Open Innovation in Family Firms

How does the Family Involvement influence the Implementation of Open Innovation?
Master Thesis in Business Administration

Title: Open Innovation in Family Firms: How does the Family Involvement influence the Implementation of Open Innovation?
Authors: Kristin Klinge (921029-T440) and Eike Bünker (920210-T375)
Tutor: Mr Tommaso Minola
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Abstract

Background: Today’s business environment is characterized by high competitiveness and fast-changing markets. Moreover, useful knowledge and expertise cannot only be found within a company but also outside the organizational boundaries. Therefore, a shift from closed and internal R&D processes to open and collaborative innovations with external sources can be noted in order to stay competitive.

Purpose: The concept of open innovation is well researched by various scholars in the context of large organizations and SMEs. However, the link to family firms is often missing and under researched. Resulting of the importance of the “how” component in family firm research, it is interesting to see how family firms actually implement the concept of open innovation and how it is influenced by unique family firm characteristics. Therefore, this study sheds light on how the family involvement affects the implementation of open innovation.

Method: We want to contribute to the theory with an exploratory research design and a multiple case-study method of eight selected family firms. Through semi-structured interviews with four family managers and four non-family managers, we gained insights from the organizational level concerning their open innovation strategy and implementation process. We used a cross-case analysis to compare the cases and indicate similarities and differences in order to draw our conclusions.

Conclusion: In general, the owning family is significantly important and influential for the open innovation strategy. First, family firms with family CEOs used open innovation as a response to internal drivers, however with non-family CEOs in charge internal and external forces are the drivers for an open innovation strategy. Second, families that are engaged in daily operations, execute an informal implementation process with loose communication practices, whereas family firms with an external CEO apply a formal implementation process. Additionally to this, we point out two managerial implications: open innovation needs to be embedded in the organizational culture and managers need to lead by example when implementing the concept.
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     Kristin Klinge                  Eike Bünker
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1 Introduction

The first chapter provides an introduction to the respective research subject of open innovation in family firms. It starts with a description of the background of the concept of open innovation and continues with the research problem that leads to the research purpose of this thesis. The chapter closes with the findings of the previously executed pilot interview that supports and highlights the importance as well as relevance of this topic.

“No matter who you are, most of the smartest people work for someone else.”
(Henry William Chesbrough, 2003)

Globalization increases competition in numerous marketplaces around the world. Organizations need to stay innovative in order to push back emerging threats from direct, indirect and even unrelated competitors. Henry William Chesbrough (2003) identified the significant rise and increased mobility of the workforce with their embedded knowledge for new ideas and innovation as one of the main drivers towards the new way of thinking regarding innovation. Smart and well qualified people also work for other companies no matter how popular a company is. This leads to companies that are compelled to open up their internal research and development (R&D) processes and acquire knowledge outside their organizational boundaries in order to stay innovative and consequently competitive. The traditional process of in-house R&D investments to embrace innovation loses meaning.

The first scholar who identified and explained this paradigm shift from closed to open innovation was Henry William Chesbrough (2003). He further described the changed principles according to the way organizations create new ideas, the valuation of the quality of innovation and the usage of internal and external knowledge to produce innovation. Opening up the internal R&D process for open innovation, and therefore, external sources entail the intentions to commercialize in-house ideas, but also acquire outside ideas.

The basis to create new ideas and innovation is the embedded knowledge. Open innovation is mainly focused on this knowledge and the adequate use of it. Therefore, “the knowledge exploration, retention, and exploitation inside and outside an organization’s boundaries” (p. 77) identifies the core of open innovation according to Lichtenthaler (2011). In other words, not just the acquisition, but also the maintenance and the usage of knowledge is vital for an open innovation strategy. External sources can be other companies, suppliers, customers, institutions, universities but also competitors. So far, most scholars investigated open innovation in the context of large organizations and small and medium-sized enterprises (SME). However, a clear academic foundation concerning open innovation in the context of family firms and how they deal with this concept and phenomenon is missing.

1.1 Research Problem

The paradigm shift from closed to open innovation influences and changes all types of businesses and industries across geographical boundaries. This affects large organizations and SMEs, but even though SMEs are seen as the engine of the economy (Martínez-Conesa, Soto-
Acosta & Carayannis, 2017), the high share of family firms and their unique characteristics in this construct is not sufficiently represented in the literature.

Various statistics highlight the relationship of SMEs and family firms. First, the European Commission (2016) states that 99.8% of all enterprises are accounted SMEs and they contain 66.8% of the employment in Europe. Second, research has shown that family involvement in SMEs is prevailing (Schulze & Gedajlovic, 2010; Family Firm Institute, 2016). Third, family firms are important for the economy in Europe since 70% to 80% of companies are family firms and they account for 40% to 50% of the employment (Mandl, 2008; European Commission, 2009). Hence, most SMEs are family firms and the majority of family firms are SMEs. However, having this in mind, there are limited cases that investigate open innovation in family firms and take the unique family firm characteristics into account, like the Loccioni case from Casprini, De Massis, De Minin, Frattini and Piccaluga (2017) does. Therefore, we investigate open innovation in family firms because of their economic significance.

Family firms are an important research field not only because of their economic meaning, but also because of their unique characteristics and composition. The literature provides sufficient information on what and how family characteristics influence the innovation process in family firms, but neglects their impact on open innovation. Moreover, we set our focus on how family firms approach open innovation initiatives and especially how the family involvement affects the implementation process of open innovation. This approach is supported by Chrisman, Chua, De Massis, Minola and Vismara (2016) who emphasise the importance of the “how” component (e.g. how family firms execute their strategy and how they affect the processes) in family firm research.

1.2 Research Purpose

Open innovation is not just a “management fashion” anymore, but a “sustainable trend” for companies of any size (Lichtenthaler, 2011, p. 75). Open innovation affects entire organizations and is seen as a holistic approach that impacts the organizational, project and individual level (Lichtenthaler, 2011). We want to keep the strategic view in this research and see time limitations as a barrier to investigate on all levels. Accordingly, we mainly focus on the organizational level, but do not neglect the other two levels (project and individual) since they are affected by strategic decisions.

Open innovation changes the traditional in-house R&D processes significantly and must be carefully implemented in order to avoid resistance and failure resulting from various challenges (Mortara & Minshall, 2011). To the best of our knowledge there is only one study that investigates the implementation of open innovation in large multinational companies from Mortara and Minshall (2011) and the Locconi case that addresses the implementation to some extent. Thus, we would like to contribute to this field of study and shed light on how open innovation is implemented in family firms. The implementation of open innovation cannot be seen as a goal itself, rather as a continuous and strategic process for companies (Lopes, Scavarda, Hofmeister, Thomé & Vaccaro, 2017). Here, the implementation process starts already with the motivation and drivers for an open innovation initiative and continues with the actual installation of the strategy.
Family firms are seen as heterogeneous organizations (Chrisman et al., 2016). Due to their different compositions regarding the three circles consisting of family, business and ownership (Tagiuri & Davis, 1996), the influence of unique family characteristics varies in each particular case. One major impact factor for the business operations of family firms is the family involvement that often directly derives the strategic direction of the firm (Sciascia, Mazzola & Chirico, 2012; Oswald, Muse & Rutherford, 2009; Zona, 2016). Nevertheless, the influence can also be on the daily operations. Accordingly, we explore how family involvement determines the implementation process of open innovation in family firms. This leads to our research question:

**Open Innovation in Family Firms:**

*How does the Family Involvement influence the Implementation of Open Innovation?*

Our research objective is to gain an in-depth understanding of the phenomenon to contribute to the theory and consequently draw theoretical and practical implications. The purpose of this study is exploratory, since we focus on the “how” component in family firm research and take the unique family backgrounds into consideration.

### 1.3 Pilot Interview

As a starting point to get a deeper understanding of the phenomenon open innovation we conducted a pilot interview. The aim of this first interview was to find out how much attention companies contribute to the concept of open innovation, how they deal with open innovation and to which extent the concept of open innovation is of high interest for family firms. We conducted the interview with a senior manager from the largest bank in Germany, who is responsible for corporate clients and the coordinator of start-ups. Since, we wanted to acquire as much information as possible we have chosen a semi-structured design. We gained extensive information and insights from our interviewee since he combines the perspectives of both companies that seek for external knowledge and collaboration for their own innovations and start-ups that can be seen as one aspect of external knowledge source and collaboration partner within the concept of open innovation.

First of all, the interviewee pointed out that nowadays companies put higher emphasis on open innovation concepts in order to deal with the overall competition due to the digitalization and fast changing environments. Moreover, he described that in contrast to large enterprises, that have their own innovation department and incubator programs, many SMEs contact the bank since they do not have either the manpower, financial resources or expertise in the market to find suitable partners. By acknowledging their interest in open innovation and incubator projects they expect and hope to benefit from the bank’s network and contacts in various business fields. In order to bring different business types and sizes together they organize events with SMEs and start-ups in the region to give them the chance to get to know each other in an informal context and initiate possible relationships. Since, open innovation is a strategic issue mostly Chief Executive Officers (CEOs), Chief Financial Officers (CFOs) or dedicated employees attended these events. He further outlines that in case of family firms, the family owners and other family members are very interested in these events and participate.

Moreover, he explained that there are three ways to connect the companies with potential partners. First, due to the bank managers’ extensive knowledge of the market and development
they are able to generate new business relationships and connections. Second, events as described above are a platform that enables businesses to gain a general overview and market insights as well as provides opportunities for a primary and informal information exchange. Third, in the future there will be digital platforms that further increase the networking aspect and consider matching potential of the businesses.

One question was “What are the challenges for open innovation in family firms?” Our interviewee named the cultural clash as the main challenge and deal breaker. He described that for instance, start-ups have lower hierarchies, faster working and decision-making processes, whereas SMEs have a more intense hierarchy structure and processes as well as decision-making takes more time. Moreover, he stated that it is crucial for the success of such collaborations that the open innovation concept is anchored in the company’s culture and business model. It is essential that the management sets a good example and fosters openness in the culture as well as daily work life. Besides that, he mentioned that the age structure of the company has an impact on the open mindedness towards open innovation.

This pilot interview has shown that first of all, open innovation is of high interest for SMEs and family firms, second, that they undertake efforts in regards to open innovation initiatives e.g. how to get in contact with potential collaboration partners and third, a proper implementation of open innovation is needed in order to meet the challenges and take full advantage of it.
2 Theoretical Background

In this part we provide the theoretical background for our master thesis. A funnel approach is applied to identify gaps in the academic literature that lead to the actual subject and research question already identified in the introduction. Thus, the general concept of open innovation, family firms with their unique characteristics and the implementation of an open innovation strategy are discussed in the following.

2.1 Open Innovation

The concept of open innovation received more attention by scholars like Ulrich Lichtenthaler, Jasper Brinkerink or Oliver Gassmann in the last decade. The former Harvard professor Henry William Chesbrough introduced the concept of open innovation for the first time in his eponymous published book (2003). The paradigm shift, the change from closed to open innovation, is characterized by the way companies create ideas, and therefore, stay innovative (Chesbrough, 2003). More and more companies are opening up their internal R&D process towards external sources. This is a result of a fast-changing business environment that is characterized by higher competitiveness from direct and indirect competitors. Additionally, market unrelated competitors increasingly enter the market and disrupt entire business models and industries.

2.1.1 Definition - Open Innovation

It is Ulrich Lichtenthaler (2011) that provides the explanation of open innovation and defines the strategy as a “systematically performing knowledge exploration, retention, and exploitation inside and outside an organization’s boundaries throughout the innovation process” (p. 77). This definition is applicable in this paper for three reasons. First, he employs the viewpoints of various scholars (Chesbrough, 2003, Grant & Baden-Fuller, 2004; March, 1991; Santos & Eisenhardt, 2005) with a focus on the knowledge transfer. Second, the aspect of knowledge exploration, retention and exploitation is relevant in context of open innovation in family firms (Lazzarotti & Pellegrini, 2015). This supports the aspect that open innovation is a holistic approach and affects the entire organization (Lambrechts, Voordeckers, Roijakkers & Vanhaverbeke, 2017; Lopes et al., 2017). Third and probably most important, is the actual process he emphasizes. This is coherent with the focus on the implementation of open innovation in this paper as well as the continuity character of discovery in open innovation in general (Lambrechts et al., 2017). Particularly, the knowledge aspect in regard to the implementation plays a central role (Wikhamn & Styhre, 2017). Here, it is linked to aspects like building absorptive capacity (Randhawa, Wilden & Hohberger, 2016), dynamic capabilities (Duran, Kammerlander, Van Essen & Zellweger, 2016) or the organizational culture (Martínez-Conesa, Soto-Acosta & Carayannis, 2017).

To fully apply the concept of open innovation, it is helpful to define the roots of the transition from closed to open innovation in order to understand the drivers and opportunities but also challenges.
2.1.2 From Closed to Open Innovation

The shift from closed to open innovation has been characterized by Henry William Chesbrough (2003) as a result of three main reasons: (1) The significant rise and increased mobility of the workforce due to globalization, and therefore, the knowledge and ideas based in them, (2) the easier access to capital through venture capital funds, and therefore, the opportunity for employees to pursue their own ideas and commercialize them individually, (3) new technologies regarding communication and collaboration of people to share ideas and knowledge.

In general, the required capabilities for open innovation are similar to a traditional approach, but with a higher maturity level and more distinct (Chatenier, Verstegen, Biemans, Mulder & Omta, 2010). There are several ways to distinguish these capabilities. For instance, Rosemann and vom Brocke (2015) differentiate six factors: strategic alignment, governance, methods, IT, people and culture. The principles that derive from closed innovation are distinguished by the self-reliance on innovation and a clear idea what market to pursue. In contrast, open innovation is determined by the exploration of new pathways through collaborations and reliance on others, which could lead to new markets (Chesbrough, 2003; Chesbrough, West & Vanhaverbeke, 2006). Compared with closed innovation, Chesbrough (2003, p. 38) identified six principles that induce open innovation:

1. **Smart people** do not necessarily work for the company, however their expertise and know-how can be beneficial and vital for the company.
2. **The value from R&D** can emerge from outside, not just inside the company.
3. **The discovery of new ideas** can emerge from the outside too and companies can profit from it.
4. **The duration to launch innovations** to market is not as important as the quality anymore.
5. **Creating the most and best ideas** does not solely signify the winner anymore. The usage of internal and external knowledge is the key.
6. **Intellectual property** from others can be beneficial too and should be acquired by the company.

Overall, an effect of this paradigm shift is the demand for change on how companies create new ideas to meet the higher innovativeness required by the market. Prior to this transition, large organizations tended to invest a high share for R&D purposes, but recently they start to walk away from this traditional approach (von Briel & Recker, 2017). According to various scholars, the tendency is clearly to open up the internal R&D processes to the outside in order to design innovations (Brinkerink, Van Gils, Bammens & Carree, 2016; Feranita, Kotlar & De Massis, 2017; Lichtenthaler, 2011). The intention today remains twofold: a commercialization of in-house ideas as well as acquiring outside ideas through collaborations with external sources to produce innovation, and thus, generate profit (Chesbrough, 2003).

As a result of this paradigm shift, the knowledge transfer through the inflow and outflow of know-how of two parties, leads to the creation of new ideas, and thus, innovation internally and externally of companies (Chesbrough et al., 2006). The creation of these new and valuable outputs is often a combination of existing and new knowledge (Felin & Zenger, 2014). Numerous knowledge sources like customers (West & Lakhan, 2008), universities and academics (West & Gallagher, 2006) or even competitors (Faems, De Visser, Andries & Van Looy, 2010) have continuously been added and companies constantly find new ways of generating valuable information through external sources.
Regarding the affected industry, Laursen & Salter (2006) identified that manufacturing firms increasingly rely on external knowledge to stay innovative and record more success. In particular, the technology sector takes advantage of open innovation to advance their technology innovations (Lichtenthaler, 2008). Considering the service industry, firms do not tend to be less innovative than their manufacturing counterparts, but they approach open innovation differently since they heavily rely on information and communication technologies (Mina, Bascavusoglu-Moreau & Hughes, 2014).

The opening of the internal R&D process to external sources is marked by the knowledge transfer to stay innovative as a company (Lichtenthaler, 2011). Further, companies want to respond to the six principles above that induce open innovation (Chesbrough, 2003). As a result, three types of knowledge transfer and information sharing emerged.

2.1.3 Dimensions
The knowledge exchange with external partners is the core of open innovation and can be derived from three directions of knowledge flow. The most common dimension, **inbound open innovation** entails knowledge flow from the outside of the organization (outside-in) to the inside to create new ideas through the leverage (Enkel, Gassmann & Chesbrough, 2009), absorption (Burcharth, Knudsen & Søndergaard, 2014), acquisition and exploration (Lichtenthaler, 2011) of external knowledge. In that regard, this ranges from basic internet searches (Burcharth, Knudsen & Søndergaard, 2017), intricate project based R&D collaborations (Chesbrough et al., 2006) and even mergers & acquisitions (Burcharth et al., 2017).

In contrast **outbound open innovation** is less practiced and also less researched by scholars. It contains the outflow of knowledge from the inside of the organization (inside-out) towards exploitation (Lichtenthaler, 2011), externalization (Enkel et al., 2009) and commercialization (Burcharth et al., 2014) beyond the organizational boundaries. In practice, this could encompass out-licensing agreements or chargeless innovation (Burcharth et al., 2017). In particular, the licensing of technologies is used by companies (Huan-Yong, Jing, Chong-Feng, Dan-Feng & Yong-Sheng, 2016).

As the third dimension, the **coupled open innovation** approach is a combination of inbound and outbound open innovation through co-creation or collaboration between two parties on an equivalent level (Hosseini, Kees, Manderscheid, Röglinger & Rosemann, 2017).
Lichtenthaler notes that besides the knowledge exploration and exploitation, the retention of knowledge, thus the maintenance of information inside and outside the firm, is another crucial factor (Lichtenthaler & Lichtenthaler, 2009; Lichtenthaler, 2011). It is important to ensure the sustainability of open innovation initiatives and partnerships (Lopes et al., 2017). The decision towards open innovation and the application of one or more types depends on various drivers and motivators that are discussed in the following.

2.1.4 Drivers
As identified before, the main reasons for the paradigm shift have been a result of the increased mobility of the workforce, easier access to capital and new communication technologies (Chesbrough, 2003). However, the effects of this transition and the increased competition affect the management and the overall business strategy. The ability to adapt to environmental changes (Chesbrough, 2003; Van de Vrande, De Jong, Vanhaverbeke & De Rochemont, 2009) with a higher innovativeness (Chesbrough et al., 2006) are still the main motivators.

In general, a specific conclusion to what drives a company to collaborate with external partners cannot be given, since it depends on too many individual company, market and situation aspects. Scholars identified numerous motivators under different circumstances, but the desire to strengthen the innovative performance of the company, and therefore, stay competitive sticks out mostly (Chesbrough, 2017; Lambrecht et al., 2017; Mortara & Minshall, 2011; Pittz & Adler, 2016).

However, with the evolution of open innovation, the motivators are derived differently for large organizations and SMEs. The size of the organization influences the strategic goal that is relevant for open innovation and its expectations (Werner, Schröder & Chlostà, 2018). Predominantly, many scholars focus on large organizations in the high-tech industry only (Chesbrough, 2003; West & Bogers, 2014; Brinkerink et al., 2016). Therefore, the distinction between big firms and SMEs needs to be clarified.
Large organizations - companies that contain at least 500 employees and an annual turnover higher than 50 million Euro according to the Institut für Mittelstandsforschung (IfM) in Bonn (Germany) (IfM Bonn, 2018) - often want to improve their innovation efficiency and performance (Burcharth et al., 2017; Chesbrough, 2017, Laursen & Salter, 2006). Companies can no longer rely on significant investments in their own R&D and rather open up their processes for new innovations (Ozkan, 2015). The sheer size, an inefficient internal system and manifold product portfolio (Ozkan, 2015) can become a problem for large organizations and even lead to downsizing (Wikhamn & Styhre, 2017). In a non-monetary manner, they want to approach problems like the lack of capability, access to information and a lower ability to manage risk associated with innovations (Mortara & Minshall, 2011; Lambrechts et al., 2017). The lack of know-how in a particular area, time constraints or the access to specifically needed and new technologies (Chesbrough, 2017; Howells, Gagliardi & Malik, 2008; Lazzarotti & Pellegrini, 2015) are additional drivers for open innovation. But probably most important to improve the innovation performance is a higher creativity and new ideas to establish the monetary benefit of additional revenue streams (Chesbrough, 2017).

SMEs - opposing to large organizations with less than 500 employees and an annual turnover of lower than 50 million Euro (IfM Bonn, 2018) - are mostly focused on growth (Burcharth et al., 2017; Chesbrough et al., 2006; Van de Vrande, De Jong, Vanhaverbeke & De Rochemont, 2009). Nevertheless, they are also derived by non-monetary benefits (Lichtenthaler, 2011) like a valuable partner to solve business problems and sustain growth as well as shorter market launch time of their innovations (Mina et al., 2014; Wikhamn, Wikhamn, & Styhre, 2016). The desire to establish a stable and long-term relationship with their partner derives the manufacturing industry (Pellegrini, Lazzarotti & Pizzurno, 2012). The collaboration with large organizations in particular is derived by a wider range of scope when launching the new product, increased marketing resources and the access to specific expertise (Alberti, Ferrario, Papa & Pizzurno, 2014). Further, their limited ability to attract and recruit specialized employees as well as their small and little diverse innovation portfolio bear significant risks, they want to overcome (Van de Vrande et al., 2009). In a monetary manner, they want to increase their R&D expenditures (Mina et al., 2014) and financial funding for their innovations (Drechsler & Natter, 2012).

Generally speaking, SMEs contain a much higher open innovation intensity across all dimensions than large organizations (Spithoven, Vanhaverbeke, & Roijakkers, 2013). In contrast, large organizations are involved in a higher number of open innovation initiatives due to their level of formalization and available resources (Battistella, De Toni & Pessot, 2017). Nevertheless, leaving out the monetary aspects, both organizations simply want to learn from other companies in an interorganizational manner to stay competitive (Pittz & Adler, 2016). Resulting from the drivers and the specific situation a company is in, various challenges emerge.

2.1.5 Challenges
In general, collaborations with external partners entail numerous challenges. Due to the holistic approach, open innovation affects the business strategy of companies and challenges the company’s strategic comfort zone (Wikhamn & Styhre, 2017). Furthermore, it can affect the organizational or cultural background (Battistella et al., 2017; Hosseini et al., 2017) due to the external cultural influences (Mortara & Minshall, 2011). These influences affect all levels of the organization (Lichtenthaler, 2011) as well as processes, structures and internal politics (Wikhamn & Styhre, 2017).
Before even implementing open innovation in the company, an adequate partner needs to be found (Hosseini et al., 2017). This is also linked to the expectations of companies’ open innovation initiative (Burcharth et al., 2017) and the knowledge of the concept itself (Ozkan, 2015) to avoid pitfalls. A different partnership management for science and market-based purposes (Du, Leten, & Vanhaverbeke, 2014) are required to avoid mismanagement. On the one hand, a lack of professionalization and an autocratic management style can hamper open innovation (Bruque & Moyano, 2007). On the other hand, open innovation needs flexibility and experimentation to become successful (Burcharth et al., 2017). Also the leadership style should embrace an organizational culture towards a sustainable internal commitment with a consistent management support for the concept (Chesbrough et al., 2006).

On an individual level, this could lead to challenges regarding external knowledge exploration (or acquisition) like the so-called “not-invented-here” (NIH) attitude, that is repeatedly named by scholars in the context of open innovation (Burcharth et al., 2014; Chesbrough et al., 2006; Chesbrough, 2017; Lichtenthaler, 2011; Mortara & Minshall, 2011; Van de Vrande et al., 2009). This cultural aspect leads to an individual attitude that is inherently against new ideas and has significant influence on the internal innovation process (Chesbrough, 2017), internal commitment (Van de Vrande et al., 2009), organizational routines (Lichtenthaler, 2011) and organizational alignment (Chesbrough et al., 2006) for open innovation. Often, this syndrome is linked to a challenge concerning external knowledge transfer (or exploitation) with the so-called “not-sold-here” (NSH) attitude (Burcharth et al., 2014; Casprini, De Massis, Di Minin, Frattini & Piccaluga, 2017; Lichtenthaler, 2011). This protective character is a result of the anxiety to lose control in the company. Employees perceive a higher uncertainty about the outcome and a higher complexity through collaboration (Madiedo, 2014), and therefore, might develop such syndromes. This could spread to all levels of the organization (Lichtenthaler, 2011).

Furthermore, companies face the significant challenge of losing control over their innovation process, but also knowledge and intellectual property (Hosseini et al., 2017; Van de Vrande et al., 2009). In that regard, the establishment of an integrative knowledge management (Martinez-Conesa et al., 2017) and knowledge capabilities (Hosseini et al., 2017) are required. This means the capability to explore, retain and exploit knowledge (Lichtenthaler, 2011) in order to generate value of it. Further, through the collaboration, the willingness to share knowledge is the basis for a sustainable partnership (Pittz & Adler, 2016).

Even though open innovation still remains an emerging research subject, it can be noted, that it is increasingly used and applied in practice. Therefore, it can be agreed with Lichtenthaler (2011) that open innovation is not just a management fashion, but developed to a sustainable concept. In the following, we place emphasis on the concept of open innovation in family firms.

2.2 Open Innovation in Family Firms

As described in the previous section, open innovation is highly interesting for large enterprises, but also SMEs. Since the focus of this paper is on open innovation in family firms, some aspects concerning family firms need to be clarified first. Elements, like the unique family firm characteristics, their innovation approach, the general ability and willingness towards open
innovation initiatives as well as the impact of the family on the management team need to be considered.

2.2.1 Definition - Family Firms
Family firms as the predominant form of companies differ extensively in their structure. The multidimensionality and complexity of family firms cause worldwide scholarly attention and the various definitions of family firms point out the necessity to outline the term for our context (Sharma, Chrisman & Gersick, 2012). Beforehand, the three-circle model by Tagiuri and Davis (1996) is a helpful tool to understand the main distinctions of family firms, which are business, ownership and family. These three dimensions and especially the overlap cause bivalent attributes. They are consequently the unique and inherent features of family firms, and thus, the source of both advantages and disadvantages (Tagiuri & Davis, 1996). Many authors distinguish their definition of family firms due to family involvement, number of generations or management position. In regard to our research purpose, we decided to use a rather broad definition of family firms in order to remain flexible with our sampling. Therefore, we adopt Ibrahim, Angelidis and Parsa’s (2008) definition of family firms with “firms with some family participation in the business and control over its strategic direction” (p. 97).

With the three dimensions of family firms and its overlaps, unique family characteristics evolve. Since, the focus of this paper is on open innovation an overview of family firms’ innovative behaviour is relevant to further understand what makes them so unique in that context.

2.2.2 Development of Innovation in Family Firms
In general, innovation in family firms has been investigated extensively. However, providing information on open innovation in family firms is determined through limited literature in that field. Only some specific aspects like the willingness and ability paradox are used in both literatures (Bigliardi & Galati, 2017; Casprini et al., 2017). Nevertheless, a look on innovation to understand how family firms deal with innovation and which factors impact the outcome of innovation activities is helpful to draw derivations for open innovation. With the focus on innovation, we apply Felin and Zenger’s (2014) definition of “the process by which existing knowledge and inputs are creatively and efficiently recombined to create new and valuable outputs” (p. 915).

As stated before, innovation is highly important and relevant for companies, irrespective of their size, in today’s hypercompetitive environment (Duran et al., 2016; Braga, Correia, Braga & Lemos, 2017). Thus, innovation is a strategic tool for companies and used to acquire, nurture and maintain competitive advantages (Chrisman, Chua, De Massis, Frattini & Wright, 2015). However, staying innovative often depends on a large utilization of resources for the internal R&D department and entails serious risks (Chesbrough, 2006). Innovation refers to the process
of placing products on the market, including new and advanced processes and structural changes irrespective of the area or implementation strategy with the overall purpose of value creation (Braga et al., 2017; Porter, 1990). Even though smaller firms have greater resource constraints and may differ how they pursue innovation strategies, innovation is not less influential and crucial for their competitiveness (Martinez-Conesa et al., 2017). Moreover, innovation in family firms is further used as a survival mechanism (Nieto, Santamaria & Fernandez, 2015) to maintain wealth, protect the firm’s competitiveness as well as a source of growth, since family firms have overall a long-term orientation (Zahra, Hayton & Salvato, 2004).

However, research shows several controversial findings about innovation in family firms. On the one side, family firms are less innovative than non-family firms, since they are more conservative and traditional (Dunn, 1996). In addition, recent studies show that family firms have a lower level of engagement in R&D (Chrisman & Patel, 2012), are less open to external sources regarding their innovation process (Casprini et al., 2017) and produce rather incremental than disruptive innovations (Nieto et al., 2015). On the other side, numerous studies show the opposite. For instance, Craig and Moores (2006) show that family firms have a high interest in innovation strategy and processes. Furthermore, Classen, Carree, Van Gils and Peters (2014) show that family firms have a higher propensity to innovation investments.

In that regard, the composition of the three dimensions - business, family and ownership - as well as the environment the company operates in need to be carefully considered. It can clearly be said that innovation in family firms differs circumstantially. Two aspects, that highly influences the tendency of innovation and especially open innovation are ability and willingness.

2.2.3 Ability and Willingness Paradox

The contradictions regarding innovation demonstrate that family firms are uniquely characterised. Scholars recently introduced the ability and willingness paradox as a concept to shed light on these controversial findings. Ability in this context means the discretion of the family to direct, allocate, add to, or dispose of a firm’s resources (Chrisman et al., 2015), whereas willingness is understood as the disposition of the family owners to engage in idiosyncratic and unique behavior (Chrisman et al., 2015). Thus, ability and willingness are the key drivers and cause in their varying combination differences in the performance of and behavior in family firms. De Massis, Frattini, Pizzurno & Cassia (2015) as well as Steeger and Hoffmann (2016) state that neither the ability nor willingness is sufficient for particular family firm behavior. Both aspects are always necessary and need to be aligned with each in order to have a satisfactory outcome as demonstrated in the figure below.

Figure 3: Ability and Willingness Paradox

![Ability and Willingness Paradox](source: Own presentation)
However, the different degrees of the components ability and willingness show that family firms cannot be considered as homogeneous constructs, but rather as heterogeneous, also due to their different economic and non-economic goals (Chrisman et al., 2016; Lazzarotti & Pellegrini, 2015; De Massis et al., 2015).

This heterogeneity makes it even more complex to investigate open innovation in family firms. Figuratively, these two drivers determine firm’s actions to manage and engage in open innovation projects (Bigliardi & Galati, 2017) and support the research on family firms and open innovation.

2.2.4 Family Firm Characteristics and Open Innovation
There are several non-economic aspects that characterize family firms and distinguish them from non-family firms. Moreover, these characteristics impact the willingness component and in consequence the tendency towards innovation in general and especially open innovation.

One of the main drivers for family firms for a lower willingness to invest in open innovation is the concept of socio-emotional wealth (Chrisman & Patel, 2012; Kraicz & Hack, 2016; Duran et al., 2016; Madiedo, 2014). Bigliardi and Galati (2017) define socio-emotional wealth as a concept that includes following aspects “clan membership, identity, the opportunity to be altruistic to family members, the ability to exercise personal control, and the perpetuation of the family dynasty” (p. 10). Thus, open innovation causes major threats due to potential loss of control, and therefore, impediment of the perceived socio-emotional wealth, which in turn causes less involvement in open innovation due to the attempt to preserve their socio-emotional wealth (Madiedo, 2014; Lazzarotti & Pellegrini, 2015).

Conservatism and risk aversion are other aspects that influence the willingness of family firms (De Massis et al., 2015) to engage in open innovation. In particular, the family involvement has a great impact on the presence of non-family managers that have a higher orientation towards financial goals and are less constricted by socio-emotional wealth (Brinkerink et al., 2016; Duran et al., 2016; Lazzarotti & Pellegrini, 2015; De Massis, Kotlar, Frattini, Chrisman & Nordqvist, 2016).

Diversity of the educational background of the management impacts both ability and willingness (Bigliardi & Galati, 2017). Often the predominant family climate and a missing organizational unit to promote risky innovations hinder open innovation in family firms (Bigliardi & Galati, 2017). Due to their smallness in comparison to large enterprises not all family firms have formalized R&D departments and processes (Lambrechts, Voordeckers, Roijakkers & Vanhaverbeke, 2017). In regard to the adoption of new technologies, the lack of professionalization hampers family firms (Bruque & Moyano, 2007).

Opposingly, the literature shows that family firms also have great benefits in regards to open innovation strategies due to their long-term orientation, high level of social capital (Zahra, 2005) and absorptive capacity (Lichtenthaler, 2009). The strong long-term orientation supports the engagement in collaborations with external partners for an enduring perspective. It further encourages employees to pursue potential innovations (Kellermanns & Eddelstone, 2006). The high level of social capital as the resources entrenched in the relationship between individuals foster long-lasting and trustful relationships. This is particularly beneficial for the knowledge transfer, creation and coordination (Pittz & Adler, 2016). An attribute, that is also positively
influenced by high social capital, is *absorptive capacity*. Again, related to social capital, family firms entail a strong ability to transform and use as well as acquire and assimilate external knowledge (Kraiczy & Hack, 2016), and therefore, apply it to commercial ends (Todorova & Durisin, 2007). Regarding the implementation of open innovation this capacity is important (Lichtenthaler, 2011), but also for benefiting from an integrated knowledge management (Martinez-Conesa et al., 2017).

Hence, all aspects benefit family firms in developing prosperous and steady relationships with external sources (Le Breton-Miller & Miller, 2006) and engage in open innovation activities. The aspect of socio-emotional wealth, perceived loss of control, risk aversion and the educational background have a negative impact on open innovation in family firms. Whereas their long-term orientation, high level of social capital and absorptive capacity can benefit open innovation initiatives.

### 2.2.5 The Impact of Family Involvement in the Management

As mentioned before, family involvement in the management has a high impact on the willingness component of family firms due to their personal attachment. There are extensive studies that investigate the influence and differences of family and non-family managers on several aspects like firm performance, entrepreneurial orientation (Sciascia et al., 2012), financial performance (Oswald et al., 2009) or board decision process (Zona, 2016). All studies have common ground in the significant differences between family and non-family managers.

The literature shows different and contrasting perspectives about the characteristics and abilities of family and non-family managers. For instance, Lazzarotti and Pellegrini (2015) state that family and non-family managers differ in their value set, attachment to socioemotional wealth, the level of professionalisation as well as cognitive resources. Oswald et al. (2009) show that a high presence of family member in the top management team hinders financial performance. This goes along with the findings of Gómez-Mejía, Haynes, Núñez-Nickel, Jacobson and Moyano-Fuentes (2007), who state that non-family CEOs focus more on financial goals than family members. Moreover, the literature shows that family and non-family manager differ in their level of professionalisation and set of skills (Schulze, Lubatkin, Dino, Buchholtz, 2001; Sonfield & Lussier, 2009). For instance, Schulze et al. (2001) state that family manager may not have the right skills and professionalisation level and thus affect the firm performance. According to that, Sciascia et al. (2012) state that having external managers increases first of all the diversity of the top management team, second includes an objective and potentially more rational view in regard to the decision-making process, third benefits the level of professionalisation and, hence “promote change and innovation” (p.79). Furthermore, Sonfield and Lussier (2009) found out that non-family managers utilize more external sources and outside information. In addition, Lazzarotti and Pellegrini (2015) explored the influence of non-family managers in regard to open innovation breadth in family firms. They found out that the majority of open innovator are non-family manager, since they are more aggressive regarding the innovation strategy and have a "*broad set of external knowledge sources*" (Lazzarotti & Pellegrini, 2015, p. 196).

Opposingly, there are studies that highlight the importance and benefits of having family managers in the management team. Family managers have a close connection to and identification with the firm. That leads to full commitment and pursuit for continuity of the firm (Bigliardi & Galati, 2017), particularly, when their family name is also the company name.
(Kashmiri & Mahajan, 2010). Moreover, family managers focus more on building strong and prosperous long-term relationships with stakeholders (Zahra, 2005; Sirmon & Hitt, 2003; Bigliardi & Galati, 2017), which goes along with the long-term orientation and absorptive capacity.

Concluding, it is important that the interests and personality of the non-family manager align with and facilitate the family goals and intentions (Kraiczy, Hack & Kellermanns, 2015). At the same time, it is crucial to create an environment that allows the non-family manager to fully connect to the company as well as flexibility and power from the family owner to manage the company (Chrisman et al., 2016). As described in the previous parts, a lot of research is done respectively to the phenomenon open innovation. However, there is a gap in the literature in terms of open innovation in practice.

2.2.6 The Importance of the “How” Component in Open Innovation

In order to gain a deeper understanding of the phenomenon, the literature suggests concentration on the “how” approach. That means in particular, how open innovation is implemented, which challenges and opportunities arise throughout this process and how it changes and impacts the company. Furthermore, Chrisman et al. (2016) state that research concerning “what” characterized family firms and also “how” family firms differ from non-family firms contributed to the understanding and definition of family firms. However, there is only little research about “how” family firms execute their strategies, which will both further improve the theory about family firms, but also “helping family firms to improve their performance and contributions to the economy” (Chrisman et al., 2016, p. 2). Accordingly, at this stage to our knowledge there only exist two studies that investigate the implementation of open innovation in family firms. One is a study from Wikhamn and Styhre (2017), who investigate this phenomenon in a large pharmaceutical corporation and the other one is from Casprini et al. (2017) who explored open innovation in the family firm Loccioni which is a high-tech solution provider.

Based on the findings in the previous chapter, we assume that there will be a difference on how family and non-family manager implement open innovation in family firms. Furthermore, these findings highlight once again the importance to further investigate this research subject. Moreover, it is important to shed light on how open innovation is actually implemented in family firms and how the family involvement in the management team affects the implementation of this initiative.

2.3 Implementation of Open Innovation

Barbaroux, Attour and Schenk (2016) argue that the concept of open innovation consists of varying practices and that it is more of a heterogeneous nature. Moreover, there are several aspects that determine the implementation process. These aspects can be considered in the form of certain questions that shape the open innovation implementation process. In general, the questions cover the why, when, for which, who, where, how component (Barbaroux et al., 2016). The following table provides a more detailed overview.
We will use this framework and consider the implementation of open innovation as an holistic process starting with drivers to open up the internal R&D department to the management of collaboration partner and the encouragement of the workforce’s commitment up to the actual implementation.

In the following we will take a look in greater detail on how to implement open innovation on an organizational level, followed by common implementation practices.

### 2.3.1 Implementation on an Organizational Level

As stated earlier, open innovation is a holistic approach and significantly affects the entire business strategy of companies. Therefore, the implementation needs to be initiated and installed on different levels of the organization to fulfil its potential (Lichtenthaler & Lichtenthaler, 2009; Teece, 2007). Three levels are identified by the literature that are affected and affect the implementation of open innovation. With the organizational, project and individual level, different aspects are important to consider when pursuing the implementation. Even though the holistic view of open innovation has been emphasized before (Lambrechts et al., 2017; Lopes et al., 2017), we see the basis for the implementation of open innovation on the organizational level (Lichtenthaler & Lichtenthaler, 2009). Additionally, we want to keep our strategic approach in this research paper with this. Nevertheless, we recognized that innovation has an effect on all levels (Gupta, Tesluk & Taylor, 2007) and can be determined by attributes on all levels. Therefore, we cannot neglect the project and individual level fully in our findings and analysis.

Further, Lichtenthaler (2011) divides the implementation into three stages that are inside and outside of the organizational boundaries. Knowledge exploration inside the company is the creation of new ideas and outside the formation from external sources. Knowledge retention on the inside is the storage of knowledge and outside is the fostering of relationships and partnerships with external partners. Knowledge exploitation is the internal application of
knowledge and outside external knowledge transfer. These elements are part of the applied definition of open innovation in this research. The aspects of knowledge exploration, retention and exploitation are vital for the knowledge transfer when participating in open innovation actions, and therefore, the knowledge management of family firms.

2.3.2 Implementation Practices

Once a family firm pursues an open innovation strategy and invests in external sources, several aspects must be considered in order to implement open innovation and develop valuable innovations. **First**, external sources are only useful when they are embedded in the company's culture and preserve socio-emotional wealth in ways that reduces the family’s perception of losing control, for instance with the help of patent protection (De Massis, Frattini & Lichtenthaler, 2013). **Second**, Lambrechts et al. (2017) argue that open innovation should be manifested in leadership style and the top management should set an example of how to exploit and pursue open innovation initiatives, thus build strong relationships in order to thrive for new business opportunities and innovation together with external sources. **Third**, since open innovation changes the knowledge flow in the company, it is important to adjust and modify the knowledge management. Lopes et al. (2017) state “**under the perspective of open innovation, knowledge is the masterpiece of the whole process**” (p. 479).

With the focus on the organizational level, numerous practical methods can be useful to implement an open innovation strategy. First, Chiaroni, Chiesa and Frattini (2010) highlight the importance of having open innovation champions that lead the process from closed to open innovation and set an example. Furthermore, they argue that early pilot projects are crucial to test the procedures and develop recommendations for future adopting process. Pilot projects can also be used to introduce this new innovation strategy to the workforce and to gain and enhance acceptance of the employees. In order to support the acceptance of the employees towards the open innovation initiative, Bruque and Moyano (2007) indicate, that trainings and workshops can assist in the socialisation process. This can also support to dismantle the barriers concerning acceptance and decrease resistance. In addition, Casprini et al. (2017) emphasize the importance of converging innovation culturally close to the employees. Since cultural issues are addressed to be one of the main barrier in regard to successful collaboration (Van de Vrande et al., 2009), it is crucial to give priority to and assimilate the culture during the transition from closed to open innovation. Nevertheless, the basis for the implementation of open innovation is great support and volition of the top management (Wikhamn & Styhre, 2017; Bruque & Moyano, 2007).

The case study of large pharmaceutical corporation about open innovation, further highlights these aspects (Wikhamn & Styhre, 2017). The first open innovation project helped the employees to understand the concept and also to see how this benefits them personally. Furthermore, the strong support and commitment of the CEO highlighted the importance of the new strategy. As described previously, open innovation and the opening towards external sources usually implies concerns about the loss of control for family firms. One tool to overcome this fear is to take up the orchestration role. Open innovation orchestrators create “visions with each partner playing a distinctive role over the long run, market the network to outside parties by generating a resource network around the collaboration from which partners can draw, set interaction rules to foster an atmosphere of information sharing, trust, reciprocity, and effective communication, set up partner selection mechanisms to ensure that
like-minded partners join the network” (Lambrechts et al., 2017, p. 256). The orchestration role further helps to preserve the socioemotional-wealth and strategic control.

Moreover, Mortara and Minshall (2011) investigated the implementation of open innovation in large multinational companies and argue that the implementation depends on three aspects, namely the innovation needs, the timing of the implementation and the organizational culture. *Innovation needs* refer to the motives of opening up the own R&D process to external sources. Hereby, they differentiate, whether companies want to explore new business ideas or simply strengthen and nourish their current products and innovations. The *timing of the implementation* concerns whether the companies implement open innovation initiatives after they heard of this concept or they were engaged in such activities previously. Furthermore, they argue that the *organizational culture* and background have a considerable influence on the implementation (Mortara & Minshall, 2011). They argue, that dedicated open innovation implementation teams are beneficial in order to manifest this concept in the organization. Moreover, they state that trainings and a change in the incentive structure are not only beneficial but essential (Mortara, Napp, Slacik & Minshall, 2009).

Overall, it can be said that the open innovation activities and implementation depend on the company’s initial situation and motives.
3 Methodology

The methodology provides methodological insights and reflections of how this thesis is conducted. This includes the theories applied but also the methods that were used. In the following are the research philosophy, design, strategy and method, time horizon, quality as well as ethical consideration described.

We mainly derived our method with an application of the four-ring model of Easterby-Smith, Thorpe & Jackson (2015), but also considered different components of the so-called research onion by Saunders, Lewis and Thornhill (2012). The research process is illustrated on the different stages and describes our applied methodology on the research concerning the implementation of open innovation in family firms.

Figure 4: Applied Research Onion

![Applied Research Onion](source)

Source: Adapted from Saunders, Lewis & Thornhill (2012)

3.1 Research Philosophy

The philosophy behind our research identifies the nature of reality and knowledge (Bryman, 2016) as well as our assumptions about the way we view the world (Saunders et al., 2012). The two distinctions ontology and epistemology characterize the core of the research process with a focus on social science, and therefore, the behaviour of people in a social world (Easterby-Smith et al., 2015).

Ontology is our view on the nature of reality and existence along with a focus on the theory of social entities (Walliman, 2006) and the way the world operates (Saunders et al., 2012). According to Easterby-Smith et al. (2015) it includes the four dimensions of realism, internal realism, relativism and nominalism. This study applies the theory of relativism close to realism with many existing truths and facts depending on the perception and viewpoint of the participant that is relevant for this research. To accordingly analyse the phenomenon of open innovation, we generated in-depth insights and extensive information of the particular family firm that applies the concept. The spoken words and background information provided us with a better understanding of the different perspectives on the implementation of open innovation in family firms.
firms. Further, the focus of relativism is on social and cultural practices (Mathison, 2011). Here, the interactions concerning the implementation and the relationships between family and business to execute open innovation is vital. Open innovation is a holistic approach that affects all organizational levels through collaborations with external partners but also within the company in an interactive network. This is aligned with Cooper (2011) and his definition that “relativism makes us see human action as an interactive network of events rather than the actions of singular social terms such as ‘individual’ or ‘group’” (p. 187).

Epistemology is the way we build our theory of knowledge (Walliman, 2006), what is valued as acceptable knowledge in social science (Saunders et al., 2012) and how we justify knowledge (Dawson, 2002; Jackson, 2017). According to Easterby-Smith et al. (2015), it includes the dimensions of positivism and social constructionism and can be further separated into strong positivism and strong constructionism to each extent. The distinction is derived by the research aims, starting points, designs, and therefore, the different ways of exploring the world of social science as in this the phenomenon of open innovation. In response to the question of “how we know what we know” (Easterby-Smith et al., 2015, p. 51) it further provides an indication of the in-depth insights we need for the analysis of our research topic. In our research, the distinction of social constructionism as an interpretive method provides us with the needed flexibility to interpret the empirical findings (Habermas, 1978). Therefore, we pursue the aim for convergence and to understand what the people - individually or collectively - in the phenomenon of an open innovation environment think and feel (Easterby-Smith et al., 2015). We want to contribute to the theory building in family firm research with the combination of various perspectives, thus construct knowledge rather than simply reveal it (De Massis & Kotlar, 2014). According to Slater (2017), social constructionism “attempts to make sense of reality” (p. 1625). In this regard, we see the complexity of the whole situation concerning the process of implementing open innovation and want to structure information to make sense of it. Further, various drivers for an open innovation strategy, the family firm background and current situation, that is highly circumstantial, are aspects that influence the implementation and demand clarity and transparency before drawing managerial implications and contribute to the theory building.

With the use of this research philosophy, we are aware of various strengths and weaknesses it provides. Referring to our research question, we need to consider a variety of viewpoints if we want to generate reasonable and valid findings. Therefore, constructionism is helpful since it provides us with the opportunity to accept findings from multiple data sources and allows generalization above the chosen sample (Easterby-Smith et al., 2015). Additionally, Nordqvist, Hall and Melin (2009) emphasize the need to capture and understand the complexity of family firms and its unique characteristics. Nevertheless, a reasonable amount of cases and in-depth information on the subject matter is needed to draw the right conclusions.

### 3.2 Research Design

The research philosophy is followed by a plan on how we answer the research question through an adequate research design. The research design provides a logical structure for the completion of the research in order to build theory (DeForge, 2012). According to Bono and McNamara (2011), a mismatch between both is one of the main reasons for the rejection for journal submissions. It is important to consider the applied qualitative research design, the research approach and purpose that are introduced in the following.
3.2.1 Qualitative Research Design
To gain the required in-depth information in order to understand the phenomena, we applied a qualitative research design. According to Saunders et al. (2012), the main distinction between qualitative and quantitative research is the focus on either numeric data (figures) and non-numeric data (words, images). With the application of a qualitative research, we want to make use of but also generate non-numeric data. First, we want to explore the behaviours, characteristics and experience towards open innovation in order to understand the phenomenon (Dawson, 2002). Second, the spoken words and language is important to gain a comprehensive understanding of the phenomenon.

3.2.2 Research Approach
The approach of the research project involves the use of theory and can be either deductive or inductive (Eisenhardt & Graebner, 2007). The logic behind them is simply to either test theory from assumptions and hypotheses or to build theory. Some authors apply an abduction approach to investigate on incomplete observations to generate testable results (Ketokivi & Mantere, 2010; Saunders et al., 2012). Both can be linked to a quantitative or as in our case a qualitative research approach.

The literature and theoretical background identified a gap concerning the family involvement on the implementation of open innovation in family firms. Here, the opportunity to test theory is very limited, and therefore, we collected empirical data concerning the phenomenon and draw conclusions to establish managerial implications (Eisenhardt & Graebner, 2007; Saunders et al., 2012). Thus, we follow an inductive research approach to develop new concepts for managerial practices. According to McLaren (2012) “theory will emerge through the collection and analysis of data” (p. 458), and therefore, contribute to the family firm theory. Even though, extensive literature regarding innovation in family firms exist, the transferability of these findings towards open innovation in family firms is limited. Considering the wide spectrum of family firms in our business environment, it is crucial to investigate on open innovation, especially the implementation to build theory. Further, the selection of a “how” stated research question leads to the inductive research approach (De Massis & Kotlar, 2014; McLaren, 2012).

Moreover, the inductive research approach can be further justified by the nature of the research question (Eisenhardt & Graebner, 2007). Our narrow research area and tightly scoped question aims to extend the existing theory about the concept of open innovation. Furthermore, the inductive research approach goes along with the social constructionist epistemology that assumes that reality and evidence are socially constructed in the mind of the researchers (De Massis & Kotlar, 2014).

3.2.3 Research Purpose
The research purpose or the nature of our research design is generally derived by three applicable dimensions: exploratory, descriptive or explanatory studies (Saunders et al., 2012). Deciding for one of these dimensions depends on the coherence with the overall objective or purpose of the research, so identifying what we want to find out with our research. It also provides an indication of what research strategy and method is suitable to apply in order to generate the satisfactory results to answer the research question.
As we identified in the introduction with the stated research question, our objective is to understand how family involvement influences the implementation of open innovation. Due to the limited literature in that area, the subject is at a preliminary stage (Babbie, 2013). Therefore, we will apply an exploratory study, which is coherent with our "how" stated research question to generate rich information in order to understand the nature of the problem. Furthermore, it allows us to stay flexible as well as adaptable to possible changes during our research (Saunders et al., 2012).

3.3 Research Strategy

The third stage of the methodology is the research strategy that identifies our action plan to meet our research objective (Saunders et al., 2012). This includes the applied research method of a multiple case study and a description of our approach to collect and analyze the generated data. With the qualitative research design, we focus on semi-structured interviews and a cross-case analysis method in order to gain in-depth understanding of the phenomenon. The following describes the procedure to answer our research question.

3.3.1 Research Method

According to Easterby-Smith et al. (2015) the methods and techniques applied to meet our research objective include various instruments and processes in order to generate the required data and analyze it. With the selection of a case study method, we introduce two definitions that cohere with our research approach. First, Schramm (1971) states that “the essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result.” (p. 6). Second, Robson (2002) defines case studies as “a well-established research strategy where the focus is on a case (which is interpreted very widely to include the study of an individual person, a group, a setting, an organization etc.) in its own right, and taking its context [sic] into account.” (p. 178). Schramm (1971) emphasizes the element of implementation and in addition, Robson puts the attention on the context of the cases.

Since, we investigate several family firms, and therefore independent cases, we apply a multiple-case study method. Nevertheless, we are aware that it is one of the most difficult data collection methods (Yin, 2012) and in contrary to our philosophy, it is usually associated with a positivist epistemology (Easterby-Smith et al., 2015). Despite that, it provides the needed flexibility in our research and supports our objective to gain a rich understanding of the context in our research (Saunders et al., 2012). Furthermore, it remains to be the most used qualitative methodology in family firm research (De Massis & Kotlar, 2014).

We identified numerous reasons for applying a case study method: Firstly, we agree with Yin (2012), who justifies the application resulting from the research question that pursues an explanation of a particular circumstance. The objective of this paper is to understand the implementation of open innovation in family firms to build theory in regard to the academic gap. The explanation of such context is only possible with in-depth information through various interviews of different family firms, but also different individuals of the companies. Second, we are particularly interested in the dynamics within a single setting (Eisenhardt, 1989). The interpersonal aspects, relationships and unique compositions of family firms as well as the involvement of the owning family is relevant for an adequate analysis of the overall research subject. Additionally, the understanding of the organizational dynamics as well as social
processes is important and goes along with it (De Massis & Kotlar, 2014). Third, in an inductive research approach the theory emerges from the relationships among the selected cases and can be found within or across the selected cases (McLaren, 2012). The aspect of how family firms implement open innovation and what is the relationship of the founding family towards the concept is vital to contribute to the theory. Fourth, the exploratory research purpose further supports the multiple case study method. Thus, De Massis and Kotlar (2014) are coherent with the application when the research purpose is to gain an understanding of how a phenomenon, here open innovation, takes place in the family context. This is also supported by Leppäaho, Plakoyiannaki and Dimitratos (2016), that see a “how” related research question in family firm research as an indication to use a multiple case study method. Fifth, due to the uniqueness of family firm and varying involvement in daily business operations, we see each example as an independent organism and therefore an enclosed case.

3.3.2 Data Collection

Data collection methods in a qualitative research design range from observations and document analysis to interviews. The focus here is on the non-numeric data through primary and secondary data sources. Primary data, are new collected information from various respondents to gain new insights and an understanding of the investigated subject (Easterby-Smith et al., 2015). Here, the primary data was collected through interviews with respondents of the selected cases. Secondary data, are already existing information. Since, this data is not produced by us, it is crucial to evaluate the source and identify the validity as well as quality of the information before making use of it. Company background information through the company website, annual reports of the companies and brochures regarding their innovation activities were collected as secondary data.

We further, validated our research with the application of triangulation (Yin, 2012). According to Tracy (2010), triangulation plays a major role to create a high accuracy and credibility of the findings since it cross-checks the generated data. Denzin (1978) originally identified four types of triangulation: data, theoretical, researcher and methodological triangulation. Each type focuses on the triangulation of different aspects to increase the quality of the research. In our case, we pursue data triangulation with data collection from different sources (Abdalla, Oliveira, Azevedo, & Gonzalez, 2018). With the research focus on family firms, we are constantly confronted with different information sources at different places and situations. Further, different individuals were interviewed and whenever possible several interviewees within one company. The participants provided us with the needed varying perspectives on the phenomenon of open innovation. Also the different company sizes, operating industries and family generations involved influence the triangulation positively. Particularly, in the field of family firm research, various viewpoints are important to take into consideration due to merging aspects of family relationships and business decisions (De Massis & Kotlar, 2014).

Appropriate to the multiple case study method, we conducted interviews about the influence of the owning family on the implementation of open innovation in family firms. Since we want to gain in-depth and rich information we applied the data collection method of semi-structured interviews, which provides us with the flexibility to generate this information. The method of semi-structured interviews combines elements of structured and unstructured interviews. According to the interview topic guide (see appendix I), we started with open and simple questions and continued with more narrow questions at the end of the interview to generate
more specific information on the subject matter. The choice of this method is also derived by the exploratory research purpose.

We created the interview topic guide along the aspects that determine the open innovation implementation process according to Barbaroux et al. (2016). As stated in chapter 2.3 these aspects are expressed through why, when, for which, who, where, how questions concerning open innovation implementation. We summarized the questions about why opening up the internal R&D department, when doing so and for what reasons choosing open innovation. All are grouped under the topic motivation. Moreover, we combined questions about who to collaborate with and where to find the partners under the term external partners and the how-questions about employees’ motivation and openness towards open innovation under the topic commitment. Resulting from this, we developed an interview topic guide with introductory questions about the interviewee, the role of the family in the company and open innovation first. 

Second, questions about the three components motivation, external partners and commitment and third, questions about the actual implementation of open innovation in the company. Lastly, we asked about the overall opinion concerning open innovation and future plans and gave the interviewee the opportunity for further comments or questions.

In order to gather participants for our study, we reached out to various family firms via email or through our personal network. The contacted companies were selected resulting from our research question and the sampling criteria that we describe in the following chapter. In the email we provided a short description of our research topic and how we define open innovation so that the companies have time to think about the topic and reflect to which extent they process open innovation activities. Since, some family firms asked for the interview guide, we decided to send it out to all interviewees one week before the interview to ensure consistency. We aimed to have face-to-face interviews, however, due to time constraints and physical distance we conducted most of the interviews on the phone or via Skype.

Before the interviews, we extensively gathered information about the company’s background, history and current situation to get a better understanding of the family firms context. Here, we used the official company homepage, other websites and newspaper articles. In addition, the pilot interview before the actual research provided us with valuable insights. This was significantly helpful, because we perceived a feeling for the subject early and identified valuable aspects in the field of open innovation.

The interviews were executed in German or English and lasted between 30 and 70 minutes. We decided to conduct the interviews with the German companies in German in order to get in-depth information and to avoid misunderstandings due to linguistic barriers. Furthermore, we asked for the participant’s approval to record the interview, so that we could transcribe it afterwards which helped us to analyse our data.

3.3.3 Sampling Strategy

The sampling strategy is important for the quality of the research and identifies the selected participants. According to Easterby-Smith et al. (2015) samples are a subgroup of the entire entity and the source to draw conclusions about the research topic. Brown and Saunders (2006) identify general advantages of sampling like its manageability, low costs, higher accuracy, high efficiency and speed.
Commonly known are four types of sampling: Random, systematic, stratified and purposeful (Saunders et al., 2012). Resulting from the qualitative research design, the narrow research question and due to our clear idea of the sample, purposeful or purposive sampling is the selected sampling strategy (Easterby-Smith et al., 2015). Therefore, we have three main criteria and requirements for our sampling selection. First, the companies must be family firms, following our definition of a family firm, namely that there is some family participation in the firm and that the family sets the course over the strategic direction (Ibrahim et al., 2008). In the table below, we provide information about the generations involved but did not consider it while selecting our participating companies. Second, the company needs to have open innovation activities. However, we do not differentiate between the three dimensions of open innovation, outbound-in, inbound-out and coupled open innovation initiatives. Third, since we focus on the organizational level, we conducted the interviews with individuals in the upper management. We had either interviews with the CEO and/or owner or the responsible manager for innovation and R&D. Therewith, we ensure to keep the strategic perspective and investigate how open innovation activities are implemented and integrated in the business model and further how the owning family influences this process, since the upper management is in direct contact with the family. Moreover, we did not choose a specific industry, we rather see it as beneficial and fruitful to take different industries into account in order to get insights on this subject matter from various perspectives. The selected samples are visualized in the table below.

Table 2: Overview of the Selected Samples

<table>
<thead>
<tr>
<th>#</th>
<th>Company</th>
<th>Country of origin</th>
<th>Founding year</th>
<th>Family Ownership</th>
<th>Generation</th>
<th>Industry</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Company A</td>
<td>Germany</td>
<td>1949</td>
<td>100%</td>
<td>2nd</td>
<td>Manufacturing tools</td>
<td>1,810</td>
</tr>
<tr>
<td>2</td>
<td>Company B</td>
<td>Sweden</td>
<td>1852</td>
<td>100%</td>
<td>5th &amp; 6th</td>
<td>Bed manufacturing</td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td>Company C</td>
<td>Germany</td>
<td>1934</td>
<td>100%</td>
<td>2nd</td>
<td>Manufacturing tools</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Company D</td>
<td>Germany</td>
<td>1947</td>
<td>100%</td>
<td>4th</td>
<td>Meat processing industry</td>
<td>400</td>
</tr>
<tr>
<td>5</td>
<td>Company E</td>
<td>Germany</td>
<td>1897</td>
<td>100%</td>
<td>4th</td>
<td>Electronic industry</td>
<td>600</td>
</tr>
<tr>
<td>6</td>
<td>Company F</td>
<td>Germany</td>
<td>1954</td>
<td>100%</td>
<td>2nd</td>
<td>Frozen food manufacturing</td>
<td>400</td>
</tr>
<tr>
<td>7</td>
<td>Company G</td>
<td>Germany</td>
<td>1967</td>
<td>100%</td>
<td>2nd</td>
<td>Packaging business</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Company H</td>
<td>Germany</td>
<td>1946</td>
<td>100%</td>
<td>3rd</td>
<td>Gardening and nursery</td>
<td>22</td>
</tr>
</tbody>
</table>

Source: Own presentation

Due to our tight research question and the qualitative research design, we are aware that we cannot represent the entire population with our sample (Dawson, 2002). Nevertheless, we want
to provide an understanding and description of the subject matter rather than generalize the findings (Dawson, 2002). In addition, with the application of the multiple case study method, the careful selection of the sample according to the illumination of the research question is crucial to ensure the quality of the research (Yin, 2012). Since, we applied a relativistic and social constructionist research philosophy, we see each participant and interviewed company as a closed entity and case. Therefore, we can neglect the geographical context in the sampling strategy.

3.3.4 Data Analysis

The qualitative research design and the application of interviews in a multiple case study context lead to several types of qualitative data analysis methods that can be applied for the executed research. The two main elements that influence the data analysis approach are derived by their ability to reduce complexity of the interview results and to facilitate the development of theories (Easterby-Smith et al., 2015). Nevertheless, the research philosophy is the main influencing factor concerning the choice of data analysis. With the relativistic and social constructionist philosophy at hand as well as the multiple case study method, the cross-case analysis was applied for the data analysis.

The applied cross-case analysis is defined as “an analysis that examines themes, similarities, and differences across cases” (Mathison, 2011, p. 96). For our research the selected cases are independent organizations. The family firms provided us with unique data and information, that were analyzed with the cross-case method through the identification of similarities and differences. These are evaluated and compared to aggregate across cases and draw means to make generalizations that help to provide an understanding of the implementation of open innovation in family firms (Mathison, 2011). The choice of a cross-case analysis is also supported by the applied multiple-case study design to have many independent cases that contain our objective to draw managerial implications and build theory. The literature differentiates between two types of cross-case analysis: the variable-oriented and cross-case analysis (Miles & Huberman, 1994). Here, we applied a cross-case analysis, since we identified a broad pattern that emerged after the first two interviews that helped us to question deeper into specific aspects of the topic guide that are relevant for the purpose of our research. With this we want to “reinforce validity, support generalizability, and promote theoretical elaboration” (Burns, 2012, p. 265). The research objective is to provide an understanding of the phenomenon and build theory in regard to the identified gap in the literature. With the application of the cross-case analysis, we can provide validity through the structured comparison of data, generalizability through the comprehensible research execution and theoretical elaboration to draw on the results to build theory.

The first step of the applied cross-case analysis was structuring the interview transcripts and further the empirical findings. Here, we wanted to get an overview of the responses and differentiate between relevant and negligible results. The second step, was the establishment of a matrix, that structured the responses according to the topic guide and the components of Barbaroux et al. (2016). Through repeating information and data, codes for each topic were established to identify emerging similarities and differences between each case. Here, the focus was to identify the different degree of family involvement on each aspect. The third step was to draw conclusions in regard to the family involvement on the implementation and other influencing elements and components we identified during our research. Through the comparison of the established codes various differences and similarities emerged. Further,
linkages between information were drawn to identify casualties among the data. Some information has been identified in the theoretical background before, but also new information and casualties emerged that supported our theory building at the end of the research.

### 3.4 Time Horizon

The time horizon of a research study defines the time frame in which the investigation is conducted and completed (Saunders et al., 2012). In general, there are two options, that can be used regarding the time perspective of a study, namely a cross-sectional and longitudinal design. Cross-sectional designs imply that data is collected over a short period of time. This includes both qualitative and quantitative, thus questionnaires and surveys aiming at describing a phenomenon at a certain time (Saunders et al., 2012; Easterby-Smith et al., 2015). Conversely, longitudinal designs are used to rather explore a process over a longer period of time. This allows to discover more of the “why” component of a research question and to draw conclusions concerning change and development (Easterby-Smith et al., 2015).

We adopted the cross-sectional design for our purpose and research question for three reasons. *First*, due to the limited time of only three months available in order to conduct the research and the even higher time constraint for the data collection, the application of a longitudinal study is not feasible. *Second*, the cross-sectional design is sufficient to answer our research question and goes along with our identified research design. Through the execution of interviews with different individuals in family firms at a particular time, the effects on the implementation of open innovation can be detected sufficiently. *Third*, we aim to gain an understanding of the context of the open innovation phenomenon and how it is implemented at a certain time of interest. Therefore, we argue that it is sufficient to have a snapshot of the family firm situation, rather than lengthwise insights. The longitudinal approach can be neglected for the purpose of our research, but might be relevant for further research.

### 3.5 Research Quality

The quality of the research is determined by the concept of trustworthiness in the research environment (Given & Saumure, 2012). Trustworthiness consists of four criteria, namely credibility, transferability, dependability and confirmability. It is significantly important to meet all four criteria to establish trustworthiness, and thus, persuade the reader that the work is worth the attention and confidence (Lincoln & Guba, 1985). Hence, we use this concept in our study to evaluate and describe the quality of our research methods and techniques.

#### 3.5.1 Credibility

Credibility refers to consistency of the study, and thus, that the study investigates the reviewed phenomenon (Jensen, 2012a). In order to do so, we put much emphasis on finding and applying the most appropriate research method and design to gain valuable and decisive insights as well as explore our topic in-depth. Furthermore, a credible study is one where the interviewee’s responses are align with the researcher’s analysis and interpretation of them (Jensen, 2012a). Moreover, it is important to select suitable participants and ensure an environment that allows open and truthful responses (Jensen, 2012a). Therefore, we conducted interviews whenever
possible with both the responsible manager for open innovation initiatives and a family member. Therewith, we explored different perspectives, and thus, detected different viewpoints.

3.5.2 Transferability
Transferability refers to the feasibility of applying the research study to different contexts (Jensen, 2012b). In order to determine if the study can be transferred to different settings it is important to provide a comprehensible description about the method and situation the data was collected. This includes time and context (Lincoln & Guba, 1985). Hence, we present our research strategy with details about the data collection and method of analysis. Furthermore, we provide a description of relevant background information in regard to the family firm history, relevant figures as well as management structure of the participating family firms. We believe that we provided sufficient information about how we collected data and conducted the interviews so that the reader can determine whether our method is applicable for another context.

3.5.3 Dependability
Dependability refers to the reproducibility of the study and implies that “the researcher lays out his or her procedure and research instruments in such a way that others can attempt to collect data in similar conditions” (Given & Saumure, 2012, p. 896). Therefore, we provide a detailed description of our method, data collection as well as analysis. However, qualitative research is conducted in changing environments and therefore the replicability is affected (Lincoln & Guba, 1985). Since, we asked for subjective opinions about a phenomenon that is in process at the time of data collection, researcher must be aware that the interviewee’s perception and answers possibly vary and change in the future. In addition, we conducted semi-structured interviews that entail varying setups and findings. Moreover, the participant’s answers depend on the unique characteristics of the family firm and presumable the firm’s history. Jensen (2012c) states that one challenge in qualitative research is that contexts and environments change over time and researchers must consider evolving environments when considering to repeat a study. Nevertheless, we believe that we provided sufficient information about our research design so that the opportunity of repeating is given.

3.5.4 Confirmability
Confirmability refers to the concept of neutrality and objectivity of the researcher (Lincoln & Guba, 1985). Furthermore, it demands that the findings and interpretations match and can be verified through the collected data (Jensen, 2012d). Since, the interviewers as being part of the investigation and therefore influence the interview, we tried to keep the extent as little as possible. Starting with broad and open questions, we made sure not to steer the interviewees towards a specific direction. Moreover, we gave the interviewees enough time to think about the question before answering and only ask follow-up questions afterwards. At the end of each interview, we summarized the main statements and ask for completeness and trueness. Therefore, we think that we undertook adequate actions to ensure that the findings are determined by the interviewee’s responses and not modified and shaped through biases from our side.
3.6 Ethical Considerations

Ethical considerations are one of the most important aspects of a research study and determine the research quality. Ethical dilemmas can easily arise and must be discussed during the entire research, for instance, access seeking, data collection, analysis, and writing up stage (Saunders et al., 2012). The overall aim of ethical consideration is to avoid harm of those who are part of the research, precisely both the researcher and the informants. Bell and Bryman (2007) state in their study that management research is a specific field of research and cannot be fully put on a same level with other social sciences, thus, needs ethical principles for business and management research. According to this, they identified ten key principles that include both the protection of research participants and the research community. Furthermore, they highlight the importance of having these guidelines in place for all management research not only for sensitive subject matters.

Beginning with the access gaining phase, which is also considered to be the key stage causing potential ethical problems (Saunders et al., 2012), it is crucial to avoid any pressure in winning intended informants. Moreover, in this stage it is decisive to be clear about the research purpose and question. While contacting potential companies for our study, we provided an outline of our research study and design so that they had a good understanding about our intention and a basis to decide whether they want to participate. Furthermore, in order to be clear about our subject matter and to ensure an informed consent, which means that the participants are fully informed about the research subject, their rights and use of data (Bell & Bryman, 2007; Saunders et al., 2012) we created an information sheet. This information sheet (see appendix II) also includes information about confidentiality and anonymity. The participant had the choice to choose whether they want their information anonymized or stated in the public paper. Since open innovation is a relatively new phenomenon and might encompasses sensitive competitive details, most of the interviewed companies asked for confidentiality and anonymization of the organization’s identity as well as a de-personalization in order to reveal sensitive information about the implementation. Therefore, we decided to conceal all company and participants’ names and coded them in alphabetical order. Since we promised confidentiality, we must ensure to keep the collected data strictly confidential in order to avoid harm to the individuals and companies (Easterby-Smith et al., 2015). We made sure that no information in this study sheds light on the real company and individuals’ names.

During the data collection as well as data analysis, it is essential to ensure objectivity. Objectivity refers to the avoidance of selecting subjectively what to record and how to interpret the records. This is crucial in order to ensure validity and reliability of the study (Saunders et al., 2012). Due to the co-writing of this thesis and, thus a second set of eyes, we did our best to ensure objectivity in this regard.

Overall, we take ethical considerations very seriously and align all our actions according to Bell and Bryman’s (2007) principles.
4 Empirical Findings

In this chapter we present the empirical findings of our research study. We begin with a presentation of the role of open innovation and the family influence on that for each case. In the second part we present the collected data concerning four components that influence the implementation process. To ensure anonymity and confidentiality we coded the companies in alphabetical order.

Overall, we conducted interviews with eight different companies from various industries. With some companies we were able to conduct more than one interview. In total four family firms are governed and owned by a family member and four are owned by the family but not governed. Here, the family members do not participate in a leading position in the operational and daily business. Also, the generation in charge of the company varies and goes up to the sixth generation among the selected samples. The size of the sampled family firms varies, seven companies are SMEs with less than 500 employees, one is higher than that, but counts itself as a German Mittelstand company. Also the industries are widespread, but mainly in the production sector. An in-depth description of the selected companies, with detailed background information derived from secondary data is provided in the appendix (see appendix III).

In the following, we present, for each case separately, the role of open innovation and the family influence on it. Afterwards we show the findings on the four components that determine the implementation process. In general, the findings are oriented on the interview topic guide as presented in the methodology and appendix (see appendix I). The topics are oriented on Barbaroux et al. (2016) as presented in the theoretical background (chapter 2.3).

4.1 Role of Open Innovation and Family Influence

Open innovation is valued differently among the interviewed family firms, and therefore, contains a different role for each organization of our sample. Some already opened up their internal R&D process and some are in the process and starting block to do so. The amount and intensity of current collaborations varies. Since this is the basis for further analysis, the following chapter provides information on the role of open innovation and current collaborations of the interviewed family firms. In addition, the perspective of the founding family towards the concept of open innovation is significantly relevant for the analysis. The following also includes the coordination process and active influence of the family in that regard.

Company A

Company A operates in the manufacturing industry and produces professional pipe installation and connection technology. The German family firm in the second generation was founded in 1949 and is governed by a holding in family hands. The chairman of the company’s advisory board is the son of the founder, who consults the family firm in strategic matters. The interview was conducted with a non-family member in the position of the Director Corporate Technology (DCT).

The process of opening up its internal R&D towards an open innovation concept started only a short while ago. The role of open innovation is increasingly important for the family firm. This
is supported by a positive opinion of the supervisory board concerning new collaborations with external partner. The DCT emphasized that it is typical for a German Mittelstand company to only rely on their own competences, but that they have a different perspective on that. Gathering different perspectives on what happens outside the organizational boundaries is important. Therefore, the process of opening up the internal R&D process is oriented on what opportunities are present in the market. “What else is there, what else can we do?” Additionally, open innovation is valuable for the family firm to generate a bigger image of the company in the market. “Through partnerships you can create a certain size in the market”. He further emphasized that open innovation is not the solely focus of the family firm, but it is needed to accelerate the business, identify and develop new products to enter markets. This is simultaneously the objective of the open innovation initiatives.

Also, key cooperation partner in the field of product development are in place. One product development partnership for instance, dates over one year back. “We started approximately one and a half years ago, but the conversations go back even further. We want to enter the market this year”. Particularly interesting for the family firm is a partnership about the development of a unique and new business model that has significant strategic impact on the family firm. “The idea is completely new and is in the pilot phase since September 2017”. Here, the partnership includes a medium sized partner, but also a large automotive organization as a third partner.

The advisory board significantly influences the strategic direction of the family firm. The son of the company founder is currently the chairman of the board. Even though the influence on the operational business is limited, key decisions are still taken by the advisory board. This includes mainly financial issues, but also the product development. The CDT highlighted the positive commitment and openness of the chairman for new collaborations and even business model threatening innovation initiatives. “He is someone who likes such topics anyway. He thinks very early, what could destroy our current business model and then we prefer to do it ourselves”. Jeopardizing the current business for the future is a welcome change and should be implemented the sooner the better. “So why only tomorrow and not yesterday?”. In this regard, the chairman supports such projects as good as he can. “He is someone who pushes such topics forward and says you need to meet with this one that one”. Open innovation in the family firm is characterized with flexibility of the DCT and only bigger decisions with strategic impact are influenced by the advisory board. The influence is significant concerning financial decisions and large investments. Company A highlights the importance of setting its own direction and navigating the company to the future. “To have the final decision in your own hands and to determine your destiny yourself and not being dependent on anyone is the key”. Here, the DCT emphasized that a lot of convincing and early involvement is important when starting new open innovation initiatives. “The earlier we involve the chairman, the better for his support, especially when dealing with external partners”.

**Company B**

Company B is currently led by the fifth generation and was founded in 1852. The Swedish bed and mattress manufacturer is leader in the premium market. The family CEO and owner leads the family firm with over 200 employees. Three different interviews have been conducted with the CEO, Chief Operations Officer (COO) and the R&D manager.

The family firm values open innovation as a means to an end for the business. With the operation in a premium market and highly customer focused business, a close relationship to
suppliers and other external partners is necessary to sustain the market leadership. The family firm’s influence is present in every strategic and operational business decision. The customer focus has always been one of the main values of the company in its product developments. “*Any change to the product has to be an improvement for the consumer.*” (CEO). In general, the company is open to new ideas from external partners, but mostly relies on its existing structure and networks. “*We are of course open to new insights and technologies and what is happening in the world.*” (R&D manager). Open innovation is mainly used to take advantage of the specific competences and expertise of the current suppliers to generate new customer driven products. Therefore, the objective of the open innovation activities is to fulfil the customer demand and align the customer centricity of the business.

Company B mostly collaborates with existing suppliers in regard to open innovation. The expertise of each individual in the process is necessary to collaboratively achieve innovations. “*It is about open collaboration with suppliers, to utilize the brains of as many employees as possible for the product development. It is mostly about combining individual skills.*” (CEO). The decision making process and communication at the Swedish family firm is warmly, informal and rather short. The family involvement is present at every aspect of the operational and strategic business. All actions are aligned with the family’s vision and values. The clear objective and motto “*to make the world a better place with our product*” (CEO) and the strong customer focus leads the collaboration activities with external partners. Even though the influence of the family is more strategic, the vision and values influence the daily operations too. Due to the flat hierarchy and rather informal communication, problems and ideas are discussed freely and in an open manner. “*You can talk open all the time and we discuss things freely. When I have an idea for instance, I show the CEO what we are working on and immediately get feedback if this is coherent with the core business.*” (R&D manager). The early involvement is important, not just to check the coherence with the families’ vision, but also to take advantage of the CEOs knowledge and expertise concerning the product, customer and market. Therefore, the decisions concerning new innovation ideas are mostly based on a gut decision instead of a long analysis and evaluation process. “*He has an extremely good knowledge of the product and he himself has driven a lot of development internally. So I would say it is his strong opinion about the product and what he wants to do.*” (COO).

**Company C**

Company C manufactures encoders for the heavy industry and produces applications for steelworks and cranes. Founded in 1934 the German family firm in the second generation has about 100 employees and is governed by two CEOs, but owned by the founder’s daughter. The interview was conducted with the responsible open innovation program manager of the international family firm.

The open innovation initiative started in 2016 at the request of the family owner. The owner is highly engaged in innovation and research. Additionally to her own foundation for research support, she demanded from the management to try something new in order to stay innovative and get new insights and ideas from outside the organizational boundaries. The management set up an own innovation center in compliance with the owner’s vision. Hereby, they work closely together with start-ups, support and invest in them. In general, start-ups introduce themselves and present their ideas. Company C is open to all kind of industries. They already considered unrelated companies dealing with food, cosmetics or IT for instance. “We wanted to do something completely new and did not follow the motto ‘Cobbler, stick to your last’”. The overall aim of this program is to collaborate with new companies, work jointly on innovations,
and thus, build a second and third pillar in order to be prepared for the future and to secure the business that currently depends heavily on the steel market. Instead of short financial investments with a high profit exit strategy, they focus on long-term collaborations and investments. Further, open innovation is used as an accelerator for the business in the long-term.

Today, the open innovation program and centre records two partnerships as well as one new collaboratively established company. Besides this program, the company also collaborates with universities in the region and exchanges knowledge constantly. Moreover, our interviewee explained that their own R&D department just recently opened up more and more and collaborates with institutes regarding development projects. One reason for that is a change in the management of the R&D department, but also the success of the open innovation program positively inspired the research department.

The interviewee clearly pointed out that the founder’s daughter and current owner is the initiator of the company’s open innovation initiative. “That was also the clear message from Mrs. C, no matter what it is and where it comes from, be brave, we want to have other pillars in other industries”. The owner, who is an engineer and used to work in the company for a long time is currently not involved in day-to-day operations. Therefore, she does not participate in meetings with potential collaboration partners. Thus, the management and interviewed open innovation program manager experience a lot of flexibility and independent decision making. Nevertheless, they have to consult with the owner depending on the size of investments. Hence, if there is a major decision to be made with a lot of money involved, the management presents her the projects and she decides whether to invest and collaborate with or not. Overall, the owner fully supports and encourage her management towards open innovation. “So even here we experience very great freedoms, even if I say now, I want to go to Munich for two days, then I have the back cover for. We really enjoy tremendous trust, which is very important. Otherwise you do not have to do that to yourself”.

Company D
Company D was founded in 1947 in Germany and operates in the meat processing industry. The manufactory company is in its third generation and has about 4000 employees. Currently, the second and third generation are owner director of the family firm. The interview was conducted with one of the two non-family CEOs.

Collaborations with external partners are crucial for company D in order to be up-to-date and constantly develop and adapt to the market trends and customer needs. Our interviewee stated: “I believe open innovation is very good, because you need external input, suggestions and information to be able to develop further. For this external partners are a very important source”. Open innovation is mostly used for fundamental research related to their core product and to collaboratively deliver new innovative products for the market.

Company D makes use of different collaboration partners. One important external source are their customers. The company organizes regular meetings and events with their customers to discuss market trends and to have an ongoing discussion about the needs and market movement. Therefore, they collaborate with their customers and develop new products together that are demanded from the meat industry. The CEO highlighted customers, especially the ones they have a long-term relationship with, as an important pacesetter. “What does it help us, when we think the products are great and necessary, but never asked the customers? It is better to do it
the other way around- to let the perspective, opinion and information flow from outside to inside”. In addition, the company has a broad network with research institutes, universities, craftsman and technical schools. The company uses these contacts mostly for research-related issues to collaborate and find an adequate solution, but also to respond to market trends. The overall vision of the company is to be the innovation and know-how leader in their field. Since, they do not have their own fundamental scientific research department, they rely on collaborations with research institutes.

The owning family, the two owner-directors are not involved in the day-to-day business but clearly set the strategic direction of the company. Therefore, they do not influence decisions regarding which external partner to work with, however, they have the strategic control over the firm and are in close coordination with the two CEOs. Overall, the interviewee described open innovation and knowledge exploration from outside the company’s boundaries as indispensable. “These are all information you need to build your business to stay competitive. Therefore, we need this network and the input from the outside. We can not experience all this internally, we clearly need contact with others”.

Company E
Company E produces fused-protected switching devices for energy suppliers as well as switching and control systems for the industry and private households. The German family firm in the fourth generation with over 600 employees was founded in 1897. The interview was conducted with the director of product management and the director of construction simultaneously.

In general, company E is very open towards external partners and new collaborations in regard to open innovation. They also value the concept as significantly important for the family firm in order to transform new ideas into innovations and implement them. Both interviewees stated that they are basically not able to do everything by themselves and need to engage in collaborations to grow. Open innovation is anchored in the culture of the family firm and contains collaborations with universities, other medium and large companies, small engineering offices, but also customers directly. “We are very open concerning universities and colleges. We are also actively seeking for cooperations with other companies, because there are things that we as Mittelstand cannot do alone. Additionally, we work with engineering firms, but also with customers directly to handle projects together. Larger companies or medium-sized companies are also involved and cooperate with us”. Further, open innovation is used for problem solving purposes. This is the case when customers demand a certain product innovation the firm needs to deliver, but also when a special production technique is required.

The situation regarding the family and its influence on the daily business operations changed significantly in the last year through the deceased family CEO. Even though, two family members work in the company, they are not in a management and leadership position. The strategic direction of the family firm is significantly influenced by the foundation that governs the top management. Here, one family member is part of the board. Also the entrepreneurial spirit and technical orientation suffered through the shift. “He was very inclined to the technical side, and therefore, the enthusiasm for technology was more pronounced than it is today”. Also the emotional aspect is tangible missing. “The emotional connection has changed because there are no more family members in the management anymore”. Nevertheless, the support of the management (and old CEO) and the foundation concerning the open innovation initiatives
remains present. They have significant influence on the strategic direction, but not the daily operations of the family firm.

Company F
Company F was founded in the 1950s in Germany and manufactures frozen potato and vegetable specialties. The family firm in the second generation has about 400 employees and is led and owned by the son of the founder. Two separate interviews have been conducted, one with the family CEO and the other with the R&D manager.

Overall, the company’s vision and strategic direction is to be the leading innovator in their field. In order to do so, the family CEO aligns all operations accordingly. The R&D manager stated: “He is very engaged in research and development and deeply delved into the matter. He is always up to date. His claim is to be the innovation leader and that is how he lives it.” (R&D manager). The role of open innovation is rather focused on problem solution related innovations and fundamental research concerning their products. Therefore, the partnerships with suppliers and other companies are close and have the objective to fulfill the customer demand with its innovation activities.

In general, both explained that they collaborate with external partners, mostly with research institutes for the purpose of fundamental research. However, they clearly stated that they only collaborate with other parties to develop one component for their end product. Additionally, the owner reiterated that they do not develop an entire product with external partners. Hereby, it is important to mention that the company has made a bad experience with external partners, since they did not comply with the confidentiality agreement and revealed sensible information to competitors. Nevertheless, the company depends on external sources since they do not have the resources to fully develop incremental innovations by themselves.“We develop with them (external partners) the component in question of the product or the fundamental problem. We will also do that with external partners in the future. We can not cover everything with our resources here.” (CEO). The two main partners the company work with is one technology transfer center that works closely with an university and is rather practice-oriented whereas the other institute combines several sciences and works highly scientific.

With the family owner engaged in the business as CEO, he is clearly involved in the operational business, but also strategically controls of the family firm. His involvement in open innovation activities ranges from initiating the collaboration, mostly when it implies a strategic approach, to evaluating the collaboration in the end. Moreover, he stated that he participates more and controls in operations with external partners than inhouse innovations. “If something bigger is developed with partners outside of the firm, I will ask in between what needs to be done and about the current situation, while I am not interrogating that much when it is done inside the firm.” (CEO).

Company G
The German family firm was founded in 1967 and focuses on the production, import and export of packaging products. The second generation at place is in charge of more than 100 employees. The interview was conducted with the CEO and owner of the family firm.

Company G practices open innovation in regard to the product development. Hereby, they collaborate mainly with customers or suppliers in order to model new ways of packaging. The latest product innovation was in collaboration with their key customer they have a close and
long-term relation with. They use this kind of open innovation in order to be close to the market and the customer’s needs. The family CEO stated that the collaborative development enhances the usability and also increases the sales volume because they consequently have a buyer.

The family influence on the company is significant, because the owner and CEO worked from the very beginning in the family firm and is still closely involved in all operations independent of his advanced age. Moreover, he participates in meetings with external partners and has the last word in all decisions. It is very important for him to hold the reins. “Let us just say that I have the most experience myself, I am the owner, I have to finance it and I do not finance anything that I did not understand”.

Company H

Company H was founded in 1946 and is currently led by the third generation as owner and CEO in charge of more than 20 employees. The German gardening and nursery company produces high quality flowers for the European wholesale and retail market. The interview was conducted with the family CEO.

The role of open innovation in company H is increasingly important for the family firm since the customers’ needs are moving more and more in the centre. With long history of the company, many partnerships with external sources have been established during generations. Company H uses a problem-solving approach to fulfil the customer needs. The collaborations with suppliers are characterized by a close relationships and a strong customer orientation. Additionally, the owner clearly sees the importance of open innovation in the future. The customer focus is becoming even stronger and drives the industry trends. Further, even closer relationships to external partners are necessary to be sustainable and provide the innovations demanded by the customers. Also the byproducts to the flowers and plants are becoming more important in the market and demand innovativeness too. In regard to fundamental research, company H works with universities and research institutes. “We work closely together with universities and agricultural research institutes to take a step forward”. With this, innovations like a new flower seed can be created.

The owner and CEO of the company is in charge of the strategic and operational business decisions in company H. With the academic background, a different point of view influences business decisions. With the unfortunate change in the company owner- and leadership in 2011, the openness of the internal R&D processes increased. Besides relying on the current partnership network, the family firm and new owner is open to new external partners. “I personally give new partners gladly a chance”.

4.2 Open Innovation Implementation Components

After describing the specific company profiles and the unique role of open innovation in each case, a deeper look on the implementation of open innovation is necessary. When implementing open innovation, various components need to be considered to introduce a smooth process. These components have been selected according to the relevant aspects defined by Barbaroux et al. (2016) as described earlier in the theoretical background and equal to the asked topics in the interviews. These include (1) the general motivation with the drivers for the open innovation initiative and (2) the relationship and selection towards the external collaboration partners. Additionally, (3) the employees’ commitment towards opening up the internal R&D process to
external partners and (4) the actual installation process of open innovation. The following model shows the structure of the interview topic guide as well as of the analysis.

Figure 5: Open Innovation Implementation Components

![Figure 5: Open Innovation Implementation Components](image)

Source: Own presentation

### 4.2.1 Motivation
Starting with the overall motivation towards an open innovation initiative of family firms, the respondents were asked to provide insights regarding the external and internal driver as well as the internal initiative. In order to understand the phenomenon, we wanted to find out what motivates family firms to open up its R&D process to the outside and who or what initiated this process.

In response to the external drivers, the most emerging aspect is the rapidly changing market in which the family firm operates. Company A, C, D and F identified this external driver as one key driver for their open innovation initiative. “Yes it is getting faster and faster. If you look at it, trends, 10 years ago were present for one year; today, a trend is maybe two to three months long.” (R&D manager, company F). The changing market is mostly influenced by the customer demand. “It is about who is fastest and has the quickest response for the customer demand.” (R&D manager, company D). “The end customer demands a wider product range.” (open innovation program manager, company C). Family firms need to be flexible and act quickly. A certain unique selling proposition is needed to convince the customer that their product is better. “You look what you can do in order to be well positioned in the market and to have unique selling proposition.” (CEO, company H). This is only possible with close relationships to suppliers, customers or other external partner that influence the product development. In regard to the rapidly changing market, many interviewed family firms operate in a niche market and are threatened by large organizations to enter their market. “There is certain risk that a big manufacturer comes into our niche market. To counteract this, you need partners.” (DCT, company A). Even though a family firm might be market leader, it does not rely on its comfortable position and continues to stay innovative with its open innovation strategy. In comparison to large competitors in the market, the size of the interviewed family firms is another factor, that drives them towards open innovation. Company A and C, clearly stated that they need the collaborations to generate a certain size on the market to compete effectively with
the large competitors. “Through partnerships you can create a certain size in the market to counter that.” (DCT, company A).

Regarding the internal driver, the most emerging response is a lack of resources and financial leeway resulting from the comparable small company size in the market. They often do not have the resources to establish their own R&D department and solve all upcoming problems and innovation by themselves. This is the case for company A, B, C, E and F. “If a company like us wants to grow and has only a certain amount of capital at its disposal, then you have no choice but to cooperate.” (DP, company E). “We simply do not have enough resources and the necessary equipment to do it by yourself.” (R&D manager, company F). In many cases, the family firms are searching for special expertise and know-how concerning the product development. This expertise is acquired from many external sources like universities or suppliers. “We particularly searched for a collaboration with universities. They have a special expertise in our technical field.” (DCT, company A). “Everyone is good at different things. If we want to have the best possible product, we need to have the best components. Who can deliver the best components? The supplier and we are depending on the real experts of these components.” (COO, company B). Another relevant aspect are the continuous developments and innovations that are required to sustain as a company. The interviewed family firms strive for continuous product developments instead of rapid and less planned innovations. With the collaborations and the steady innovations, family firms are also driven by the growth they want to initiate with this. Due to the lack of resources and expertise as well as the smaller size, growth can only be initiated through collaborations with external partners. “If a company like us wants to grow and has only a certain amount of capital at its disposal, then you have no choice but to cooperate.” (DC, company E). The last significant internal drivers are the access to information about new technologies and being up-to-date with the market. Also, the access to new ideas and a look outside the organizational boundaries to counteract the internal routine blindness are internal drivers. “For me personally, the new impulses and ideas are clearly an internal driver. There is a saying that sometimes you cannot see the forest because of all the trees and then it is good to get an impulse from outside.” (CEO, company D).

To open the internal R&D process is a significant step for most family firms. Many are not fully convinced by the benefits. The internal initiatives for open innovation, and therefore, the idea ignitor to open the family firms internal R&D process is an important motivator and can become a champion for the implementation process of the strategy. The initiative often starts with the owner and his openness for change as well as his inner engine to continue the family firm legacy. “The initiative clearly started by Mrs. C. No matter what the idea comes from, we should be brave to pursue it. A second pillar in the industry is important for the company.” (open innovation program manager, company C). Also the top management can be an initiator when the initiatives are more of a strategic nature. “The top management comes more with projects that are strategic in nature, and therefore, take longer to implement.” (DC, company E). In other cases, the idea started with the management and its closeness to the product and customer. “Most of the time it comes from us, because the problems that we have are more in the daily business and closer to the product.” (R&D manager, company F).

4.2.2 External Collaboration Partners
The second significant component are the external collaboration partners for the open innovation initiative. This includes on the one hand the selection process of suitable
collaboration partners and on the other hand fostering of relationships with current and new partners.

When establishing a collaboration in terms of open innovation, not every partner is suitable for the process. Various elements play a major role when selecting the right partner to open up and share valuable knowledge. One of the main criteria for the selection are mutual interests and similar values. Part of this are equal interests, expectations and work attitude. In context of this, many family firms valued the collaborating person as more relevant for a partnership than the idea itself. This goes along with the emphasis on trust in the interpersonal relationship with the partners. Companies A, C, D, E, G and H see trust as highly relevant and act reserved when they collaborate with a possible partner for the first time. “We look at each possible partner individually. When someone comes and wants to work together with us, we start slowly in the process, so that you get to know each other first. Contracts are secondary.” (open innovation program manager, company C). “You know, it starts with the people and the sympathy you have for them. When you collaboratively develop products it is more or less a secret on the market. If the harmony is not right you have a problem, because you do not talk about it with your enemy.” (CEO, company G). Many family firms like company B, C, D, F, G and H rely on their current partnership network when initiating an open innovation strategy. But the active search for new partners and the selection of requested collaborations of externals is also used. No matter what the family firm prefers, in many situations a problem needs to be solved that can only be done with special expertise and know-how. As already described in context of the motivators for open innovation, the know-how and reputation of the external partner is a selection criteria too. “When we need support, extra knowledge or different things, then we find the right source to collaborate with us.” (R&D manager, company B).

When fostering relationships with existing and new collaboration partners in an open innovation context, trust is the element that concerns all companies. This is the basis for a successful and long-term relationship that all family firms pursue with their partners. In order to foster positive and fruitful relationships, the respondents named regular and mutual updates as valuable. “It happens between people. If you have done several projects with each other and have experienced successes and defeats together, then there is definitely a relationship. Usually when you meet again and again, you exchange ideas or sometimes just pick up the phone or just go there and visit. This is a relationship, as in real life and must be fostered and maintained.” (CEO, company D). Additionally, regular meetings, phone calls and personal visits are also applied by family firms, but this depends on the specific project nature.

4.2.3 Commitment

Employees are the foundation of every business success, also when opening up the internal R&D department and collaborations with external partners as it is in open innovation. The commitment and support of the workforce is crucial, and therefore, the participants were asked how they encourage motivation and acceptance from their employees. Additionally, we asked to what extent they face resistance and antipathy regarding open innovations and what they do to overcome such barriers.

Starting with resistance and antipathy different answers from the interviewees have been received. Ranging from no resistance at all to limited resistance and no understanding for such activities. Especially the family CEO of company H stated that she is confronted with resistance from her employees. “One employee said once ‘We do not have to accept that now, because we
have the experience and know best.’” (CEO, company H). Moreover, company H and C described that they notice different levels of resistance depending on the age of the employees. Older generations, that have worked for a long time in the company, are more resistant and critical than younger. “The older the colleagues are, the more critical. The younger ones are more interested and ask about it. And there are those who say it is a waste of time, dreaminess and nuts.” (open innovation program manager, company C). Company A states that these problems do not emerge, however, they expect more obstacles in the future concerning the innovation that is contrary to their current business model. “We have not struggled with big barriers yet, that will probably start now, as soon as the business model is on the sheet and everyone becomes aware that there is something behind it and it was not just a marketing gag. Then surely one or the other barrier will come.” (DCT, company A). Company E and D stated that resistance and antipathy is no big issue in their operations, but every now and then employees ask critical questions about the process and the collaborations. At company B disparate answers have been received. The family CEO and the R&D manager explained that there is no resistance on the part of employees, whereas the COO noticed protest. Moreover, he stated that the not-invented-here (NIH) syndrome is an issue he is dealing with occasionally. “Also in our organization there are people that think we know best and have the so called not-invented-here syndrome. But I would not say it is a company-wide problem.” (COO, company B). Also company C experienced such an attitude, especially from employees in the R&D department that are affected by open innovation initiatives. “Our developers say we make the ideas and innovations.” (open innovation program manager, company C).

Furthermore, the participants have been asked, how they encourage motivation and commitment from their employees regarding the installation of open innovation. All companies named clear and open communication as an important tool to initiate the commitment of the employees. Moreover, company C, D and E stated that open innovation leads to varieties in their day-to-day operations, and thus, employees are motivated to learn and work with new insights as well as in new environments deriving from external companies. “These co-operations are seen very positive because they bring new insights. It is often fun for the employees, because they get to know something new and do something different.” (DP, company E). Also in this context, company C and H experienced differences depending on the age of the employees. “Especially among the younger employees, many are happy to be able to do something different and to be more free in their thinking and to deal with a new topic.” (open innovation program manager, company C). Additionally to open and clear communication, early involvement was another aspect companies A, B, E, G and H have highlighted. “We established team meetings to create an opportunity for the team members to address things and get involved. I have the feeling that it is important to express his or her opinion. This makes you feel involved in the process.” (CEO, company H). Company A and C emphasize the support and backing from the management as well as the owning family as a great motivator, that devolves to the employees. “This has something to do with the new board member. He knew partnerships from his previous positions and then there is also a for-speaker. Even if people have always tried this in the company, but once there is a critical mass that thinks in the same direction, it makes things a lot easier.” (DCT, company A).

4.2.4 Installation Process
The last topic we asked the interviewees is the installation of the open innovation concept in the family firm. This also implies questions concerning legal issues, how they ensure
knowledge transfer as well as the communication and coordination process during the collaboration with external partners.

Regarding the installation process widely varying answers have been gathered. For instance, company C built a dedicated team consisting of three people that are responsible for their open innovation program. After hearing of potential collaboration partner, they consult with the CEO and eventually with the owner in order to get the approval for the collaboration. Company A, D and E have dedicated project teams that manage the collaboration with the external partners whereas company B, F, H, G do not have defined and responsible teams. After the project start the responsible person of company B, F, G, H has to report the progress to the family CEO. This is mostly done with informal meetings due to the flat hierarchies and close working relationship in these cases. “That is a direct visit to his office.” (R&D manager, company F). While company B, F, G, and H have an implementation process with no predetermined procedures, company E has defined their implementation process with five milestones they agree upon with their partner during the project kick-off. “We agree upon a target and process paper and then the development process is based on these milestones.” (DP, company E). Company A manages the open innovation activities with a dedicated project team consisting of top management members that report to the family member in the board on a regular basis. This leads to the communication and coordination process during the implementation phase.

The applied process is divided into the internal communication and the coordination with external partners. Concerning the internal communication all companies apply regular meetings with the management to discuss relevant topics including open innovation activities of all kinds. Moreover, company A, C, F and H emphasize early communication with all project involved and not involved employees in order to gain acceptance and avoid resistance. “Innovation management has to do with employee management. Of course you can rush things, but you do not make friends with it.” (CEO, company H). “The earlier the communication the better. It is important to have everyone on board” (open innovation program manager, company C).

Regarding the communication with external partners all companies stated that they have a very open communication culture. However, some companies like A and C said that they have regular meetings with their collaboration partners whereas the other companies have irregular meetings only when they are required. However, company A and E clearly stated that there are differences in the communication and coordination process with external partners depending on the size of the company. Coordination processes with larger organizations take significantly longer than with other SMEs. “Large corporations have up to 15 levels. It all takes much longer. Especially in terms of communication. Decision-making processes in large companies are sometimes longer than our development process.” (DC, company E). Additionally, company B, D and E pointed out their flat hierarchies and open communication culture to be a great advantage regarding the communication and coordination process. “This is the advantage, I mean, we are a medium-sized company with flat hierarchies and therefore very responsive.” (CEO, company D).

Another part of the installation process is the contractual safeguarding of the partnerships. During the interview the participants from company A, B, D, E, F and G repeatedly mentioned their cautiousness about how much information they disclose. All of them stated that they practice a very reserved knowledge sharing. “Of course, we do not want to spread our knowledge so that it does not come into the wrong hands, we have of course to protect some parts.” (CEO, company B). Therefore, the companies made contracts about their collaboration, for instance including exclusivity agreements in case of company D or jointly filed patents at
company A and E. The other companies agree on non-disclosure agreements (NDA) mostly as the basis prerequisite of a collaboration with external partners. “There is a partnership agreement or supplier contract or development contract. So basic legal things must be done, but otherwise as little bureaucracy as possible.” (DCT, company A).

Furthermore, the insurance of knowledge transfer and especially knowledge retention is an important aspect for all family firms. Companies A, C, D, F, G and H stated that they do not have a formalized knowledge retention approach. Company B explained that the employees learn from each other and that the older employees, that have worked in the company for a longer time, pass on their knowledge and expertise to their colleagues. “There is a difference in age and how long we have worked for the company, so we learn from each other and share experiences. We take the knowledge from older employees that knows a lot about it all our trial and errors during the development projects” (R&D manager, company B). However, company E explained that they are just about to implement a formal system in order to ensure the knowledge retention. “We are now introducing a knowledge transfer management system with a database to facilitate communication. This includes to managing the open innovation activities and finding and archiving documents.” (DC, company E).

One challenge family firms face when dealing with the open innovation concept is to affiliate a cultural fit between both collaborating partners. This means on the one hand, that the same interest, values and expectations need to be present, but on the other hand, employees and the organization need to be prepared internally to accept the support of an external partner. The cultural fit between both partners is elementary in this regard. "We have seen in several situations that there is a cultural fit between both parties required. The interest must be the same on both sides. This works when cultural fit is there, but also a certain basis of trust.” (CEO, company A). This cultural fit is particularly challenging when collaborating with large organizations since they have different expectations on the collaboration. In this case, an even stronger interests basis and a beneficial situation for both is needed to collaborate successfully. Another challenge for many family firms is sharing of valuable information and knowledge. In particular, in line with the collaborative establishment of a new innovation, knowledge needs to be shared to take advantage of both parties expertise. The risk of losing intellectual property emerges. “You always need to keep a balance of how much information you share and keep. There is also a certain amount of trust needed in this context. Our new partners have a leap of faith when we approach new projects.” (R&D manager, company D). Moreover, open innovation is time consuming and has significant organizational complexity depending on the size of the collaboration. This is often underestimated by companies.
5 Analysis

This chapter analysis the empirical findings described in the previous chapter. Hereby, we point out similarities and differences between the cases as well as explain the relationship of family involvement and implementation of open innovation in family firms.

As described before, we see the implementation of open innovation as a holistic and continuous approach. The implementation begins with the decision to open up the internal R&D department, includes the selection process of potential collaboration partner and relationship fostering as well as the encouragement of the employees. The last phase is the actual implementation or installation as well as communication and coordination of such activities. Once again, we want to mention that we focus on the organizational level and only take the strategic view into perspective.

Referring back to our definition of family firms, we conducted interviews with companies, that are strategically controlled by the owning family (Ibrahim et al., 2008). Therefore, the family involvement has a great influence on the overall decision making and in our case on the practice of open innovation. Therefore, we can say that the family influences both the overall open innovation strategy, and thus, the implementation process as demonstrated in the figure below.

Figure 6: Impact of Family Involvement on Open Innovation

![Figure 6: Impact of Family Involvement on Open Innovation](image)

Source: Own presentation

5.1 Classification of Cases

The family involvement varies throughout our selected cases. Hence, there are different governmental forms in each case that allow us to draw similarities and differences regarding the implementation process depending on the degree of the family involvement. In order to distinguish the different levels of family engagement in the firm, we clustered the cases by means of family involvement in daily operations and family influence on the strategy and core business. Family involvement in daily operations means that the family member is part of the day-to-day business and actively works in the company. On the other dimension, family influence on the strategy and core business describes the extent to which the family sets the strategic direction. Hereby, we differentiate between high and low family influence. The figure below shows the cases categorized according to these two dimensions.
The figure shows that we have two main groups derived from our sample. Company B, F, G and H are family firms with a family member participating in the day-to-day business while also having the strategic control over the company and setting the strategic direction. Company A, C, E and D’s daily operation are managed by non-family CEOs, but the owning family is in the lead of the firm’s strategy and gets informed about the company’s progress. However, within this group we can distinguish the degree of the family involvement on the strategy and core business. As stated before, in company A the family member is part of the supervisory board, and thus, has great decision making power through his position. Company D’s direction is determined by the two owner-directors of the firm. Company C and E are, compared to company A and D, slightly less influenced by the owning family. Due to her age, company C’s owner does not have a formal position within the firm, but since she is the owner of the company, gets informed by the management team. However, only the major topics and strategic direction are being discussed with her. Company E experiences a change after the sudden death of the family chairmen last year. Nevertheless, the management still considers his vision for the company and his management style is firmly anchored in the daily operations. One aspect that needs to be considered is that the family members of company A and C used to maintain an operational position in the company and were involved in the day-to-day business.

Coherent with our sampling criteria, the applied definition of family firms and the organizational perspective that we took, we only fill quadrants one, two and to some extent three. We did not investigate how family firms with influence on the daily operations but no control over the company’s strategy affect the implementation of open innovation. We used this classification for the further analysis in order to point out similarities, differences and relations between the two main clusters but also within the groups.
5.2 Family Influence on Open Innovation Implementation

As described before the implementation of open innovation implies several aspects that influence the actual installation phase. These components are the motivation for open innovation actions, external partners and the commitment of the employees. However, first of all it is crucial to understand which role open innovation takes in the companies we interviewed. Thus, we start with analysing the influencing components, followed by the actual implementation process and closing with further aspects.

5.2.1 Implementation Components

Role of open innovation
Beginning with the role of open innovation we found out that family firms of quadrant two rather search for knowledge outside their company boundaries and do collaborations with external partners when there is a problem they cannot solve themselves. This goes along with our finding that these companies mainly named internal drivers as a reason to practice open innovation. For instance, they stated that expertise and know-how from outside are necessary for their progress. Additionally, a lack of resources and the ability to do fundamental research due to the company’s sizes were reasons to collaborate and work together with external partners on innovations. Only company F named explicitly competition and fast-moving markets as external driver.

In contrast, companies within quadrant one stated that they use the concept of open innovation for problem specific innovation issues, but also to generate new products and new ideas. Company A and C go even further and see open innovation as an accelerator for the business and as an potential opportunity to modify and transform the current business model. Our interviewees named the same internal drivers as the participants from quadrant two but also put a lot emphasis on external drivers such as competition, fast-moving markets, niche market pressure and fast-changing customer trends.

Open innovation motivation
Based on these findings, we argue that open innovation initiatives for companies with family members being part of the daily operations result more from internal drivers than forces from outside. For instance, company B works together with suppliers that are experts in their field in order to develop components that make their product better and better. However, they also clearly state that they stick to their tradition and do not want to change the core of the product. Company F, G and H are open to collaborations with external partner and knowledge exploration from outside the company, but carefully protect their knowledge and products. Overall, they only practice open innovation when they do not have the own resources to do it. Accordingly, companies with no involvement in the day-to-day operations and non-family CEOs engage in open innovation because of both internal drivers but also market forces. Company A, C, D emphasized the importance of collaborating with external partners and developing jointly innovations in order to remain competitive in the market and address market forces.
Whereas we can identify significant differences between the two clusters concerning the role of open innovation and motivations to perform, the component management of external partners shows more similarities than differences. All companies named trust as the most important factor when it comes to collaborations. The term trust covers herewith several facets, for instance trust to work consistently on the project, trust to meet the criteria agreed on, trust to protect sensitive know-how and information. Moreover, all companies from quadrant two stated a cultural fit to be necessary and crucial for a collaboration. The interviewees explained that the underlying culture in a company determines all procedures and that same values promote and benefit the collaboration. From quadrant one only company A and C named cultural fit as one aspect of the partner selection.

Regarding the relationship fostering, we cannot observe huge differences between the clusters. Companies from both groups named mutual updates and meetings as well as personal contact and cultivation of long-term relations as decisive factors.

Employee’s commitment
Another component that needs to be considered within the implementation process is the commitment of the workforce. However, no significant difference can be discerned how the family firms encourage their employees for open innovation initiatives. Moreover, there are no specified practices to enhance the employee’s acceptance and motivation such as formal trainings or workshops. The companies were coherent in their statements that early communication and involvement are important and adequate. In addition to that, company A and C highlighted the importance of the unrestricted backing and full support of the owning family to ensure the commitment of the workforce.
5.2.2 Open Innovation Installation

After analyzing these components, we come to the actual implementation or installation of open innovation activities. Here, we also observe different patterns between the two clusters. For instance, companies with no family members being part of the daily operations initiated dedicated open innovation teams, that are responsible for all coordination processes and manage the open innovation activities. The respondents explained that the top management is mostly not part of these teams but gets regularly informed about the progress in meetings. In contrast to that, companies with family members being part of the daily operations, they were all highly involved in the coordination processes with external partners, for instance the family CEOs of company H and G are in the lead of those collaborations and the family CEOs of company B and F want to be updated steadily and make all decisions. Moreover, the owner of company F stated that he wants to be more informed when doing innovations with external partners than internal developments. However, companies of quadrant two do not have formal implementation practices including dedicated open innovation teams or pinpointed procedures. All coordination processes are made based on flat hierarchies structure as well as open and informal communication and consultation with the owner.

Hence, we conclude that family firms with the family being involved in day-to-day operations engage in open innovation primarily on the grounds of internal driver and have an informal implementation process with loose communication practices but intensive consultation with the owner. Contrary with that, companies with family members setting the strategic direction but managed by external CEOs utilize the concept of open innovation to respond to external market forces besides internal drivers and have formal implementation processes.

This argument is supported by looking at the knowledge retention style. For instance, company E, part of cluster one, is about to implement their own knowledge transfer management system in order to backup all documents and know-how from employees including information about their collaboration partner and previous results from joint projects. Conversely, company B clearly stated that they preserve the existing knowledge from past projects by transmitting it verbally from generation to generation, from long-standing employees to new employees. This contrast supports our statement that the degree of family involvement determines the implementation process.

Taking these interactions from our empirical findings into account we can conclude with a model shown below that demonstrates these relations and casualties.
5.2.3 Further Aspects
Throughout the findings and analysis, we discovered the particularity of company A and C classified as companies of quadrant one, thus family firms with no family member managing day-to-day operations but holding strategic control over the business. However, regarding the role of open innovation and motivations to engage in open innovation company A and C differed from the other cases of the cluster. Both family members that control the firm's strategy nowadays and keep the entire ownership of the company used to be part of the operational business. Therefore, they know their business down to the finest detail as well as the market. Both family members show intensive commitment for open innovation, allow, support and demand open innovation activities. In case of company A, the family board member fully supports the collaboration with two external parties to develop a new product, that cannibalizes the current business model and will constitute a disruptive innovation. Company C set up their own open innovation program on behalf of the owner and uses those collaborations to develop new products and establish themselves in new markets with other pillars. Concluding, we can say that the owners, that have worked in the business for many years, are more open to the concept of open innovations and willing to take a risk.

One aspect that is not part of the implementation process but affects the evaluation of open innovation initiatives and most likely influences the success of these collaborations are resistance and antipathy by employees, thus the individual level, towards the concept of open innovation. The empirical findings show that more the companies of quadrant two face resistance regarding opening up the internal R&D department. For instance, company B stated that they experience the not-invented-here syndrome among some employees and also company
G, H and F face initially resistance and critical questions about the necessity of such joint innovations. From quadrant one only company C named resistance as a difficulty they have to deal with. The other companies did not experience resistance so far. We argue that employees working for companies with a family member being part of the daily operations are even more connected to the company, its heritage and tradition, and therefore, sceptical when it comes to external partners. This argumentation is supported by the fact that company B, with the sixth generation involved in the business, described the major resistance issues. Thus, the employees seem to have a strong emotional relation due to the tradition, the closeness to the family and try to keep it within the firm’s boundaries. In contrast to that, companies with no family member involved in daily operations and managed by external CEOs are less resistant. This possibly occur due to a greater distance to the owning family and a more extensive focus on financial aspects from the external management. However, when drawing these assumptions we made use of existing findings in the literature about differences between family and non-family CEOs. Additionally, it is important to note that we only investigated the organizational level and did not interview respondents from the individual level.

Overall, these findings show that the family involvement does affect both the role of open innovation in the company and also the implementation of this concept. Nevertheless, it also shows that the actual installation of such deep collaborations is based on the existing communication and coordination processes as well as the company’s culture. Therefore, the implementation process can be seen as a heterogenous practice. Even though the implementation with all its facets varies throughout the cases, we observed several patterns among the different levels of family involvement and can conclude that the concept of open innovation in family firms is determined by the owning family and its involvement in the business. In the following, we discuss these findings with existing literature about open innovation.
6 Discussion

The following discusses insights from the theoretical background, empirical findings and analysis on family firms about the impact of family involvement on open innovation and the implementation of open innovation in family firms. All three pillars are building the basis to answer the research question comprehensively in the conclusion.

Open innovation is characterized by the shift from closed to open innovation, and therefore, the process of opening up the internal R&D to collaborate with external partners in order to pursue innovations (Chesbrough et al., 2006). The concept of open innovation is a holistic and continuous approach that affects all organizational levels (Lichtenthaler, 2011). When implementing open innovation in family firms, many family characteristics need to be taken into consideration when engaging in the concept. Among others, the family involvement is a major influencing factor on the implementation of open innovation and has been analyzed within eight cases in the past chapter. The basis to discuss the family involvement on open innovation in family firms is the understanding of the role of open innovation in the cases. The empirical findings reveal that the role of open innovation among the cases is used as a problem-solving approach, as an accelerator for the business and for fundamental research. Even though the role can be categorized in these three elements, the family involvement in open innovation activities of family firms is circumstantial and needs a stepwise discussion to understand thoroughly.

The following discusses the sampled family firms in regard to its governmental situation and characteristics that influence open innovation. This is followed by the impact of the family involvement on open innovation with a differentiation of family and non-family managers in this context. In the closing section, the family involvement on the implementation of open innovation is discussed.

6.1 Family Firms

The used definition of family firms is the root of the research concerning the family involvement in open innovation with “firms with some family participation in the business and control over its strategic direction” (Ibrahim et al., 2008, p. 97). For our purpose it is important to understand the family involvement of the eight selected cases. According the theoretical background, the classification of family firms and family involvement is often conducted with the usage of the three circle model of Tagiuri and Davis (1996). Differentiated by the ownership, business and family the samples overlap in the field of family owner employees and family owner. Company B, F, G and H have a family member in place as the CEO and owner of the family firm. In contrast, the family member of company A, C, D and E only has a family member that still owns the family firm.
Family firms are not only influenced by the family involvement, but also by various other characteristics, that have significant influence on open innovation. In the theoretical background the characteristics socio-emotional wealth, conservatism and risk aversion as well as long term relationships are the mainly identified aspects.

*Socio-emotional wealth* contains aspects like clan membership, personal control and the family dynasty (Bigliardi & Galati, 2017) that are typical for family firms and influence the willingness to invest in open innovation (Chrisman & Patel, 2012; Kraiczy & Hack, 2016; Duran et al., 2016; Madiedo, 2014). Within the cases, family owners, that are part of the daily operations (company B, D, F, G and H), want to be early involved and provided with updates on the open innovation processes. They also show a high openness towards opening their internal R&D and willingness to change in order to sustain the family dynasty. This goes as far as that even radical initiatives that jeopardize their own business model are welcoming topics. “He is someone who likes such topics anyway. He thinks very early, what could destroy our current business model and then we prefer to do it ourselves.” (CDT, company A). Another result, that agrees with the literature, is that family owners want to have the final decision and remain personal control to avoid the loss of control when it comes to collaboration with external partners and open innovation (Madiedo, 2014; Lazzarotti & Pellegrini, 2015). The example of company F shows that even with strong commitment, bad experience concerning the loss of control can lead to lower investments and interest in open innovation initiatives.

*Conservatism and risk aversion* are further aspects that have an influence on open innovation and the willingness to collaborate with external partners (De Massis et al., 2015). The traditional approach of family firms to pursue innovations by themselves is shifting with open innovation. All cases are engaged in open innovation and show an openness to the concept and willingness to collaborate with external partners. Therefore, low conservatism is present within the cases. The risk aversion associated with open innovation emerges in regard to financial decisions with a high investment volume and the adherence of personal control (Brinkerink et al., 2016; Duran et al., 2016; Lazzarotti & Pellegrini, 2015; De Massis et al., 2016). Overall, the observation among all cases revealed that a rigid consideration concerning financial investments in open innovation collaborations and risk-benefit ratio is present. However, we did not experience a
high degree of risk aversion since company C for instance highlighted that risk sharing through joint innovations is beneficial for the family firm.

*Long-term orientation* also influences open innovation in family firms through fostering of long-term relationships with collaboration partners among all cases. This is aligned with the theory to develop prosperous and steady relationships with external partners (Le Breton-Miller & Miller, 2006). Here, trust and mutual interests in partnerships are primarily named concerning the establishment long-term relationships. Particularly, company B is a significant example in this context, because it has the longest history among the sample and heavily relies on the long existing network with various partners when pursuing open innovation initiatives.

The following focuses on the impact of the family involvement on open innovation and takes the discussed results a step further to understand the influence of the family involvement on the implementation process at the end of the chapter.

### 6.2 Impact of Family Involvement on Open Innovation

The applied three-circle model identified that half of the cases have a family manager (CEO) in place. The family involvement of the four family firms with non-family managers is given through the family membership in the advisory board or a foundation that governs the management. The family involvement on the management, and therefore, open innovation is discussed with family manager and non-family manager in charge. One aspect, stated by Lazzarotti and Pellegrini (2015), is that non-family managers are the majority of open innovators. Even though it needs to be agreed that they utilize more external knowledge, they are not more innovative since all selected family firms pursue significant product innovations from their open innovation initiative. Based on the analysis, companies with family members, that are part of the daily operations, are rather influenced by internal drivers, whereas companies with non-family members in place and no influence on the daily business are also influenced by internal driver but also market forces.

The family influence on non-family managers in company A, C, D and E is characterized by similar values and socio-emotional wealth. According to Lazzarotti and Pellegrini (2015) *similar values* between the founding family and the non-family manager is a precondition to engage in open innovation activities. Kraiczy et al., (2015) state that the alignment with the family goals and intentions is important. The analysis reveals that a close consultation with a short agreement process and a good relationship is important for open innovation projects. On behalf of the family owner, an early involvement in the projects is important. Aligned with the theory of Laursen and Salter (2006), all sampled family firms emphasize openness of the family owner for the collaboration with external partners. *Socio-emotional wealth* in regard to the expectations and goals of open innovation for family firms reveal that, in contrast to the theory by Gómez-Mejia et al. (2007), the focus of non-family managers in our sample is not solely on financial performance. Company C stated that the objective of their open innovation initiative only has financial background in the long-term. “To generate revenue is important, but only in the long term. We want build other pillars for the family firm that is the overall objective, and therefore, we believe in slow developments rather than fast exploitations.” (open innovation program manager, company C). Additionally, the theory of Oswald et al. (2009) state that the presence of a family manager does not necessarily hinder the financial performance in regard
to open innovation. As stated earlier, the influence of the family owner on investments and financial aspects remains significant due to the risk aversion.

The influence of the founding family on the family managers in company B, F, G and H includes the employee commitment and the establishment of long-term relationships. The commitment of employees is supposed to be higher with a family manager at place according to the literature, since they are closely connected to the family firm and pursue continuity (Bigliardi & Galati, 2017). The analysis reveals that employees of a family manager, who participates in operational business, show a higher resistance towards the collaboration with external partners. Therefore, we argue that employees are more concerned and sceptical about opening up the internal R&D department, since they strive to protect the firm’s dynasty and the emotional relation is stronger than in family firms with a non-family manager. To gain the support of the employees, no particular method is applied by the sampled family firms. However, all emphasized that an early involvement, clear communication and transparency is important for the commitment. The establishment of long-term relationships is more in the focus of family managers according various scholars (Zahra, 2005; Sirmon & Hitt, 2003; Bigliardi & Galati, 2017). Here, only the family manager of company B and F named this as a criterion when engaging in open innovation, but all non-family manager companies stated this aspect too. In particular, the element trust is named as the basis for long-term relationships by all selected samples.

6.3 Implementation of Open Innovation in Family Firms

The actual implementation of open innovation is particularly challenging because there is no guide or recommended process yet, that puts the family involvement in this context. However, the literature identified three elements that need to be taken into consideration when implementing open innovation. These are the embeddedness in the organizational culture, the leadership style and knowledge management. Additionally, various implementation practices are suggested by various scholars and will be discussed afterwards.

First, external sources need to be embedded in the organizational culture to implement open innovation. As De Massis et al. (2013) further explained, they need to preserve socio-emotional wealth to reduce the loss of control of family firms. Among the cases, the organizational culture is valued as an important aspect when collaborating with external partners. The basis for this is openness by the family towards change and opening up the internal R&D process, and therefore, they influence the organizational culture significantly. All non-family managers in company A, C, D and E are aligned with the theory of Sonfield and Lussier (2009) with a positive opinion about external sources and outside information. The aspect of socio-emotional wealth has been discussed before and is also influencing the collaborations of family firms. Further, trust has been identified by all cases as the basis for a fruitful collaboration, but also mutual interest and a cultural fit between the family firm and the partner is needed. The cultural fit promotes and benefits the collaboration according to company A, B, C, F, G and H. “The interest must be the same on both sides. This works when cultural fit is there, but also a certain basis of trust.” (DCT, company A).

Second, the leadership style of the top management and owning family is vital for the implementation of open innovation. The owning family shows great openness towards new ways of innovation and carries this attitude throughout all organizational levels. This goes along
with Lambrechts et al. (2017) statement that the concept of open innovation should be manifested in the leadership style of the family owner and management. Since the family sets the strategic direction of the organization and has the last word, an open leadership style and the backing of the top management as well as employees being involved in open innovation activities is crucial. Thus, leadership by example is important to influence the motivation and commitment of the employees positively and avoid resistance on an individual level. The resistance can lead to the non-invented-here syndrome (NIH) as stated by company B and C. A positive attitude is significantly important due to the fact that open innovation is a holistic approach and affects all organizational levels (Lichtenthaler, 2011). Among the cases, the initiative for open innovation started in company A, B, C, F, G and H by the family owner. This underlines the family owners’ commitment to the concept and the willingness to change. Therefore, we need to disagree with Sciascia et al. (2012), who state that mostly non-family managers promote change and support innovation in family firms.

Third, a suitable knowledge management is relevant in regard to the sharing of know-how. According to the used definition of open innovation, that focuses on “knowledge exploration, retention and exploitation of knowledge” (Lichtenthaler, 2011, p. 77), an adequate management becomes vital. Adjustments and modifications of the present knowledge management need to be made in order implement open innovation (Scavarda et al, 2017). However, company A, B, D, E, F and G act reserved when it comes to knowledge sharing. They protect their knowledge and only reveal as much as necessary. Moreover, they use NDAs to protect their specific know-how and secure it from their competitors. Regarding family firms, especially socioemotional wealth and the loss of control are elements that influence the knowledge sharing willingness and are repeatedly named within the cases. Lichtenthaler (2011) emphasizes that the knowledge retention and exploitation become increasingly important when engaging in open innovation. Therefore, the willingness to share knowledge as exploitation of information is vital for organizations and can be influenced by family firm characteristics. The empirical findings reveal that family manager rather pursue an informal process with passing knowledge from generation to generation (company B) and non-family manager a formal process with knowledge transfer management system for instance (company E). Both practices need to be considered carefully concerning the retention of knowledge. Here, the overall absorptive capacity of family firms is vital to retail knowledge (Randhawa et al. 2016).

Various implementation practices are stated by the literature and numerous scholars. Chiaroni et al. (2010) emphasize that the champion role in regard to the internal support and commitment is vital for the implementation. The analysis reveals that the support of the family in regard to open innovation is crucial for this process. This is the case for company A, C and D. Further, trainings and workshops are suggested by Bruque and Moyano (2007), but are not applied among the cases. The organizational culture is emphasized again by Casprini et al. (2017) in order to decrease resistance among the employees concerning collaboration with external partners. Company A, B, E and H value early involvement as vital for the commitment of employees in open innovation. This also agrees with Van de Vrande (2009) to assimilate the culture during the transition and familiarize the employees with the process.

Even though the literature of Moratara and Minshall (2011) is focused on the implementation in large organizations, the results are still valuable for this research. They argue that the implementation depends on three aspects: the innovation needs, the timing of the implementation and the organizational culture. The innovation needs are the motivators and drivers for open innovation. Here, an alignment of the theoretical drivers and empirical findings
is present through the identified drivers. The search for ambidexterity through incremental and disruptive innovations is also present through the role of innovation as an accelerator and problem solving approach (Moratara & Minshall, 2011). This contradicts the assumption that family firms rather search for incremental innovations (Nieto et al., 2015). The timing of the implementation is oriented on the initiative for open innovation. As we found out, among all cases, the initiative started with the family owner through various internal and external driver, and therefore, disagree with Mortara and Minshall (2011), that the initiative tends to be more from the top management and non-family managers. The organizational culture was discussed earlier and is vital for the implementation of open innovation. The respective literature shows that the culture can facilitate the adoption of the concept (Moratara & Minshall, 2011). This is aligned with the general openness of the family firms for open innovation and collaboration with external partners. Further, the application of open innovation trainings and workshops is beneficial for the organizational culture (Mortara et al., 2009). However, no such practices have been identified within the cases. The literature continues with the application of dedicated open innovation teams to improve the organizational culture and ease the implementation process. This approach is used by companies with non-family CEOs.

Overall, we identified various similarities between the empirical findings and respective literature, however differences and discrepancies emerged on various occasions as well. In the following, we provide an answer to the research question as well as concluding remarks derived from the results in the analysis and discussion.
7 Conclusion

After analyzing and discussing the empirical findings, the conclusion and therefore results of the research are presented in the following. These include two main outcomes concerning our research question as well as two managerial implications. Further, the research limitations and future research are outlined.

Independent of their size, more and more companies open up their own R&D department in order to use and combine know-how as well as expertise from outside the company’s boundaries. They do so to react and adapt faster to quick changing markets and consumer trends. Therefore, a shift from closed to open innovation processes can be identified. Our pilot interviewee supported and affirmed this statement. He further highlighted the trend that family firms and SMEs in Germany show high interest for the concept of open innovation and seek ways to get engaged in this new form of development. However, the interviewee also emphasized challenges like cultural fitting of the collaborating companies, and consequently, the necessity to embed this openness in the company’s culture and an adequate implementation of open innovation projects.

Hence, we reviewed the existing literature on the concept of open innovation in general, narrowed it then down to open innovation in family firms and subsequently to the implementation of open innovation. Resulting from this funnel approach, we identified that there is only little research done about the implementation of open innovation, especially in the context of family firms considering the unique family characteristics. Therefore, we decided to shed light on this research topic and came up with the following research question:

**Open Innovation in Family Firms:**

*How does the Family Involvement influence the Implementation of Open Innovation?*

Implementation of open innovation is seen as a broad process including the motivation to do open innovation, external partner selection and fostering, encouragement of the workforce as well as the actual implementation phase. The aim of this study is to contribute to and further develop the existing literature. For this purpose, we applied a qualitative exploratory multiple case study method and conducted semi-structured interviews with eight companies. All the interviewed companies are family firms, strategically controlled by family members and currently performing open innovation activities. In order to answer our research question, we classified our sample in companies with family members setting the strategic direction and are involved in day-to-day operations, thus being part of the operational business and companies, that are only strategically controlled by family members but having external CEOs that manage the daily operations.

The analyzed and discussed empirical findings lead to the following conclusion and answer of the research question. Overall, the owning family is significantly important for the implementation of open innovation in form of either initiator and supporter or key decision maker when involved in daily business. However, we discovered particularly differences between the degree of family involvement regarding the motivations for open innovation as well as in the actual implementation process. Family firms with family CEOs mainly used open innovation as a response to internal drivers like lack of resources and expertise as well as lack of own fundamental research due to their size. Moreover, the family CEOs demand consultation and strong involvement when doing joint innovations with external partners. In contrast, family
firms, with family members setting the strategic direction but managed by external CEOs, address internal driver but also external driver and market forces as motivations to open up the internal R&D department and using joint innovations to develop the company and its products further in order to stay competitive. Furthermore, the findings on family involvement in the installation process of open innovation in family firms reveal that families, that are engaged in the daily operations, execute an informal implementation process with loose communication practices. In contrast, family firms only strategically controlled by family member and managed by a non-family CEO pursue a formal implementation with more defined coordination processes.

7.1 Theoretical and Practical Implications

The involvement of the family in the implementation of open innovation is circumstantial and we cannot draw any conclusions about the success of the implementation resulting from our findings. Nevertheless, we want to provide managerial implications that put attention on aspects that need to be considered by managers when implementing the concept in family firms.

Organizational culture: The organizational culture is the basis for the implementation of open innovation. In particular the openness towards change by the family is vital on the organizational level. On the individual level, employees need to be early involved in the process. In particular, the collaboration with external partners needs to preserve socioemotional wealth. Further, trust and mutual interests are important for the partnerships. Here, managers need to pay attention to the overall opinion of the owning family concerning open innovation and align the family goals with the open innovation activities.

Leading by example: In particular the leadership role is important for the implementation. The concept of open innovation needs to be manifested by managers. Further, leadership by example is vital to positively influence the individual level with its employees of the family firm. With this, resistance can be counteracted. Additionally, the commitment by the owning family is relevant again to support the leadership coherence on all organizational levels.

7.2 Limitations

We identified some limitations that need to be considered when evaluating the study. First and foremost, we only focused on the organizational level and took a strategic perspective. However, the concept of open innovation and especially its implementation is a holistic approach that impacts all levels of an organization. Even though we bear this holism in mind, we did not investigate the individual and project level in detail. Moreover, there are limitations deriving from our sample. Overall, the limited time for this work constrained the access to companies willing to participate in our study. Additionally, it was challenging to find companies, that are both family firms according to our definition and engaged in open innovation. Consequently, the role of open innovation as well as the importance and relevance of open innovation differs among the cases and impacts our empirical findings. Furthermore, limitations concerning the family involvement occur. First, the applied definition of family firms demand the strategic control from the owning family. Therefore, the degree of family involvement in our sample is in a way prescribed and restricted. Second, provided that the family controls the company’s strategy, the involvement differs in the extent of participation.
on daily operations. This explains why our sample consists only of family owners and family owner employees according to the three-circle model of Tagiuri and Davis (1996). Resulting of these limitations, we can identify several suggestions for further research.

7.3 Future Research

As described in the previous part, our study implies some limitations and restrictions. Therefore, we want to inspire researchers to address the concept of open innovation in family firms further and in greater detail, especially with the focus on family influence on the implementation process. For instance, researchers could use a longitudinal approach in order to investigate how the family involvement influences the implementation process and changes during the time or after the first joint innovation is completed. Moreover, researchers could investigate how the family involvement differs between internal innovations, exclusively developed with own resources, and innovations jointly developed with external partners in order to understand how the family involvement affects open innovation in general and then particular the implementation. Additionally, researchers could investigate how the different implementation approaches affect the performance of open innovation activities. Since, we focused on the organizational level, future research could explore the individual and project level and investigate how these levels perceive and assess the family involvement and influence on the implementation of open innovation. This would combine different perspectives and lead to even more conclusive results. Overall, this subject is under-researched at this point and thus, leaves scope for further investigations. Even though, the focus in this study is on the family involvement, as one variable that influences the implementation of open innovation, it might be interesting to change it for another family firm characteristic like the generational shift. It is also possible to dive deeper into the family involvement aspect and investigate the influence of socioemotional wealth or the loss of control only. However, during our investigation we gained fascinating insights and believe that it is worthy of attention.
Reference List


Appendix

I. Interview Topic Guide

JÖNKÖPING UNIVERSITY

Interview Topic Guide

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<thead>
<tr>
<th>Kristin Klinge</th>
<th>Eike Bünker</th>
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<tr>
<td>+49 (0)176 - 666 959 31</td>
<td>+46 (0)79 - 026 8972</td>
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<tr>
<td><a href="mailto:klkr1618@student.ju.se">klkr1618@student.ju.se</a></td>
<td><a href="mailto:buei1692@student.ju.se">buei1692@student.ju.se</a></td>
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Introductory information

Topic of the thesis:
Open Innovation in Family Firms: How does the Family Involvement influence the Implementation of Open Innovation?

Open Innovation:
= “systematically performing knowledge exploration, retention, and exploitation inside and outside an organization’s boundaries throughout the innovation process” (Lichtenthaler, 2011, p. 77)
→ collaborations with external partners like universities, institutes, suppliers, customers and other companies

General Questions

- Could you please tell us a little about:
  - yourself
  - your position
  - your responsibilities
  - the company you work for

- What is the role/function/influence of the (founding-) family in the firm?

- What is the role of open innovation in your company?

Motivations for Open Innovation Activities

- What are the reasons/main drivers to open up the innovation process in your company?

- Who came up with this idea? Who is the initiator of open innovation initiatives?
External Partners

- On what ground did you decide what partner to choose and in what direction to go?
- How do you select the external partner? What are the main characteristics?
- How do you foster the new relationships with the external partners?

Commitment

- How do you encourage motivation and acceptance of your employees to collaborate with external partners?
- To what extent are you confronted with resistance and antipathy towards open innovation?

Implementation of Open Innovation

- Can you please elaborate on the first steps of the implementation process?
- What particular steps did you value as most important?
- How do you ensure knowledge transfer?
- How are the communication and coordination processes?
- What challenges did you identify before/during the implementation process?

Closing Questions

- After the (un-) successful implementation, what is your overall opinion on open innovation and what do you want to improve for the next time?
- Do you have any further comments or questions?
II. Informed Consent

Informed Consent to Participate in a Research Study

<table>
<thead>
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You are invited to participate in a research study. Participation in this research study is voluntary. The information provided is to help you decide whether or not to participate. If you have any questions, please ask.

Introduction
You are being asked to be in a research study concerning the implementation of open innovation in family firms, especially the influence of family and non-family members in the top management team in this process. Therefore, you were selected as a possible participant because you fulfil the criteria of being a family firm that deals with open innovation and contains a family- or non-family member in the management team. Concluding, we ask you to read this form and ask any questions that you may have before agreeing to be in the study.

Purpose of Study
The purpose of the study is to research on how the family involvement in the top management team of family firms influence the implementation of family firms. In that regard, we assume that there are differences concerning how family firms open up their innovation process to external sources as well as their general tendency towards an open innovation strategy. In particular, there are differences if family members or non-family members are part of the management team. Ultimately, this research will be published in an internal thesis database of the university, which is only accessible for students and teachers.

Description of the Study Procedures
If you agree to be in this study, we will ask you to answer open question around the topic implementation of open innovation in your company. The interview is composed for around 45-60 minutes and consists of 12 questions. We ask you to answer these question to the best of your knowledge and belief.

Risks/Discomforts of Being in this Study
There are no reasonable foreseeable (or expected) risks. There may be unknown risks.
Benefits of Being in the Study
With the results, we would like to draw managerial practices and guidelines for family firms that want to or currently deal with the implementation of open innovation. Therefore, we will provide the you with the generated implications and send you copy of the final report.

Confidentiality
As you wish (see bottom of the paper) the records of this study will be kept strictly confidential. We will ensure that only both researchers Eike Bünker and Kristin Klinge have access to the collected information. The audio recordings are only used for the analyzation of the data and will be destroyed afterwards. Not any information will be forwarded to third parties. We will not include any information in any report we may publish that would make it possible to identify you.

Right to Refuse or Withdraw
The decision to participate in this study is entirely up to you. You may refuse to take part in the study at any time without affecting your relationship with the investigators of this study. Your decision will not result in any loss or benefits to which you are otherwise entitled. You have the right not to answer any single question, as well as to withdraw completely from the interview at any point during the process; additionally, you have the right to request that the interviewer not use any of your interview material.

Right to Ask Questions and Report Concerns
You have the right to ask questions about this research study and to have those questions answered by me before, during or after the research. If you have any further questions about the study, at any time feel free to contact us, Kristin Klinge at klkr1618@student.ju.se or by telephone at +49 176 666 95931 or Eike Bünker at buei1692@student.ju.se or by telephone at +46 79 026 8972. If you like, a summary of the results of the study will be sent to you.

Consent
Your signature below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigators.

I wish anonymity and confidentiality of any given information before, during and after the interview.
[ ] Yes  [ ] No

Participant’s Name (print): __________________________  Date:

Participant’s Signature: __________________________  Date:

Investigator’s Signature: __________________________  Date:

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III. Company Profiles

The following provides information on the interviewed family firms with its history and general background information. Further, information on the family governance and the interviewed respondent are given. The information have been gathered through secondary data of the company websites or articles. Additionally, basic introductory questions concerning the company and the respondents have been asked at the beginning of the interviews.

Company A

Company A has 14 production facilities with 30 subsidiaries around the world and brand presence of nine brands in 48 countries. Furthermore, there are about 1,810 employees working for the company worldwide and thereof 500 sales consultants. Company A presents its high standard of quality as one of the central values of the firm. They also highlight their commitment to and success of inhouse research and development. The courage to innovate and change its products as well as the entrepreneurial spirit are two additional core values of the company. The company recently opened up its internal R&D processes to seek ideas beyond their own boundaries. This is significantly valuable for the research in this paper. Thus, open innovation is a completely new way of doing business for the family firm and the implementation is in process at the time we did our research.

Till this day the chairman of the supervisory board remained and oversees the top management of the family firm. Nevertheless, the focus and responsibilities of the second generation of the family are rather strategic and usually does not include the operational business. Even though the company is part of a PLC holding, the shares remain in family possession. Nevertheless, the distinction between the family itself, the holding group and the core brand is important to consider.

At company A we conducted an interview with the Director Corporate Technology who is a non-family member. He is part of the company for more than seven years now and is responsible for the product management, research and development, service, after-sale and the core brand for the company. In that regard, he supervises the process from the general product idea over the construction, market launch and than required services after the sales.

Company B

Company B is a family firm with the longest tradition in our sample. The company was founded 1852 in Sweden and is still family owned and controlled with the sixth generation involved. Company B is part of the manufacturing industry and produces beds in the premium sector. Since 2010 the company is managed again by the fifth generation of the family and employs over 200 people. Before 2010, the family firm was managed by an external non-family CEO. Company B values the quality of their product as a key success factor. They highlight the traditional techniques to produce the beds and their devotion to handcraft. Furthermore, all employees continuously strive to improve it without changing the core. The quality aspect starts with the usage of top quality materials that are produced in close collaboration with their suppliers. The family firm has an open R&D department that continuously looks outside the company’s boundaries for improvements. However, with the focus on quality they clearly avoid any technology in their product since they believe in better sleep without technology close to the person sleeping. Hence, in regard to open innovation, the family firm mainly collaborates
with suppliers to improve the product development and align the companies strategic objective to maximize the customer’s value on all perspectives. The close collaborations are also characterized by the flat hierarchy and the company division into the three pillars: marketing and sales, finance and operations.

Currently, the company is within the shift from the fifth to sixth generation with the current CEO and owner in charge, but the son closely collaborates with him. Due to the recent period with a non-family CEO, the family learned from the advantages and disadvantages of being in charge of the daily operations. Therefore, the family CEO is still focused on the strategic decisions within the company, but also involved in the daily business decisions. In general, the family firm contains a strong alignment of family and company values.

With company B, three different interviewees within the company have been conducted. Starting with the R&D manager, who is a part of the family firm since four years and responsible for the product development with a team of five employees. Followed by the Chief Operating Officer (COO), who works for Hästens since only seven months now but has significant experience in the supply chain management field. His responsibilities cover the entire supply chain and product development of the family firm. Closing with the CEO that is in charge since eight years now and supervises the strategic direction of the company but also has significant influence on the daily business. Within the family firm, the R&D manager is reporting to the COO who is in turn reporting to the CEO. Therefore, we gained in-depth insights of the company and explored the different perspectives about our topic.

**Company C**
Company C was founded 1934 in Germany. Due to the political circumstances a subsidiary company was established in 1958 in the western part of Germany and became an independent company in 1962. The company develops encoders for the heavy industry and further produces applications for steelworks and cranes. In 1971, the daughter of the owner took over the responsibility of the company. Today, the company consists of about 100 employees, has one subsidiary in the USA and operates worldwide. Company C is managed by two CEO’s, one is responsible for finances and administration and the other for marketing, technology and sales. The owner is not part of the management team but they report to her on a regular basis and take her advice and wishes into consideration. Therefore, she remains in a leading position and has control over the strategic orientation of the firm. The owner emphasizes research and development, and thus, founded her own foundation in 2003 to support research mainly in natural and technical science. Moreover, the company is engaged in the start-up and innovation scene in Germany. This is corresponding to their innovative orientation and motto “ideas and solutions”. In 2016, company C set up their own open innovation center on behalf of the owners wish.

We conducted an interview with the open innovation program manager who is at the same time responsible for the purchasing department. Within the open innovation program, he manages and guides the start-ups and collaborations with external partners. Our interviewee knows the company well, since he worked at different departments during his studies.
Company D
Company D is part of the meat processing industry. For instance, they develop and produce seasonings, additives, aromas, spice blends and marinades. The company was founded in 1947 in Germany and since then continuously expanded and modernized, mainly through the founder’s son. Today, there are subsidiaries in France, Belgium and the Netherlands and the company operates in over 80 countries worldwide. Furthermore, company D employs about 400 employees in nine different countries.
The company is already very open in regards to knowledge exchange. For instance, they hold training programs and seminars with customers globally in order to share know-how. Moreover, company D’s strategic orientation aims to be leading innovator in their industry sector. In order to do so, they have various collaborations with universities and institutes but also their own funding program to support the general meat research and project work.

After the sudden death of the founder’s son one daughter became owner-director while the other daughter became director. Since 2009, the granddaughter also became owner-director. That means that they are not in the day-to-day business but strategic decisions and directions are in close coordination with the management team. Moreover, they have regular meetings to discuss the company's situation and review performance figures.

Last year the management changed due to the long standing CEO’s retirement. Today, the company group is managed by two CEOs. One is responsible for finance and controlling, HR, IT and production and the other one, that we interviewed, manages everything concerning purchasing, product development, quality assurance, marketing and sales. During the interview we gained valuable insights about their open innovation activities.

Company E
In 1897 company E was founded in Germany. From the beginning the founder used the incipient electrification and focused on the installation of electrical systems. The family firm grew steadily and has currently about 600 employees globally and thereof 500 in Germany. Today, the company is administered by a non-family CEO.
The company produces fused-protected switching devices for energy suppliers as well as switching and control systems for the industry and private households. They highlight their flexibility and service orientation for customers as well as high quality standards and “made in Germany” philosophy. This also includes their strong safety orientation.

The third generation and founder’s grandson remained chairman of the management until his sudden and unfortunate death in 2017. Today, the company is organized as a family foundation with a non-family CEO. The founding family does not participate in the daily operations in a leading position. One family member of the fourth generation is part of the foundation board, and thus, has strategic control over the family firm. In addition two grandchildren receive dividends from their remaining share in the company, but do not participate in any company business.

With company E, one interview with two participants was conducted. Both, the director of product management (DP) and director of construction (DC) actively participate in the daily operations, but also influence the strategic direction of the family firm. They work close together but separated their responsibilities. The construction manager is responsible for the product itself and all research and developments regarding it. The product manager generates
information concerning the market, visits key customers and takes care of the market launches. Both are also responsible for the open innovation activities and collaborations with universities and various institutes.

Company F
Also company F contains a long business and family tradition starting in the 1950s in Germany. Currently in the second generation, the family CEO led the company successfully to an innovative manufacturing facility for frozen potato and vegetable specialties. The company has about 400 employees located in the headquarter and main production plant. The product portfolio reads over four main brands. Two brands are categorized into frozen vegetable specialties and the other two brands on the potato production of the company. With over 250 products and a product volume of over 70,000t annually, the company emphasizes that they are the most innovative and with the highest quality standard in their industry.

Further, the family firm philosophy is based on four values: sustainability, competence, quality and tradition. All derive their daily business operations, but most important for our purpose, the innovation of the company. In particular, their high standard of innovation is characterized by the private owned label and quality standard for other companies in the industry and related industries. The family firm is a co-packer for many other trademarks and prestigious companies in Germany and Europe.

Setting new trends and anticipating customer needs are the main driver but also challenges for the family firm and its quality standards. This is the point in which external partners become important in order to constantly develop innovative, market-driven product ideas that are in vogue.

We conducted two interviews at company F, one with the family CEO and the other one with the R&D manager. The family CEO is closely involved in the day-to-day operations and defines the strategic directions of the company. The R&D manager, who works since three years for the company, is responsible for the entire research but also all product related issues.

Company G
Company G was founded in 1967 with a focus on producing, import and export of packaging products. Currently in the second generation, the family firm successfully manages various customer demands regarding the adequate packaging of their specific products for the import and export over national borders. Therefore, the competencies are widely spread but focus on packaging wood, hardboard, chipboard, partitions, heavy duty compartments. The family firm is taking care of all aspects from packaging the product, establish the required documents, loading the shipment safe and cost-efficient as well as the actual shipment of the loads through collaborating logistic firms and forwarding agencies.

We conducted an interview with the family CEO who has more than 45 years of experience in this field. The owner is still in the day-to-day operations involved and determines the strategic orientation of the company.
Company H

Company H is also a traditional family firm that was founded in 1946 in Germany. The gardening or nursery company focuses mostly on high quality flowers for the national and European wholesale and retail market. The wholesale market represents 80% of the companies revenue and is highly seasonal but with limited changes. Today, the family firm contains over 20 employees and has customers from small firms to large supermarket and do-it-yourself markets.

From early on, customers could purchase all home-produced plants but also house plants, cut flowers, ceramics and decorative items. Already in the second generation, the motto “good is not good enough” was always the driving factor for the family firm and helped them to win numerous national and international awards in their industry as well as an entry in the Guinness World Record. Today, the family firm manages over 20 hectares of cropland and a gardening centre for direct sales. The overall vision towards peat-free gardening and a high degree of sustainability is still driving the family firm for success. With this company, the open innovation activities are only in the starting blocks since internal R&D was sufficient for the success so far.

Company H is administered by the third generation of the family since 2011. The granddaughter of the founder decided to take over the family firm after the sudden and unfortunate death of her father. Due to her earlier commitment to finish her university degree of International Business and Management, she has a rather economic perspective on the companies operations. As part of this, we gained a different perspective on open innovation and how the opinion about the subject changed within the family firm.
## IV. Interview Details

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<th>Company</th>
<th>Position of the interviewee</th>
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