According to Bastian it is important to distinguish which types of innovation are happening where in the company, because it is

“automatically hard within the business units to think of really new stuff, especially like disruptive innovations, which might even make their current product obsolete.”

Marie says this framework helps one to better understand the innovation work within the company:

“When I started here, it was a big mess. Whoever you would have asked that question, everyone would have had a different answer to it. We did some studies with external consultants that helped us to come up with these different categories and creating a matrix, which is very useful. I can really see how things are starting to make more sense.” (Marie)

This example shows that company C uses a matrix to structure, name and identify innovation types internally. As we can see here, such a structure helps the interviewees to better understand what they are doing but at the same time directs the way in which they understand innovation.

Fourth example of company E
Thorben is part of the corporate innovation team of company E, a company that takes the needs of the centralized innovation teams within the business units and tries to find start-ups that can provide a solution for the problem.

In addition to the problems stated by the business units, the corporate innovation team also has

“market research teams [and a] technology radar, looking at new technologies and how relevant they are, how early of an adopter we should be” (Thorben).

Thorben continues to say that
“we have both, the outside-in approach and also the inside-out. What we learned is, that it is much easier to connect an external innovation when there is an internal problem”.

For its innovation work company E is using a matrix which looks into technology (incremental and radical) on one side, and the business model (disruptive and core) on the other side.

Thorben states that this was

“really helpful for us to know what we are doing internally.”

Company E also uses a distinctive framework to structure its innovation efforts. What can be seen is the attempt to not focus purely on technological topics or internal needs, but also to stay open to market developments and ideas that are not necessarily related to current problems.

Overall, this chapter displays eight different innovators from four different companies, with eight interpretations on what innovation means and four different innovation strategies. Whether or not innovation terminology is used, the previous Chapter 4.1.1 revealed that the basic understanding of innovation is similar: the degree of novelty of a process outcome, based on either existing or new input. This chapter now reveals that people working with innovation desire a more radical or disruptive innovation strategy, rather than the actually incremental focus of their companies. The higher profit margins and faster ROI resulting from incremental product improvements compared to the higher risk of failure and lower profit margins coming from more radical, if not even, disruptive efforts reason this focus of the companies (Christensen & Raynor, 2003; Panagopoulos, 2011). In addition, the influence of the corporate innovation strategy and the tools for identifying innovation types is noticeable. Those interviewees whose companies use a structured innovation framework or matrix are more specific with the innovation terms they use and how they differentiate innovation types from each other. Moreover, they tend to align with the company view on innovation more than those who do not use a specific matrix within their companies. The latter either describe innovations without making use of the variety of terms or try to match their efforts with incremental and disruptive innovations. At the same time, they emphasize how their personal view on
innovation work differs from the company strategy. Or, in other words, how the desire to work on “real innovative projects” that would have a rather disruptive character is replaced by company-driven minor adjustments and improvements of incremental innovations. All in all, the absence of an innovation framework allows many interpretations of what innovation means and entails.

Applied to the CIC, the influence of a well defined corporate innovation framework on the understanding of innovation offers opportunities and risks. If the CIC itself introduces a distinctive definition or matrix it could support a common understanding of what kind of innovations this collaboration can serve. At the same time, it could create tension and confusion with those CIC members that use their own matrix internally already.

4.1.3 Incremental technology acceleration and disruptive business model change

At the end of the conceptual framework I reflected upon the understanding of innovation in theory and concluded that the diffusion that exists among scholars is presumably the same among practitioners. Depending on the the company, and the context in which innovation managers work with innovation, the terminology and concepts that are used might differ. The findings of this research partly substantiate these assumptions. While scholars have introduced several concepts and terminologies around innovation, it seems simpler in practice. In fact, incremental and disruptive innovations seem to be the most popular and widely used terms in that regard, if any. However, minor differences occur when looking into how these terms are used, and how they are understood between scholars and practitioners.

Incremental technology acceleration

Regardless of the innovation terminology, the previous four examples reveal that most interviewees state the strong technological focus of their companies when it comes to innovation, but still add other aspects that they feel are important to consider, e.g. stepping into new markets, combining different industries, or changing business models. In theory, some scholars have included technology and market aspects in their explanations of innovation types, whilst others focussed only on the technological progress. Abernathy and Clark (1985) and Afuah (1998, cited in Popadiuk & Choo, 2006) emphasized the technological and market perspective in their distinction of innovation. They used terms like architectural, niche, regular and revolutionary innovation (Abernathy & Clark, 1985)
or technological, market and administrative innovation (Afuah, 1998) for clarification. On the contrary, Dewar and Dutton (1986) and Panagopoulos (2011) talk about incremental and radical innovations with a focus on the technological novelty, whilst the market perspective played a subordinate role. Eventually, Christensen’s popular concept also emphasizes the technology perspective when distinguishing between sustaining (discontinuous, radical, and incremental) and disruptive technology that are used synonymously for the innovations that are based on it (Christensen & Raynor, 2003, Christensen, 2013).

As mentioned previously, the terms incremental and disruptive are given priority in the attempts to name the innovation types in practice. Incremental is mainly associated to R&T related projects (Felix), product improvements in a technology-driven company (Marie) and one type of technological progress (Thorben). Or to summarize, incremental is associated with the technology acceleration of an innovation.

**Disrupt business models rather than only technology**
What unites different scholars, and what is depicted in Table 1, is the fact that the market situation is seen as the starting point for declaring the type of innovation that happens inside of it.

Practitioners look at it in a slightly different way because to them the type of innovation defines the market situation they are in:

“And then you have disruptive innovations, which are totally new things, e.g. new business models or completely new technologies. That then can transform the market” (Marie)

“This would be something that is kind of disruptive. To enter the market or to enter a completely new market.” (Fabian)

With this in mind, another interesting observation appears in relation to Christensen’s (2013) attempt to involve the different terminologies of sustaining, incremental, radical, and disruptive into one model. Thorben’s matrix has, on one side, the technological progress that can be either of an incremental or radical nature, and, on the other side, the
business model, which can be disruptive or close to the core business. In other words, the business model either fits into the existing market (close to core) or a new one (disruptive), while the technology is either improved (incremental) or newly invented (radical). Hence, the term disruptive innovation is used in relation to the business model, or respectively the market situation, rather than in relation to technology.

Thomas also says that

“[…] sometimes you have innovations that are so unique, that are very disruptive. […] Unique and changing the existing business model dramatically.”

That is a clear delimitation that the reviewed literature has not made so far. It captures an interpretation in practice that disruptive innovations are related to business model progress that will enable markets to be entered or transformed, rather than limiting it to disruptive technologies that can only work in new markets (Christensen & Raynor, 2003, Christensen, 2013).

Eventually, it can be said that when the interviewees distinguish between incremental and disruptive innovations, they do so in a similar way to scholars when they distinguish between incremental and radical, or sustaining and disruptive. In other words, the concepts used in theory blend into one another in practice. This illustrates how diverse the terminology around innovation can be.

One concluding example for this observation includes the aspect of different time horizons, which is mentioned as an indicator for differentiating incremental from disruptive innovations:

“[…] we defined the term innovation from a time horizon and a change momentum. You know maybe the term disruptive innovation and also like incremental innovation. And it is really important that you define which type of innovation you need” (Bastian).

In theory, Stamm (2003, cited in Popadiuk & Choo, 2006) used the time horizon in addition to technological progress to set incremental innovations apart from radical innovations.
4.1.4 Technology in use and social changes
Interestingly, some interviewees also point out aspects of innovations that are missing in their companies, which are also just of minor interest in the literature.

“What is special is that company C is very technology-driven, which sometimes makes us forget the whole social component to it. Often it is not just about technology but about how people are using technology and how they are demanding to use it, so I think this is a component we are missing out a lot.” (Marie)

This aspect, together with changing the behaviour of a population as mentioned by Sandra, have also been pointed out in the literature. Brown (cited in Chesbrough, 2003) said disruptive innovation changes social practices, but not necessarily due to a technology breakthrough, but rather the ability to predict how the technology will be used in practice and how that affects the daily life. However, when looking into the most widely used concept for differentiating between innovation types from Christensen, these aspects are not considered. His view on innovations is very technology-driven as well, just like most of the companies from the interviews. He considers how drastic the technological changes are, such as progressive improvements or breakthrough changes that lead to a “leapfrog-beyond-the-competition” product (Christensen & Raynor, 2003, p.34). His view takes into account how these changes affect the product characteristics, the internal innovation process, the risk management and whether or not it works in an existing market. However, the impact on social behaviour and how technology is used in practice is not stressed here.

4.1.5 Consumer adoption vs. product performance
As mentioned before, Christensen considers how the innovation affects the product characteristics. Therefore, the level of product performance plays a vital role in distinguishing between sustaining and disruptive innovations (Christensen & Raynor, 2003, Christensen, 2013). According to the findings, it is more important to practitioners whether an idea is scalable or not. It is noticeable that the performance level of a product is an aspect that is never mentioned by any of the interviewees and therefore presumably does not affect their understanding of innovation.

Bastian says:
“If you can show that an invention really gets adopted and is used by many people and it scales, then you can call it innovation.”

This view includes the aspects of making profit and selling more through focusing on profitable projects:

“Obviously we are a normal company and we want to make profit. So obviously we focus on the more profitable, promising solutions. Which are scalable.” (Sandra)

Christensen (2013) implies this, when he talks about attracting profitable customer groups with sustaining innovations and not attracting them with disruptive innovation. He looks at it from a product performance point of view. However, practitioners do not consider bringing a deteriorated product to market if it only attracts niche groups.

It was emphasized that if

“you have a product that you just sell to one customer, it doesn’t work”

(Bastian).

By saying this, Bastian did not include whether or not it attracts only one customer depending on the performance level. It indicates that the focus is on delivering a high-performance level to attract as many customers as possible. To reach consumer adoption a high product performance is implied from the beginning.

Eventually, reflecting upon the fact that Bastian works for company C, a company that focusses on disruptive innovations (see Chapter 4.1.2) which, according to Christensen (2013), are characterized by a low product performance, a dissonance between how theory and practice understand innovation can be seen. Also, keeping in mind Sandra’s statement regarding the preference of profitable and promising solutions, whilst she said earlier that innovations need to be life-changing, contradicts with what is characterized by incremental and radical innovation. The profitable and promising solutions that ensure a high level of certainty will never be the life-changing ones, as those require a high level of risk taking (Stamm, 2003, cited in Popadiuk & Choo, 2006, Panagopoulos, 2011).
4.2 Collaboration in the Cross Industry Club
The findings of this research present one concrete example of a collaboration for innovation in practice, the Cross Industry Club. Firstly, I will highlight the foundation story and the initial activities of the CIC, which will be mainly empirically driven. After this, I will start to conceptualize the characteristics of the CIC to the theory. This is to elaborate how they work together in order to realize cross-industry collaborations.

Felix explains that

“the CIC was created out of a collaboration with an existing accelerator. Most of the partners, not all, have been part of the Start-up Bootcamp.”

Thomas adds that their role was to mentor young start-ups and give them advice on how to further develop their businesses.

Felix continues with explaining that

“after the program ended, some of us realized that after all those years we were interacting with a lot of external start-ups but never with each other. And it would be interesting to see how we structure our innovation management. What is our purpose behind all of that? And is there room for joint projects and collaborations?”

Thorben says for the first meeting they

“brought everyone to Switzerland and shared each innovation strategy and how we do innovation.”

According to Fabian,

“the first one was about innovation within the different companies, all kind of processes, problems, good things you have. And how innovation works.”

Thomas agrees but elaborates a bit further by saying:

“In CIC we talk about the processes of how we address innovations. So like design thinking, canvas models, how we work together with customers, to evaluate their challenges, to identify potential solutions, [...]”
During the second meeting, which took place in Germany in early 2018, the participation changed, i.e. some companies had left the CIC and others had joined.

Consequently,

“a part of it was also again about innovation and how it works in the different companies. And the second part was a task for every company to come up with actual projects that other companies could be interested in.”

(Fabian)

Thorben states:

“We presented our innovation processes [...], how we are doing innovation. Everyone presented it for half an hour and then we had a second point where everyone had to share two different innovation projects. After that we had discussions and asked questions. We had a really good exchange.”

As we can see here, the CIC is a young collaboration that has only met twice since its foundation. Since it was created as a result of the mentorship of external start-ups but now consists only of mature companies, the equality among the members plays an important role. This will be substantiated throughout the further analysis of collaboration in practice.

4.2.1 CIC as a community of practice
Within the conceptual framework it became apparent that innovation collaborations can take different forms, which can be perceived as being part of a bigger ecosystem that follows an open innovation mindset. Whilst it can provide certainty on where a network is situated in the collaboration landscape, it rarely supports the question of how to actually work with it.

*From knowledge exchange to joint projects*
At the beginning, I wanted to look at the purpose and motivational factors of the CIC, since it is one way of relating this particular collaboration to the various forms it can have, as reviewed in the conceptual framework (see Chapter 2.2). The interviewees looked at the purpose from two perspectives: the intangible purpose of sharing and exchanging knowledge as well as learning from one another, and the tangible purpose of connecting people, prototyping together, and identifying solutions.
Bastian says the CIC is about

“knowledge sharing, best practices, inspiration and also finding out what’s happening elsewhere in other companies, in other industries.”

Marie agrees and says the purpose for company C

“was mostly exchange and learning about how other innovation centres work.”

For Leon the purpose is to

“share our expertise and also our experiences”.

Thorben states that

“at the moment I would say it is knowledge exchange and learnings. It’s about best practice sharing [...]”.

But he continues and emphasizes that

“[...] it’s moving slowly also into collaborating together” (Thorben).

Carsten states that to him the main purpose is

“to uncover unexpected connection points or synergies with other companies in order to tackle or find a solution for a need.”

All interviewees point out that working on joint projects is the desired purpose of this collaboration.

For Thomas, that is to

“build a foundation for the future. [...] To identify exactly these kinds of new innovations that we can scale together.”

Considering Conway and Steward’s (2009) network perspective, it can be ascertained that the actors are the innovation representatives from the eight companies that belong to the collaboration in order to exchange knowledge and learnings (flow) via face-to-face group meetings (mechanism). Due to the fact that the collaboration is not steered by any one company and that the meetings do not follow a strict rhythm and governance, one could argue that the link between the actors is rather informal. This point will be looked at in
more detail throughout the next chapters. However, since they meet intentionally and with a purpose in mind, it still has a formal character.

Due to the origin of the actors who come from Airbus Defence and Space, Cisco, SAP, SBB Cargo (Swiss Federal Railways), Rolls Royce, Merck Group, BMW, and Nestlé Health Science and based in Germany and Switzerland, evidently the CIC is an inter-organisational network. As presented by Sydow (1992, cited in Bussmann et al., 2014), regional as well as strategic networks are considered to be inter-organisational. When comparing the goals assigned to regional and strategical networks with the purpose and motivational factors stated by the interviewees, no clear relation can be seen.

Sydow (1992, cited in Bussmann et al., 2014) claims that regional networks want to enhance the competitiveness of all members by communicating with each other and exchanging information. He further states that the goal of strategical networks is to strengthen the market position of one leading company. Other than within strategical networks, the CIC has no one leading company that tries to strengthen its own market position with the help of the collaboration. Having in mind the knowledge exchange that has been the focus of the last two meetings, one can argue that the goal is rather to strengthen the competitiveness of all members, just as is explained by Sydow for regional networks. However, since all interviewees emphasized the overall aim of finding and developing a project together in order to get a tangible output, it does not fully match with regional networks either.

The collaborative approach of CoP supports the purpose of the CIC in the most suitable way. Wenger and Snyder (2000) emphasize knowledge exchange and best practice sharing as a common goal of a CoP. Conway and Steward (2009) support this view and also say that the aim is to share expertise, knowledge and lessons learnt. The interviews revealed that the previous meetings of the CIC have been used for exactly this, i.e. the exchange on the individual innovation strategies and processes within the respective companies. However, when also considering the view of Hemmasi and Csanda (2009) on developing joint projects as a goal for CoP, it can be seen that this match with what the interviewees want to achieve as a next step.

Sandra summarizes the goals as the following:
“Knowledge sharing is one, finding a project that we can jointly follow along is the other.”

A passion for innovation and identification with the CIC

Talking about the CIC, Carsten states that:

“There is a lot of willingness to share both successes and pain and struggles. You realize that we are all going through the same stuff. If you do not find a solution at least you find the empathy that somebody else has the same struggle.” (Carsten)

Getting support and inspiration from colleagues that have similar experiences goes beyond everyone’s role as company representatives and clearly offers benefits to the participants on a personal level.

Bastian adds that the CIC

“helps you on the ideation and inspiration phase”.

And according to Felix,

“sometimes it’s even good to just talk and interact with those kind of players, to let you think about your own methodology [...].”

He argues that

“externally you don’t get really challenged because people will not question why you are doing this like that, or what’s the purpose behind it. They will rather explain to you what they do, and this makes you think. So, you can constantly improve yourself in this kind of system.” (Felix)

All three statements above reflect the underlying, individual motivations of the interviewees. That is, to get inspiration from peers with similar experiences and challenges, that is related to their joint passion for innovation whilst acknowledging the expertise of the others within the CIC. This confirms the statement of Wenger and Snyder (2000) that CoP are bound together through passion and identification with the expertise of the group.
What has been revealed by the interviewees and which can be added to Wenger and Snyder’s listing, is the empathy that the participants seek and consequently find in the framework of this collaboration. Knowing that the others have the same issues gives them a sense of togetherness.

As Sandra says:

“It’s good to know that everybody has their challenges. It makes you feel a little better.”

Thomas states:

“Look, on these kinds of topics I mentioned, fog computing, AI and blockchain, all of the CIC members will get impacted from this.”

Thomas statement shows that all participants can contribute to the discussions and will have value added from the inputs of the others.

Fabian adds that

“one thing that we also found out, every one of these companies is doing something with smart city, safe city.”

As we can see here, these are the contributions and outputs, that every member gives to the CoP and expects to receive in return from the others, which is, according to Wenger and Snyder (2000), typical of a CoP.

4.2.2 Acting vs. listening

When it comes to the role that each individual is playing inside the CIC, different perceptions appear. Whilst at first glance the roles are perceived as equal, differences appear in the detail.

For instance, Thorben perceives all participants to be peers:

“I am one of them. We don’t really distinguish, I would say, on who is doing what. So, we are all peers in that sense” (Thorben)

Leon emphasizes:
“It’s not like we sit there and we want to sell something to all the other partners. We all have the same interest. We want to share knowledge and experience and we want to partner with the other. […] I also think everyone else sees us, when we sit together, as strategic advisors”.

While Leon and Thorben understand everyone’s roles to be equal in terms of contributing to the CIC, Marie and Bastian emphasize that what they can and will contribute is dependent on the role that they have in their respective companies.

Asked about her role when she joined the CIC, Marie says:

“I think it was different. Regarding the size that we have. We are more divided in our tasks and in my job I am more supporting the innovation manager, whereas others are in the CIC as innovation managers.” (Marie)

She further emphasizes that this also affects the discussions she has with other members:

“With one of the members we do have a project actually. And my role is to facilitate [projects within company C] and also facilitate in the project. To be honest and fair, the other members end up doing the same. I am used to that, so I might be faster in that role.” (Marie)

Bastian states that

“when we joined, it was similar I would say. So, I was representing the innovation centre […]. Now with my new role, well, my successor is also in the CIC, the new Head of the Innovation Centre Network, so my role has changed.”

Bastian’s new role within company C is being

“responsible for making things work, to implement and steer the processes behind, making sure that our development organization gets all the support they need […]”.

This seems to indicate that innovation managers represent the actual innovation work and strategies of their respective companies and also share that expertise with the others, while
those who work in support or operational functions contribute more in terms of innovation processes and facilitation of project work.

In contrast to this, Felix and Thomas are perceived to be the two coordinators of the CIC. Fabian says that the organization of the CIC

“[...] is mainly driven by company A and B. I think it’s Felix who is organising that.”

Thomas states that his role is different from the others. He says he

“[...] sat together with Felix and mentioned, look, let us bring this together. Let us identify new companies as well.”

He then continues explaining:

“We gave to the complete team the task that everybody has to think about one particular project. [...] I want to setup the next follow up meeting before the summer break.” (Thomas)

Felix states, that he acts

“more as a facilitator. Because the idea from the beginning was to bring the right people together at one table to see if there is room for collaborations. I’m more in the listening and facilitating role at the moment.”

The given examples align with Wenger and Snyder’s (2000) explanation of leadership in CoP. They say CoP establish their own leadership and organize themselves. Wenger (2000) adds that this can have multiple forms, e.g. a coordinator who manages the daily work, leader, networker, and a secretary for documentation of meetings. Felix and Thomas declare independently that they facilitate and organize the meetings and propose new people that might be valuable for the collaboration. It can be seen that they act as coordinators, leaders, and networkers simultaneously.

According to Sandra,

“[...] you need that one person, sitting in the driving seat and giving a push. [...] I think Felix and Thomas tried to do that”.
It can be said that she feels like both are trying to take over the lead and establish a self-organization of the CIC.

Felix, Thomas, and Sandra looked at the roles from an organisational point of view, i.e. leadership and administration, which is also the view from different scholars, if at all. Besides Wenger (2000) and his detailed description of roles in CoP, other scholars do not describe the different understandings of roles and responsibilities in inter-organisational collaborations explicitly. Even Sydow (1992, cited in Bussmann et al., 2014) only distinguish between whether a single company is strategically in charge or not when looking into regional and strategic networks, without narrowing it down to the level of the actual participants. The participants represent their companies, and regardless of whether one company has the strategical leadership, it remains unclear how it is actually lived and implemented by the real actors. In the end, it is not just about leadership and administration, but also about the individual contribution to fulfil the purpose of the collaboration.

As we can see here, the participants of the CIC look at their roles through various lenses and in much greater detail than is given by scholars so far. It shows the complexity of collaborative work on the level of the actual participants, not just the companies they represent.

4.2.3 Togetherness, openness and trust

Leon emphasizes that he was

“really surprised and happy about how everyone really opened up and was willing to share”, during the first CIC meeting he witnessed.

Sandra says:

“sometimes it’s the little chats and you know that you can call them if you need anything”.

By saying that, Sandra describes the value that the CIC adds. As has already been mentioned previously, Sandra states that knowing the struggles and challenges of the others makes you feel better.
Both statements exemplify the trust that the CIC is based on. As was said by Wenger (2000, p.230): “People must know each other well enough to know how to interact productively and who to call for help or advice. They must trust each other, not just personally, but also in their ability to contribute to the enterprise of the community, so they feel comfortable addressing real problems together and speaking truthfully.” Hence, trust is crucial for a CoP to work.

**Trust and openness as long as there is no competition**

Felix says:

“Companies are always hesitant, they always have this feeling of competitors looking into their activities. And therefore, one of the key aspects of the CIC was that every member is coming from a different industry. [...] If somebody else is coming into the picture we always ask the entire group if there are any hard feelings regarding competition. So that we do not go this way because we would sacrifice the whole group.”

As we can see here, it is not just trust alone that is crucial for a CoP to work, but also an absence of rivalry. When Gomes-Casseres (1996, 2003, in: Vanhaverbeke & Cloodt, 2006) state that the success of an ecosystem is highly dependent on the fact that there is no internal rivalry among the members, this evidently needs to apply to individual networks - like the CIC - within the ecosystem as well.

However, the approach of only introducing new members if they are not in direct competition with one of the existing members can also affect the internal dynamic of the group. Pera et al. (2016) emphasized that the core of an open ecosystem is its internal dynamic in terms of new partners and the further development and changes of the environment based on that. Since one distinctive feature of the CIC is to have no competition, its further development is heavily based on the selection of new potential members. This seems to indicate that limiting the membership too much can also have negative effects on an open ecosystem. The same then applies for CoP accordingly.

Carsten has the impression that the CIC follows the spirit of:

“You have got to be doing, in order to find, and you have got to be open, in order receive.”
Based on his statement, openness is not limited. But based on the statements from the other members of the CIC, openness is mainly understood in terms of trustfully sharing insights with each other.

Sandra argues that

"everybody stands for the targets of their company. It is not easy to align them all the time and there are secrets."

This indicates that openness not only has its limitations when it concerns the involvement of companies from other industries. Openness is already affected by the company targets that each participant has in mind and must follow throughout their daily work. How both aspects will affect the future internal dynamic of the CIC remains open for investigation. But in theory Wulf and Butel (2017) already stated that the stronger a network is governed, the less knowledge can be shared. Even though the CIC as a CoP is not directly governed by any of the companies, the actions of each representatives are still connected to the company targets and as such controlled. Hence, it affects the degree of openness as described by Wulf and Butel (2017).

Bastian emphasizes that

"the good thing about the CIC is, that there are different companies from different industries and there is no competition. Also, the industries are blurring a bit, but in general, [...] we are not a competitor, but we provide software for company B as our customer, which is a very nice model."

This indicates that despite having supplier-customer relationships among the companies outside the CIC, and the fact that they usually would try to sell their products to the others, the relationship inside the CIC is not affected by this. In fact, it can even be beneficial for the purpose of the CIC. Vanhaverbeke (2006) stated that if a collaboration focusses on new products or business models that shall be introduced to the market, it makes sense to work together with suppliers, individuals and even startups. While supplier relationships are already included in the CIC, startup involvement might follow.

Early startups are not perceived to be of value for the CIC as of now, since they cannot contribute to the knowledge and experience exchange:
“We identified that most of the startups that we mentored are at such an early stage that they don’t help us.” (Thomas)

Fabian adds:

“I think it would not be of value for us to see how startups approach problems. I mean we [...] know how we would like to solve problems but we always have to see it in our environment. And I think all the big companies have huge internal politics.”

However, it can be concluded that as soon as the CIC identifies potential projects this situation can change, and even early-stage startups can be of value for the collaboration.

4.2.4 Get commitment from all parties

“We all need to admit that not only one is developing ‘the’ solution anymore. It’s always a corporation.” (Sandra)

By saying that, Sandra describes the core mindset of open innovation. Normann and Ramirez (1993, p.69) summarize this as: “a single company rarely provides everything anymore”. Being engaged in collaborations like the CIC illustrates the willingness of the participants to accept ideas from the outside world and to admit, that they need this to be successful. However, that does not automatically mean that the management of their companies also support this. The participants might be willing to share information with each other in an open and trustful way, which is perceived to be one core value of the CIC and has been explained in the previous chapter. Moreover, openness was also emphasized by Wenger (2000) as a prerequisite for CoP to work. But that does not mean that the companies behind them do so, and really support the necessary steps to take the intangible exchange to the next level and create tangible outputs. A problem that the CIC evidentially has to deal with.

Felix stated earlier that he is in a listening mode within the CIC. This is because company B does not focus on external collaboration at the moment. He also points out that he has a very restricted mandate in terms of driving potential projects within the CIC. Despite a successful project as a role model, being part of the CIC

“most likely [...] will be more accepted but not supported” (Felix)
by his company.

But that is exactly what is needed. Wenger and Snyder (2000) strongly emphasize that management support is crucial for a CoP. Their argument may have been mainly related to CoP within one organisation, however, it appears to be just as important for inter-organisational CoP.

Management support to overcome obstacles

Sandra feels that "finding the right rhythm to meet" is one of the biggest challenges of the CIC.

She continues:

“I think it will never be possible to have everybody at the same table”
(Sandra)

This is due to the different locations of the participating companies in Germany and Switzerland. Regarding other communication channels besides face-to-face meetings, she says:

“I think there is a Sparks room, but due to high firewalls I think not everybody could get access. I haven’t seen much conversation in there to be honest.” (Sandra)

Thomas confirms that they had the Spark platform from the beginning. He adds that the CIC “now just moved to another ‘ruum’ [...], which I need to look at.”

[NB: “ruum” is another online platform]

Fabian says that “at least I am communicating via the Sparks board”, but also that he has to do so via private devices.

While both platforms intent to serve as a communication channel when the CIC cannot meet physically, both the platforms are rather unknown among the participants and
consequently not in use. The IT restrictions of some companies prevent them from entering the platforms from their company laptops or phones. It can be seen that this is a common obstacle. Wenger and Snyder (2000) also point out IT difficulties that influence work as one example that needs management support to get solved. Having IT restrictions across the several companies of the CIC hinders the efficient use of communication and collaboration tools. However, if the participants cannot use the IT infrastructure of their companies to access a collaboration platform, it cannot be appropriate, or perceived as such, that they switch to personal devices. The participants want to contribute to a network that works on projects in order to strengthen and push forward the innovation efforts of the companies they represent.

IT restrictions are not the only aspect that needs management support. What is also needed is the time to participate in the meetings.

Leon states:

“We have to invest time, we have to invest resources and, of course, money. And that is a big issue nowadays that people do not really want to commit to things like that.”

He further argues:

“What I just realize now again, we are all caught up in our daily business. [...] For most of us the CIC is not the major project, it is a side project”.

(Leon)

Wenger and Snyder (2000) confirm this point and state that the investment of time and money is requested from the management. Even though dedicated budgets are not typical for CoP, management can integrate the work of the collaboration into the business of the company. Having Leon’s comment in mind, that would mean that the CIC would go from a side project to a major project and consequently reduce the trouble of finding time for meetings.

So far there have only been two meetings of the CIC that have been structured in a similar way, with one big part of them being focused on the presentations of the innovation work within the companies. Wenger (2000) suggests having different kinds of formal and
informal meetings, that focus on certain aspects such as problem-solving sessions or having guest speakers that give input to the group.

What can be derived from this is that having a variety of meeting occasions can help to convince management of the value of the collaboration and, as a result, gives the participants more time and resources to continue working together. In fact, Wenger and Snyder (2000) admit that it is a difficult task to convince the management that outcomes of CoP meetings are not possible in other settings.

Even though it might not be an issue for all participants to get management approval and then also the mandate to actively contribute and act in joint projects, it is at least an issue for some of them. That makes it the responsibility of the network as a whole to investigate the best way for them to get approval and funding from all sides.

Moreover, the findings relating to the understanding of innovation revealed topics that the interviewees miss in their companies, such as a stronger focus on technology in use, to name one. The diversity of the network offers resources and a rather independent environment to look into exactly these neglected fields.

Sandra states:

“I think the strength is the diverse knowledge and the diverse network in general. If you put one buzzword in the room, like air quality or air pollution, if I start first with what I know and companies that come to my mind and possible solutions, and everybody would do it, that would be a huge portfolio.”

She further states that

“finding the project is the challenge. If the project is well defined and we know exactly what we want to achieve, through our ideas and our contexts, we could come to results very fast and agile.” (Sandra)

Company A, for instance, mainly drives its innovation efforts based on specific customer needs and challenges. Company C, however, mainly improves their products based on technological progress. If both companies establish a joint project through the CIC, the
customer proximity from company A can be used to investigate the technology in use. And if the added value can be seen, eventually the results are also reported back to company C who might incorporate the aspect in its future innovation efforts.

Is the CIC a growing collaboration?
Finally, the interviewees mentioned the challenge of “if” and “how” they want to grow. The opinions in this regard differ.

Carsten states that he considers it important that the CIC stays

“open of moving beyond German speaking countries.”

Thomas believes that

“this kind of club will have a rotation with different new members, with different new innovation centres”.

Fabian points out that he values the personal contact to the other members and

“if this is increasing to an amount of 50 people, it is getting impersonal […] and we are back to a kind of conference.”

He would extend the group

“to a maximum of twelve. And then invite some other companies just as a kind of guest speaker”. (Fabian)

Thorben adds that

“it could be that we lose the focus if we bring in too many partners”.

In theory, Wenger (2000) emphasized it is important to ensure the identification of the members within the collaboration. If a group becomes too big, this can impact the identification of individuals, and moreover increases the risk of losing focus on what they actually want to achieve together. As we can see in the case example, some interviewees openly consider growth and the prospect of new participants joining, while others fear the personal contact would get lost and the openness would be affected.
Since the CIC is still young and will face many influences and changes regardless, it seems advisable to remain open to new participants in order to be able to reach their goals. In case it becomes too big, Wenger’s (2000) suggestion to sub-divide the group by region or special subjects seems reasonable for the CIC. Considering the current regional spread (Germany and Switzerland), this could already positively affect the difficulty in meeting in person.

4.3 Summary reflections
All in all, the analysis reveals that the CIC has to deal with various influencing factors, coming from the outside world and the collaboration participants alike, that ultimately affect the work of the collaboration. Figure 7 visualizes these influencing factors and is explained hereafter.

Innovation challenges, such as smart cities, blockchain and artificial intelligence are topics of interest, mentioned during the interviews, which, if not already, will influence the innovation efforts of all participants of the CIC in the future.

The innovation efforts of the companies are based on the understanding of innovation inside the company and driven by various factors, e.g. predefined strategic targets and measurements, an innovation framework or the general attitude of the company towards open innovation through collaboration. The latter also deals with the question of “what kind of collaborations” and with whom a company is engaged with, which has been investigated in the conceptual framework from a general (innovation ecosystem) and a more detailed perspective (communities of practice).
The innovation understanding of a company and how they pursue their innovation efforts affect the understanding of innovation of the company representatives accordingly. As the analysis highlighted, the company representatives either agree with the company’s guidelines, or have a different understanding of innovation and how to pursue them. Also, compared to the literature, incremental and disruptive innovations are predominantly used to distinguish innovation among the company representatives (see also Chapter 2.1).

In the end, the variety of innovation understanding influence the work of the Cross Industry Club. First, regarding the attempt to move from intangible knowledge exchange to tangible cross-industry collaborations. For instance, looking at the companies that use an innovation framework, and applying this approach to the CIC, it either helps to form a common understanding inside the collaboration of what kind of innovation they can serve, or it creates tensions and confusion among the members. This deals with the question of “how to make use of the collaboration”, which is a question that has not get much attention among scholars so far (see also Chapter 2.3). Second, regarding the understanding of one’s role in the collaboration and whether one can actively contribute to the realization of cross-industry projects or has to remain in a passive role. Moreover, aspects like facilitating the collaboration and ensure a decent communication, is highly dependent on management support from the companies. This, in turn, depends on whether or not the companies commit to an open innovation approach through collaborations or whether or not they can see the added value that the CIC provides for meeting their internal targets (see also Chapter 2.2).
5 Discussion

This chapter will discuss the findings of the case example from a general perspective. This will be realized by connecting the findings back to the purpose of this paper and making sense of the overall research phenomenon. I will develop managerial and research implications whilst discussing the aspect of understanding innovation first, as it determines the collaboration for innovation. The latter will be the focus of the second part of the chapter accordingly.

The purpose of this study was to contribute to the complex discussion on what innovation means and how to use collaboration in this regard. A case study on the CIC was conducted to investigate firstly the understanding of innovation in the CIC and then how the CIC works to reach cross-industry collaborations for innovation. As such, the study serves as a concrete practical example of collaboration for innovation.

The first part of the analysis went through the understanding of innovation in the CIC through an empirically driven look at the importance of the degree of novelty and the innovation process among practitioners, together with a differentiation between how the understanding is influenced by a well defined innovation framework. After that, three concepts were derived that deal with how innovations are used in practice.

The concept of *incremental technology acceleration vs. disruptive business model changes* deals with the arbitrary usage of the terms “incremental” and “disruptive” in practice. Both terms are used in practice to describe what scholars separate in incremental, radical, discontinuous, sustaining, and disruptive innovations (i.e. Dewar & Dutton, 1986, Christensen & Raynor, 2003, Panagopoulos, 2011, Nagy et al., 2016, see Appendix A). The concept shows that technological considerations influence the understanding of these innovation types, but other than in Christensen’s (2003) consolidation, “disruptive innovations” are further associated with business model changes in practice.

The concept of *technology in use and social change* illustrates that both aspects are considered to be important in innovation practices but are still not in use. Brown (cited in Chesbrough, 2003) confirms that being able to predict how technology will be used by customers and also the impact it will have on their daily life is more important than the technological breakthrough itself. In practice that is realized, but not applied.
The concept of consumer adoption vs. product performance shows the status of the scalability of an idea in terms of gaining profit in comparison with the performance of a product. While the latter drives the theoretical understanding and distinction of innovation, the scalability dominates the practical view.

The second part of the analysis explored collaborations in the CIC through four different concepts. All of them highlight aspects that occur during the emergence of cross-industry collaborations.

The first concept, CIC as a community of practice looks into the foundation of an industry club and the shared passion and ambition everyone brings to the table. A shared passion and a common field of interest, as emphasized by Wenger (2000), is the basis for a collaboration starting.

The second concept contrasts the role of acting, i.e. actively contributing, to the role of passively listening within the collaboration. The study shows that even though practitioners know what they want to contribute, it does not necessarily mean that this is what they can contribute in practice. This concept again contrasts the strategical perspective of the companies to the operational perspective of the individuals. Being external to an innovation community, i.e. looking at it from a strategical perspective, attaches a different importance to the collaborative work than being inside of it, i.e. experiencing it from an operational perspective.

The third concept reveals the values, according to which participants want to act abide by when inside networks, but also their limitation due to external influences: togetherness, openness, and trust. Wulf and Butel (2017) stated that the degree of openness affects how much knowledge is actually transferred and exchanged in a network. The degree of openness in this regard depends upon how strongly the actors are governed.

The fourth and final concept explains the challenges and obstacles that need to be overcome. It is an important point since even when a collaboration starts off with a common goal in mind, the involved parties must avoid diverging along the way. The same goal must be reached by all parties. Getting commitment from everyone involved and
affected by the work of the collaboration is a key aspect that has also been outlined by Wenger and Snyder (2000) regarding CoP.

5.1 Implications on innovation understanding
The analysis shows that applied innovation is driven by technological acceleration. Regardless of whether a company base its innovation work on the customer needs, the market situation or the internal problems that need to be solved, technology drives innovation. There is a desire among practitioners to tackle innovation in a rather radical manner, in the sense that a high degree of novelty is a key indicator for an innovation. Innovations should be life-changing and, in fact, disruptive. However, that contradicts with the minor adjustments that dominate the daily innovation work, which, however, benefits the low-risk attitude of the big corporations.

In theory, the understanding of innovation is driven by innovation types that are differentiated from each other based on factors such as the innovation process, predictability of results, needed resources and the performance level of a product (see Table 1). This study adds factors such as the degree of novelty, profitability, technology in use and social change to the discussion. All of these are additionally impacted by consumer adoption and product scalability in order to be perceived as innovation.

However, the study also reveals that the consideration and prioritization of these factors are either company (the management level that decides on an innovation strategy) or individually (the operational level that actually works with innovation) driven. Whilst a company is more interested in the scalability of an idea, as it gets consumer adoption and starts to generates profit, the individuals highlight the degree of novelty of an idea, how it is actually used and the change of social behaviour that it creates.

So far, the literature around innovation concepts focuses on the strategic level around innovation in practice. Christensen’s (2013) concept leads the discussion around sustaining and disruptive innovations and gives managerial implications that combine technological, market and leadership aspects. My study could act as an inspiration for other scholars to further research the dissonance between a strategical and an operational take on innovation, in order to extend Christensen’s concept with operational aspects. At
the same time, management should start closing the gap between their view on innovation goals and the view of the people actually working towards these goals.

From this study we can see that it is rather the low-risk, incremental driven attitude of the corporations that emphasizes the importance of technology. Among practitioners’ disruptive innovation is also associated with other aspects, such as business model innovations or the transformation of a market. In any case, there is a tendency to focus on “what” kind of innovation is performed or respectively desired, rather than “how” to get there. This is a tendency that is substantiated by looking at the factors that this study adds to the discussion on how innovation is understood, e.g. technology in use, social change, or degree of novelty.

A closer look into process characteristics such as time horizon, risk level and predictability may help companies to refine their innovation strategies and avoid talking about disruptive innovation but instead end up working towards incremental innovations.

In fact, the case implied that there are companies that have innovation departments dedicated to developing disruptive innovations whilst also aiming for profitable solutions. Keeping in mind Christensen’s (2013) explanation that disruptive innovation happens occasionally and most of the time offers a lower product performance than before, it contradicts with the aim of making profit. A change of mindset inside companies is needed to work towards more radical, and in fact disruptive, innovations. Including and evaluating aspects such as a lower performance level of a product and the customer group those products can attract may lead to the development of innovations that otherwise would have been stopped early on. As Christensen (2013) emphasized, this is closely connected to the risk-taking attitude and tolerance of failure. If companies are not willing to take risks, they need to accept that a disruptive strategy is not the right approach for them.

Conversely, since those who work with innovation emphasized new and different aspects in their considerations about innovation, e.g. degree of novelty, technology in use and social change, researchers may want to use the insights of this study for further attempts to simplify and consolidate the variety of innovation types and definitions.
5.2 Implications on collaboration for innovation
The analysis on collaboration in the case example revealed that it is a challenging task to actually use collaboration for innovation. Regardless of whether the collaboration takes place in a community of practice (Wenger, 2000) or any other kind of inter-organisational network (Sydow, 1992, cited in Bussmann et al., 2014), the main difficulty is to succeed at moving from intangible networking and exchanging on innovation work, towards producing tangible outputs in the form of cross-industry innovation projects. The case implies that the intangible networking aspects are highly valued by practitioners, whilst the tangible outputs are then desired for working towards, and conforming with, company requirements. In other words, the collaboration must manage various influences coming from management as well as operational level of the participants.

It is difficult for an individual to break with the company requirements, just as it is difficult for a company to let loose their representatives. “Business as usual” is both comfortable and safe. Following predefined targets offer results that may be predictable long-term, but which can be also applied in the short term and result in profit. Christensen (2003) emphasized the influence of a company’s resource allocation process and the tendency to favour promising and profitable ideas in innovation work. The case revealed the same attitude when Sandra said that it is obvious that a normal company wants to make profit and therefore focus on profitable and promising solutions.

The literature review on collaborative approaches revealed that there is a lot of research about “what” characterizes organisational networks and how they can be differentiated (Sydow, 1992, Conway & Steward, 2009, Romero & Molina, 2011, Bussmann et al., 2014) but very little research on “how” it is realized by the actors inside of the network (Wenger, 2000). The latter is a field that is worth investigating from a research perspective, keeping in mind the company-driven strategical usage of collaborations in contrast with the perceived value coming from intangible knowledge exchange, that this study revealed.

The analysis on collaboration for innovation discovered that a collaboration must consolidate influences from various sources, not just, but also, the companies behind it. Even though Figure 7 summarized them based on the case example, it can be generalized and applied to other networks as well. What is happening on the market, in other
industries and in society determine topics, or respectively innovation challenges, that are relevant for all players, in all markets and in all industries. Instead of looking at them individually, a collaboration for innovation allows a versatile perspective. At the same time, this versatile perspective is influenced and steered by company targets and requirements, as well as a diversity in how innovation is understood. In the end it is the network itself that has to orchestrate and manage all these influencing factors to ensure that the joint vision of cross-industry innovation projects does not get lost. Vanhaverbeke and Cloodt’s (2006) emphasize that one company should be in charge for the network management. From a research perspective, contrasting the company management of a collaboration with the management through individual company representatives can deliver interesting implications for both the collaboration, and the companies likewise. Furthermore, it can extend Vanhaverbeke and Cloodt’s management studies of innovation collaborations. The aspect of using a joint innovation strategy for the collaboration, that can be visualized in an innovation matrix, but which might contradict with the corporate innovation strategies from collaborative partners offers another interesting research aspect in that regard. A discussion around whether this would support the collaborative work for innovation or rather lead to misunderstandings and innovation “past each other” can add valuable insights to this research.

When establishing networks and working towards tangible cross-industry collaborations, openness, and trust among everyone involved is a prerequisite. What my analysis has shown is that this openness has limitations when it comes to the involvement of new members and when motivational factors of each party are revealed. In other words, openness of collaborations is limited by the fear of competition with new as well as existing partners. This adds another perspective to Chesbrough’s concept of open innovation (2003). His approach follows the mindset of “the more, the better”, when it comes to new members. Gomes-Casseres (1996, 2003, in: Vanhaverbeke & Cloodt, 2006) researched the impact of rivalry and substantiated the fear of competition coming from new partners. My study implies that there is still an underlying fear of competition even when companies are already part of the same collaboration. Further research on how this might impair the innovation work inside collaborations can extend Gomes-Casseres’ study and provides a nuanced look at Chesbrough’s open innovation concept.
Keeping in mind the strong impact that company governance has on the degree of openness and exchange in networks, as Wulf and Butel (2017) emphasized, company managers should make themselves aware of their influence on collaborative work and how it can weaken the innovative work.

The dilemma of collaboration for innovation is based on favouring “what” over “how”, in theory and practice likewise. This study hopefully gives inspiration for further research on how industry collaborations emerge and how the dissonance between the strategic and operational level of companies regarding innovation efforts impacts the process of getting collaborations up and running. Identifying and investigating other interorganizational networks that foster innovative work could deliver interesting insights to substantiate and further develop the results of my research.

Also, the case example of this research is young in its character and reflects upon the initial actions that have been taken and the vision for the future. Investigating the same research subject in a few years from now could give interesting insights in how far they have come in their attempt to realize cross-industry projects. In particular, the following cases could be explored: when they have successfully managed to overcome the current obstacles and still continue with the CIC, but also when they have failed and the collaboration has been stopped. For this, an extension of my research approach could be useful. Including field observations inside the CIC and inside the companies in further research could add meaning to the solely interview based results of my study.

Finally, it is important to bear in mind that the research subject of this study consists of Western European innovation practitioners, more specifically, representatives based in Germany and Switzerland. Hence, the results of this study and the conclusions and implications that have been derived from it are driven by the perception of participants from these countries. The same kind of research with representatives from other countries and cultural backgrounds, in the same or a different setting, would most likely result in different outcomes.
6 Conclusion
This chapter draws conclusions based on the analysis of the findings. Managerial implications as well as limitations of the study and recommendations for future research complement the chapter.

6.1 Key findings
The aim of this study was to conduct an exploratory case study on the Cross Industry Club to contribute to the complex discussion about collaborations for innovation, which requires an understanding of innovation in the first place. The study revealed interesting findings about the diverse understanding of innovation inside a collaboration that aims to create innovation together. It also revealed the steps that the CIC took to actually reach cross-industry collaborations for innovation. Both will be summarized hereafter.

How is innovation understood in the CIC?

The key findings of this paper present aspects that influence the understanding of innovation in a collaboration such as the CIC. First of all, the degree of novelty is important, regarding the input and output of an innovation process alike. That means some consider innovations to be based on new ideas that lead to a new solution, whilst others state that it starts with something existing, which is given a new or different meaning. However, the characteristics of the process itself play a subordinate role.

In general, the usage of innovation terminology is rather arbitrary and the underlying understanding of what it means does not differ significantly among the collaborative partners. However, it became noticeable that the corporate innovation strategy, if based on an innovation framework, influences the degree to which the individual person aligns with the company’s view on innovation. As a consequence, the company strategy also affects the work of the collaboration. For instance, tension seems to be likely if the innovation strategy of the collaboration, if established and used, contradicts with corporate innovation strategies and understandings of innovation. Simultaneously, the identification and alignment of innovation managers with their corporate innovation framework that is noticeable in the case example, can benefit the work of the collaboration if applied there as well. It can support a common understanding of what innovation in this shared setting means.
Furthermore, when innovation terminology comes into play it is noticeable that the differentiation between incremental and disruptive innovation is widely used. While all companies focus on technological progress in their incremental innovation efforts, they are more diverse when it comes to disruptive innovations. In fact, business model changes are important aspects when defining disruptive innovations. Despite being technology-driven companies, the importance of technology in use and the changes it causes in society are not getting enough attention.

Finally, while in theory the performance level of a product plays a vital role in differentiating innovation types, this aspect was not listed by the interviewees from the CIC. Their focus is instead on the consumer adoption and whether a product is scalable or not. By that, they do not differentiate innovation types but instead define whether it is an innovation or not.

How does the CIC work together in order to realise cross-industry collaborations for innovation?

The work of the CIC can be compared to the work of what the literature calls CoP. So far, the main purpose is to exchange knowledge but with the aim of identifying and realising cross-industry collaborations among the members. The foundation of the CIC is the shared passion for innovation topics and the acknowledgement of the expertise of the fellow participants.

At first glance, all participants act together in the same way to bring forward the work of the CIC. This is mainly via sharing knowledge equally. Looking into details it can be seen that some members are instead in a listening mode, without the chance to drive potential projects. The strategical direction of the companies influences the degree to which the participants can make a contribution to the CIC. Even if they personally believe in the purpose of the collaboration and are engaged in organizing and leading it, they cannot necessarily contribute actively in driving potential cross-industry collaborations.

Trust and openness are the core values of the CIC. Both values are ensured to a high extent if one requirement is fulfilled: no competition among the members. However, the case example revealed that even then it cannot fully be ensured, as every company will
have their own targets that influence the collaborative work, and which are not fully disclosed.

Another finding is that an open innovation mindset from the participants of the CIC is not enough to make the collaboration work. Despite its independent character as a CoP, support, and commitment from the management of each participating company is needed to solve obstacles of various kinds. It obviously relates to whether members can make an active or passive contribution to the CIC, but more importantly it relates to whether they can actually find time to meet and communicate with each other efficiently. The real challenge for the CIC is finding ways of getting commitment from all parties. It is also the question of “if” and “how” the CIC should grow in the future, which is a decision that is closely linked to the value of openness.

_The Dilemma of Collaboration for Innovation – Innovation with each other or past each other?_

The analysis revealed that the CIC has the potential to tackle current and future challenges of innovation based on the diversity of the network. While starting off on the same path with a shared vision, the members need to take stock of what it is that they can and want to achieve together. For this, a common understanding of what innovation means to each member is important as it ultimately determines whether everyone is on the same path or not. Hence, this research on collaboration for innovation was based on the knowledge about how innovation is understood in the CIC, which helped to draw conclusions on the actual work of the CIC accordingly.

In conclusion, this study can be seen as the starting point as it outlines challenges that might lead to a divergence of the group along the way. Especially before they have tangible cross-industry collaborations up and running (innovation with each other), the risk seems high to continue with innovation inside their companies (innovation past each other).
6.2 Managerial implications
This study indicates that companies need to make themselves aware of the dissonance between their view on the strategic innovation direction and the individual view of the people working towards it.

The phenomenon of talking about one thing but following another, demand a change of mindset inside companies. That being said, companies should start considering aspects that are more process-driven and which put a stronger emphasis on the time horizon, risk level and predictability of innovation. This goes hand in hand with including and evaluating the performance level of a product and the new/different customer groups it can attract. All of these play a subordinate role in innovation practice, but can in fact help us to avoid talking about one kind of innovation but then developing a strategy that works towards another kind of innovation.

This study also indicates that companies must make themselves more aware of the influence they have on collaborative work for innovation. Even without directly governing or steering an innovation community, the targets, and requirements they live internally impact the actions of their representatives externally, whether this is intended by the company or not.

6.3 Limitations and implications for future research
The interviews of this study were predominantly conducted with representatives from German speaking countries. Hence, the findings are strongly biased to the perception of participants from this area. Future studies that select interviewees from other countries and cultural backgrounds may result in different outcomes.

Due to the young character of the research subject, the CIC, a replication of my research in a few years from now would presumably delivers different insights into how collaborations can be used for innovation, especially with a focus on how far they have come in their attempt to realize tangible cross-industry projects. In this regard, an extension of my research approach to include field observations inside the CIC and inside the companies, in addition to interview results would be useful.
I hope this study gives inspiration for further research on how industry collaborations emerge and are governed, and as such provides more insight into “how” they work instead of “what” they want to achieve. At the same time, future research on the dissonance between the perspective of companies and individuals on innovation in general and inside collaborations could substantiate the results of my study. Also, researchers may find inspiration for further simplification and consolidation attempts regarding innovation terminology, based on factors that have been emphasized in practice. Finally, my study implies that competition is not just an issue that affects the emergence and growth of a collaboration, but also the collaborative work itself. Further research on how this affects the work of other interorganizational networks may be worth investigating.
References


Appendices
Appendix A Overview classification of innovation

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<th>Authors</th>
<th>Classification</th>
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<td><strong>Market and Technology Perspective</strong></td>
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<td></td>
<td>Market Innovation</td>
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<tr>
<td></td>
<td>Administrative Innovation</td>
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<tr>
<td>Abernathy &amp; Clark, 1985</td>
<td>Architectural Innovation</td>
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<td>Niche Innovation</td>
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<td></td>
<td>Regular Innovation</td>
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<td></td>
<td>Revolutionary Innovation</td>
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<tr>
<td><strong>Predominantly Technology Perspective</strong></td>
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<tr>
<td>Dewar &amp; Dutton, 1986</td>
<td>Incremental Innovation</td>
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<tr>
<td>Stamm, 2003, cited in Popadiuk &amp; Choo, 2006</td>
<td>Radical Innovation</td>
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<tr>
<td>Panagopoulos, 2011</td>
<td></td>
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<tr>
<td>Christensen &amp; Raynor, 2003</td>
<td>Sustaining Technology (discontinuous, radical, and incremental)</td>
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<tr>
<td>Christensen, 2013</td>
<td>Disruptive Technology</td>
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<tr>
<td>Reinhardt &amp; Gurtner, 2015</td>
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<td>Nagy et al., 2016</td>
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## Appendix B Interview guideline

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<th>Question</th>
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<td><strong>Background</strong></td>
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<tr>
<td>1. Who are you? Where are you from? How did you end up at Company x?</td>
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<td>2. What is your role/ position? How long are you doing this job?</td>
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<td>3. Did you had other roles within Company x?</td>
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<tr>
<td>4. How big is the department you are working in?</td>
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<tr>
<td><strong>Innovation / Company</strong></td>
</tr>
<tr>
<td>4. What does innovation mean to you? / How do you work with the development of products/services?</td>
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<tr>
<td>5. Did the way you work with innovation change over the years? If so, in what way?</td>
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<tr>
<td>6. How much direction is given and how are ideas defined and prioritized against each other?</td>
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<tr>
<td>7. How do you think it will change in the future?</td>
</tr>
<tr>
<td>8. How should the innovation team’s work be integrated into the wider company’s activities/priorities?</td>
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<tr>
<td>9. Would you mind telling me an example of a successful innovation project starting from ideation and ending up as a successful product?</td>
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<tr>
<td>10. What are the biggest challenges your industry face today? How will things look like in 2-3 years from now?</td>
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<tr>
<td><strong>Ecosystem</strong></td>
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<tr>
<td>9. How important are external collaborations for your work? How important are external collaborations to tackle current and future challenges of your industry?</td>
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<tr>
<td>10. How many / what kind of collaborations are you engaged in as part of your current role?</td>
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<tr>
<td>11. Let's go into detail with one example, the Cross Industry Club. How would you describe the main purpose of the CIC?</td>
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<td>12. When did you join the CIC and why?</td>
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<td>13. How would you describe your role within the CIC? What is different / similar to the other members of the CIC?</td>
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<tr>
<td>14. Would you mind telling me what kind of activities, projects, discussions, etc. have been performed so far (examples)? How much direction is given (from each stakeholder) and how are ideas defined and prioritized against each other? How are they related to your daily work at Company x?</td>
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<tr>
<td>15. What is the value that this collaboration adds to your company now and in the future? / What value does this collaboration provide currently and in the future? How would you define value in that regard?</td>
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<td>16. What differentiates CIC from other collaborations? (Examples in contrast to others)</td>
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<tr>
<td>17. What are the biggest challenges for this kind of collaborations? How will the work of the CIC (and/or other collaborations you're part of) change in the future?</td>
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<tr>
<td>18. How is (or should be) the CIC's work integrated into the wider activities/priorities of Company x?</td>
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HH: What is your role as the COO of the Chief Innovation Manager about?
BASTIAN: My name is Bastian, I work for the Chief Innovation Officer at Company C. The Chief Innovation Officer is responsible for steering innovations across all lines of business from Company C, from a holistic perspective. One of the big challenges is how to steer, how to bring in organic innovation and scale it throughout the company.
And in my role as COO I’m responsible for making things work, to implement and steer the processes behind, making sure that our development organization gets all the support they need for making their prototypes and their project and product successful.

HH: How big is the department?
BASTIAN: It depends on how you look at it. The Innovation Centre Network is a big organization with up to 300 people. The overall organization that belongs to the Chief Innovation Officer it’s more than a 1000 people but it’s changing. It’s a quite big area.

HH: Is this worldwide?
BASTIAN: Yeah, it’s a worldwide network, the innovation centre network is across several countries and of course COMPANY C itself is also a global organization.

HH: Now I would be interested in what innovation means to you personally?
BASTIAN: For me, [...] “innovation is invention plus adoption”. It is not just about to invent something; the hard part is actually the scaling part. And if you can show that an invention really gets adoption and it is used by many many people and it scales, then you can call it innovation.

 […] Especially for a big company the scaling part is the critical one. If you think of Company C and you have a product that you just sell to 1 customer, it doesn’t work. The product becomes interesting when you can scale it and have 1000 or 10000 customers. It’s like standard software.

What is also very important, when we setup the innovation centre we defined the term innovation from a time horizon and a change momentum. You know maybe the term “disruptive innovation” and also like “incremental innovation”. And it is really important that you define which type of innovation you need. For example, for the innovation centre network we talk about disruptive innovation. Not the incremental or sustaining innovation types that you have in constant product cycles where you release new updates on product functionalities and so on.

HH: Did the way you work with innovation change over the years? And if so, in what way did it change?
BASTIAN: Oh yeah, absolutely. First thing was to have this kind of definitions and separations of different types of innovation, so that you know what you are talking about, and especially if you ask me, what changed is: when I started in the innovation centre network [...], I thought the hardest part would be the ideation phase. Where you need to have really good ideas and it is hard to get these really good ideas. But actually, if I look at it now a few years later it is not the number of ideas, you can have a lot of good ideas and a lot of prototypes (so in the validation phase and so on) but take the good ideas and make them scale. So, the scaling part. And that is maybe the most important change that for me it is really about the scaling issue and not the invention/idea issues.

HH: How is the selection process going? Are you following certain criteria that each idea has to fulfil?
BASTIAN: Yes. Like in many companies we have a stage process with different phases. For each phase you then have the best criteria. For example, the ideation phase is rather short, and you try out if, if you take technology for example, if it is feasible, you can really use it and you can build something with it.

If you have this, you have like the first kind of prototype and you turn to the next stage, which would be validation stage. In the validation phase you actually need some customers and try out that if you build such a product, would it be of any value for the customer? And if you can show and you validate that it has, also I think from business rational, then the next stage is the incubation stage. In the incubation stage you would build a product out of it.

HH: You just mentioned that the innovation centre network is focusing on disruptive innovation. Is that new?
BASTIAN: It was always the focus. Because the other types of innovation they are done via the regular business units and development teams. They are constantly innovating their products of course, with new releases and new updates on functionalities. What is automatically hard within the business units is to think of really new stuff, especially like disruptive innovation, which might even make their current product obsolete.

HH: I would be interested how important external collaborations are for you in the innovation centre? Also, in what kind of collaborations are you engaged?
BASTIAN: There are different kinds of collaborations of course. One is the CIC for example, which is about knowledge sharing, best practices, inspiration and also finding out what’s happening elsewhere in other companies in other industries. That’s very good as it helps you on the ideation, inspiration phase. And it might also even help to make some joint projects for validating some technologies for prototypes.

Then other kind of collaborations… We collaborate of course a lot with universities, especially in the very early stages for research purposes to find out what are new technologies that might be relevant for us. Then the collaboration with customers for sure for the validation, also with start-ups and accelerators maybe.

HH: Is that integrated in the daily business?
BASTIAN: It depends on the phase you are in. So in the ideation phase, maybe, maybe not. But for sure within the validation phase you have to talk to customers, to external people. So, I would say somehow yes.

HH: You already mentioned the CIC. Maybe you can elaborate a bit more to me, first of all, when did you join the club and why? What is the value that you see in this collaboration?
BASTIAN: When did we join, maybe one year ago, maybe more. And why… that is interesting. We actually had an initiative that was not just driven by the innovation centre network but also by our overall company in the Berlin Area. We said we want to engage more with the ecosystem. And the ecosystem of course can be universities, politics, consortia, or any other organs. Or also something like an innovation round table like the CIC, with different innovation entities of different companies. Then we said, ok, that makes much sense to actually see and learn, to share what we are doing and to validate on a good track.

The good thing on the CIC is, that there are different companies from different industries and there is no competition. Also, the industries are blurring a bit, but in general, if you e.g. talk to Airbus, we are not a competitor, as we do not build airplanes. But we provide software for Airbus as our customer, which is a very nice model.

HH: So, you said it was also driven by the overall company entity in the Berlin area, so is the work of the CIC and your participation there integrated in the wider priorities and the strategy of Company C?
BASTIAN: Yes, it is I would say. […] So, you have the innovation centre just outside of Berlin, which is part of the global organization of the innovation centre network. But you also have the main company present in the Berlin. So [both] are part of the ecosystem of Berlin. That’s why it’s also strategic for us to be in Berlin and also to be present in Berlin. Also, what I think is important for all the companies that are in the CIC, I think they are also perceived as innovators. It’s really important to talk about future business. If you think of companies and you think they are not innovative, and not relevant in like 10 years from now, you probably don’t want to talk about future business with them.

HH: How would you describe your particular role within the CIC? Is it different or similar to the other members?
BASTIAN: When we joined, it was similar I would say. So, I was representing the innovation centre, or respectively the innovation centre network. Now with my new role, [since] my successor is also in the CIC, the new HO the innovation centre network […] my role has changed.

HH: When you are in CIC meetings, when you participate, what are you doing?
BASTIAN: Last time we explained how the innovation centre network functions, from a process and organizations perspective. And we explained what the topics are that we are working on, focusing on, like machine learning, blockchain, what are our use cases, our prototypes, our projects.

HH: When it comes to concrete projects, are you already engaged with others from the CIC to ideate projects together?
BASTIAN: After the last one we had some follow-up discussions on projects that we are working on. To find out if there are any more collaboration activities possible for prototyping and so on.

HH: With single members or with all the companies?
BASTIAN: With single members…there is not a project where you have all involved.

HH: Would you mind telling me more about that?
BASTIAN: I think I can’t tell you, not because I don’t want to but because I don’t know actually. […] the new HO innovation centre drives this topic, so he would know. I’m sorry for that.

HH: I would also be interested in your personal view on what you think are the biggest challenges for this type of collaboration? What are the challenges for the CIC to continue or to grow?
BASTIAN: The biggest challenge that I see, which is also very common I guess, you need to make sure that you have this kind of follow-ups. Joint projects together so that you can show some tangible outcomes. If you don’t have that, the danger is very high that it’s a nice round table where you sit and talk and have some drinks together. But then there’s not that big value anymore. Then you know each other, and you shared how your unit is setup and how you work, but you need that constant knowledge exchange or even like working together.

I hope we can get joint projects out of this.

HH: What would you say is necessary that you get tangible outcomes? E.g. how often everyone should meet or the way you all communicate with each other? How do you assess the current situation?
BASTIAN: I don’t know if there is something that needs to change. It’s ok to meet once a year, as it is today. More important is to find an actual use case that is relevant for both companies and then also have a mandate inside the company to drive the project forward. So, it is very important that the members of the CIC have some strong mandate within their company to drive innovation projects. That’s actually quite hard when you talk about investment budget and resources.

HH: Do you have this mandate within your company?
BASTIAN: Yes. And that is also the beauty of the innovation centre network because it is not integrated within the standard development unit, you are not in the backlog of the current product portfolio. So, you have some time and air to breathe to work on new topics and try things out.

HH: When was the innovation centre network established?
BASTIAN: There are two dates. The first team that was called innovation centre was in 2012 but the real innovation centre story started end of 2013 with a new building […] dedicated to the innovation team.

HH: Does that apply to the local centre? Or to the global history of the network?
BASTIAN: Afterwards other teams and other innovation centres joined, and it became the innovation centre network. Maybe at the end of 2014 or 2015.

HH: Were there particular challenges that Company C faced that resulted in focusing on disruptive innovations within the innovation centres?
BASTIAN: One challenge was the term innovation, […] a clear definition of what it means. That was a big challenge, because it’s important to define what is the innovation centre for, what kind of topics do we choose, how do we work together […] with the rest of the company. Then you need a dedicated budget and a strong mandate from the board and you need to make sure that you have the protected environment. If customer escalation comes in that all you researchers and developers come in to fix that customer escalation so that they can continue with their innovation topics and efforts.

HH: Last but not least, would you mind telling me one example of a successful innovation project that ran through the innovation centre and maybe also a failed one.
BASTIAN: One successful one was a small research project related to healthcare. It started with 1 or 2 developers, reached a prototype, was built on a technology platform, became bigger and bigger and became a product that is on our pricelist now and used by several customers. Another example on a broader scale is Machine Learning. It also started as research activities and is now a very important technology project for Company C and is even embedded in the company strategy. It’s an intelligent enterprise story. It’s a huge success because it shows that you can start really small and then scale it into the company and through all of our products.

There are a couple of projects that failed as well. There it was obvious that they won’t scale, won’t work. But I don’t know if they have ever been published to the outside world. It is important to stop these things before they are already products that you can buy. Especially for Company C because of course you have maintenance topics, strong […] contracts, etc. There are a lot of projects [where] you try out things and then you stop them.

HH: But did it happen that a product was developed and then the reality was that it didn’t worked as planned? Didn’t brought the desired success?
BASTIAN: As a real product on the pricelist I don’t think so.

HH: Thank you very much! Do you have any final comments or questions?
BASTIAN: No, thank you.
Appendix D Consent form

Topic of the Thesis: Innovation Ecosystems – Creating value together

Name of the Master Student: Henrike Hedel

Background to the Research: There is a need for established companies to stay adaptive to changes in the industry, while at the same time not giving up on what they have been good at in the past. So far, only 2% of 2,500 public companies managed this challenge, according to BCG (2018). However, research that looks into conflicting innovation efforts and how they are treated within innovation ecosystems is still limited (Zeng et al. (2017). By using one ecosystem as a case example, this study aims at investigating the purpose of the ecosystem as it is perceived by each participant. It will draw conclusions on how such collaboration contributes to the individual innovation strategies of the participants.

1. I confirm that I have read and understood the information about the above study. I have had the opportunity to consider the information and ask questions.
2. I understand that my participation is voluntary.
3. I understand that the information I provide will be confidential, I will be anonymous or a pseudonym will be used to protect my identity (please choose one)
   a) I agree to make my title public without revealing my personal details such as name
   b) I prefer complete anonymity
4. I understand that my words may be quoted in publications, reports, web pages, and other research outputs, but my name will not be used.
5. The interview will be documented in notes or recordings. It has been explained to me when and how the recording or scripting of the information I provide will be stored and destroyed.
6. I agree to take part in the above study.

Name of Participant Date Signature

Name of Master Student Date Signature
Appendix E Notes and transcripts