MASTERTHESIS

CORPORATE MEETS STARTUP: EXPLORING FACTORS AFFECTING INTER-ORGANIZATIONAL KNOWLEDGE TRANSFER

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Abstract

Startups are a potential source of new knowledge for corporates. Corporates are increasingly setting up startup programs to institutionalize cooperation with startups and to realize joint projects. However, promising collaborative projects often fail because knowledge cannot be transferred between startup and corporate. This paper examines factors that increase the probability of successful knowledge transfer. An abductive research approach with case studies and expert interviews was chosen. Within the framework of the elaboration, factors for knowledge transfer that have hardly been studied so far are discussed: in particular, the employees involved on the corporate side are decisive for successful knowledge transfer. Liaison or transfer managers of the startup program act as bridge builders between startup and corporate. Within the corporate, employees must be involved in projects at an early stage in order to create ownership, while prioritization and commitment must be exemplified by the management. The theoretical findings are supplemented by a checklist for users such as innovation managers.

KEY WORDS: open innovation; corporate innovation; knowledge transfer; startups; startup programs; systematic combining

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Glossary

Corporate/Corporation

A corporate is a large company or group of companies authorized to act as a single legal entity that is separate and distinct from its owners. In this study, the term is used for all large companies of the sample.

Corporate startup engagement

There are various ways to engage with startups. Based on the works by Mocker, Bielli, and Haley (2015) and Kohler (2016) a compiled corporate startup engagement scheme includes corporate venture capital, corporate incubators, corporate accelerators, events (conferences, hackathons, awards), co-working spaces, partnerships (product co-development), platform programs, and acquisitions. These methods may differ significantly in their applicability along the startup life cycle.

The term *startup program* summarizes all common forms of corporate startup initiatives (i.e. “innovation hub”, “innovation lab”, “digital lab”, “accelerator”).

Corporate startup programs

In the context of this study, corporate startup programs are defined as programs brought into being by corporates in which the cooperation between the established company and the startup goes beyond the investment level; often there are joint projects or pilot projects in which a product is cooperatively developed further or adapted. Such cooperation can be labelled as co-innovation. The most common form is an accelerator program. Accordingly, corporate startup programs include innovation hubs and digital labs. In contrast to pure acceleration programs, corporate accelerators often foster co-innovation.

The framing used in this study differs from other sources. For instance, the early established hub:raum incubator by Deutsche Telekom lists three core categories: corporate startup programs (incubators, accelerators), labs (co-innovation), and independent programs working with startups.

Incremental and radical Innovation

“Incremental innovations are minor improvements or simple adjustments in current technology” (Dewar & Dutton, 1986, p. 1423).

“Radical innovations are fundamental changes that represent revolutionary changes in technology” (Dewar & Dutton, 1986, p. 1422).

Knowledge Transfer

„An event through which one organization learns from the experience of another“ (Easterby-Smith, Lyles, & Tsang, 2008, p. 676). Within, organizations, it can be defined as “process through which one unit (e.g., group, department, or division) is affected by the experience of another“ (Argote & Ingram, 2000).

Knowledge Transfer Success

Knowledge transfer manifests itself through changes in the performance or knowledge of the recipient (Argote & Ingram, 2000). As a consequence, one can measure knowledge transfer success by observing changes in performance or knowledge (Argote & Ingram, 2000).

Open Innovation

The initial definition stems from Chesbrough’s seminal work in 2003. More recently, he defined open innovation as „a distributed innovation process that relies on purposively managed knowledge flows across organizational boundaries“ (Chesbrough, 2017, p. 35).

Prototype

“A prototype is any representation of a (design) idea, regardless of the medium“ and serves the dimensions of role (usefulness in user’s life), look and feel (experience using it) and implementation (how it works) in the design of this interactive artefact“ (Houde & Hill, 1997, p. 369).

Recipient

Transferring knowledge involves both transmission and receipt (Grant, 1996). A recipient may be an individual or an organization. The recipient’s perspective has mainly been analyzed in terms of its absorptive capacity (W. Cohen & Levinthal, 1990). Absorption „depends upon the recipient's ability to add new knowledge to existing knowledge“ (Grant, 1996, p. 111). The recipient firm’s absorptive capacity is led by its past experiences, culture, as well as knowledge retention capabilities (Lane & Lubatkin, 1998).

Startup

There is a tremendous organizational and conceptual difference between a startup, a small business and a large corporate. A startup is a “temporary organization designed to search for a repeatable and scalable business model” (Blank, 2013, p. 5).

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List of Abbreviations

CVC	Corporate Venture Capital
DAX	German Stock Index (German: Deutscher Aktien Index)
IoT	Internet of Things
KBV	Knowledge-Based View
MVP	Minimum Viable Product
OI	Open Innovation
R&D	Research and Development
SLR	Systematic Literature Review
SP	Startup Program
VC	Venture Capital

"Ideas are easy. Implementation is hard." (Kawasaki, 2004)

1. Introduction

1.1 Context of the Study

Innovation is a key driver for a corporate's success and growth but requires new knowledge. Over the last years new knowledge was increasingly identified outside corporate boundaries (Hippel, 2005) with startups being a potential source of new knowledge (Dushnitsky & Lenox, 2005).

Yet startups pose a severe threat to modern corporates: Startups often develop their product much more user-centric, they are agile and innovative. Also, the relative affordability of technology as well as the accessibility of capital (Prats & Amigó, 2017) allow startups to offer solutions that were a few years ago only available to corporates. Backed by venture capital, startups have enough financial resources to enter traditional battlegrounds of big corporates and to attack incumbents in their own habitats.

If existing businesses do not change and open to innovation, they run the risk of being replaced by startups. The threat of becoming obsolete encourages corporates to find out how to collaborate with pioneer startups (Kohler, 2016; Prats & Amigó, 2017).

Collaboration with startups can have many facets. While corporates traditionally engaged with startups through equity and incubation, new mechanisms have emerged. To identify fitting startups and set up collaboration modes embedded in an innovation strategy, a number of corporates have established one or more type of vehicles like traditional corporate venture capital (CVC) or units dedicated to collaboration.

The orientation and opening towards startups is a strong trend over the last decade: in a recent study by Boston Consulting Group, 65% of 570 corporates analyzed reported having some form of relationship with startups since 2016 (Brigl, Gross-Selbeck, Dehnert, Simon, & Schmieg, 2019).

Only one out of 30 DAX companies uses no innovation vehicle at all and 20% of DAX companies even run all five innovation types (innovation or digital labs, accelerators, CVC, partnership units, and incubators) in parallel (Brigl et al., 2019, p. 6).

These innovation vehicles can be grouped as corporate startup programs built by corporates to provide a structured set-up for collaboration with innovative startups. For this study, corporate startup programs are defined as structured (project-based) collaborations between corporate and startup.

Those projects may take place within the scope of existing acceleration or incubation programs. They are phrased differently - ranging from digital lab, innovation lab, innovation hub, or accelerator but all aim to open the corporate for startup activities. The borders between accelerator programs and innovation labs are often fluent.

But do corporate startup programs generate value to date? Only two or three out of at that time approximately 200 startup programs in Germany were working successfully in 2018 (Lindener, 2018). In the BCG survey, "45% of corporates and 55% of startups rated themselves as either 'somewhat dissatisfied' or 'very dissatisfied' with the relationship", while "in contrast, only 8% of corporates and 13% of startups rated themselves as 'very satisfied'" (Brigl et al., 2019, p. 11).
A study by Capital and Infront consultancy with cross-industry startup programs found that none of the participating programs has generated added business value for the corporate to date (Kreimeier, 2017).

A main conclusion by the study's authors is that startup programs represent the helplessness of corporates to successfully innovate. The inclusion of the corporate into the startup program to bridge startup and corporate is described as the main obstacle to success. The corporate area leaders often see the startup programs as competitors (Kreimeier, 2017). In addition, acquisitions of startups are regarded as financial speculation, which is hardly mediated in a listed company.

As startup programs are a relatively new phenomenon, reasons for failure of startup programs have hardly been investigated by researchers. Many ambitious programs might fail because knowledge developed in great projects is not sufficiently transferred into the corporate's operating business (Weiblen & Chesbrough, 2015). Value is not added because of an insufficient knowledge transfer between startups and corporates. This problem is explored in more depth in the next section.

1.2 Problem Description and Research Goal

Several in-depth talks with innovation experts from the Berlin startup and innovation ecosystem during October 2016 and March 2017 as well as a case study that lasted a total of 15 months led to the identification of a key problem most corporate startup programs are confronted with: successful collaborative projects with startups often fail due to an insufficient knowledge transfer between corporate startup program and corporate. The corporate further needs to possess the ability to absorb such knowledge and integrate it.

These practical observations find support in the literature: open innovation efforts involve two critical challenges as outlined by Chesbrough (Chesbrough, 2017). First, outside-in innovation fills a company's innovation pipeline with new ideas but can create bottlenecks which then slow the efforts, if the company has not developed enough capacities to process the ideas. This may complicate the acceptance of external knowledge. Second, the outcomes must be transferred to the business units for commercialization.

Chesbrough (2017) finds it striking "how few open innovation success stories even discuss the transfer of the result into a downstream business unit" (p. 37). Chesbrough thus expects "significantly more attention to be paid to the question of how to link the front end of open innovation to the back-end businesses that must take these inputs to market" (Chesbrough, 2017, p. 37).

A case study of Siemens TTB program revealed that at least half of the program staff's time is dedicated towards collaborating with internal business units. That " illustrates the importance of interfacing internally inside large companies to make sure promising startup projects don't fall into the gap between the two" (Weiblen & Chesbrough, 2015, p. 76).

Putting this into numbers it was found that 81% of corporates surveyed by the well-known US accelerator program and startup fund *500 Startups* said that fewer than 25% of their pilot projects with startups have resulted in commercial deals (Younis, Desai, & Sigal, 2017). This, however, does not necessarily relate to transfer problems but shows the difficulty of translating promising startup projects into new business.

Based on the findings described (Chesbrough, 2017; Weiblen & Chesbrough, 2015; Younis et al., 2017) one can formulate a concise problem statement: as corporates are forced to innovate, they may follow an open innovation approach and identify startups as a source for

external knowledge but often fail when it comes to efficiently transferring knowledge gained from collaborative projects with startups and integrate it into the organization.

Such transfer may also fail when corporates establish dedicated startup programs to foster exchange with startups.

Thus, the following main research question will lead through this paper:

> *What are factors affecting the transfer of knowledge between startup and corporate within the scope of a startup program?*

The objective of this research is to analyze existing processes of knowledge transfer and to elaborate on the most relevant factors in more detail. The main goal is to develop a (process) model for interorganizational knowledge transfer and to understand organizational mechanisms that influence transfer success.

A cross-industry research will illustrate obstacles, failures, and potential solutions for startup programs based on expert interviews with innovation managers from corporate startup programs in Germany.

1.3 Significance of the Topic

1.3.1 Academic Relevance

Three papers were found to be dominant in identifying success factors for knowledge transfer (Cummings & Teng, 2003; Easterby-Smith et al., 2008; van Wijk, Jansen, & Lyles, 2008). This elaboration extends the list of factors and develops a more recipient-centered approach.

This study also sheds light on new facets of corporate startup engagement as defined broadly by Weiblen and Chesbrough (2015) who differentiate between traditional and modern engagement modes. The question which underlying processes foster technology and knowledge transfer, gained little attention in the academic world though and requires more empirical analysis.

Studies related to (corporate) venture capital (Benson & Ziedonis, 2009; Chesbrough & Tucci, 2002), (corporate) incubation (Becker & Gassmann, 2006a; Bruneel, Ratinho, Clarysse, & Groen, 2012; Hansen, Chesbrough, Nohria, & Sull, 2000; L. Peters, Rice, & Sundararajan, 2004), (corporate) accelerator programs (Kanbach & Stubner, 2016; Kohler, 2016; Pauwels, Clarysse, Wright, & van Hove, 2016) or corporate innovation (McFadzean, O'Loughlin, & Shaw, 2005) all

cover specific aspects of corporate startup engagement. This elaboration identifies hybrid models of engagement that are not identified in the current literature body.

This study contributes to academic literature by: (i) identifying and addressing a specific knowledge gap in relation to open innovation research which is the mechanisms of transferring knowledge within an open collaboration between corporate and startup; (ii) integrating adjacent fields of academic study like organizational theory, knowledge transfer, open innovation, and external sources of corporate innovation; the study is also converging research streams like the management of technology, the economics of innovation and information, resource-based theory, and organizational learning; and (iii) developing a theoretical framework for knowledge transfer within the very specific context of a corporate startup program with a new set of primary data.

1.3.2 Practical Relevance

The main contributions to practice developed by this study are: (i) the documentation and analysis of different approaches of corporate startup engagement, particularly corporate venturing and corporate accelerator programs; (ii) the development of a list of factors that corporate innovation managers may rely on when building and establishing a new program; (iii) the identification of key practices related to knowledge transfer from an expert perspective, specifically dedicated to collaborative startup projects.

2. Theoretical Framework

2.1 Background Literature

2.1.1 Open Innovation: External Sources of Innovation

Corporates viewed internal R&D units as a key asset to gain competitive advantage. By generating and developing their own ideas, they used a closed innovation model (Fig. 1). Large corporates controlled their intellectual property and protected their ideas aggressively. Proprietary ideas and expertise have become more difficult to protect.

With the rise of workers' mobility, firms began to generate value by commercializing internal ideas outside their businesses using the open innovation model (Fig. 2). Innovation flows easily between the corporate and partners like customers and suppliers, universities, or startups.

The open innovation paradigm assumes that firms should use both internal and external ideas for technological advancements (Chesbrough, 2006b, p. 37). The concept has changed over the years though.

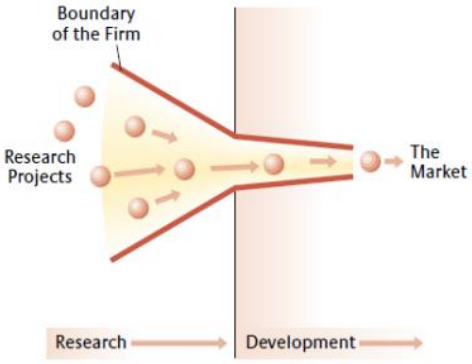

Figure 1. Closed innovation method (Chesbrough, 2003)

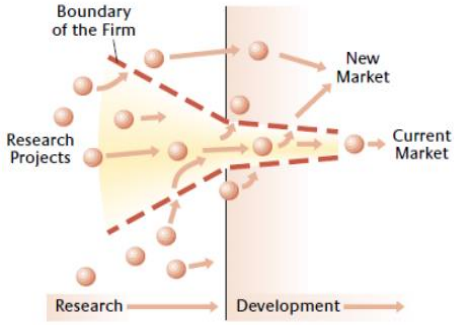

Figure 2. Open innovation method (Chesbrough, 2003)

While initially collaborations between two organizations were examined (Chesbrough, 2003), the concept is used today to coordinate a number of players across different phases of the innovation process (Chesbrough, 2017). Both firms and the larger society in which these firms are embedded, must manage innovation communities in the future. Chesbrough coins this "Open Innovation 2.0" (Chesbrough, 2017, p. 37).

A good example for the management of innovation communities is GE's Ecomagination challenge. Instead of building its own expertise in green and renewable energy technologies, GE partnered with four venture capitalists that were already experienced with this field to invest in startups, and the Ecomagination challenge was launched.

The future of open innovation therefore could be "a future that will be more extensive, more collaborative, and more engaged with a wider variety of participants" (Chesbrough, 2017, p. 38). Companies that follow the open innovation paradigm may consider collaboration with startups as a vehicle.

External innovation sourcing is the first major step in the process of developing a collaboration and gained a lot of attention among researchers (Arora, Fosfuri, & Gambardella, 2001; Nicholls-Nixon & Woo, 2003; Vanhaverbeke, Duysters, & Noorderhaven, 2002; West & Bogers, 2014).

Researchers identified various sources of external knowledge: universities (Cassiman, Di Guardo, & Valentini, 2009), both suppliers and customers (Grimpe & Sofka, 2009; Li & Vanhaverbeke, 2009; Schiele, 2010), and competitors (Lim, Chesbrough, & Ruan, 2010).

There are two main motivations for sourcing external innovation: "improved efficiency through scale economies and access to innovations (or innovation-producing capabilities) not held by the focal firm" (West & Bogers, 2014, p. 815).

Many highly cited reviews were published as a consequence of the growing interest in open innovation (Bogers et al., 2017; West & Bogers, 2017). For instance, Dahlander and Gann (2010) developed a 2x2 framework of monetized/non-monetized and inbound/outbound knowledge flows. Chesbrough and Bogers (2014) explore the growth, scope, and impact of open innovation research.

Researchers also started to develop models of open innovation. Some key examples are listed in the following paragraph:

Early attempts to model open innovation are based on structural categories. The categories include culture-specific (Savitskaya, Salmi, & Torkkeli, 2010) and industry-specific (Ozman, 2011) components of processes and interactions.

Dahlander and Gann (2010) separate inbound and outbound innovation, while van de Vrande, Jong, Vanhaverbeke, and Rochemont (2009) separate interactions of exploration and exploitation, whereby these terms are synonymous with inflows and outflows.

Similarly, Lichtenthaler and Lichtenthaler (2009) illustrate open innovation processes as exploration, retention, and exploitation of knowledge inside and outside a firm's boundaries.

	Knowledge exploration	Knowledge retention	Knowledge exploitation
Internal (Intrafirm)	Inventive capacity	Transformative capacity	Innovative capacity
External (Interfirm)	Absorptive capacity	Connective capacity	Desorptive capacity

Figure 3. Capability-based framework for open innovation (Source: Lichtenthaler & Lichtenthaler, 2009)

Six factors are important for a firm to manage internal and external knowledge (see Fig. 3). Inventive, absorptive, transformative, connective, innovative, and desorptive capacity are identified as the firm's critical capabilities for managing internal and external knowledge in open innovation processes (Lichtenthaler & Lichtenthaler, 2009).

The OI literature body was extended since 2003 and there is growing breadth of open innovation research in other fields (Chesbrough & Bogers, 2014). The growth of the literature body led to a clarified conceptualization of open innovation.

Open innovation is re-defined "as a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary andnon-pecuniary mechanisms in line with the organization's business model" (Chesbrough & Bogers, 2014, p. 3).

Defining a clear agenda for open innovation research has been on the agenda of other reviews (Randhawa, Wilden, & Hohberger, 2016; Tucci, Chesbrough, Piller, & West, 2016; Vanhaverbeke, Chesbrough, & West, 2014; West & Bogers, 2014; West, Chesbrough, & Vanhaverbeke, 2006; West, Salter, Vanhaverbeke, & Chesbrough, 2014).

Scholars suggest two major gaps in prior research: it has the tendency to ignore the importance of business models and it has the tendency to apply the definition of innovation inconsistent with earlier works (West & Bogers, 2014).

2.1.3 From Open Innovation to Startup Collaboration

Knowledge needed for innovations often resides outside a corporate's boundaries (Chesbrough, 2003; Hippel, 2005). Startups are identified as valuable sources of such knowledge (Dushnitsky & Lenox, 2005). A number of scholars have explored the idea that startups are likely to provide innovative ideas (Kortum & Lerner, 2001; Zingales, 2000).

The paradox of creativity and control states that improving one factor will reduce the other one (Freeman & Engel, 2007). Creativity and agility manifest an entrepreneur's strength; control is typically a corporate's strength. Whereas creativity is needed in the first phase of an innovation process, control is rather needed in the subsequent stages.

As a consequence, collaboration between startups and corporates seems like the ultimate ratio to improve efficiency and profitability (Freeman & Engel, 2007). The innovation flow can go in either direction (Usman & Vanhaverbeke, 2017; Weiblen & Chesbrough, 2015).

2.1.4 Traditional Corporate Engagement Models

Startups and corporates can collaborate in many ways. Following traditional models of corporate engagement, corporates influence through equity (Weiblen & Chesbrough, 2015). The traditional models are venture capital and incubation (see Fig. 4). Due to the changes in corporate innovation that is increasingly shaped by the open innovation paradigm, new mechanisms of corporate engagement have emerged as well.

		Direction of Innovation Flow	
		Outside-In	Inside-Out
Equity Involvement	Yes	**Coporate Venturing** Participate in the success of external innovation and gain strategic insights into non-core markets.	**Corporate Incubation** Provide a viable path to market for promising corporate non-core innovations.
	No	**Startup Program (Outside-In)** Insource external innovation to stimulate and generate corporate innovation.	**Startup Program (Platform)** Spur complementary external innovation to push an existing corporate innovation (the platform).

Figure 4: Typology of corporate engagement models with startups and their key goals (Source: Weiblen & Chesbsrough, 2015)

New engagement models do not necessarily involve equity. Within these models, innovation can either flow in externally or internal innovation can be complemented on a platform. Researchers are making efforts to better understand them; some of them constructed typologies (Kohler, 2016; Mocker et al., 2015; Weiblen & Chesbrough, 2015).

To elaborate distinguishing characteristics of corporate accelerator programs, Kohler (2016) presents a corporate-startup engagement spectrum. Those engagement methods are corporate hackathons, business incubators, corporate incubation, corporate venturing, and mergers & acquisitions (Kohler, 2016).

It is hereby important to unlink business incubators and corporate incubation. While corporate incubation basically facilitates a path to market for a corporate's non-core innovations (Dee, Gill, Livesey, & Minshall, 2011), business incubators provide flexible working space with additional value (Bruneel et al., 2012). This could be, for instance, legal support. Business incubators all aim at stimulating business creation but differ in execution: older generation business incubators have an outdated service portfolio and less strict selection criteria (Bruneel et al., 2012).

In his description of the engagement methods, Kohler (2016) however only presents in what way corporate accelerators are superior but his elaboration lacks potential advantages of the other engagement methods over corporate accelerator programs.

Furthermore, Mocker et al. (2015) classify programs to engage with startups as follows: "One-off events (competitions such as hackathons), sharing resources (free tools; co-working space), business support (accelerators; incubators), partnerships (product co-development; procurement from startups), investments (corporate venturing) and acquisitions (acqui-hire and buying startups)" (p.12).

2.1.4.1 Corporate Venturing

Corporate venture capital (CVC) provides access to a valuable pool of knowledge (Chesbrough, 2003; Dushnitsky & Lenox, 2005; Gans & Stern, 2003). CVC relates to systematically making investments in startups (Drover et al., 2016).

CVC is distinct from traditional Venture Capital as "funds are invested by arms of corporates as extensions of their primary focus" (Drover et al., 2016, p. 1822). Corporates that invest in

startups are able to at least partly gain access to startups' technology and practices (Chesbrough & Tucci, 2002).

CVC is thereby found to potentially complement other corporate innovation activities (Chesbrough & Tucci, 2002). Once they invest in startups, pioneering technologies may help corporates to develop breakthrough inventions themselves (Ahuja & Morris Lampert, 2001).

If products or services of corporate and startup are complementary, the demand for existing or future corporate products is likely to rise and that in turn will lead to further corporate innovation push.

Similar findings can be found in the technology alliances literature. Within alliances, knowledge may spillover and a firm's innovativeness is fostered (Ahuja, 2000) While direct and indirect ties between network partners are positively associated with a firm's innovativeness, so-called structural holes (disconnections between a firm's partners) are negatively associated with innovativeness (Ahuja, 2000).

Dushnitsky and Lenox (2005) describe three channels through which corporate venture capital facilitates learning from startups: "the due-diligence process provides the firm a unique opportunity to learn about entrepreneurial inventions even prior to committing capital" (p. 618). After an investment, the corporate "may learn about novel technologies by maintaining board seats (or board observation rights) as well as utilizing dedicated liaisons", and "a failing venture may also constitute a learning experience to the extent that it offers technological insights, or conversely points at market unattractiveness" (p. 618).

Hence, as certain business units or individuals of the corporate have access to the novel technologies they review or work with, knowledge may be transferred (indirectly) from a startup to the organization. At the post-investment stage, incumbent firms have established organizational routines to funnel learning from startups (Dushnitsky & Lenox, 2005).

As an example, Sony Corporation introduced two distinct functions that are exclusively responsible for transferring knowledge between the corporate and its portfolio startups (International Business Forum, 2001). Even among very heterogeneous samples, CVC investments were found to harness novel technology (Dushnitsky & Lenox, 2006). However, the effect of CVC depends critically on the corporate's internal knowledge base (Benson & Ziedonis, 2009) which is in line with absorptive capacity literature.

Also, corporates that engage more consistently in startup financing than those that only sporadically invest earn greater returns. Therefore, corporates seem to differ in their ability to derive added benefits from investing in startups (Benson & Ziedonis, 2009).

While much research has been dedicated to the conditions and channels of knowledge transfer, less has been conducted regarding limitations. By analyzing a sample of 1,646 startups that received funding, Dushnitsky and Shaver (2009) explore the limitations of interorganizational knowledge acquisition.

Dushnitsky and Lenox thereby highlight conditions under which technically viable interorganizational relationships do not materialize. It is suggested that "many relationships do not form because the corporate will not invest unless the entrepreneur discloses his or her invention, and the entrepreneur may be wary of doing so, fearing imitation" (Dushnitsky & Shaver, 2009, p. 1045).

By elaborating the "relational fit" concept, which consists of social capital and knowledge relatedness, Weber and Weber (2007) link CVC and knowledge transfer. Following this study, a portfolio company's success has dual significance for the corporate: high returns for the CVC unit and strategic potential for radical innovation (Weber & Weber, 2007).

It is further concluded that relational fit proves to facilitate knowledge transfer and creation. That in turn positively influences organizational performance. An extensive literature review on Corporate Venture Capital can be found in the work by Drover et al. (2016).

2.4.1.2 Corporate Incubation (Inside-Out)

Corporate incubators have emerged as a reaction to ideas or technologies that were developed in a corporate environment but are a "misfit" with the corporate's core business or business model (Weiblen & Chesbrough, 2015). Within corporate incubation, those cases are brought to market as new companies.

The startups are equipped with funding, expertise, networking, and co-location (Gassmann & Becker, 2006; Weiblen & Chesbrough, 2015). According to Gassmann and Becker (2006), resources that flow from the corporate incubator to a startup can be grouped into intangible such as branding or advice and tangible like physical benefits, tangible knowledge, or financial support.

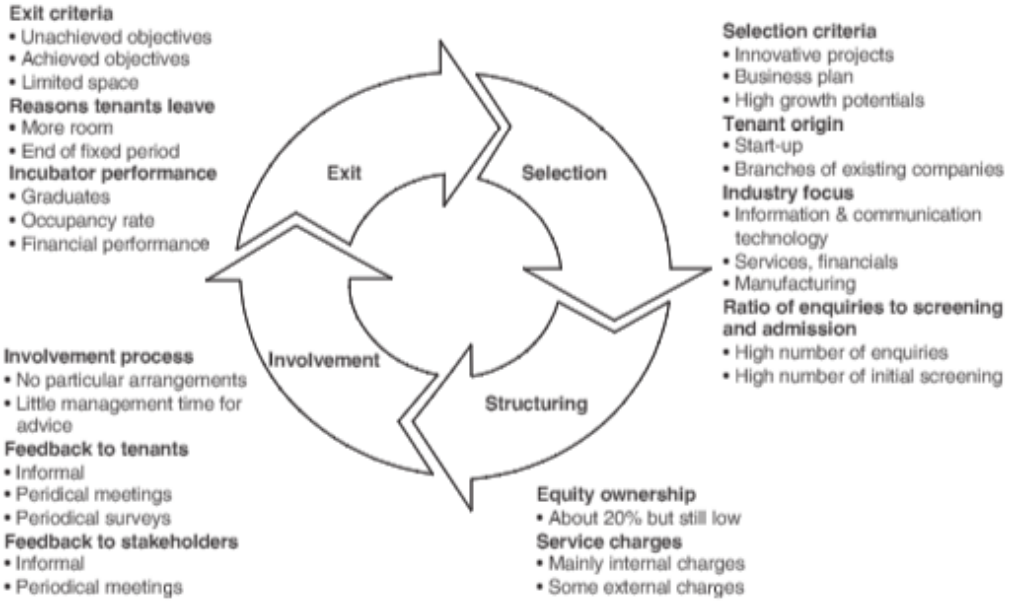

Figure 5. Four-phase model of incubation process (Source: Becker & Gassmann, 2006)

Four basic corporate incubator types exist that differ in their source and type of technology: fast-profit incubators, market incubators, leveraging incubators, and in-sourcing incubators (Becker & Gassmann, 2006b). Becker and Gassmann (2006b) transferred the four-stage process from venture capital (Lerner, Hardymon, & Leamon, 2012) and enhanced it with respect to their knowledge aspects (see Figure 5).

In the selection phase, corporate incubators decide which technology startups they seek to attract and later select for the program. Once a startup is chosen, both incubator and startup must agree on the respective equity stakes. The subsequent involvement phase is the most crucial stage of the incubation phase as incubator managers get involved. Their support differs depending on the startup's needs with intangible knowledge being the most important resource (Becker & Gassmann, 2006b). The exit stage closes the incubation process; for-profit incubators follow specific exit criteria in line with previously defined milestones and whether these were achieved.

Applying the knowledge-based view (KBV) of the firm and based on the four incubator types, four modes of mainly tacit knowledge can be identified: entrepreneurial knowledge, organizational knowledge, technological knowledge, and complementary market knowledge (Becker & Gassmann, 2006b).

During the incubation process, knowledge can flow at various times and to a diverging degree. In terms of strategic technology advancements, corporate incubators are interesting "because they can tap a large pool of internal knowledge on business development, on markets, customers, suppliers, and technology, while having the additional benefit of being widely connected with external partners" (Becker & Gassmann, 2006b).

Due to the provision of resources, incubators are in general positively associated with startup growth and early survival (Dee et al., 2011). This holds true especially for corporate incubators (Weiblen & Chesbrough, 2015). Expensive resources can be shared in a corporate incubation environment.

To avoid misunderstandings, one must differentiate corporate incubators and business incubators. The research body on business incubators is large and prevails literature on corporate incubation.

For instance, research on business incubators indicated that tangible incubation services and networking are the most valuable elements in the early stages (McAdam & McAdam, 2008). Overall, the importance of the incubator process was discussed extensively (Hanadi Al-Mubaraki, 2008). A number of scholars agree that incubator objectives are the following: (1) economic growth; (2) commercialize technology and transfer; (3) fostering entrepreneurship climate; and (4) job creation (Abetti, 2004; Hansen et al., 2000; Hughes, Ireland, & Morgan, 2007; McAdam, Galbraith, McAdam, & Humphreys, 2006; McAdam & McAdam, 2008; Rothaermel & Thursby, 2005a, 2005b).

Similarly, Hanadi M. Al-Mubaraki and Busler (2017) found in a study among 93 innovation and incubation programs that fostering an entrepreneurial climate was the highest-rated goal of the programs and strong tangible and specialized services were regarded as the most valuable services.

2.1.5 New Models of Startup Engagement

Corporates have developed new ways to engage with startups. Unlike traditional models, those often coined "startup programs" typically do not involve corporate ownership but allow for engagement with a larger number of startups (Weiblen & Chesbrough, 2015). Most of these programs complement existing startup engagement mechanisms and therefore do not provide as many resources and services as an average incubator. Hence there is a less rigid governance process (Weiblen & Chesbrough, 2015) that keeps corporates more agile when collaborating with startups.

2.1.5.1 Outside-in Startup Programs

This type of engagement model aims at making startups' products and technology accessible to the sponsoring organization. It enables startups to further elaborate on their ideas; the sponsoring corporate gains an advantage over competitors and can enter new "hot" business areas by benefitting from external innovation sourcing (Weiblen & Chesbrough, 2015). Outside-in startup programs enable corporates to follow different paths in parallel through each of the startups, which accelerates mutual learning.

Such engagement clearly represents an open innovation format: a company's knowledge base is enriched through the integration of customers, suppliers, or other external knowledge sources (Enkel, Gassmann, & Chesbrough, 2009).

An outside-in process can enhance firm innovativeness (Laursen & Salter, 2006; Lettl, Herstatt, & Gemuenden, 2006; Piller & Walcher, 2006), which is the main motive for corporates to work with startups.

Weiblen and Chesbrough (2015) provide several examples for outside-in programs. One of them is the Siemens Technology to Business Center (TTB). To better understand outside-in approaches, some characteristics shall be summarized and highlighted. TTB's mission is pictured "as identifying early radical technologies that originate outside the Siemens universe and providing them with a route to commercialization through Siemens" (Weiblen & Chesbrough, 2015, p. 74).

The program has undergone three iterations since it opened its first center in Berkeley, California. The third-generation model that has been dominant over the last years has been that of a non-equity partnership with startups. Due to the increased entrepreneurial activities

at universities, TTB and the startup support ecosystem help spin-offs grow which makes early-stage incubation obsolete. TTB and the startups sign a joint development agreement that states the future exploitation of joint development and includes, for instance, IP handling, financials, milestones (Weiblen & Chesbrough, 2015).

Managing intellectual property is often a key issue in joint projects, especially in a case like TTB which seeks radically new products. Siemens TTB strives to sort out all intellectual property problems when negotiating the joint development agreement with the startups.

Projects run three to 18 months and are then handed over to the business unit for commercialization. Startups that run through such a program are usually later stage. Aside from the joint development agreement's cash, it is important for participating startups "to get the Siemens brand name as a go-to market partner or a pilot customer, access to specialized Siemens engineers, and access to new customers and markets" (Weiblen & Chesbrough, 2015, p. 75).

It is crucial to understand how to connect program and core business. Being positioned as the interface to the startup ecosystems, those corporate units that run the programs must bridge the gap between startup and corporate world. Corporate managers involved have to push the external innovations internally to increase the probability of a market launch and to ensure that knowledge and project outcomes do not fall by the wayside (Weiblen & Chesbrough, 2015). Hence their jobs go beyond prototyping; sustainably connecting core business and startups is critical in an outside-in program. In the case of Siemens TTB, a formal commitment with internal stakeholders is required: a multi-year contract is signed with a subset of all Siemens divisions which specifies budgets, search fields, or the potential transfer.

The critical connections are described as follows:

"At the operational level, a dedicated contact person at each division and at TTB's side is appointed to ensure that a TTB request ends up with the right contact within the division. At the project start, each project must have project partners within the business units of divisions assigned. After the handover of a project, which the receiving business unit acknowledges and commits to market launch formally, TTB stays involved as a coach and supporter—one of the metrics tracked by TTB is revenue generation on the market from its projects." (Weiblen & Chesbrough, 2015, p. 76).

TTB staff spend at least 50% of their time with the business units, the other half is directed towards the startups. Interfacing internally in large companies is therefore identified as a key success factor for outside-in programs (Weiblen & Chesbrough, 2015).

In a recently published Harvard Business Review article, the founder of BMW's Venture Client Model shares insights about its outside-in innovation approach (Gimmy, Kanbach, Stubner, Konig, & Enders, 2017). In short, the corporate as "venture client" purchases the startup's technology instead of taking equity.

Only those startups that received VC funding or graduated from an accelerator program, thus already have undergone due diligence, are offered a partnership and get their first big customer on board. From day one of the program, startups become suppliers and receive purchase orders based on a 'minimum viable purchase' (Gimmy et al., 2017). Due to the success of the program, it is adopted by other large enterprises (Gimmy et al., 2017).

The main reason for success is the minimization of risks for all stakeholders as all parties involved (startups, private venture capitalists and corporate) focus on what they do best. The approach helps startups to get real-world feedback and provides them with insights on a corporate's workings and corporate quality, technical, and process requirements (Gimmy et al., 2017). As one of the article's authors is the founder of the program, the approach's very positive evaluation might be biased, yet the work offers in-depth insights into the development of a corporate outside-in program.

2.1.5.2 Corporate Accelerator Programs

A sub-division of corporate outside-in programs are corporate accelerator programs. Accelerators in general appeared mid-2000 as a response to the weaknesses of traditional incubation models that principally provided office space and in-house support (Bruneel et al., 2012).

As a source of inspiration for many succeeding accelerators, Y Combinator kicked off in 2005 in Cambridge, Massachusetts. It equipped participating startups with a small amount of seed investment as well as mentoring and opportunities to network in exchange for a minor equity stake.

More than ten years later, accelerators have become an umbrella term for all sorts of programs that offer access to funding, networking, and a service structure of mentoring (Pauwels et al., 2016). Accelerator programs usually comprise five main characteristics:

- An application process that is open to all, yet highly competitive.
- Provision of pre-seed investment, usually in exchange for equity.
- A focus on small teams not individual founders.
- Time-limited support comprising programmed events and intensive mentoring.
- Cohorts or 'classes' […] rather than individual companies (Miller & Bound, 2011).

Yet the extant incubation literature body cannot sufficiently explain the functioning of accelerators (Pauwels et al., 2016) so recently published works help understand this distinctive incubation type.

Pauwels et al. (2016) introduce five key building blocks (program package, strategic focus, selection process, funding structure, alumni relations), so-called "design themes", that cluster 17 identified constructs which constitute some of the most prominent accelerator programs across Europe.

Thereby, they found three different types of accelerators. The "Ecosystem Builder" matches startups and corporates; the "Deal-Flow Maker" identifies investment opportunities for investors, and the "Welfare Stimulator" stimulates economic development and startup activity (Pauwels et al., 2016).

From a broader perspective, business accelerators can be mapped in five categories: Independent Accelerators, Corporate Accelerators, Hybrid Accelerators, University Accelerators, Government Accelerators (Da Silva & Gurtner, 2017). Another recent study classifies accelerators as pre-seed accelerators, seed accelerators (startup accelerators, business accelerators), and corporate accelerators (Frimodig & Torkkeli, 2017).

Despite the proliferation of accelerators, with an estimated number of 3000+ programs globally run and accelerator literature available (Bliemel et al., 2016; Hochberg & Fehder, 2015; Miller & Bound, 2011; Pauwels et al., 2016), research on the role and efficacy of these programs is limited (Hochberg, 2016).

The literature body on corporate accelerators is very limited, too. There are just a few studies regarding Corporate Accelerators (Kanbach & Stubner, 2016; Pauwels et al., 2016). As Kanbach

and Stubner (2016) report, only three studies in peer-reviewed journals specifically introduce corporate accelerators (Hochberg, 2016; Hochberg & Fehder, 2015; Kohler, 2016; Weiblen & Chesbrough, 2015).

By bridging corporates and startups, "corporate accelerators provide a unique platform for long-term growth and corporate renewal" (Kohler, 2016, p. 347). Ideally, corporate accelerators merge two distinct worlds: the entrepreneurial speed and agility of startups and the scope and scale of corporates.

The first corporate accelerators popped up between 2010 and 2011. They differ substantially from the business incubators of the 1950s and the company builders of the late 1990s (S. Cohen, 2013). Being distinct from these mechanisms, "accelerators disaggregate the financial resources and knowledge resources previously offered by incubators and angel investors, and provide more advice and less money than either one" (S. Cohen, 2013, p. 25).

Although used differently in different contexts, from a corporate perspective such accelerators can be defined as time-limited programs that are open for application for startups that belong to a certain category; also, it is not constantly run (Weiblen & Chesbrough, 2015).

This rather broad classification is extended by Kohler (2016). Kohler defines corporate accelerators as "company-supported programs of limited duration that support cohorts of startups during the new venture process via mentoring, education, and company-specific resources" (Kohler, 2016, p. 348). More specifically, corporate accelerators share some main characteristics:

- "An open application process;
- A focus on small teams and not individual founders;
- Time-limited support comprising company interactions and mentoring; and
- Cohorts of startups rather than individual companies" (Kohler, 2016, p. 348).

Kohler (2016) further postulates a 4P approach (proposition, process, people, presence) for the development and design of corporate accelerators.

Based on an empirical analysis of 13 corporate accelerator programs in Germany, Kanbach and Stubner (2016) identified four distinct types of corporate accelerators. Three types (listening post, value chain investor, and test laboratory) are designed based on primarily strategic rationale.

The listening post type is purely strategically oriented without any equity involvement. The value chain investor type aims at identifying and developing startups with innovative products along the corporate's value chain; it therefore follows also a strategic orientation. The third strategic orientation type, the test laboratory corporate accelerator's main rationale is to embed startups in a protected environment to test new business ideas.

The unicorn hunter corporate accelerator, however, pursues mainly financial objectives. By investing in numerous startups, the objective is to make a financial premium (Kanbach & Stubner, 2016). Such minority investments usually reflect the rationale of independent accelerators.

2.1.5.3 Inside-Out Platform Startup Programs

Making startups corporate suppliers and harness a startup's technology is the primary goal of outside-in programs (Weiblen & Chesbrough, 2015).

This logic is reversed under the platform led approach. Corporates that seek to expand their markets attract startups to build products, while the corporate becomes the technology supplier. For innovating corporates, platforms have become the dominant model (Weiblen & Chesbrough, 2015). External or industry-wide platforms are distinct from internal or company-specific platforms, which is the other predominant platform type (Gawer & Cusumano, 2014).

Ecosystems of companies that develop innovations and thus empower the shared platform lead to platform innovation (Gawer & Cusumano, 2014). In an ideal platform innovation setup, corporates can benefit from all innovations that are produced or sold via the platform. Google and Apple are examples, where two corporates take profit from every sale that was effectuated through their operating systems iOS and Android.

A central feature of inside-out platform programs are free offerings as they (initially) attract a lot of startups. Weiblen and Chesbrough (2015) describe how Microsoft's BizSpark initiative lured more than 100,000 startups into its ecosystem by offering access to its cloud services and free software licenses.

Platform startup programs are an emerging battleground for corporates on their mission to attract startups but are potentially dangerous because each startup leads to further

incremental costs (Weiblen & Chesbrough, 2015). Such platforms have to capture value at some point; simply switching from free to fee is often difficult for the sponsoring organization.

Potential problems may also stem from the monitoring of all platform members and the internal orchestration (Weiblen & Chesbrough, 2015). Corporate platform managers not only have to manage the external startup network, they also have to network across different internal functions and units.

To conclude the review of startup engagement mechanisms, there is a model for every corporate purpose, although there might be specifications to them (Weiblen & Chesbrough, 2015).

2.1.6 How Startups Can Benefit from Corporates

So far, all engagement methods have been reviewed with a focus on the corporate. Yet scholars have also researched the startup's perspective (Alvarez & Barney, 2001; Usman & Vanhaverbeke, 2017; Weiblen & Chesbrough, 2015).

Collaboration with corporates is one of the most important modes for startups to participate in open innovation (Usman & Vanhaverbeke, 2017). Prior experience of the entrepreneur on how to deal with corporates was thereby found to have an impact on the success of the collaboration. Startups need to negotiate collaborative agreements wisely as the relationship is considered to be dynamic and asymmetric (Usman & Vanhaverbeke, 2017).

Within asymmetric relationships, startups feel most comfortable when being able to learn from the experiences of other companies through a mix of direct support, multi-company workshops, and online access to selected materials (Minshall, Mortara, Elia, & Probert, 2008).

Specific challenges startups are facing when partnering with larger firms are reviewed by Alvarez and Barney (2001). A major challenge concerns the different rates at which a more mature company can learn about the startup's technology, and the startup's ability to imitate the larger firm's organizational resources (Alvarez & Barney, 2001).

Within the scope of outside-in startup programs, potential problems from a startup perspective that may occur when engaging with corporates are usually reduced (Weiblen & Chesbrough, 2015) as the corporate establishes an interface for such joint projects. Collaborating startups can access valuable corporate resources and may have a well-known (first) customer. As

outside-in programs are typically project-based, dependency is lower, and the future direction is less influenced compared to a CVC investment.

2.1.7 The Knowledge Creation and Diffusion Startup Ecosystem

Different organizations in a startup ecosystem contribute to the creation of knowledge and its transfer to and from startups (Spender, Corvello, Grimaldi, & Rippa, 2017).

Incubators (Becker & Gassmann, 2006b; Clausen & Rasmussen, 2011), VCs (Ferrary & Granovetter, 2009), and other so-called "boundary spanners" (Lundberg, 2013) play a key role in transferring knowledge from startups to other stakeholders and further translate it. Such transfer is also possible vice versa (Spender et al., 2017).

Usually, universities are regarded as the main sources for innovation (Spender et al., 2017) as they offer knowledge about new technologies and trends, markets, or financial or legal aspects (Rubin, Aas, & Stead, 2015). VCs and other intermediaries contribute to the system's efficiency through selecting and supporting startups (Ferrary & Granovetter, 2009).

In an ideal setup for exchanging knowledge, both formal and informal relationships among participants have to be considered (Padilla-Meléndez, Del Aguila-Obra, & Lockett, 2013). Corporates are mainly involved in the knowledge creation and diffusion through their venture capital arms (Napp & Minshall, 2011).

2.2 Systematic Literature Review

The systematic literature review (SLR) is dedicated to the question

"What is known about interorganizational technology and knowledge transfer in general and success factors as well as organizational antecedents for knowledge transfer on the recipient side in particular?".

For this review, Fink's definition is adapted: "a systematic, explicit, and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners" (Fink, 2005, p. 3).

An effective review fosters theory development and closes knowledge gaps (Webster & Watson, 2002). A thorough and sophisticated literature review is a pre-condition for a thorough and sophisticated research (Boote & Beile, 2005). Reviewing the existing literature

body not only shows the commitment, but also helps to increase the researcher's understanding and awareness (Frank & Hatak, 2014).

However, as will be explained in chapter 3, the research design follows an approach that can be best described as systematic combining (Dubois & Gadde, 2002, 2014). Using the systematic combining approach, "the researcher would not be able even to identify 'all the literature' since the empirical fieldwork parallels the theoretical conceptualization" (Dubois & Gadde, 2002, p. 559). Therefore, although this review has the aim of answering the formulated question, it does not claim to cover all the literature.

While the background literature review was centered around open innovation and corporate engagement with startups, the following SLR is solely focused on inter-organizational knowledge transfer and factors that support a successful transfer of knowledge.

To gain an understanding of knowledge transfer and its antecedents and success factors, the process by Tranfield, Denyer, and Smart (2003) was applied. Following this approach, the research has to (1) identify the research, (2) select studies, (3) conduct a study quality assessment, (4) extract data and monitor the process, and lastly (5) synthesize data.

Several criteria for inclusion and exclusion of publications were defined: it was initially decided to exclude articles and conference papers that were published before the year 1996 as Grant's seminal work was published in that year. As some papers are linked to theories published earlier and as they represent groundbreaking findings in their fields, six exceptions were made with regard to time frame. Those papers were identified through referencing. Only papers in English or German were included in the review process. During the review process, no relevant papers in German were identified so only papers in English appeared in the final selection.

For the search, the database Web of Science was employed. Google Scholar has been used to access papers that were not accessible through the initial database search. Search encompassed the fields of management, business, and social sciences.

The application of those inclusion and exclusion criteria (see Fig. 6) using the search term *knowledge transfer* led to 3994 results. It became clear that knowledge transfer has many content-related overlappings with *technology transfer* so the search term was added. Also, in order to answer the research question, knowledge had to be explored in more depth in the context of transferring it within a startup ecosystem.

Thus, the search term *startup* was used in combination with *knowledge transfer* and *technology transfer*. However, much literature screened was related to intra-organizational knowledge transfer so only those papers that allowed for generalizations from intra-organizational knowledge transfer that helped to answer the search question were kept in the literature collection. Reversing this argument, *inter-organizational* was added to the main search term knowledge transfer.

As those searches yielded mainly to explanatory papers of knowledge transfer but a more exploratory approach was needed to understand antecedents of knowledge transfer, the search terms *antecedents* and *characteristics* were used in combination with *knowledge transfer* and *organization*. Finally, the search terms *success* and *factors* were used in different combinations with the applied search terms.

Figure 6. SLR process

Three major reviews (Cummings & Teng, 2003; Easterby-Smith et al., 2008; van Wijk et al., 2008) were finally used to identify missing links. This led to the identification of 141 articles. 17 had to be excluded because the full texts were not available, and it was not possible to decide if they were relevant enough. Three papers could be screened because the authors were contacted via Researchgate and sent the full text versions. After screening all full texts for relevant findings that helped to answer the search question, 36 papers were excluded due to a lack of relevance and 85 publications remained and were included in the following paragraphs which illustrate the SLR's results.

2.3 Results of the Literature Review

2.3.1 Technology Transfer

As described in the Siemens TTB case, many corporate startup projects fail because startup and corporate are bridged insufficiently (Weiblen & Chesbrough, 2015). Knowledge and sometimes technology is not transferred adequately between startup and corporate. There are various early reviews that examine the range of activities labelled knowledge transfer or technology transfer (Bozeman, 2000; D'Este & Patel, 2007). The technology transfer field is broad and literature ranges from internal corporate technology transfer to international technology transfer (Tran & Kocaoglu, 2009).

The early reviews have been extended not long ago by an updated and extensive work (Bozeman, Rimes, & Youtie, 2015). Different technology transfer literature reviews have been published meanwhile (Adomavicius, Bockstedt, Gupta, & Kauffman, 2008; Agarwal, Echambadi, Franco, & Sarkar, 2004; Bradley, Hayter, & Link, 2013; Protogerou, Caloghirou, & Siokas, 2013) and guided the extensive review by Bozeman et al. (2015). It is argued, that most technology transfer studies concern university technology transfer and IP activity (Bozeman et al., 2015).

2.3.2 Knowledge Transfer

Grant (1996) describes the characteristics of the donor firm and the recipient firm, the attributes of the knowledge, and the knowledge transfer process itself as key for the development of organizational learning capabilities. Those capabilities will lead to a competitive advantage (Grant, 1996).

Argote, McEvily, and Reagans (2003) follow this logic and provide a theoretical framework for organizing research on organizational learning and knowledge management that includes knowledge transfer as one potential outcome.

Knowledge transfer in organizations can be defined as "process through which one unit (e.g., group, department, or division) is affected by the experience of another" (Argote & Ingram, 2000, p. 151). It manifests itself through changes in the performance or knowledge of the recipient (Argote & Ingram, 2000). As a consequence, one can measure knowledge transfer by observing changes in performance or knowledge (Argote & Ingram, 2000).

Components of such knowledge may be tacit (un-codified); hence they are more difficult to capture when measuring changes. In terms of performance and innovation production, access

to new knowledge that is developed by other units (and hence the occupation of a central network position) is critical (Tsai, 2001).

Further research has increased the depth of understanding and broadened the factors identified as predictors and consequences of knowledge transfer (Argote & Fahrenkopf, 2016). Also, new measurement approaches are examined. One interesting finding goes beyond pure intra-organizational knowledge transfer: there is evidence that knowledge is difficult to transfer across organizational contexts (Argote & Fahrenkopf, 2016). Likewise, similar contexts facilitate knowledge transfer (Argote & Fahrenkopf, 2016).

Using an interfirm knowledge transfer perspective, special attention shall be drawn on knowledge production and diffusion within a startup ecosystem. Literature in strategic management has been dedicated to the role of resources as important drivers for a firm's competitive advantage.

Particularly RBV scholars have argued that knowledge has the greatest potential to produce sustainable advantage. The capability to create, transfer, and combine knowledge in a non-imitable way may lead to a better performance over competitors (Rumelt, 2005).

Companies may seek competitive advantage through either internal investment in research and development (Ahuja & Katila, 2004; Aldridge, Audretsch, Desai, & Nadella, 2014; B. Peters, 2009), or formal inter-organizational linkages like networks or alliances (Aristei, Vecchi, & Venturini, 2016; Inkpen & Tsang, 2005). Firms that form a network or alliance aim at facilitating knowledge sharing.

The importance of network building and knowledge sharing is increasingly recognized both in the innovation literature (West & Bogers, 2014) and in the entrepreneurship literature (Bøllingtoft, 2012; Johanisson, 2000). Also, the ability to internally transfer knowledge is a potential competitive advantage as it may contribute to the organizational performance and impede knowledge transfer externally (Argote & Ingram, 2000).

Those firms that are not part of these networks are not able to maintain a competitive advantage (Boehm & Hogan, 2014; Huang & Yu, 2011). Reversely, firms that aim at maintaining such competitive advantage through networks need to have collaborative, relational and absorptive capabilities (Carmeli, Atwater, & Levi, 2011; Carmeli & Waldman, 2010; Franza,

Grant, & Spivey, 2012). Absorptive capabilities as a firm's abilities to exploit external sources of knowledge have already been elaborated earlier in this research.

Therefore, transferring knowledge from entities outside organizational boundaries becomes central to a firm's success (Lane, Salk, & Lyles, 2001). It requires managerial commitment and resources (Chen, 2004; Easterby-Smith et al., 2008). How organizations interact and how knowledge is transferred, is defined by transfer mechanisms (Jasimuddin, 2007; Prévot & Spencer, 2006).

Transfer mechanisms are characterized as modes by which companies conduct knowledge transfer (Easterby-Smith et al., 2008; Mason & Leek, 2008). To boost a transfer's effectiveness, firms leverage their cooperative competency. Researchers found evidence that cooperative competency plays a mediating role between transfer mechanisms and knowledge transfer performance (Chen, Hsiao, & Chu, 2014). Cooperative competency helps in accelerating knowledge access, may create competitive advantage and supports a firm's innovativeness (Chen et al., 2014).

Previous studies elaborated on alliance characteristics like its form (Björkman, Barner-Rasmussen, & Li, 2004; Chen, 2004; Y. Lee & Cavusgil, 2006), social ties (Bond, Houston, & Tang, 2008; Chen, Shih, & Yang, 2009), and knowledge attributes (Blumenberg, Wagner, & Beimborn, 2009; Santoro & Saparito, 2006). A study among 182 US manufacturing and service firms revealed that the stronger the relationship between two firms, the greater will be the extent of tacit knowledge transfer between those two (Cavusgil, Calantone, & Zhao, 2003). Tacit knowledge in general is more difficult to transfer than explicit knowledge (Cavusgil et al., 2003).

Phelps, Heidl, and Wadhwa (2012) and van Wijk et al. (2008) provide more detailed literature reviews on knowledge networks and knowledge transfer. Some key studies shall be highlighted in the following paragraph.

In terms of complexity, it is argued that the value of social proximity to the knowledge source depends to a large extent on the nature of the knowledge (Sorenson, Rivkin, & Fleming, 2006). Essentially, close ties best enable transferring moderately complex knowledge (Sorenson et al., 2006). Strong, dormant ties which are inactive relationships that can be rekindled have the access-to-novelty benefits of weak ties but also have the transfer benefits of strong ties (Levin, Walter, & Murnighan, 2011).

Reagans and McEvily (2003) show that cohesion and range are two dimensions of network structure that increase the rates of knowledge transfer beyond the strength of the tie between the source and the receiving actor. Tie strength is especially important when tacit knowledge is transferred; the effects of network structure, however, do not depend on the type of knowledge (Reagans & McEvily, 2003).

The research bodies of social networks, social capital and knowledge transfer were integrated by Inkpen and Tsang (2005): they revealed that social capital grown between network actors facilitates knowledge transfer across the network.

2.3.3 Factors affecting Knowledge Transfer

Transferring knowledge is not necessarily successful by nature. What increases then the likelihood of successfully transferring knowledge between two organizations from the recipient's perspective? In the following section literature on organizational factors that may have an impact on knowledge transfer success is reviewed.

Research has examined numerous antecedents of organizational knowledge transfer but only a few were studied extensively (van Wijk et al., 2008). Thus, the explanatory power is weak and limited to some seminal works. Three major reviews were used to identify recipient firm antecedents for knowledge transfer success (Cummings & Teng, 2003; Easterby-Smith et al., 2008; van Wijk et al., 2008).

First, in order to map research on inter-organizational knowledge transfer, Easterby-Smith et al. (2008) developed a framework based on factors that influence the transfer (see Fig. 7). The authors conclude that "absorptive capacity, motivation or learning intent, power issues, risktaking and geographic position" (Easterby-Smith et al., 2008, p. 681) are those factors that are most prevalent in their reviewed papers.

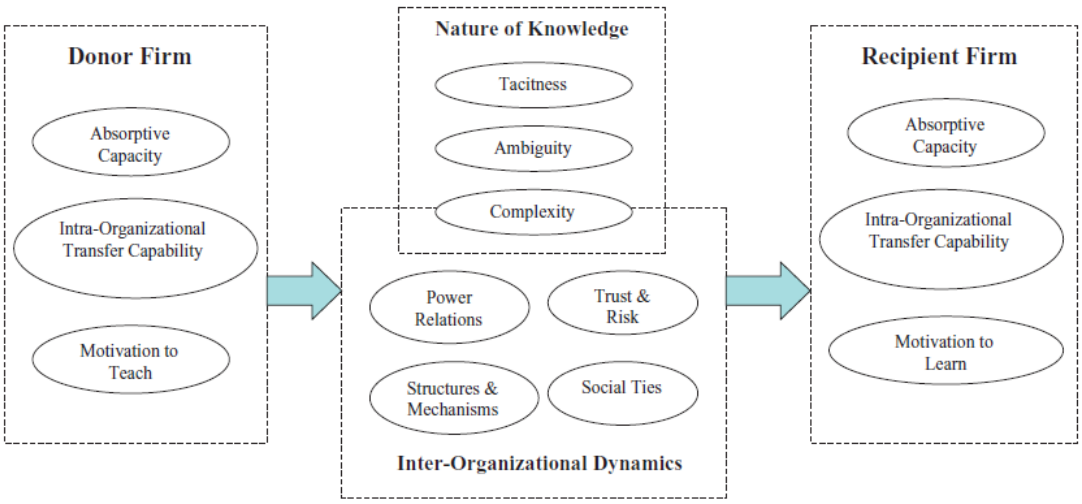

Figure 7. Factors influencing inter-organizational knowledge transfer (Source: Easterby-Smith et al., 2008)

Second, in their study of R&D knowledge transfer, Cummings and Teng (2003) present a model of transfer success which includes nine main factors affecting knowledge transfer (see Fig. 8). These factors were found across four contextual domains (knowledge context, relational context, recipient context, activity context).

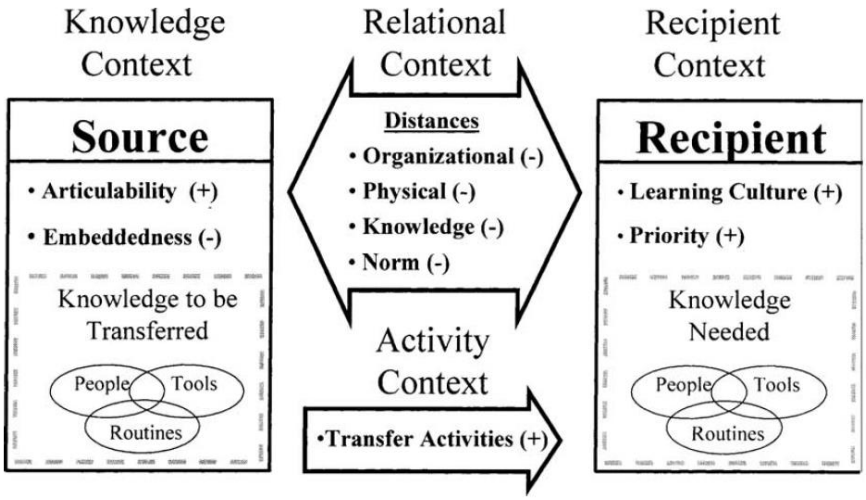

Figure 8. Transfer success research model (Source: Cummings & Teng, 2003)

Third, in their literature review on knowledge transfer, van Wijk et al. (2008) classify antecedents of organizational knowledge transfer into three categories, knowledge, organizational and network characteristics (Adler & Kwon, 2002; Inkpen & Tsang, 2005). They found organizational characteristics like size and absorptive capacity to positively impact knowledge transfer.

In sum, absorptive capacity (Easterby-Smith et al., 2008; van Wijk et al., 2008), intra-organizational transfer capability and learning culture (Cummings & Teng, 2003; Easterby-Smith et al., 2008), priority (Cummings & Teng, 2003), and size (van Wijk et al., 2008) are the most prevalent factors from the recipient's perspective. Evidence was not found for hypotheses that age and decentralization influence organizational knowledge transfer (van Wijk et al., 2008).

However, other scholars call for the inclusion of additional factors like encouragement (Jeppesen & Lakhani, 2010; S. Lee, Park, Yoon, & Park, 2010; Terwiesch & Xu, 2008; West & Gallagher, 2006) and the role of management (Harryson, Dudkowski, & Stern, 2008). Also, van Wijk et al. (2008) ask for future studies to include top management attributes and leadership style.

To conclude, there is no single set of factors to be addressed when evaluating inter-organizational knowledge transfer from the recipient firm context but literature provides several starting points for developing a set of antecedents to be merged into a theoretical model.

2.3.3.1 Absorptive Capacity

Literature on the integration of innovation in the organization is related to absorptive capacity. Following Cohen and Levinthal (1990), "the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends is critical to its innovative capabilities" (p.128).

Most scholars in this field stick to the hypothesis that higher internal absorptive capacity is beneficial for capitalizing on external innovations. However, the effect of absorptive capacity on collaboration raises contradictions: absorptive capacity is suggested to generally limit the need for collaborations (Barge-Gil, 2010), increase collaborative approaches (Faria, Lima, & Santos, 2010), or make remote collaboration more effective (Jong & Freel, 2010).

Drawing on the latter study, despite most partners being 'local', higher R&D expenditure is found to be positively related to collaboration with more distant organizations (Jong & Freel, 2010). Others argue that assimilation capacity is crucial when determining a firm's ability to explore distantly from its existing technological portfolio (Laursen, Leone, & Torrisi, 2010).

These different streams show that findings on the effect of absorptive capacity on collaboration are very inconsistent. Unlike this relationship, results of absorptive capacity on performance are found to be more consistent (West & Bogers, 2014). For instance, absorptive capacity accelerates the assimilation of external knowledge and its concluding commercialization (Fabrizio, 2009).

2.3.3.2 Intra-Organizational Transfer Capability and Learning Culture

The recipient firm's absorptive capacity is affected by the firm's experiences, culture, and knowledge retention capabilities (Lane & Lubatkin, 1998). The general need for a culture of learning to facilitate knowledge transfer is widely recognized (Aubrey & Cohen, 1995).

If a firm absorbs knowledge from an external organization, intra-organizational knowledge transfer capability comes into play to diffuse the knowledge to assimilate and utilize it. Such process of diffusion, assimilation, and utilization can be difficult (Szulanski, 1996).

Sometimes, the 'not-invented-here syndrome' can hinder organizations to accept external knowledge (Grosse Kathoefer & Leker, 2012; Katz & Allen, 1982; Simon, 1991). Dysfunctions related to the knowledge assimilation may occur if the 'not-invented-here syndrome' holds (Szulanski, 1996).

Also, knowledge is only transferred effectively when it is retained by the recipient firm (Argote et al., 2003; Argote & Fahrenkopf, 2016; Marsick & Watkins, 2016). Even if knowledge is retained and diffused, knowledge may not be further developed if the recipient firm does not consider learning important.

Assuming that a firm with high internal absorptive capacity is also equipped for the diffusion of such knowledge, means that intra-organizational transfer capability and absorptive capacity are interrelated (Easterby-Smith et al., 2008).

2.3.3.3 Priority

Recipients of knowledge may prioritize projects differently and allocate both resources and attention differently (Cummings & Teng, 2003). The relative importance of the project must be communicated properly to involved units like R&D.

In terms of prioritization, the recipient firm's motivation to gain knowledge has been identified early as a key for knowledge transfer (Hamel, 1991). Similarly, according to Pérez-Nordtvedt, Kedia, Datta, and Rasheed (2008), learning intent is critical to knowledge transfer. In their

review paper, Cummings and Teng (2003) list learning intent and motivation as conceptually similar concepts which seems very striking and not in line with other studies who strictly differentiate between the concepts. If the recipient attaches high priority to the knowledge transfer project, it is more motivated to support the transfer. However, project priority was not found to be statistically significant (Cummings & Teng, 2003). This finding can be challenged as this may not hold true for usually high-priority collaboration projects within outside-in startup projects.

2.3.3.4 Size

Evidence of the effects of organizational size on knowledge transfer is mixed (van Wijk et al., 2008). Studies found both non-significant or even negative effects of size (Tsang, 2002), but also mostly positive effects when including it as a control variable (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004; Laursen & Salter, 2006).

2.3.3.5 Leadership Style and Management Commitment

The article search of van Wijk et al. (2008) revealed that some traditional organizational antecedents of knowledge transfer such as the effect of top management attributes or leadership style (Vera & Crossan, 2004) have been hardly covered. Clearly, knowledge transfer requires managerial commitment and resources (Chen, 2004; Easterby-Smith et al., 2008).

Vera and Crossan (2004) show the impact of CEO and top manager leadership styles and practices on organizational learning. While transformational leaders were found to usually inspire learning that challenges the status quo, transactional leaders were found to facilitate learning that reinforces existing practices (Vera & Crossan, 2004). Yet, the research body on how leaders influence organizational learning and innovation is still under-developed (Jansen, Vera, & Crossan, 2009). Organizational learning literature often highlights different forms of learning but fails to explain who initiates exploitation processes within an organization (Berson, Nemanich, Waldman, Galvin, & Keller, 2006).

Consequently, it would be interesting to understand the role of top management in the knowledge transfer process, particularly in the exploitation phase. In line with that it is recommended “to conduct mediation studies to identify how leaders influence the exploitation of institutionalized knowledge” (Berson et al., 2006, p. 590) within organizations.

With internal boundaries that exist within most organizations, commercialization is rather unlikely if knowledge obtained externally does not reach decision-making groups internally (Yanow, 2004). Therefore, knowledge must be directed from the exploration phase within open networks to the exploitation phase within closed networks (Harryson et al., 2008). This finding is congruent with proposals among absorptive capacity scholars who argue that integrative mechanisms are needed to utilize knowledge obtained from the external environment (Zahra & George, 2002).

2.3.3.6 Encouragement

External innovation encouragement is a controversially discussed topic and does not get attention in the review papers but seems relevant for knowledge transfer research. Different types of brokerage or third party actors (Jeppesen & Lakhani, 2010; S. Lee et al., 2010) may potentially balance external and internal stakeholders and therewith create synergies across the entire value chain. An example are patent brokers (Benassi & Di Minin, 2009).

The research body knows two main mechanisms for external innovation encouragement: effective incentives that are either monetary or non-monetary (Terwiesch & Xu, 2008; West & Gallagher, 2006) or formal tools and processes (Gawer, 2010) that establish a platform to share innovations. The leadership literature knows the concept of 'contingent reward' for describing how top managers reward their associates for achieving agreed objectives (Amitay, Popper, & Lipshitz, 2005) but the overall encouragement topic seems to be a 'black box'.

2.4 Summary and Development of Model

With knowledge residing outside the boundaries of large companies (Hippel, 2005) startups are a potential source external knowledge (Dushnitsky & Lenox, 2005). Within a startup ecosystem, different organizations like incubators (Becker & Gassmann, 2006b; Clausen & Rasmussen, 2011), VCs (Ferrary & Granovetter, 2009), and other so-called "boundary spanners" (Lundberg, 2013) contribute to the creation of knowledge and its transfer to and from startups (Spender et al., 2017).

Corporates that wish to facilitate such knowledge usually follow Chesbrough's Open Innovation paradigm (Chesbrough, 2003, 2006a, 2006b, 2017). Theoretical open innovation modelling has been limited to the distinction of inbound and outbound knowledge, respectively exploration

and exploitation (Dahlander & Gann, 2010; van de Vrande et al., 2009). Lichtenthaler and Lichtenthaler (2009) describe open innovation processes as exploration, retention, and exploitation of knowledge inside and outside a firm's boundaries. Transferring knowledge then becomes crucial for a firm's success (Lane et al., 2001) but many innovation projects fail due to an insufficient transfer (Weiblen & Chesbrough, 2015).

Thus corporates may establish so-called outside-in startup-programs (Weiblen & Chesbrough, 2015) to enhance firm innovativeness (Laursen & Salter, 2006; Lettl et al., 2006; Piller & Walcher, 2006) and to introduce a structured approach for collaboration.

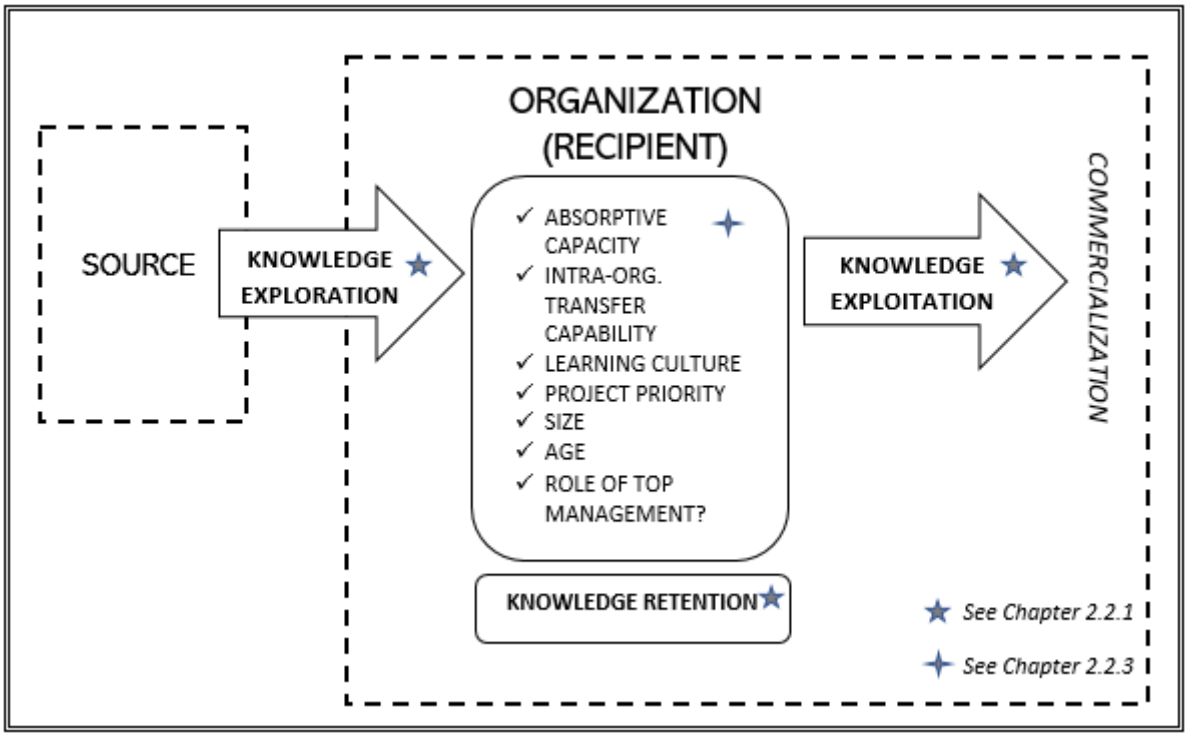

Figure 9. Basic knowledge transfer illustration based on literature review

Based on the SLR (e.g., Cummings & Teng, 2003; Easterby-Smith et al., 2008; Harryson et al., 2008; Inkpen & Tsang, 2005; Jasimuddin, 2007; Pérez-Nordtvedt et al., 2008; Sammarra & Biggiero, 2008; van Wijk et al., 2008), absorptive capacity, intra-organizational transfer capability and learning culture, project priority, and size were identified as the most prevalent recipient characteristics.

However, this set does not appear to reflect more recent findings, so it was extended by leadership style, managerial commitment and encouragement. As there is no common understanding of a clear set of characteristics among scholars, this study will shed light on a

new set. A very basic illustration of the literature review findings showing a short knowledge transfer process including the factors affecting knowledge transfer has been developed (see Fig. 9).

3. Methodology

3.1 Research Design

For this work, data was primarily obtained from interviews on the subject of knowledge transfer. The theory underlying this work, that startup projects fail because of insufficient knowledge transfer between corporate and startup, was generated by a so-called abductive approach.

The systematic combining approach is defined as a „process where theoretical framework, empirical fieldwork, and case analysis evolve simultaneously, and its particularly useful for development of new theories" (Dubois & Gadde, 2002, p. 554).

Using systematic combining, the researcher is constantly going back and forth between empirical fieldwork and theory as well as from one type of research operation to another. As theory cannot be applied without empirical fieldwork and vice versa, the preliminary analytical framework that is based on preconceptions, is evolving in line with what is discovered through empirical observations, but also analysis and interpretation (Dubois & Gadde, 2002). Accordingly, the framing of the research topics is developed during the study and "the original framework is successively modified, partly as a result of unanticipated empirical findings, but also of theoretical insights gained during the process" (Dubois & Gadde, 2002, p. 559).

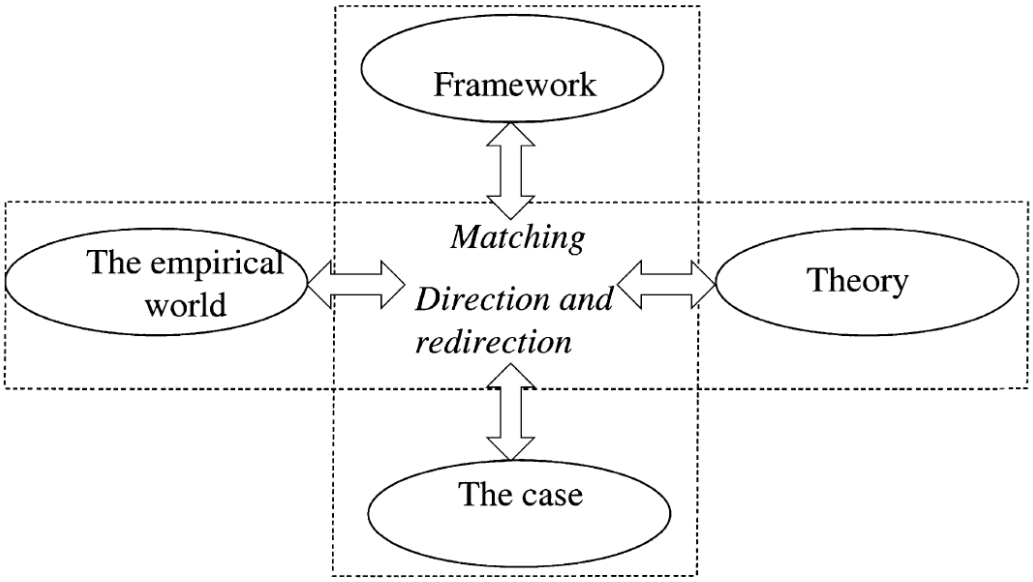

Figure 10. Systematic combining (Source: Dubois & Gadde, 2002)

To position systematic in relation to induction and deduction, the approach is closer to induction than deduction but it is not a mixture of inductive and deductive approaches (Dubois & Gadde, 2002). While inductive approaches are based on systematical theory generation from data relying on 'grounded theory' (Glaser & Strauss, 1967), deductive approaches rather deal with developing propositions from theory and testing them.

For this study, a continuous movement between a model world and an empirical world has taken place. The study consists of two chronological empirical steps:

(1) A case study. The theory development is primarily based on a case study that lasted a total of 15 months. At the same time, numerous interviews were conducted with innovation experts and employees of the startup programs in which the case studies were carried out. Further, the researcher took on the role of participating observer.

(2) Expert Interviews. Following the case studies, another eight interviews were conducted with selected innovation experts. The results of these interviews are explained in Chapter 4.

3.2 Case Study

3.2.1 Case Descriptions

The Case Study is based on two cases that were studied by the author during a stay in two different startup programs:

(1) Core of the case study was a startup program whose spin-off was founded in Berlin. The startup program has further locations in startup metropolises such as San Francisco (Silicon Valley), London, Amsterdam or Tel Aviv. These locations were, however, added during the phase under study. The researcher was present in Berlin from the outset and accompanied the development of the hub. The initial phase focused in particular on organizational content, such as the location or the organization of regular meetings. In the course of time the strategic orientation and the anchoring of the startup program in the Berlin ecosystem became more important. Investment issues were also increasingly on the employees' agenda.

Within a few months, the basic orientation of the program had changed. First, so-called venture developers employed through the startup program were asked to identify interesting topics with potential business models and then to found startups for the corporate, which belonged entirely to the Group.

After a few months, startups for joint projects were also scouted. Both startup program and corporate have thus opened up more strongly to the outside world. However, many of these projects were not successful, and the Startup Program was most recently active as a startup investor.

(2) In addition, there was a 4-month research stay in another startup program. The program has existed for a much longer time and is only one of several innovation vehicles of the corporate. The startup program works similar to a traditional accelerator and focuses on challenges close to the core business. Based on several years of experience in startup projects, the position of liaison manager was introduced early in this startup program. The example of the liaison manager shows the advantages of the abductive approach: this phenomenon ‘liaison/transfer manager’ does not exist in the literature but based on the observations in the case study a question was included in the questionnaire.

3.2.2 Data Collection

Due to the abductive research approach, a multiple re-orientation has taken place.

Initially, the focus was on the strategic orientation of the program (Phase 1). The researcher mainly observed how the program was structured. Among other things, internal efforts were made to find out how to work as independently as possible. The focus was on structure.

In the course of the project, procedural questions arose. At first, there were no joint projects with startups. The focus was then on the process of cooperation with startups (phase 2).

Numerous projects finally failed. There was no connectivity in the corporate. Thus, in a further phase of re-orientation, the transfer of knowledge between startups and corporate became the key topic (Phase 3).

During the fieldwork phase, interviews were combined with other sources:

- For about 15 months, the researcher attended weekly and monthly cross-functional meetings dealing with the problems related to integrating startup knowledge into the corporate
- For about 15 months, the researcher attended at least monthly events, where startups pitched in front of corporate experts for either funding for a joint project or even investment. Some of those pitches were held by internal startups.
- Informal interviews were carried out with staff members from the startup program. Most of the talks were with innovation managers, but investment managers and venture developers were also interviewed.
- Digital sources of information, such as company presentations were used.
- Strategic meetings for setting up a so-called qualitative deal flow were attended. The researcher gained insights into the development of a deal flow tool dedicated to the startup scouting process.

3.2.3 Main Findings and Generation of the Interview Questionnaire

The interviews as well as all other sources of information were mainly used for theory building. The observations led to questions on which interviews later were based. Hence, the interviews added new dimensions to the subject. The observations and findings are not explicitly analyzed in chapter 4; they were rather used to re-orient and to build theory. Some of the observations are discussed in chapter 5 as they were congruent with the statements from SP2 and SP5 who held leading position in the case study startup programs. The findings of the case study build

the foundation of the interview questionnaire. The set of items stemming from the case study was extended by items deduced from the literature review.

The semi-structured interviews were designed to collect different sets of data. The questionnaire started with a short briefing and some introductory words. The first set was used to gain some background knowledge about the interviewee.

The second set checked for the program's size, number of startups, motivation and goal. This set of questions helped to better understand the mode of collaboration in a typical project.

In the main part, the interviewees had to evaluate 15 factors potentially relevant for knowledge transfer. Due to the abductive nature, a few minor parts were adapted after the first two interviews had taken place. The third set of questions was concerned with relational factors of the project, while the fourth set of questions addressed recipient-specific antecedents for knowledge transfer.

In the closing part of the questionnaire, three open questions were posed regarding project success, key learnings and general success factors. The final set of data reflected on the interviewees' perspectives on their internal processes and their best practices for setting up a corporate startup outside-in program.

3.3 Expert Interviews

3.3.1 Data Collection

To get a true understanding of a phenomenon, interviews are usually neither entirely pre-structured nor are they left entirely open (Boeije, 2010). This is known as a 'half-structured' or 'semi-structured' interview type. Using semi-structured interviews to better understand knowledge transfer between startup and corporate, primary data was collected. Hence the research method is *qualitative* in the collection and analysis of data. The method was chosen as it allows to explore reasons, routines, practices and opinions of the interviewees (Boeije, 2010). Due to the flexibility and informality of the method, the researcher may cover company-specific themes and the respondents can comfortably make connections as well as add new aspects of the researched phenomenon (Babbie, 2007; Saunders, Lewis, & Thornhill, 2009).

In advance, some background information on the interview partner and the program was prepared through internet research. Thus, it should be shown that the author has sufficiently prepared for the interview and shows interest in the interviewee.

The contact with the interview partners was mostly via the researcher's existing network. Interested participants were sent a brief presentation with the research question, the academic background of the author, as well as expectations of the interview.

Overall, the interview phase lasted about 95 days. Two interviews were held face-to-face in Berlin, the other interviews were conducted by telephone as this was preferred by the callers and/or more convenient. Before the interview phase took place, several face-to-face in-depth interviews with experts from the startup ecosystem were held to identify emerging themes in corporate startup collaboration. These were not recorded.

Permission to record the expert interviews was requested in every session. One telephone interview was corrupted, and data was lost. One interview was conducted in English; all other interviews were conducted in German. The interviews lasted on average 65 minutes. Two interviews were strictly stopped after 45 minutes as this was the time frame initially agreed on.

3.3.2 Sampling

Participants were selected through the process of nonprobability purposive sampling (Babbie, 2007). The sample was intentionally selected according to needs of this specific project. The following parameters were used to identify potential interviewees:

(i) corporate startup programs that match the definition of a program in which the cooperation between the established company and the startup goes beyond the investment level; the most common form is an accelerator program
   a. however, startups programs do not necessarily have to be accelerator programs
   b. corporate startup programs may include innovation hubs and digital labs

(ii) corporate startup programs that follow an outside-approach and collaborate with startups project-based; joint projects or pilot projects in which a product is cooperatively developed further are defined as a parameter because it ensures that new knowledge is developed that can be transferred between startup and corporate

(iii) corporate startup programs with a strong focus on technology sourcing because it increases the likelihood that they are interested in joint product development (projects) with startups

(iv) corporate startup programs in Germany to increase the degree of comparability and to decrease the impact of cultural factors that cannot be detected within the limited scope of an interview.

To maintain enough diversification among the participants, corporates from different industries and different degrees of technology-related exposure were contacted. Out of 17 individuals contacted, three did not provide feedback, one could not participate due to a non-disclosure agreement (NDA), and three declined interest. If the respondents did not reply, they were contacted for a second time after two weeks. All contacts were channeled through the researcher's network as some initial cold-calling attempts did not yield to results. As startup programs gain more attention, the programs' executives are sought-after interview partners and usually decline interview requests.

In total, nine expert interviews were conducted. Five participants lead (or led at the time of the interview) their programs as Managing Directors or Program Leads. All participants had insights into all strategically relevant topics and objectives of the program they worked for and can be called experts.

City	*Position*	*Industry*	*Company HQ*
Berlin	Head of Program	Apparel	Germany
Berlin	Managing Director	Retailing	Germany
Berlin	Managing Director	Transportation	Germany
Berlin	Innovation Manager	Conglomerate	Germany
Berlin	Managing Director	Aviation	Germany
Berlin	Program Lead	Energy	Germany
Berlin	Startup Engagement Manager	Enterprise Software	Germany
Hamburg	Program Lead	Aviation	France
Berlin	Chief of Staff	Heating, Industrial	Germany
Herzogenaurach	Chief Innovation Officer	Sports	Germany
Berlin	Managing Director	Media	Germany
Munich	Program Manager	Automotive	Germany
Berlin	Managing Director	Beverage	USA
Berlin	Managing Director	Media	Germany
Berlin	Innovation Manager	Automotive	Germany
Hamburg	Innovation Manager	Consumer Goods	Netherlands
Munich	Managing Director	Financial Services	Germany

Table 1.Initial sample composition

3.3.3 Data Analysis

All interviews were transcribed and translated into English. The collected data was made anonymous by assigning each startup program a pseudonym (the letters 'SP' for startup program were combined with the order in which interviews were conducted: *SP1*, *SP2*, … *SPn*).

Code	*Date*	*Setting*	*City*	*Position*	*Industry*
SP1	26/04/2017	Phone	Berlin	Managing Director	Retail
SP2	11/05/2017	Phone	Berlin	Managing Director	Transportation
SP3	18/05/2017	Phone	Berlin	Innovation Manager	Conglomerate
SP4	23/05/2017	Phone	Berlin	Managing Director	Aviation
SP5	30/05/2017	Person	Berlin	Program Lead	Energy
SP6	30/06/2017	Person	Berlin	Startup Engagement Manager	Enterprise Software
SP7	18/07/2017	Phone	Hamburg	Program Lead	Aviation
SP8	01/08/2017	Phone	Munich	Program Manager	Automotive

Table 2. Final list of interview partners

To extract insights from the collected data, coding took place. The 'spiral of analysis' (Boeije, 2010) is inspired by the Grounded Theory by Glaser and Strauss (1967) and is built on three major steps. The spiral starts with ***Open Coding***: data is examined, compared, segmented and ultimately classified using various codes which then construct a *coding scheme*. The entire coding scheme can be found in Appendix 2.

A code is a summarizing description for a piece of text which points to the meaning of this piece (Boeije, 2010). For coding, the computer program 'f4analyse' was used. All interviews were transcribed using 'f4transkript' and the outputs were uploaded to f4analyse. Open coding thus provides the researcher with an analytical procedure for the project (Boeije, 2010).

Often, those codes related to segments of the semi-structured interview guideline. In total, the open coding led to 135 different codes. The initial coding scheme was later refined by merging similar codes. Figure 12 shows an example of the open coding from the transcript of interviews.

Interview transcript	Code
P: There was a workshop here on site and the rest runs over phone, Skype, whatever. #00:17:26-5#	Startup worked mainly remote
I: Was there a knowledge overlap? So quite similar projects, products or services in the group, which then offered the startup? #00:17:34-4#	No knowledge overlapping
P: Not at all. #00:17:39-5#	
I: Okay. Was there a cultural difference between the startup and the corporate culture? #00:17:54-6#	Cultural fit between startup and involved employees
P: Let's put it this way: The people who worked with the team are already leaders in this area within the group anyway. Therefore, there were few points where you can say it did not fit, […]. #00:18:51-5#	
I: You mention the fit. How well did the startup network with employees in the Group or did it establish a network during the collaboration? #00:19:05-1#	Startup manager does networking
P: The topic is too new for that. I take over the networking, as I talk about it. This is also my role, "enabling" these projects […]. #00:20:20-1#	Startup manager is also liaison manager

Figure 11. Coding example from SP3

The second step is called ***Axial Coding***. The primary issue is to determine which elements of research are dominant and which are less important. Building on the "coding scheme" (see Appendix 2), these were the following categories:

- *Founder team*; general characteristics of the founders, mainly related to experience
- *Stage*; what has the startup achieved before entering the program
- *Innovation type*; how radical is the innovation
- *Mode of collaboration*; did the corporate become e.g. a pilot customer or licensee?
- *Location*; remote working or corporate office space
- *Distance*; knowledge and cultural distance between corporate and startup
- *Network*; degree of startup's networking within cororate
- *Post-project*; what happened after project phase ended?
- *Priority*; which project priority was awarded by corporate employees
- *Liaison Manager*; installment of a dedicated liaison manager possible
- *Learning intent*; corporate willingness to learn from startup
- *Absorptive capacity*; capability to absorb new knowledge
- *Encouragement*; incentives for employees for innovation projects
- *Management commitment*; top management project commitment

The detailed results of axial coding, including all subcategories, main categories, and category groups can be found in the tables in Chapter 4.

Using ***Selective Coding***, the final step of the spiral, the researcher looks for connections between the categories (Boeije, 2010). The main categories are analyzed from a cross-integrative perspective. The real purpose of this relative analysis is the identification of the key elements that allow the formulation of a theoretical model. Boeije (2010) proposes to create

links to the theory and thus to the goal of the research as well as to the collected data and current events for the development of the core categories.

The core category is a construction developed by the researcher "which does not magically emerge from the data" (Boeije, 2010, p. 115). It describes the main observations. In very practical terms, and since selective coding leads to the end of the analysis phase, the researcher may ask the following questions:

- "Which themes have turned up repeatedly in the observations?
- What is the main message that the participants have tried to bring across?
- How are various relevant themes related?
- What is important for the description (What) and the understanding (Why of the participant's perspective and behavior?" (Boeije, 2010, p. 116).

Rather than referring to organizational characteristics, interviewees constantly mentioned the role of top management to be important for successfully integrating new knowledge and to be relevant when running projects with startups. Being related to commitment, project priority, encouragement, to name only a few themes, top management is identified as the core category.

3.3.4 Quality Procedures

Quality issues to consider when collecting data through semi-structures interviews are reliability (due to the non-standardized nature), different forms of bias, and validity and generalizability (Saunders et al., 2009). Quality issues related to biases are, for instance, the tone of the interviews, biased comments by the researcher, or the type of questions. An imbalanced level of trust between interviewee and researcher may affect data validity as information might be withheld. Obviously, generalization from data collected through semi-structured interviews is difficult – but not necessary as the aim is to generate new knowledge.

The sample composition was an essential part of this research for data reliability. The cross-industry sample includes different forms of the startup engagement spectrum as defined by Kohler (2016). Potential interviewees were contacted over a period of about eight months what is a reasonable duration. All interviewees have leading roles and much experience in their fields. Interviewing experts only with a lot of innovation knowhow is thus beneficial in terms of validity as a deep understanding of the research issues can be assumed. Generalization, however, is limited but also less relevant.

4. Results

The results of the coding process along sub-categories are summarized in this chapter. The findings are based on the interviews after the systematic combining process. An in-depth discussion of the results is provided in chapter 5.

4.1 Motivation

Category Group	Main Category	Sub-category	Code	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
Startup Program	Categorization	Motivation	Identification of innovation with strong USP	x				x			
			New business creation and exploration of new markets		x			x		x	x
			Extend core business		x			x	x		x
			Digitization of core business		x						
			Discover unknown problems			x	x	x	x		
			Startups as internal stakeholder				x				x
			Understand how startups work	x						x	
			Scouting for other units like CVC					x		x	

Table 3. Overview codes of startup program - categorization - motivation

As Table 3 shows, the motivations to work with startups seem to differ significantly.

Three main motivations stand out: the creation and exploration of new business models and business fields, an expansion of the core business, as well as the discovery of previously unknown problems.

Basically, and in the first step, it is about opening the corporate to the outside world, for which SP3 describes an open innovation approach:

> What do you mean by open innovation? You will have a definition, I have a definition, at the end of the day it's about opening ourselves to the external world, even though we have a lot of expertise here. But when it comes to understanding new things quickly and implementing them quickly, you're better off with startups that just have time to get rid of internal processes. (SP3, paragraph 34)

Startups are considered as external drivers of innovation, bringing innovation to the corporate with their technological know-how. SP2 sees a link between these motivations:

> Of course, startups help us a lot, especially with their technological advantage or innovation, [...] we want to digitize our core business. We want to tap into completely new markets and participate there. If you like, that's often an outsourced innovation department or technology department that we tackle through the startups. (SP2, paragraph 20).

Digitization of the core business often means that you want to use startups to improve operational processes within the corporate:

> Of course, there is a lot of focus on having the operations I need to keep the hamster wheel running and coordinating accordingly. As for technology or innovation or improving day-to-day business processes, startups are interesting to us. We do not come from an industry that produces or manufactures much itself. We come from a classic day-to-day business operation where we have suppliers but little technology in-house where everything is docked. (SP2, paragraph 20).

The importance of building new business models is emphasized by SP7:

> For this external source of innovation, the main motivation is to generate new business models from it, ie New Business Creation. We get the startups into a partnership with the program and then there are different concepts. It may be that the startups become suppliers for a particular technology. It may be that we do a new product offering together with the startups, which does not mean 'white labelling' and we sell it as our product, but co-branding with the startup is one motivation. (SP7, paragraph 7)

However, seeing startups as drivers of innovation is not only important for digitizing the core business. Rather, according to SP4, innovative startups can also serve as internal stakeholders within the corporate, which internally disseminate the message of the startup program. A startup program is then relevant for having an organizational unit that can work with the startups and channel them within the corporate.

> In the end, we said: "Startups in our context are very, very relevant stakeholders for the corporate, which we explained by saying (...) they are strong innovation drivers – we could just show how many innovations in our industry come from established players and how many come from outside (.) – that is relatively easy in the digital field and it applies to all industries to say, in the digital field you barely have market entry barriers. (SP4, paragraph 42)

Unlike other stakeholders within the corporate, however, startups bring concrete measurable added value:

> We coined an analogy and said: as a corporate, we eventually realized that investors are important stakeholders, and investment departments were formed. When someone realizes that politicians are important stakeholders, (.) they have built up their entire lobbyist department. When one realized that journalists are stakeholders, there was somehow public relations. Meaning, it's obvious to say now: okay, I'm starting up startup relations as a department. We just said, the only difference is that in analogy to the others, startups as stakeholders are not about a communication task but about the business aspect. We want to build the internal equivalent that can handle this stakeholder. (SP4, paragraph 42)

Another motivation for working with startups is finding problems. These can either be completely unknown or too niche for the corporate.

> Which is why we like to work with startups or at least like to learn with them, because they are often dealing with a problem that firstly might not even be known to you or you do not even think about it. (SP3, paragraph 32)

> The main motivation is that our customers have specific, very niche issues that we cannot focus on because it's just too niche to work on. For us, that means focusing on them and solving them in conjunction with startups for our clients and extending our core portfolio in a complementary way. (SP6, paragraph 12)

The basic need of the corporate is to understand how startups work and how a possible cooperation might look like. This fundamental need is described by SP1:

> Primarily we wanted to learn, how can I work with startups? […] What topics are the startups working on? That means which innovation would be interesting for the corporate and its customers? (SP1, paragraph 29)

Understanding how a startup works can also lead to an internal cultural change:

> Perhaps this can lead to joint projects within the idea phase, or there simply are findings from learning how a startup works. This may also change my own way of working. What you would probably then summarize as cultural change. (SP7, paragraph 7)

4.2 Mode of Collaboration

Category Group	Main Category	Sub-category	Code	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
Startup Program	Categorization	Collaboration	Investments		x	x	x	x			
			Company Building		x	x	x	x			
			Venture Client Model								x
			Accelerator	x	x				x	x	
			Intrapreneurship		x					x	
			Joint projects			x	x	x			

Table 4. Overview codes of startup program – categorization - collaboration

As with the diversity of motives to work with startups, the mode of collaboration differs, too. There is no one way to work with startups. Often it is a combination of components such as acceleration of external startups, intrapreneurship schemes and investments.

Intrapreneurship is defined in this context as "as entrepreneurship within an existing organization" that "refers to a process that goes on inside an existing firm, regardless of its size,

and leads not only to new business ventures but also to other innovative activities and orientations such as development of new products, services, technologies, administrative techniques, strategies, and competitive postures" (Antoncic & Hisrich, 2001, p. 498).

Before setting up a startup program, you must think about the vehicles you want to use to collaborate with startups. SP2 calls it a key learning:

> Then I would think about which vehicles I want to build. Is the accelerator something for me? Is an investment fund something for me? I would think very hard about what methods and means would be used to approach the startup world. (SP2, paragraph 103)

For example, SP7 describes a combination of accelerator and intrapreneurship program with the specification that intrapreneurship approaches can lead to spin-outs:

> We combine (.) three things - we combine the startup accelerator, i.e. we include startups in the program and accompany them. On the other hand, we also take on internal projects, i.e. our employees can also apply for this accelerator. This is a different process, a different procedure, but in the end, at the moment they are accepted, they will go through the same methods and the same concept. Third, spin-outs can also be generated from these internal ideas; then independent new companies or business areas can arise (SP7, paragraph 3).

SP5 also describes an interaction of different pillars within the startup program. However, it is not so much with the aim of discovering innovations, but rather from a CVC perspective that pursues the goal of successively increasing the valuation of the portfolio. To this end, the corporate invests in its own startups, supports external startups with an acceleration approach or makes pure investments.

> The program invests its budget in ventures, external startups and its own ventures with the motivation and goal of developing companies, whether internal or external, in such a way that they increase valuation, i.e. the valuation of the portfolio. In the long run, this can result in strategic business options, but since it is difficult to say today what will actually happen to the startup or corporate in five years' time, we will first take a finance- and exit-oriented approach. (SP5, paragraph 7)

SP2 also reports on a CVC vehicle, an intrapreneurship program, and startup acceleration. There are two accelerator programs: one to transform the core business and one to build new business models. The accelerator for the digitization of the core business aims to jointly develop pilots that can then be tested in the existing operational business.

> Our fixed gateway [...] for startup projects is verified, but the biggest one is certainly our accelerator, which we have in two forms. First dedicated to the transformation of the core business, and now second dedicated to new business modelling. These are classic acceleration processes, i.e. the startups are screened, they come to a pitch day and then the stakeholder jury selects which startups we take on. In the area of core business digitization, the focus is on developing appropriate pilots. (SP2, paragraph 22)

The structure and conception of a startup program can be characterized by different phases. SP4 describes a process over several years in which the type of collaboration has changed constantly. Initially, the company saw itself as the advocate of the startup and promoted various startups within the corporate. These partnerships had failed because the employees of the corporate were insecure and therefore unwilling to cooperate with the startup.

> And the answer is, that didn't work at all in the beginning, because these are all ideas that are new, that, in case of doubt, only cause uncertainty for some line manager, no matter how you address him. (SP4)

SP4 and its employees then decided on their own company building:

> Okay, for now we're no longer partnering, but building our own products because, frankly, we didn't make any progress with the partner.

Despite successful projects and being awarded with external prizes, a reorientation towards cooperation with startups followed, but oriented towards the needs of the core business and problems that arise in the core business:

> The corporate approached us and then last year we changed the role completely in the end, saying: Okay, we don't start by looking at the opportunities in the market first, we start by understanding the pain points in the corporate. In other words, we systematically asked where the shoe pinches in the corporate. We asked top managers the very open question: What keeps you awake at night, what kind of knowledge challenge?

By understanding the challenges and problems in the core business, you can look for startups for these special challenges and involve the employees in the corporate. This increases acceptance within the corporate.

> And then it is the case that you immediately get relevance, attention, etc. from the other side, commitment, and then you can simply move on. (SP4, paragraph 44)

These observations coincide with SP2. SP2 is more broadly positioned, but similar to SP4, one contacts employees in the core business to understand their problems and then find a startup match with a suitable solution.

The SP6 accelerator, which co-exists with other innovation initiatives in the corporate, follows a different approach and scouts interesting startups that are matched against internal criteria. If a startup meets the accelerator's criteria and has a product that can be integrated into the corporate, the Accelerator presents the startup to various units in the corporate.

> Then we run off with this team and run to the logistics team, then we talk to the head of this team: hey, how about the team? Can you work with it, can you see a mutual benefit for the

> corporate, for the portfolio, and of course also for the startup, because there are customers on the market who can use this service, who can benefit from this service with our integration?

If the startup and its idea meet with interest, unit and startup will be brought together in a workshop. If there is mutual interest, the cooperation begins. The accelerator therefore sees itself more as a matchmaker that provides the appropriate resources.

> Exactly, we do not see ourselves as a classic acceleration program, but rather as a development acceleration program. (SP6, paragraph 24)

Unlike SP2's accelerator, where startups receive money to participate, there is no financial support for startups that work with SP6. No equity is given away either.

> At least for these three to six months the startups have to cover their costs themselves, so we don't do anything financially. Of course, we introduce them to investors or sometimes do an intro for the investors, but there is nothing more.

SP8 does not make any investments and does not support startups within the framework of classic acceleration. There is also no intrapreneurship program. Instead, startups are regarded as pure suppliers in order to make innovation usable for the corporate as quickly as possible.

> This means that we actually establish a customer-supplier relationship from the very beginning. (SP8, paragraph 37)

The startup program is a matchmaker within the corporate between startups and internal units. Startups are scouted for specific problems and a first supplier relationship is introduced promptly as part of a pilot project:

> If the department insists: yes, the startup has a strong USP, they would like to kick off a pilot project, then we challenge the department, describe what they want to see, define the KPIs, write a *Request of Proposal* describing what the project should look like, send it to the startup, and the startup makes us an offer. If it fits, the pilot project can start. Another important differentiator is that we have a proper supplier relationship right from the start. This means that the startups have a supplier number etc. for the pilot project. (SP8, paragraph 96)

4.3 Description of a Successful Project

All interviewees were asked to describe a successful knowledge transfer project on the basis of a pre-defined list of categories. It must be taken into account that success was not clearly defined. The classification of whether knowledge has been successfully transferred is therefore subjective and is the sole responsibility of the interviewee.

The categories were partly deduced from the literature, but also stem from observations as well as from informal interviews beforehand. The idea is to better understand the mechanics behind the success and to map striking features out.

		SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
Startup	*Team*	Experienced	Very good	Experienced	Very good	Okay	n.a.	Very good	Very good
	Stage	Idea	Prototype	Prototype	Prototype	Market-ready	Prototype	Prototype	Prototype
	Innovation type	Incremental	Incremental	Radical	Breakthrough	Incremental	Incremental	Breakthrough	Incremental
Relation	*Organizational Distance*	Customer	Pilot customer	Pilot customer and licensing	n.a.	Revenue-share	Server, tech and use cases are provided	Licensing	Pilot customer
	Physical	Accelerator	Remote	Remote	Remote	Remote	Remote	Corporate office spaces	Remote
	Knowledge distance	No	No	No	Yes	Unknown	Yes	Yes	Yes
	Cultural distance	Yes	Yes	Yes	No	Yes	Not necessarily	n.a.	n.a.
	Network	-	+/-	+/-	+	Unknown	n.a.	+	+
Recipient	*Priority*	Moderate	Low	High	Moderate	Low	n.a.	Moderate	High on operational level
	Startup Manager	No, but recommended	Yes	Yes	Yes	Startup Manager in the Corporation	n.a.	Startup Manager within the Corporation	Yes, plus corporate project manager
	Learning intent	Moderate	High	High	High	Moderate	Top mgmt: High Middle mgmt: Low Developer: High	High	High
	Absorptive capacity	Low	High	Rather low	High	Depends on intrinsic motivation	Rather high	Rather high	High
	Encouragement	No, but recommended	No	No	Not yet, but in the future	No	n.a.	No	No
	Post-Collaboration	No further collaboration	Technology is transferred, VC	Open	Commercial partnership	Further collaboration, VC	M&A	n.a.	n.a.
	Success	Mutual learning	New business	Awareness raised for new technology	n.a.	It was relevant for the corporation	n.a.	n.a.	n.a.

Table 5. Overview successful projects

Each of the interview partners described a project in which knowledge was transferred. There are some intersections that these projects share or tendencies can be identified that apply at least to this limited sample:

4.3.1 Founding Team

Most of the founding teams were rated ‘experienced’ or ‘very good’ (SP1, SP2, SP3, SP4, SP7, SP8). At the beginning of the startup program, six out of eight startups had at least one prototype. Only the startup from the successful SP1 project took part in the program with an idea and did not yet have a finished prototype that could be tested.

> What is also decisive for us is that there is a prototype. This means that only one idea does not interest us, there must be a prototype that we can test and it must not be a finished product off the peg. (SP8, paragraph 110)

This statement of SP8 coincides with the statements of SP2, SP3, SP4, SP5, SP6 and SP7, which all state that only an idea is not sufficient for a joint project with a startup. SP3 states that the startup must at least be able to show that a prototype can be developed by the end of the project.

4.3.2 Types of Innovation

The degree of innovation of the products of five of the eight startups can best be described as incremental (SP1, SP2, SP5, SP6, SP8). Incremental innovations involve small adaptations or modifications to a product or technology (Garcia & Calantone, 2002). SP5 describes a special case. Thus it is possible that an incremental innovation can become a radical one.

> Because it is applicable in the market today, it is somewhere incremental, but has radical potential, because it can completely reverse the business case through the data, if it makes them visible and evaluable. (SP5, paragraph 29)

Only the startup from the SP3 program has a radical technology or product.

4.3.3 Commercial Relationship

The commercial link between the startups and the corporates looked different. As a rule, the corporate has become a pilot customer of the startup (SP1, SP2, SP3, SP7, SP8). According to SP8, it is important that the startup makes its first sales quickly. An early customer relationship is helpful here. Also, it is beneficial if the corporate regards the startup as a supplier right from the start of the collaboration. In further steps a common product development can be sought (SP2, SP5), then a revenue share model is possible.

> We started out as a pilot customer, if you will, and based on that, we also jointly made the product market-ready. We not only used it for our purposes, but also passed on our know-how. The approach was to develop it further and we are currently even considering an investment. (SP2, paragraph 38)

SP6 uses a different approach. The focus is on the classic acceleration of startups. In the accelerator program, technological support, server capacities and initial use cases are made available to the startups for testing purposes. As a special added value, it is pointed out that startups can dock onto the corporate's own systems at an early stage with the help of open interfaces.

4.3.4 Location

Basically, there are hardly any regulations regarding the choice of location for startups. The cooperating startups are free to decide whether they want to move for the project. Within the framework of the SP2, SP3, SP4, SP5, SP6, SP8 projects, the startups worked remotely. Startups occasionally travel to common dates, for the communication during the project no on-site presence is necessary, also due to the digital communication possibilities.

> So there was a workshop here on site and the rest runs over phone, Skype, whatever. (SP3, paragraph 66)

For the projects of SP1 and SP7, the participating startups used the offices of the startup program.

4.3.5 Knowledge Overlaps

Knowledge overlaps, i.e. already existing knowledge within the corporate, existed in the projects of SP5, SP6, SP7, SP8.

> Yes, there was almost exactly the same or a very, very similar internal project, but it lacked a product module and that was the startup. The internal project manager also knew the startup from previous events. (SP7, paragraph 59)

There was little or no overlap of knowledge in the projects of SP1, SP2, SP3, SP4.

SP2 describes this fact as a success factor since the startup brought knowledge into the corporate that enabled the further development of existing products.

> No, we had a similar product on the market, a development stage before that. But it didn't work so well and with this startup we are able to be in a similar product environment, but we can offer it much more digitized and much smarter. (SP2, paragraph 44)

SP1 limits that a valid statement is not possible due to the size of the corporate. The interviewee did not know of any comparable knowledge but could not rule out the possibility that it nevertheless existed elsewhere in a globally active corporate.

4.3.6 Company Culture

Differences exist in the corporate culture of startups and corporates (SP1, SP2, SP3, SP5). According to SP6, there need not necessarily be differences, but this also depends on which employees work together with the startup. SP4 cannot identify any significant differences. A major reason for differences in corporate culture is the size of the organization. This is associated with decision paths and decision structures. The success of a project ultimately depends on the willingness of both sides to compromise.

> So we have already noticed strong cultural differences in the sense of how a product is further developed. Meaning: how quickly a startup can, of course, make pilots and adjustments. Some of these are discussions between two people who then have to decide. While a company approaches topics in a much more analytical and pompous way. But what has happened is that the startup is also approaching our methodology. The colleagues who were collaborating with the startup operationally have also understood that they have to approach the procedure of a startup more closely so that we do not lose the benefit for the cooperation.

In addition, corporates are much more risk-averse.

> Considering from which security-driven thinking a corporate comes and how little such a thing happens in a startup, then these are challenging things. A founding team is set up in such a way that they see more of what might work than what really works, while the corporate tends not to say anything about it if it's not 100% safe, and even then they think about it a hundred times. (SP2, paragraph 46)

4.3.7 Priority

Priority relates to the communicated commitment and importance of the project by the corporate. The picture is not consistent. Despite the success of the individual projects, only SP3 and SP8 attached high priority to the project. SP8 restricts that the high priority is given to the employees who worked on the project, not to the corporate as a whole. According to SP3, internal communication played a major role in prioritizing. It was the escalation of the project up to top management that gave it its great importance. Digitalization and the associated cooperation with startups are high on the agenda of all corporates in the sample, but this does not mean that individual projects are also given high priority.

> So the topic of startups in terms of digitization is of course a 'top three' topic of the corporate, but the startup we are now talking about has played a smaller role because we were still at this level. (SP2, paragraph 52)

SP1 describes a contradiction between the actual weighting for the corporate and the communicated weighting. There are therefore two categories of objectives. Often the cooperation with startups is one of the goals with which a corporate adorns itself externally. But only if a failed cooperation with a startup has noticeable consequences one would actually recognize to which category a project belongs.

> After all, there are two types of goals in the corporate. Firstly, the Category 2 goals, which are nice, but somehow people don't give a shit about them. Women's quota, environmental protection, sustainability - nobody will be mad if you reach the goal, but you can tear that up three times and nobody cares. And then there are Category 1 goals that are very important. [...] Accordingly, the question then arises: Is cooperation with startups a Category 1 goal or a Category 2 goal? [...] And the organization learns very, very quickly whether it is a Category 1 goal or a Category 2 goal. If people were fired in two business units, the other 100,000 employees quickly understood that it was a Category 1 goal. Then let's seriously think about what we're going to do now. Then innovation is far ahead, but apart from chatting and standing around, not much happens. (SP1, paragraph 68)

4.3.8 Liaison Manager

With the exception of SP6, all startup programs have so called liaison managers already installed or at least recommend the hiring of employees who are exclusively responsible for merging startup and corporate.

> Yes, there is always a liaison interface manager who takes care of it. Without him, nothing would have happened. (SP5, paragraph 41)
>
> So we already have an eye on it, which is why there is also the function of the startup manager, so to speak, that we have a single point of contact that approaches the startup and that person coordinates it in the corporate, especially during the contact initiation. (SP2, paragraph 50)
>
> No, but I would highly recommend that. (SP1, paragraph 59)

It is crucial that employees on the corporate side are involved at an early stage. This is also the task of the liaison managers, who often not only have to act as the advocate of the startup but should also share the vision.

> From the point of view of the line function, these are only the spinners who nerve. (laughing) They're always coming up with new stuff and stealing your time. (SP1, paragraph 59)
>
> Most importantly, these managers must have the vision themselves and not just pass the startup's presentation from A to B. On the contrary, they must be willing to link the two sides and bring the vision to life. There is much more to it than just connecting. You have to recognize the needs on both sides and be able to bring them together during the process. Otherwise it will not be successful. (SP5, paragraph 43)

4.3.9 Learning Intent and Absorptive Capacity

Both learning intent and absorptive capacity are rather subjective measures. None of the interviewees categorized learning intent and absorptive capacity as bad. SP2, SP4, SP7, SP8 rate both the willingness of employees to learn and the absorptive capacity as high. However, SP4 points out that no general statement can be made about absorptive capacity. Rather, the capacity must be assessed from project to project.

> In the final analysis, therefore, we considered beforehand whether it would work. In other words, in the successful projects, the ability was virtually high, because we had already said so before: Okay, you get that integrated. There are a lot of things where this does not happen, because the corporate is not fully capable of partnership. [...] But this is not a conclusion for the overall capability. (SP4, paragraph 86)

Regarding the willingness to learn, the intrinsic motivation of the employees plays an important role. The success of a project critically depends on the intrinsic motivation.

> Those I meet must be willing to invest the extra mile to make it a success. Often the target agreements, i.e. the extrinsic ones, do not cover that. Of course, they have other things on the

> table every day. People are identified who are capable and willing to actually do something there. They in turn get the backing from top management that they are allowed to do the same. In this respect, the intrinsic motivation of the employees is very important. These employees have to be identified and they have to be supported by the management. (SP5, paragraph 49)

Even if the willingness to learn from the startup and the ability to absorb the knowledge is given, a startup project may fail later in the corporate due to a lack of execution.

> Let's put it this way: we are able to implement it (...) to a large extent, but at the end of the day we lack the competence, keyword 'talent development'. Because it's all about competences that have been built up. To give one example: coding is a competence that is becoming a really important topic and it is actually an IT topic, but IT is not necessarily trained for it. (SP3, paragraph 84)

4.3.10 Encouragement

It was also asked whether there was a monetary incentive for employees who cooperate with startups. While there is no direct incentive, indirect mechanisms are used successfully. Two startup programs are considering direct monetary incentives (SP2, SP5).

> It's something we think a lot about, I have to admit. (SP2, paragraph 58)

> We realized: Okay, if we really want to promote startup projects, we need to approach the incentivation mechanics that people are used to working with. This means that part of the variable salary is part of the goal achievement with startups. This has not yet been implemented and at the moment it's more like it's a career move for them, because they can show that they're the right people for the new needs that the corporate has, as far as the development of new business opportunities is concerned. These career options are not explicit, but clearly implicit, because they get visibility and access to top management, which they would not otherwise have. (SP5, paragraph 51)

Indirect incentives can take different forms: internal and external media reporting (SP2), the possibility of leaving the familiar working environment (SP3) or the fulfilment of KPI's - which, however, comes very close to monetary incentives (SP4, SP5, SP6, SP7).

> Indirectly, of course, we want to change the mindset in this direction. And I would describe the indirect incentivization in such a way that if it turns out that the mindset is there, then of course you are much more likely to be included in such innovative projects and more resources are provided. (SP3, paragraph 94)

> The collaboration with startups was aimed at the goals of the business unit, so I assume they did it out of pure egoism. (SP4, paragraph 90)

> But we've also found out that maybe you can incentivize by using KPI's: okay, you have to work with three teams in one year and then it's just this indirect financial incentive. (SP6, paragraph 86)

SP6 also describes another scenario. If employees at the middle management level in the corporate are involved in a startup project that could potentially help increase sales in their own area, they are automatically motivated to make the project a success.

> If we manage to attract more customer interest in this product through the new feature provided by the startup, then the product's business owner is incentivized naturally. (SP6, paragraph 86)

4.3.11 Post-Collaboration

Three interviewees stated that further cooperation had been agreed after completion of the project (SP2, SP4, SP5). In SP3, it was unclear at the time of the interview what would happen next. SP1 stated that despite a successful project there would be no further cooperation. This could be related to the fact that SP1 is a classic accelerator that supports startups with less focus on knowledge transfer.

SP2, on the other hand, primarily scouts startups with products or technologies as close as possible to the core business of the corporate, which at least increases the probability of a successful knowledge transfer and future cooperation. This also leads to the conclusion that startup programs that cooperate with startups which offer a product or technology that is close to the parent company's core business or where there is a high degree of knowledge overlap, can transfer knowledge more successful.

SP2, SP4 and SP6 stated that the project had either already been handed over to the CVC vehicle to consider a potential investment or that early investment had been made. Accordingly, a successful knowledge transfer on a project basis can be the basis for a subsequent investment.

> It will now continue on several levels. On the one hand, we will now continue to use their technology in day-to-day business operations. On the second level, we are now also considering venture capital. With the third perspective, we are considering taking them over at best. That's because it is very close to our day-to-day business and digitization. (SP2, paragraph 60)

> Yeah, we are jointly elaborating more opportunities. Investments have also been made. We are an investor, a minority shareholder in the startups, and we accompany this accordingly with board seats and support in further business development activities for the startup. Because the aim is to make the startup successful and thus also to make the investment successful. But not in the strategic sense, to buy it up later, but rather in the financial sense, to say at some point that we are now participating in the exit. This does not mean that there is no strategic case. But that's not the carrot. The carrot is not to say that we will buy the startup at some point, but the carrot is to say that the valuation will be increased and sold. If one of these startups then becomes strategic at some point - that can happen - but that's not the goal. (SP5, paragraph 55)

SP5 addresses a development that has evolved over time and with the continuing duration of the startup program. At some point, the focus was no longer on knowledge transfer and thus strategic activities, but on financial motives. Instead of transferring knowledge, SP5 has thus focused on increasing the value of the startup portfolio. SP5 has developed from a strategic partner for startups to a primarily strategic investor.

4.4 Success Factors and Key Learnings

4.4.1 Subcategory Startup

Category Group	Main Category	Sub-category	Code	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
Startup Program	Success	Startup	Scout and identify the right startups		x					x	
			Involve corporate employees in the selection process		x				x		
			Strong founders					x			
			Experienced founders	x		x					x
			Startup has to understand corporate (customer) needs			x					
			Startups have to serve a real market and not only the corporate					x			
			Open and trustworthy collaboration						x	x	

Table 6. Overview codes of startup program - success - startup

The first step in working with startups is to identify suitable startups. It is necessary to establish appropriate channels to ensure a long-term deal flow. The so-called scouting of startups is manifold. The types of scouting mentioned in the interviews are: desk research, making contact at trade fairs and events, recommendations through the network, commissioning specialized partners or agencies, and placing advertisements. Often several measures take place in parallel.

> The third, I would say, is that it is very, very important how the pipeline is built. So how do I find the teams that I can bring value to and that can bring value to me? How do I find them and through which mechanisms? Through which events or scouting initiatives? How do I address them? How do I get them to apply to me afterwards or how do I get contracts and things like that. (SP7, paragraph 101)

> For the first batch we did everything ourselves. In the second batch we did some smaller events. Now for the third batch we've made very big partnerships and really spent money to be present at big events, also with certain partners and sent emails to their complete database and stuff like that. (SP7, paragraph 109)

Some startup programs involve corporate employees in the selection of startups, as these employees usually cooperate with the startups later. The aim is to avoid a defensive reaction by their own employees if they are forced to cooperate with a startup they do not know. According to SP6, if corporate employees are involved in the selection process, the subsequent transfer of the startup into the corporate and the transfer of knowledge is easier. SP6 explicitly calls the procedure of SP2 exemplary.

> These are smart people who invent something totally cool and then try to bring it back in and there's an automatic defense reaction, 'not invented here', you could say. (SP6, paragraph 32)

While SP5 generally refers to strong founders as a success factor, SP1, SP3 and SP8 explicitly refer to the importance of experienced founding teams. From SP5's point of view, strong founders are those who are not only strategically driven to subordinate themselves to the corporate, but also confidently manage their own interests.

> It must be extremely strong founding teams that know what they want, but of course also have a strategic interest somewhere in doing something with the corporate. (SP5, paragraph 85)

> They were indeed very experienced founders. Someone had already founded a company several times and that was no 'digital shit' at all. (SP1, paragraph 37)

> Especially when it comes to customer relevance, the question of whether these people already have experience, where they have worked, whether they understand the business, is totally important. (SP1, paragraph 37)

When explicitly looking at the startup, a decisive factor for the success of a joint project is an understanding of the corporate's needs as a potential pilot customer and an existing market outside the corporate. At the horizontal level of cooperation, cooperation at eye level is important, where both partners feel valued.

> From a startup's perspective, it is incredibly important to understand what we really need as customers. And by 'need' I mean: what level of knowledge do we have and how can the startup simply bring this technology closer to us? You have to put yourself in our shoes and understand what level of knowledge we have. (SP3, paragraph 130)

> A key learning is definite: it has to be real startups serving a market and the market is not the one corporate. (SP5, paragraph 85)

> Another result, that is to say what is a very positive result for us, is if, at the end of the program, we can at least tell the founders with whom we have worked to achieve it: It was a positive and good experience, even if we did not reach the conclusion we wanted, but we had honest and good dealings with each other and it was good cooperation. That would be a successful result for us. It would, of course, be even better if we could increase it and say: hey, we have managed to exert a leverage effect on the startup and after our cooperation the startup is more successful and better on the market than before. (SP6, paragraph 104)

> The first is to meet the startup at eye level and that means asking yourself first of all, what does the startup actually need from me? (SP7, paragraph 99)

4.4.2 Subcategory Strategy

Category Group	Main Category	Sub-category	Code	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
Corporate	Success	Strategy	Pushing a topic into the corporate does not work				x				
			Clearly define its position within corporate strategy	x	x					x	
			Top-down approach			x		x			
			Interplay between distance and closeness				x		x		
			Create visibility								x
			Create relevance				x				
			Create acceptance						x		
			Internal stakeholder management		x						
			Exploratory approach for setting up a startup program						x		

Table 7. Overview codes of corporate - success - strategy

The category 'Strategy' refers to all codes mentioned in connection with the positioning of the startup program within and outside the corporate. SP1, SP4, SP6 and SP8 would not want to place a topic in the organization that is not wanted by the organization and especially by the employees. This includes involving employees as early as possible in the selection of startups and finding the relevant problems in the organization for which startups are scouted. The latter point is often preceded by a process in which managers of a startup program try to bring exciting topics into the organization ('push') and later find out that it is far more successful to search for these topics internally if you want to generate added value for the organization in terms of content. This is not valid if the startup program rather serves as a gateway for the venture capital activities.

> One of the reasons why the project was not relevant is the fact that we pushed into the corporate from the outside (.). So, and that's what we learned and then reared in a completely different way. In principle, we always made sure that there was an owner in the corporate, that the question was relevant, that management attention was also a topic. (SP4, paragraph 120)

At an early stage it must be clear where a startup program is anchored in the corporate strategy (SP1, SP2, SP7). It makes a big difference to which area of the corporate the program is

subordinated. A clear positioning ensures that the program receives the necessary internal relevance.

> Define very clearly where the thing has a place in the overall strategy of the company and communicate this clearly. Provide the unit with the appropriate powers of attorney. That is to say, if it is only a PR exercise and belongs as a business unit to Corporate Communications, Public Relations etc., they have little to say and only do nonsense. (1_Interview_Zumdieck)

> Why do I want to work with the startup now? Why this and not the other? Where does that fit into my company? For many, it's ultimately a marketing strategy to boast with: We are innovative because we work with startups. But they hide it behind some other justification. And I think you have to be very, very clear about why you want to work with startups. (SP7, paragraph 99)

SP4 and SP6 advocate a combination of proximity and distance in their positioning both within the corporate and for the development of a strategy. While as much distance as possible had to be maintained at the beginning of the program's development, it would be possible to move closer to the corporate in later phases - this does not mean geographical proximity, but rather proximity in terms of content and meaningful thematic cooperation.

> I believe that the most important thing is the right interplay between distance and proximity; (.) I believe that there is a chronological sequence. (.) In the beginning, this means as much distance as possible to simply build something that is different. Different governance, different people, different rules, different processes. But key is, if you stretch the tape, now figuratively speaking, it is clear that it will tear at some point. That is, if you only go at a distance, then you just build a satellite. (...) It helps you to build a nucleus that works differently. Only the right approach to the company helps to have any impact at all. (SP4, paragraph 138)

In addition to the right positioning, good management of internal stakeholders is crucial (SP2, SP3, SP5, SP6).

> I think I would always recommend considering good internal communication. To operate a good stakeholder management. Why do you do that with startups? What relevance does that have? To show again and again what impact such companies can have on the future of the corporate. And to always follow the approach that this is not an issue that stirs up fears, but always an issue that can win you over. I would invest much, much more in internal communication. (SP2, paragraph 107)

SP3 and SP5 advocate a top-down approach in which not necessarily the CEO, but at least parts of the top management, promote the program and communicate this clearly.

> In addition, top management support is given. It doesn't necessarily have to be the CEO, but of course it can't hurt. The highest responsible person from the respective business unit should stand behind it. Even if it is only known that it comes from above, it has relevance, or a sounding is needed by a top executive and can make the appropriate announcements, then it is definitely helpful. (SP5, paragraph 85)

SP6 contradicts this statement. In certain cases, small-scale initiatives could begin in the business units themselves, similar to a bottom-up approach.

> We're just starting to show some evidence to the contrary that it works the other way around, possibly even better in some cases. I think there are newer forms of cultural change now that work in certain cases, so in our case it seems to work that you start such an initiative from the business unit in a small way and are therefore much closer to the corporate or the established players in the corporate. (SP6, paragraph 34)

The strategic orientation must create visibility, relevance and acceptance at an early stage not only within the corporate but also vis-à-vis external stakeholders such as shareholders of the parent company.

> And reason number three is a lack of visibility. You really have to make sure that you promote it early enough. (SP8, paragraph 164)

> I asked myself a question: how would you explain not to the CEO, not to the department head, but to the person who owns a share of the company why you take his money to build the startup program for that company? And if you take the step back or simply give yourself this distance, then you quickly conclude that you simply have to think about the topic of relevance, because otherwise you have many reasons that seem so esoteric. (SP4, paragraph 139)

4.4.3 Subcategory Resources

Category Group	Main Category	Sub-category	Code	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
Corporate	Success	Resources	Corporate co-working space increases external credibility						x		
			Flexible and enough budget		x		x	x			
			Shorten internal procurement processes			x	x	x			

Table 8. Overview codes of corporate - success - resources

The 'Resources' category includes all those codes that deal with the appropriate equipment of the startup program - primarily the correct budgeting of the program. Startups that do not yet have their own office are often faced with the challenge of how to receive external guests. According to SP 6, the corporate's own co-working space can help to appear more credible to the outside world.

> A key learning, which we mentioned earlier, is that this type of space is used more positively by the startups than we assumed, namely that in order to increase one's own value to the outside world, to increase one's credibility, startups very much like to fall back on the meeting rooms to host customer appointments. They do not necessarily need this space in order to work here on a daily basis. (SP6, paragraph 95)

> And our brand as a strong brand already increases credibility and reduces risk for investors. This is then less risky in the B2B area. (SP6, paragraph 96)

One observation is that the budget issue is underestimated.

> You must think about budgeting in advance. You must estimate how much budget you make available per year so that such things can be implemented. In most cases this does not happen at the top management level, but at the employee level and they have to be in a position where they can carry out their first pilot projects using budget paths. (SP2, paragraph 105)

The necessary money must be made available to the startup program at an early stage and the employees of the program must be in a position to use it easily. If monetary support is provided to startups, this money must be available at any time, too

> By 'free allocated' I mean that you put money into a virtual or real account of the hub or project account as corporate and really say: Okay, that's the money I'm making available now. (SP4, paragraph 141)

> Our processes are too long. We need at least eight weeks to trigger an order, in this time startups could already be insolvent. They don't have 90 days to pay, that doesn't work for them and if they do, they're not startups anymore. (SP3, paragraph 130)

4.4.4 Subcategory Organization

Category Group	Main Category	Sub-category	Code	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8
Corporate	Success	Organization	Company culture and openness for external innovation	x	x	x					
			Top management commitment	x		x					x
			Pin ownership at middle management						x		
			Lean organization	x				x	x		
			Install transfer manager		x	x	x	x			
			Hire the right people			x	x	x			
			Flexible staffing				x				

Table 9. Overview codes of corporate - success – organization

In the following all codes related to organizational structure and employees are summarized. There must be an openness for innovation topics in the company, a corresponding corporate culture is conducive (SP1, SP2, SP3,). In addition to an innovation-friendly corporate culture, it must be clear which employees are responsible for the startup project (SP6).

> A certain culture for such topics is very important both for the cooperation with a startup and for the corporate. The corporate must have a certain openness to deal with such topics and to take them up. Above all, you have to get out of this 'we've always done it this way' thinking.

> Otherwise you don't need the startup. [...] That you have the courage to take this risk, to approach others and learn from them. (SP3, paragraph 134)

> Basically, the corporate or the department concerned must be open to external technology innovations and recognize that it is important to bring this in from outside. (SP2, paragraph 105)

Four interview partners have already introduced or will introduce the position of a so-called transfer manager or liaison manager (SP2, SP3, SP4, SP5). No interviewee is against a transfer manager who is dedicated to the startup and responsible for the knowledge transfer. The central task of the transfer manager is to establish the connectivity of the startup within the corporate.

> We really need someone from our side to take care of it. Who understands the technology, who carries the whole thing internally. Who builds a network and brings in other people who work with him on this topic and then carry the topic forward to ensure acceptance. Because innovation is not so much the idea that leads to success as other factors that make it sick. That is time, people and money. (SP3, paragraph 130)

> I think it always makes sense, it is highly meaningful, (.), and it was one of the essential learnings (SP4, paragraph 120)

> From a more internal point of view, I think it is extremely important to have strong sponsors who recognize the potential and ensure internally that this potential is actually realized. That the 'low hanging fruits' are identified in order to be able to show success quickly. To be able to achieve a dynamic based on these successes. Whether you want to call the whole thing a liaison manager or whatever, is secondary, but there must be dedicated contacts who are also able to develop this potential in order to build the bridge. (SP5, paragraph 85)

According to SP6, instead of leaving sole responsibility to top management, it is beneficial to involve middle management at an early stage and to anchor so-called ownership there. For the success of the project and for a successful knowledge transfer, the blockade attitude in middle management must be overcome.

> A second key learning is that you can promote this knowledge transfer tremendously if you anchor ownership in middle management at a very early stage; don't come there with a finished innovation and say: look, we have something great, we have worked on it for two years, but include the middle management level as far as possible at the beginning of the process, right from the selection of the startup, include the feedback and consciously ask for guidance - how and where should we develop with this team? This creates ownership and thus prevents part of the defensive attitude. (SP6, paragraph 97)

> And then it can be interesting and good, if an initiative is founded exactly from this level. As in our case. That a middle manager basically starts to do something innovative, which in turn passes he on to his peers.

> This product owner [...] suddenly learned: Okay, they can do things in a shorter time that we cannot do because we have certain constraints and from then on he was even more positive about this cooperation. We don't have a result yet, these are things that just take time, but there has been a transfer of knowledge in a certain way and the understanding: oh, that makes sense, at some point they will overtake us left and right. (SP6, paragraph 44)

For a program to be successful, it needs the right people (SP2, SP3, SP4). According to SP4, these employees should not be allowed to perform two functions at the same time.

> The key learning for personnel is really: No 'double headed'. It's about telling someone to do it now. And of course I have to answer the question: what about the stuff he normally does? Because mostly employees don't get bored the whole day but have done something else. (SP4, paragraph 143)

It is also conceivable to have a fixed pool of so-called *full-time equivalent* (FTE) experts who can flexibly take over when certain employees are needed for the startup program as SP4 explains.

> Perhaps this will lead to what very advanced corporates are already doing, namely that they just set up FTE pools in order to staff the projects spontaneously, not at all, but rather the area that gives an employee time off for the project, so that in the meantime someone from the pool of experts can take over so that the work doesn't somehow stop. So, you can do a lot of things there, of course there is the question, how far is the corporate body already in the flexible staffing structures? (SP4, paragraph 141)

4.5 Summary

The interviews have shown that several factors as derived from the literature indeed affect knowledge transfer. Absorptive capacity, learning culture, priority, and the role of top management were found to affect knowledge transfer within the scope of the projects reported from the interviewees.

The revised model pays additional attention to the role of middle management employees and the implementation of a liaison manager.

The results show that the assimilation of knowledge requires a strong stakeholder management. To be effective, corporate managers have to create visibility, relevance and credibility for a startup project.

The factors listed in chapter 4, both derived from the literature and interviews, will be discussed against the background of the literature in chapter 5.

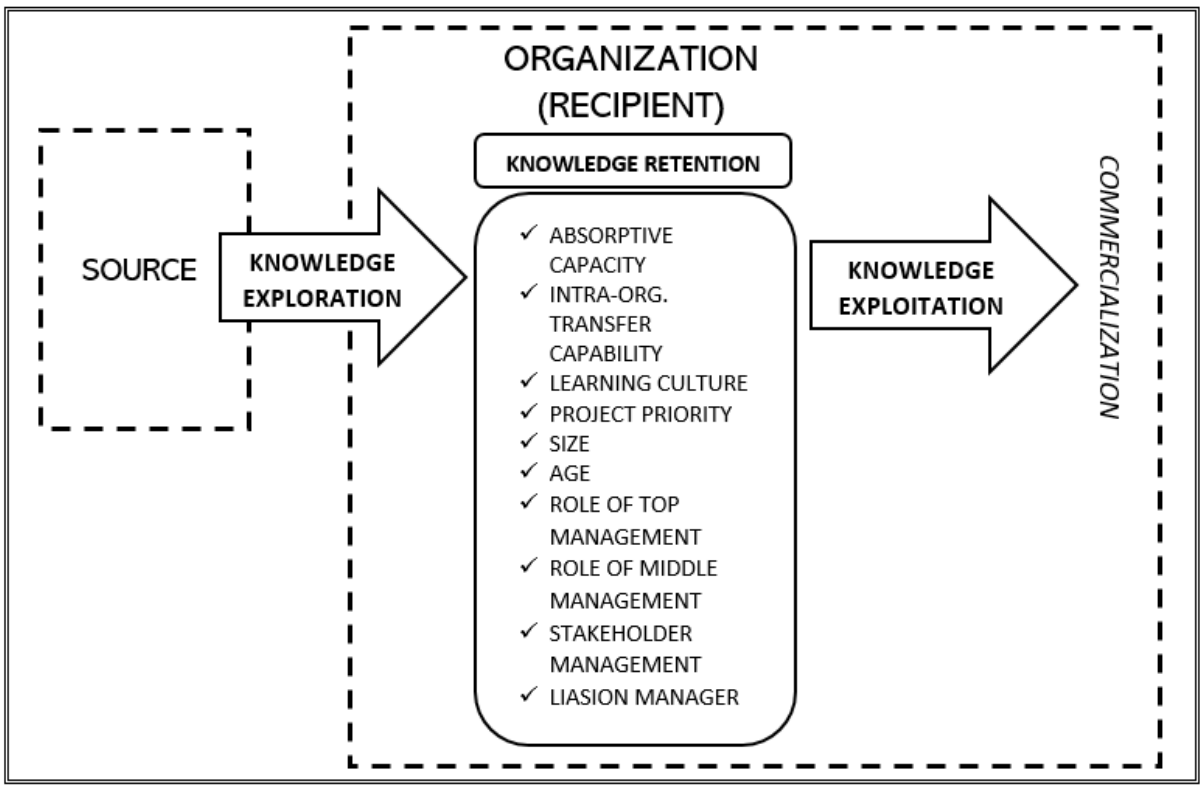

Figure 12. Revised Model

5. Discussion & Conclusion

5.1 Discussion

This chapter contains the discussion and a short conclusion. Within the framework of the discussion, the research question will be dealt with in more detail. Individual theoretical findings will be compared with the empirical findings of this paper. The model based on the empirical findings is presented.

Within the conclusion, the most important takeaways are listed, and limitations and suggestions for future research in this field are briefly explained. The discussion of the results is complemented by key observations from the fieldwork during the systematic combining process.

5.1.1. Answering the Research Question

In the introductory part of this paper it was noted that corporates have identified startups as external sources of innovation, but that promising projects fail due to lack of connectivity and

poor knowledge transfer between startups and corporates (Chesbrough, 2017; Weiblen & Chesbrough, 2015; Younis et al., 2017).

The generation of knowledge by external players such as startups can happen through acquisition or a share in a startup. However, more and more companies are relying on startup programs - but even the introduction of such a program is no guarantee for successful knowledge transfer.

For this paper, therefore, the relatively new phenomenon of 'startup programs' was examined. The following research question formed the basis of the study and will be answered:

> *What are factors affecting the transfer of knowledge between startup and corporate within the scope of a startup program?*

The answer to this question is multi-layered and complex. Recurring patterns give a first insight. Successful processes for the transfer of knowledge are characterized by (1) careful selection of startups, (2) early involvement of group employees in the project by selection of startups and selection of problems to be answered with the help of the startup, (3) clear integration and prioritization in the overall group strategy and clear communication activities, (4) promotion of an innovation-friendly corporate culture, (5) the anchoring of ownership and responsibility among employees in middle management, (6) the provision of sufficient and always available budget, (7) a flexible employee structure, (8) the hiring of a liaison manager to accompany and support the startup as a bridge builder in the corporate, (9) commitment and positioning of top management, and (10) excellent internal stakeholder management.

Finally, there is no single best practice process to ensure successful knowledge transfer. The consideration of some key factors, however, helps to avoid mistakes already made when setting up a startup program or correcting existing processes.

All interview partners look back on many years of experience in the innovation environment and are regarded as experts in the area of tension between the cooperation between startups and corporates. Industry-specific features, however, must be taken into account when adapting the process elaborated in this paper.

5.1.2 The Role of Startup Program and Startup

For a knowledge transfer to take place at all, a so-called donor is needed, which in this case are the startups. For the sample, it was found that the majority of the founding teams were classified as very good or experienced, whereby "very good" and "experienced" are not the same thing.

However, it suggests that the human factor, i.e. the founders of the startup, is of great importance. The effect of startup team experience on the survival and performance of startups was sufficiently investigated, and most studies came to the conclusion that startup team experience has a positive impact on performance, but that these effects are non-linear (Delmar & Shane, 2006). It was also found that a strong startup team positively influences startup valuations by investors (Miloud, Aspelund, & Cabrol, 2012) and that startups are more successful when strong founders provide a vision and clear direction (Ensley, Hmieleski, & Pearce, 2006).

This was confirmed by the interviewees who consciously or unconsciously selected strong founders for a project that would subsequently turn out to be successful. It is therefore possible to say that working with experienced founders increases the likelihood of successful knowledge transfer.

Only SP4 states that the founding team plays a minor role in such a project. The focus is on the product or the technology, not on the team, because one is interested in a knowledge transfer and not in an investment. However, this approach is not surprising. While other startup programs also optionally consider an investment, this is not relevant for a cooperation project at SP4.

Therefore, a so-called due diligence process, i.e. the careful examination of the startup in general or the founding team in particular, does not take place. However, SP4 also admits that as a VC it would take on a different perspective than it does now if it takes on a partnership perspective.

Two of the startup programs (SP5, SP8) use existing due diligence mechanisms to find suitable startup teams. SP8 has only worked with teams that are already funded by venture capital. SP5 assumes that the cooperating startups have completed at least one acceleration or incubation program where an assessment has already taken place. In this respect, both programs take

advantage of the fact that due diligence has already taken place. This saves resources for SP5 and SP8 and also leads to double protection.

This inevitably raises the question of the extent to which the thoroughly successful approach (only rely on founding teams that have already undergone a due diligence process) is transferable.

The approach of SP5 and SP8 is undoubtedly plausible but can lead to a problematic development: if more and more startup programs were to choose this path, which cannot be verified, the due diligence process would remain in a few programs. In addition, the same startups would increasingly be included in funding programs. The entry barriers for new startups would thus be raised until the market has reached a certain saturation point.

But it is not only in the selection of suitable startups that corporate employees need to be involved at an early stage. The interviews have also shown that it is wrong to push topics into the company.

To this day, this is an approach with which many startup programs incorrectly use at the beginning of their program. The reverse approach is explicitly required by SP2, SP4 and SP8. Startups are searched for problems that employees have articulated - instead of imposing topics on employees.

The SP2 accelerator has already won several awards. The success of the program can be explained, among other things, by the fact that innovation is developed close to the core business: you listen into the corporate, ask employees about concrete problems and challenges and then look for startups that can serve as external sources of innovation. The accelerator's main task is then to ensure that knowledge is transferred effectively. The startup is supported in every phase of the project and brought together with the right employees in the corporate.

5.1.3 The Role of The Corporate

Before the collaboration with startups can succeed, all necessary resources must be made available at an early stage. This applies both to adequate monetary resources and appropriate staffing.

A high degree of flexibility is indispensable in the provision of resources. Models in which employees fill parallel positions in the parent organization and in the startup program have failed.

The idea of "doing it on the side" is wrong and creates a false basic understanding of the importance of the program. Employees of a startup program must be able to focus on it with all their might. One promising application is the creation of dedicated FTE pools: Employees who are assigned to the startup program can be flexibly replaced by employees from an expert pool. However, this presupposes that the program is firmly anchored in the organization, that it is planned with foresight and that initial experience is gained.

Those responsible are faced with major problems when it comes to budgeting. On the one hand, the size of the budget and on the other hand, flexible availability are crucial. When determining the budget, it turned out that it is beneficial if it is not calculated in advance by top management, but by employees who can estimate the required money in depth.

The problem is also understandable for those responsible in the parent organization. It becomes more difficult with the flexible availability. Startup programs and in particular the cooperating startups require the shortest possible procurement processes. For example, it must be possible to call up a budget at short notice for a joint pilot.

This collides with long and stuck processes in the corporate. In this context, the following example is often cited: a startup with a payment deadline of several months is insolvent in the meantime. One solution is the SP8 model: if startups are considered suppliers from day 1, they can be more easily rewarded for performance.

In principle, it must be possible to allocate money to a project at any time. SP4 describes very practically that you ideally have a credit card and a PayPal account so that you don't have to wait too long for money. However, if this requires lengthy procurement processes, this can lead to the failure of promising projects.

In the literature review, it was pointed out that various researchers ask for factors such as encouragement (Jeppesen & Lakhani, 2010; S. Lee et al., 2010; Terwiesch & Xu, 2008; West & Gallagher, 2006) or the role of top management (Harryson et al., 2008; van Wijk et al., 2008) in knowledge transfer models to be taken into account.

Encouragement is a very present topic among the interview partners. Only SP5, however, advocates direct monetary incentives so that corporate employees are inspired to participate in startup projects. The other interviewees rely on indirect mechanisms.

For example, innovative projects should be an incentive for personal development and employees should develop intrinsic motivation. A common mechanism is to link goals from the startup project with existing KPIs from the business unit. Startup managers like SP4 reject such a mixture, as they demand that all employees involved in the project must fully concentrate on the project and not perform parallel functions in the startup program and in the corporate. A consistent picture therefore does not emerge.

Opinions on the role of top management are much more homogeneous. There is agreement that a high level of commitment from the management level is required. This does not necessarily have to be the CEO himself, but for the success of the startup program and a project on a small scale, a clear positioning of senior corporate employees is necessary.

The commitment must be communicated accordingly. In the first instance, this must be done vis-à-vis the employees. All employees must be aware of the priority given to startup projects. This observation is consistent with the results of Cummings and Teng (2003) who show a positive link between priority and success of knowledge transfer.

In their transfer success model, Cummings and Teng (2003) demonstrate the positive impact of learning culture on a successful knowledge transfer. This result correlates with the results of this paper. The corporate must be willing to learn from startups and absorb knowledge. To achieve this, an open and innovative corporate culture must be created.

Middle management plays a crucial role in the success of innovation in general and successful knowledge transfer in particular. The top management must exemplify the will to innovate and carry it down into the organization. It is responsible for creating a corporate culture that is open to innovation and cooperation with external players such as startups.

It is generally assumed that innovation is successful if it follows a top-down approach. There is no doubt that the commitment of top management is needed to establish a corporate culture that is open to external innovation. SP6 in particular explained this impressively in the interview.

Top management has to demonstrate that it is beneficial to open up to startups. SP3 describes this as follows: “that one has the courage to take this risk, approach others and learn from them.” A corporate culture open to startups does not develop overnight, it takes a lot of time and follows three steps, as SP3 continues: "corporate culture starts with ‘education’, i.e. teaching corporate culture, in the next approach corporate culture is spoken of, especially when it comes to open innovation. And then it takes months again, here we're talking about half a year to three quarters of a year to get to grips with each other, and only then it does start."

There is agreement among the interview partners about the need for commitment from top management. The situation is different, however, if you look at which level in the corporate innovation has to be driven forward by the executive. While SP5 is a proponent of the top-down approach, there is an increasing number of proponents of the approach that innovation must come ‘from within’, out of the core of the company.

Innovative projects must therefore begin on a small scale in a business unit that is close to the corporate and internal stakeholders. The next step is to develop products and solutions that are externalized and form new cores. With the help of startups or other external sources of innovation, new solutions can be developed and accepted within the company, so that knowledge can be transferred back into the corporate. This avoids a defensive attitude within the group.

SP6 describes a hierarchical setup worth discussing in more detail: according to SP6, there are roughly three roles or hierarchies in the group that are responsible for innovation and knowledge transfer: the top management, the middle management and the so-called ‘developers’.

In principle, top management understands that the corporate needs innovation. It also understands how to approach this innovation: through cooperation with startups, through its own organ innovation, and usually through developers.

SP6 describes developers as young people who are interested in new topics. These employees do not have to be convinced. They are the peers of the startup founders and have a similar way

of thinking. The third group besides developers and top management is middle management, which classifies SP6 as a 'clay layer'.

This observation should not be generalized, since it does not apply to all teams. Nevertheless, it points in one direction. It seems reasonable when innovation initiatives come from middle management and these managers pass it on to peers. Middle management staff can be involved as mentors. It is therefore important for the corporate to find out how to address all those who have been in the business for many years.

In order to promote knowledge transfer, SP6 proposes that ownership be anchored in middle management as early as possible. To this end, they must be involved in the project at an early stage; they must also select the startups, provide feedback and provide guidance. This leads to ownership and prevents a counter-productive defensive attitude.

5.1.4. Hybrid Models of Corporate Startup Engagement

The literature generally distinguishes between different startup engagement modes (Kohler, 2016; Weiblen & Chesbrough, 2015). Typically, however, corporates are not only active in one mode, but use different levers in parallel to drive innovation forward. This leads to hybrid models: corporates invest through their own venture capital arm, encourage employees to participate in intrapreneurship programs, run an accelerator program, and collaborate with external startups through a dedicated unit. As a recent study has shown, 20% of DAX companies even use five innovation vehicles at the same time (Brigl et al., 2019).

A good example is SP2. It successfully pursues a hybrid approach in which various innovation initiatives are driven forward in parallel. There is an accelerator that scouts startups close to the core business for joint projects and a pilot phase with search requests coming from middle management colleagues. There is also a venture capital fund, an intrapreneurship program and a joint innovation platform with other corporates for projects with startups.

In most cases, the startup program is not a single gateway, but rather part of the innovation strategy, which in turn is part of the corporate strategy. For instance, CVC often works independently of the startup program, although the deal flow of the program is a popular database.

5.1.5 Practical Observations Schematized: How to Improve Knowledge Transfer

The results presented in Chapter 4 and the aspects already discussed in Chapter 5 can be summarized as clear recommendations for action. The aim is to present the most important aspects schematically in the following paragraphs.

First, the results presented enable the creation of a simple transmitter-receiver model. The model is based on the early Shannon-Weaver model of communication. The approach goes back to an article and a book by the mathematician Claude E. Shannon (Shannon, 1948). The article is regarded as the founding work of information theory.

The original model consists of "1. An *information source* which produces a message or sequence of messages to be communicated to the receiving terminal. (…) 2. A *transmitter* which operates on the message in some way to produce a signal suitable for transmission over the channel. (…) 3. The *channel* is merely the medium used to transmit the signal from transmitter to receiver. (…) 4. The *receiver* ordinarily performs the inverse operation of that done by the transmitter, reconstructing the message from the signal. (…) 5. The *destination* is the person (or thing) for whom the message is intended." (Shannon, 1948, p. 624)

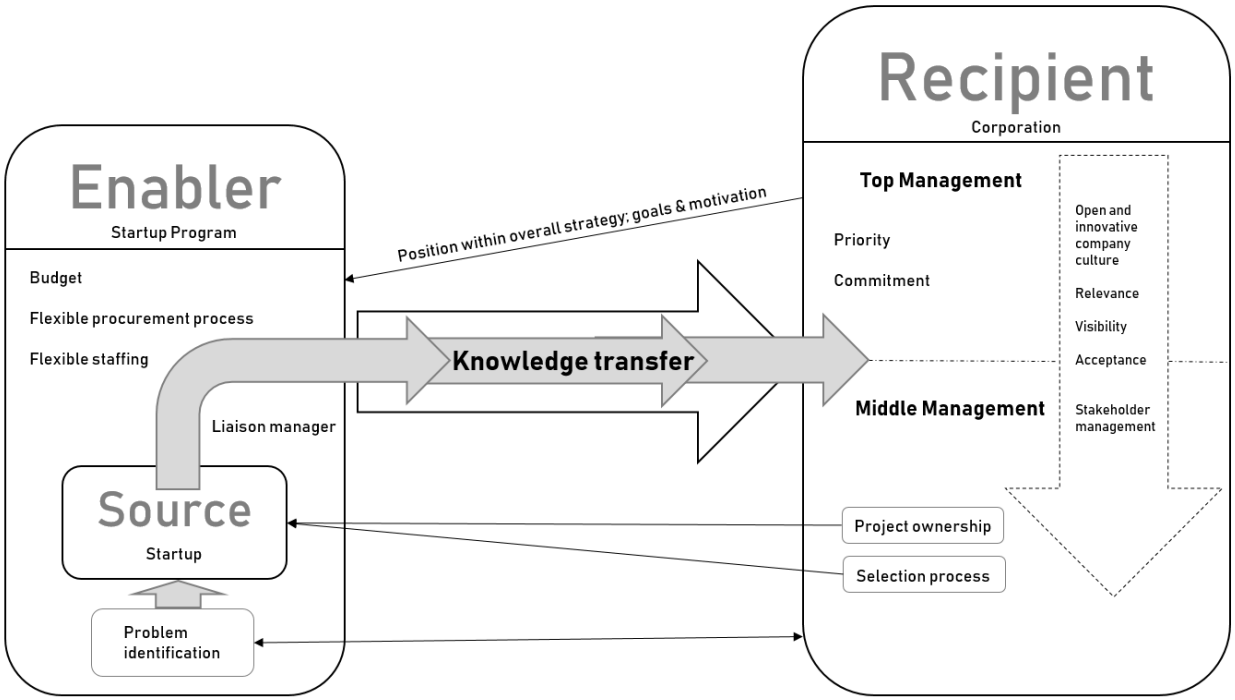

Figure 13. Schematic illustration of knowledge transfer (own depiction)

In the present model (Fig. 13), an adaptation of the transmitter-receiver model, knowledge is transferred between source and receiver. The source is the startup, the receiver is the corporate.

The startup program acts as an enabler, creating the framework for successful cooperation. Without the moderating function of the startup program, a successful knowledge transfer would be almost impossible. It has been shown that corporates are hardly in a position to work successfully with startups themselves.

Based on problems or challenges that have been identified in the corporate, one looks for suitable startups. Corporate employees are involved in the selection process. This creates a sense of responsibility; commitment is generated and those who later work together with the startup are involved at an early stage. In this context, it is important to note that the involvement of group employees is particularly relevant if the startup program is needed to improve the core business. The closer you look for innovations for your core business, the more corporate employees need to be involved.

The cases examined have also shown that those programs that develop innovations close to the core business are often closer to the corporate headquarters. Programs, usually accelerators or incubators, that develop completely new topics or even go into other verticals, are usually geographically off the beaten track of the headquarters and settle in startup centers like Berlin. These observations coincide with the results presented in recent studies (Brigl et al., 2019).

In order to be able to work as self-sufficiently as possible, but also efficiently, the startup program must be equipped with sufficient budget and flexible personnel structures. This means that, depending on the project, corporate employees must be put in a position where they can support the project flexibly. Ideally, corporate employees should not have to perform both functions in parallel.

Flexible procurement processes are necessary because startups are subject to different circumstances than established companies. If the corporate is a client of the startup as part of a joint project, a payment period of six months can lead to the startup becoming insolvent if it does not have sufficient liquid funds.

The Liaison Manager has a central function. Because it is not enough to create the right framework conditions as a startup program, the decisive factor is intensive support for the startup in order to make it fit for connection in the corporate. At the same time, corporate employees must be supported extensively.

On the corporate side, equal efforts must be made to ensure a successful transfer of knowledge. Top management must clearly communicate internally the priority of the startup program and the individual projects. Above all, it must demonstrate commitment internally and create a corporate culture that is open to external innovation.

The sender-receiver model shows the links and clearly separates between startup (*Source*), startup program (*Enabler*) and corporate (*Recipient*).

Accordingly, the present extension of an implementation model is intended to provide concrete recommendations for action (Fig. 14). The model is divided into three phases.

In Phase 1, the strategic basics are developed. The aim is to evaluate what decision makers want to achieve with the program. Employees should understand what added value the program will offer.

Once this has been done, phase 2 focuses on operational issues. What resources will the program be equipped with? What are the challenges and problems corporate employees are confronted with?

After the onboarding of the startups, phase 3 and the actual process of knowledge transfer begins. At the core of the activities is the correct handling of all those involved in the project: employees must be enthusiastic about the project, corporate employees must be briefed internally, and the project must be marketed accordingly. Program and project must become visible, internally accepted and thus relevant.

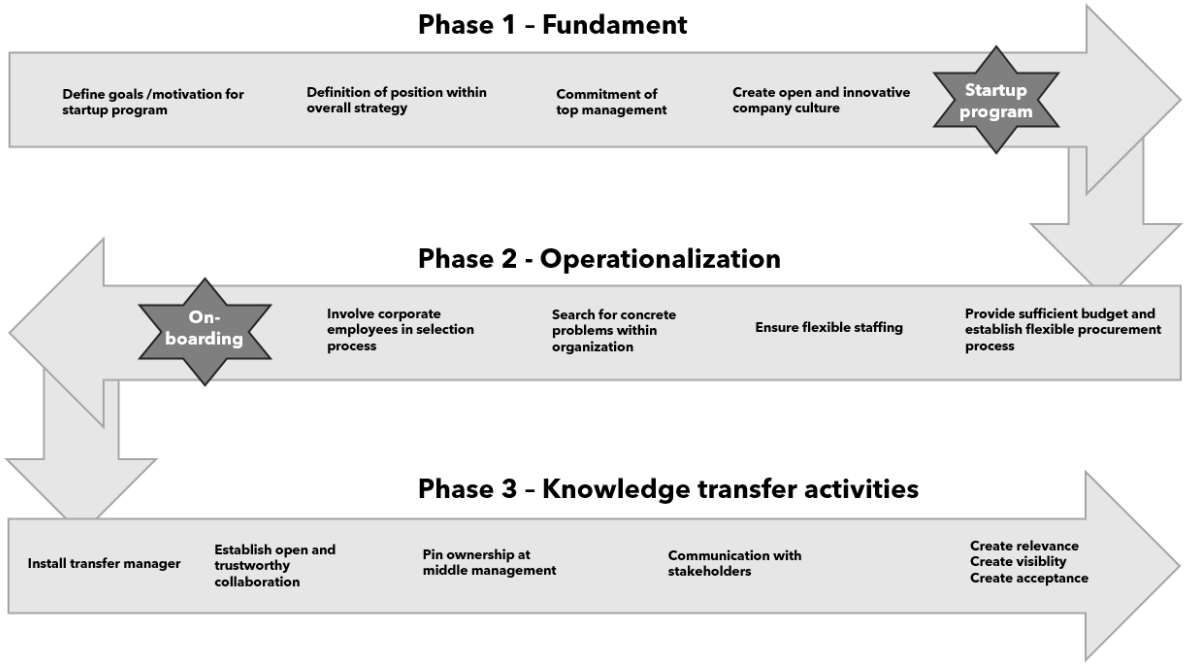

Figure 14. Implementation process model (own depiction)

It has already been sufficiently demonstrated that most innovation initiatives fail due to insufficient knowledge transfer (Brigl et al., 2019; Chesbrough, 2017; Kreimeier, 2017; Lindener, 2018; Weiblen & Chesbrough, 2015; Younis et al., 2017).

With this knowledge in mind, it is therefore important to use recurring patterns to understand how you can efficiently check the status of your own program. It is important to identify improvement potentials for knowledge transfer.

Every industry and every company has its own characteristics. While a startup in the healthcare sector will have to struggle with regulatory hurdles and may require special support from a corporate, food startups may need help in entering the retail market. In any case, there is no blueprint for building a startup program and successful knowledge transfer. However, orientation on selected factors can help to avoid mistakes already made by others or to identify own mistakes from the past.

Based on the case studies and interviews analyzed in this paper, innovation managers who want to establish a startup program for knowledge transfer can orient themselves on the checklist (see Appendix 3), which conclusively presents the most important factors. The checklist also

helps to check the status quo if a program is already in use. The checklist is structured according to the selection of startups, strategic considerations, resources and organizational factors.

5.2 Conclusion

The aim of this work was to better understand the transfer of knowledge between startups and corporates. The transfer or cooperation within clearly defined boundaries of a startup program was examined. Success factors were identified which increase the probability of a successful knowledge transfer. At the same time, it was possible to show which processes form the basis of knowledge transfer and what should be taken into account when setting up a startup program. These findings also help users to put an already running startup program to the test.

An abductive approach was chosen as the methodological approach, in which the researcher initially accompanied the development of a startup program for over a year. The observations in combination with numerous interviews have led to several thematic re-orientations. Finally, the observations were included in the creation of the final questionnaire. Based on the literature analysis and the field work in the startup program, executive staff in startup programs was interviewed in semi-structured interviews.

The following can be summarized: startup programs are a relatively new phenomenon. Accordingly, there is no homogeneous picture. The innovation landscape still resembles a large playground on which corporates more or less seriously let off steam. Due to the novelty of this phenomenon, there are hardly any blueprints or reliable schemes for structuring a program. In addition to the industry-specific differences, there is a lack of best practices. Even more difficult in the next step is the transfer of knowledge between startups and corporates.

Promising projects later fail because of the transfer into the corporate. A three-stage trend can be observed. Many companies initially try to found their own startups that try out new business models independently of the corporate. However, there are hardly any corporate startups that have become successful. For this reason, a collaborative approach is then adopted, in which startup and corporate shall work together on a project basis.
Examples of this collaboration were shown in this study. They are mostly highly complex. As a result, companies are increasingly concentrating on pure investments. This is done either

directly by CVC or the startup program acts as an outsourced investment arm for the group. Investments are usually the most straightforward way to tap the startup as a source of innovation. However, it must also be questioned with what seriousness the corporate would like to cooperate with startups in terms of content.

There is no question that the right framework conditions have to be created for successful knowledge transfer. The startup program must be provided with sufficient and tailor-made resources, and the innovation managers must also have understood the needs of the startup. However, the success or failure of knowledge transfer is ultimately determined solely by the human factor.

Without liaison managers who accompany intensively and create connectivity within the corporate, the startup and its knowledge cannot be integrated. It is also important to integrate participants on the corporate side into projects at an early stage and thus create ownership.

Ownership starts with the selection of the startups. Management is required to create a culture open to innovation, to prioritize appropriate projects and to demonstrate internal commitment. Only with the right employees and the appropriate willingness it is possible to create a setup that is satisfactory for both sides – corporate and startup - and in which knowledge transfer can succeed.

5.2.2 Limitations

The sample is small and thus generalizability is limited. Also, due to the small sample size, single forms of startup engagement are only represented to a limited extent. For this thesis, innovation hubs, accelerator programs, digital labs were all collected under the common umbrella startup program. It is therefore not possible to deduce specific findings for only one form of corporate startup initiatives.

Also, the type of knowledge transferred within the projects has not been defined, i.e. no distinction is made between categories like tacit, implicit, explicit, or specific knowledge.

5.2.3 Further Research

This paper examines factors that increase the likelihood of successful knowledge transfer. An interesting theme for future research is the question to what extent startup programs really add value. In other words, how successful do they really work.

In the introductory text, it was written that startup programs have so far hardly created any value for corporates. Therefore, there is a need for long-term studies that examine whether and what value programs have created for the parent company.

This requires a clear definition of success. When does a program become successful? How can added value be measured? For instance, with a strong venture capital-driven approach, the value of the startup portfolio could be measured in a longitudinal study.

The challenge is certainly the measurability of value creation through projects with startups. Have specific products been developed from collaboration? Were products that were already on the market or the corporate's own processes be improved through collaboration with startups?

Another interesting topic for future research is the so-called startup engagement spectrum. Cooperation with startups is a relatively new phenomenon for companies. As a result, the modes of engagement are still at an early stage. Often, modes are very experimental. The modes in use are in a constant state of change. Existing frameworks (Kohler, 2016; Pauwels et al., 2016; Weiblen & Chesbrough, 2015) can therefore be updated to take account of new developments.

Also, it would be interesting to conduct longitudinal studies to investigate how many of the corporate startup programs have emerged, how many still exist after a defined period of time and how many have disappeared. This would allow conclusions to be drawn about the success of the programs. It is also possible to derive insights into the motivation of companies. Were the startup programs serious innovation initiatives or rather introduced to pick up a trend and do good marketing?

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Appendix

Appendix 1. Original Questionnaire (German)

The questionnaire was adapted and extended during the interview phase.

<u>Interviewguideline: Welche Bedingungen/Faktoren sind besonders relevant für einen erfolgreichen Wissenstransfer zwischen Startup und Konzern im Rahmen eines Corporate Startup Programms?</u>

Briefing & Vorstellung:

- Begrüßung
- Erklärung der Vorgehensweise für das Interview: *Zunächst werde ich mich selbst kurz vorstellen, dann Dich bitten, Dich und Deine Arbeit kurz vorzustellen und einige Rahmenfragen zum Programm stellen. Der Hauptteil dieses Interviews dreht sich anschließend um den Wissens- oder Technologietransfer zwischen Startup und Konzern und im Speziellen darum, welche Faktoren für einen Transfer besonders relevant sind – daher werde ich Dich abschließend bitten, mir von einem sehr erfolgreichen und einem eher weniger erfolgreichen Projekt zu berichten, bei dem XXXX mit einem Startup zusammengearbeitet hat.*
- *Mit Deinem Einverständnis werde ich das Gespräch gleich aufnehmen. Solltest Du Fragen haben, unterbrich mich gerne jederzeit*

- Wer bin ich? *Kurz ein paar Worte zu mir: Ich studiere in einem Doppelmasterprogramm Innovation Management & Entrepreneurship und schreibe gerade meine Masterarbeit. In der Vergangengeit habe ich sowohl für große Konzerne als auch Startups gearbeitet – ich kenne also beide Welten – und durfte jetzt seit etwa einem Jahr im noch kleinen Team von Sebastian Fittko den Innovation Hub von innogy mitaufbauen.*
- *Jetzt würde ich Dich bitten, Deine Rolle als Managing Director in wenigen Sätzen kurz zu beschreiben.*

Rahmenfragen:

Wann und von wem wurde das Programm ins Leben gerufen?
Wieviele Mitarbeiter gibt es?

Mit wievielen Startups haben Sie bislang zusammengearbeitet?
Was ist die Hauptmotivation, um mit Startups zusammenzuarbeiten?
Bitte beschreibe kurz, in welcher Form Ihr mit Startups zusammenarbeitet.

Projektebene

Da es jetzt im Konkreten um 2 Projekte geht, würde ich ab hier alle Antworten anonymisieren.

Nach diesen Rahmenfragen würde mich jetzt interessieren, ob Ihr über die Investmentebene hinaus auch mit Startups zusammenarbeitet, sprich, ob Ihr Wissen oder Produkte und Services aus Startups in XXXX transferiert. Gab es also gemeinsame Folge-Projekte, bei denen Konzern und Startup zusammengearbeitet haben?

Wenn dies der Fall ist, würde ich Dich bitten, von einem sehr erfolgreichen Projekt zu berichten und von einem Projekt, dass weniger erfolgreich war. Dazu werde ich Dir quantitative Fragen stellen, die sich mit wenigen Worten beantworten lassen. Beginnen würde ich gerne mit einem erfolgreichen Projekt.

Startup Context		
~~Externe Kollaboration vs Ausgründung~~	~~Wurde mit einem externen Startup zusammengearbeitet oder ein internes Venture gegründet?~~	~~Intern/extern~~
Humankapital/ Startup-Team	Wie würden Sie das Gründerteam pauschal bewerten?	Sehr gut/sehr fähig – weniger gut/weniger fähig
Startup-Stage	Wie weit war das Startup mit seinem Produkt fortgeschritten, als die Zusammenarbeit began?	Idee/Prototyp/Marktreife
Innovationstyp	Mit welchem Innovationstyp lässt sich das Produkt/Service am besten beschreiben?	Inkrementell / architektonisch / radikal
Organisation des Transfers		
Relational Context		
„Organizational Distance“	In welcher Form hat der Konzern mit dem Startup zusammengearbeitet?	Konzern wurde Kunde / Lizenznehmer / Übernahme des Startups durch den Konzern / …
“Physical Distance”	An welchem Standort hat das Startup während des Programms gearbeitet?	Nahe der Konzernzentrale / Nahe des Startup-Programms / Weder noch
“Knowledge Distance”	Gab es Wissensüberschneidungen, also gab es bereits ähnliche Projekte, Produkte oder Services im Konzern?	Große Überschneidungen / Kleine Überschneidungen / Gar keine Überschneidungen
Vordefinierter Prozess	Wie sehr folgte der Wissenstransfer einem vordefiniertem Prozess?	Stark / Wenig
„Norm Distance“	Ähnelte sich die Unternehmenskultur, gab es kulturelle Unterschiede zwischen Startup und Konzern?	Sehr / wenig / gar nicht
Netzwerk	Wie gut war das Startup mit Mitarbeitern im Konzern vernetzt?	Starkes Netzwerk / Schwaches Netzwerk / Kein Netzwerk

Recipient Context		
Top Management Commitment („Project Priority“)	Welche Priorität wurde dem Projekt im Konzern ab dem mittleren Management beigemessen?	Hohe / geringe / gar keine
Verantwortlichkeit in der Organisation	Gab es im Konzern eine Abteilung oder eine Person („Liason Manager“), die dediziert für den Transfer und die Verankerung des Projektes im Konzern zuständig war?	Eine Abteilung / eine Person / weder noch
„Learning Culture“	Wie hoch war die Bereitschaft im Konzern, vom Startup zu lernen und Wissen zu adaptieren	Hoch / gering / nicht vorhanden
Absorptive capacity	Wie bewertest Du in diesem speziellen Fall die Fähigkeit des Konzerns, das Wissen oder die Technologie aufzunehmen und zu verarbeiten	Gut / schlecht
Inzentivierung	Wurden Konzernmitarbeiter für die Zusammenarbeit mit dem Startup belohnt?	Ja / nein
Post-Kollaboration	Was passierte mit dem Startup und seinen Mitarbeitern, nachdem das Projekt abgeschlossen war?	Startup arbeiteten autonom weiter / Mitarbeiter wechselten in den Konzern / Startup veränderte seine Ausrichtung / Folgeprojekte wurden initiiert / …
~~Erfolg des Projektes~~	~~Wie bewerten Sie den Erfolg des Projektes?~~	~~Gut / mäßig / schlecht~~
Erfolg des Projektes	Warum war dieses Projekt so erfolgreich / nicht erfolgreich?	…
Nun werde ich dieselben Fragen zu einem weniger erfolgreichen Projekt stellen.		
Schlussfragen (nach zweiter Projekt-Fragerunde)	Retrospektiv: Was sind die (drei) Key Learnings für den Aufbau eines Startup Programms? Was sind aus Deiner Sicht aus Konzernprespektive grundsätzlich die Erfolgsfaktoren für eine erfolgreiche Zusammenarbeit mit einem Startup?	

Appendix 2. Coding Scheme

Integration into corporate strategy	Exploratory approach for setting up startup programs	Culture and openness for innovation topics
No revenue, no KPI's	Too much pure desk research	Lack of attendance
Founders too unexperienced	Internal processes in the corporation were hindering	Finished without further collaboration
CEO was too young and did not search for new customers	Ongoing collaboration	More founder-friendly company culture needed
Project was part of the regular job	No encouragement	Internal political dimension too strong.
Mediocre absorptive capacity	High absorptive capacity	Very low learning intent
Mediocre learning intent	High learning intent	No liaison manager, but would have been needed
Liaison manager responsible	High priority	Low priority
Bad networking	Very intense networking by startup	Cultural differences
Big knowledge distance	Corporate already had expertise	Only some product characteristics overlapped
Remote working	Both remote and with corporate	Minimal commercial integration
Customer agreement	Pilot customer	Incremental innovation
Different cooperation ranging from easy-to-integrate to disruptive	Radical innovation	Architectural innovation
Proof-of-Concept	Market-ready	Mix of Prototype and 'Go-live'
Bad founders	Founders okay, but no team due diligence	Highly competent founders
Attracted a lot of funding	Founders are even better than those that run a successful project	Scout and identify the right startups
Open and trustworthy collaboration	Create ownership and acceptance	People and money needed for success
Top management commitment	Company culture and openness for innovation	Dedicated transfer manager
Startup has to understand corporate (customer) needs	Internal stakeholder management	Budget relevant for success
Openness for external tech innovation	Commitment needed for successful program	Startups have to serve a real market and not only the corporation
Create visibility to be successful	Pin ownership as early as possible at middle management	Corporate co-working space increases external credibility
Convince middle management rather than top management	Lean organization	Bottom-up approach
Involve corporate employees in selection process	Create relevance	Interplay between distance and closeness
Startup manager required	Pushing a topic into the corporate does not work	Top management commitment required
Dedicated transfer manager needed	Shorten internal processes	Vehicles
Clearly define its position within corporate strategy	Corporate runs no own business in this field	It was relevant for the corporation
Awareness raised for new technology	Improved customer interaction	Mutual learning effects
Further collaboration plus investment	M&A	Commercial partnership
Status of collaboration open	Different future options discussed: Licensing, VC, M&A	Customer relationship but startup works independently
Learning intent differs across management levels	Not necessarily big differences in terms of company culture	Great input by startup
Great differences in terms of company culture	Knowledge distance in most cases	Only a minor part was missing
Knowledge distance in some cases	Only a less developed product existed before	Interviewee doesn't know entire company
High on operational level	Topic was escalated to top management	Startup product is nice-to-have
Management mistake put topic on the agenda	Digitalization plays a big role for corporate	Inconsistent company goals
Business owner: Indirect encouragement through KPI's	Project was driven by egoism (KPI's)	innovative projects as encouragement
No remuneration, but internal and external media attention	No encouragement, but corporate is considering it	Encouragement is recommended
Liaison manager not necessarily a single person	Generally, appreciates liaison manager	Corporate created network
Neutral as topic was very new	Good Networking	Corporate fostered networking
Server, tech and use cases are provided	Revenue-share model	Form of licensing
Different forms: Pilot customer, collaboration, and potential investment case	Investments & Company Building	Venture Client Model
Combination of Accelerator and Intrapreneurship	"Development Acceleration program"	Different phases: Advocate of startups, venture building, understand pain points within the company
New GmbH as external corporate vehicle	Different processes	Two acceleration approaches: transformation of core business and new business development
Identify innovation with strong USP	New business creation	Extend core portfolio
Startups as innovation driver and stakeholder	Discover unknown problems	Digitization of core business and exploring new markets
Integration into corporate strategy	Exploratory approach for setting up startup programs	Culture and openness for innovation topics

Appendix 3. Checklist