

University of Twente

Management and Governance

NIKOS

Supervisors: Dr. Rainer Harms | University of Twente,

Dr. ir. Sandor Löwik | University of Twente

Berlin Institute of Technology

Innovation Economics

Supervisor: Dr. Annika Lorenz | TU Berlin

Master Thesis

**How do Start-ups Recognize the Value of External Knowledge and
Acquire it? A Study on Absorptive Capacity in B2B Start-ups**

- Public Version -

Number of pages: 69 | Number of words: 19283

Christoph Baier

E-mail: contact@chrisbaier.com

M.Sc. Business Administration (UT)

M.Sc. Innovation Management & Entrepreneurship (TU)

Student Number: s1361449 (UT) 338492 (TU)

Berlin/Enschede: 18.05.2015

Index

List of abbreviations.....	III
List of figures	III
List of tables.....	III
1. Introduction	1
1.1 Importance of external knowledge – especially for start-ups	1
1.2 Definitions and prior research.....	1
1.3 Research gaps demand further research	3
1.4 Purpose to address the black-box of recognition and acquisition in start-ups.....	4
1.5 Contribution of this study	6
2. Theory.....	8
2.1 Introducing the entrepreneurial context	8
2.2 Central challenges facing entrepreneurs	11
2.3 Organisational learning and the sourcing of external knowledge.....	13
2.4 Absorptive capacity as an ability to make use of external knowledge	16
2.5 Recognize the value of external knowledge	19
2.6 Acquire external knowledge.....	24
3. Method.....	28
3.1 Research design.....	28
3.2 Interviewee selection	29
3.3 Data collection	31
3.4 Data analysis	32
3.5 Start-up, interviewee and interview characteristics.....	33
4. Findings	35
4.1 The external knowledge sources	35
4.2 The influencing factors	41

4.3 The connection / the access to external knowledge	43
4.4 The triggers to act and react.....	47
4.5 The direction.....	50
4.6 The evaluation	52
4.7 The routines with external knowledge	56
5. Discussion	59
6. Conclusion	65
References	70
Appendices	77
Appendix A: Visually contrasting three common absorptive capacity concepts	77
Appendix B: List of identified relevant start-ups.....	78
Appendix C: Interview guide in English	79
Appendix D: Interview guide in German	82

List of abbreviations

B2B	=	Business to business
B2C	=	Business to customers
CEO	=	Chief Executive Officer
CTO	=	Chief Technology Officer
CMO	=	Chief Marketing Officer
ICT	=	Information and communication technology
R&D	=	Research and Development
SME	=	Small and medium-sized enterprises

List of figures

Figure 1: Core components of the used absorptive capacity concept and the research focus of this thesis highlighted in grey	5
Figure 2: Qualitatively investigated early absorptive capacity aspects.....	6
Figure 3: Visualizing the theoretical framework and the investigated core components	8
Figure 4: Illustration of the iterative entrepreneurial process	10
Figure 5: The organisational learning framework.....	15
Figure 6: Refined model of absorptive capacity.....	18
Figure 7: Illustration of recognize the value in the context of absorptive capacity	20
Figure 8: Qualitatively investigated early absorptive capacity aspects.....	27
Figure 9: Final coding categories that represent recurring patterns (Atlas.ti)	33
Figure 10: Illustration of interviewees' central themes for recognizing and acquiring external knowledge	36
Figure 11: Recurring patterns of early absorptive capacity stated by interviewees	59
Figure 12: Absorptive capacity concept by Cohen & Levinthal (1990)	77
Figure 13: Absorptive capacity concept by Zahra & George (2002)	77
Figure 14: Absorptive capacity concept by Todorova & Durisin (2007).....	78

List of tables

Table 1: Overview of interviewees and their context	35
---	----

1. Introduction

1.1 Importance of external knowledge – especially for start-ups

In today's world, which is strongly market-driven, decision makers in business have to learn from external knowledge in order to improve their responsiveness to the market. External knowledge, in this context, refers to knowledge that is new to the firm and exists outside of the organisation. Market-driven actions are, according to Wei & Wang (2011), actions that *"respond to the firm's external environment while taking into account the existing framework and constraints of the market structure and characteristics"*. At the same time, the value of learning from external knowledge for businesses is emphasised in the knowledge-based view. For example, Nonaka, Toyama, & Nagata (2000, p.1-2) describe knowledge as *"the most important source of a firm's sustainable competitive advantage"*. Moreover, the topic of open innovation indicates that companies in today's market-driven environment depend more and more on external sources of information (Chesbrough, 2003; Laursen & Salter, 2006). This external knowledge is of high relevance for companies of different types.

1.2 Definitions and prior research

In addition to prior research that has analysed the impact of external knowledge in established companies, start-ups represent another company type that requires research. In terms of company size, start-ups are typically categorized as small companies. They represent a segment of small and medium-sized companies (SME) aiming at strong growth and are in an early stage of a company's development. A well known start-up definition is from Blank & Dorf (2012, p.xvii) and describes a start-up as *"a temporary organisation in search of a scalable, repeatable, profitable business model"*. While Ries (2011b, p.27) defines a start-up as a: *"human institution designed to create a new product or service under conditions of extreme uncertainty"*. For the sake of clarity, the author will use the following definition, which combines the insights of Ries and Blank & Dorf: 'A start-up is a human institution designed to create a new product or service while it is in search of a scalable, repeatable and profitable business model under conditions of extreme uncertainty'.

Start-ups can have a significant impact on society, underscoring their high social relevance and importance as a research topic. On a societal level, especially innovative high-tech start-ups are contributing to societies in terms of growth (Audretsch & Fritsch, 2003; Wong, Ho, & Autio, 2005) by “*introducing innovations, creating change, creating competition and enhancing rivalry*” (Wong et al., 2005, p.337). This entrepreneurial activity also impacts competitiveness (Bosma & Levie, 2010) and employment (Thurik & Wennekers, 2004). It can take the form of creative destruction (Schumpeter, 1942), which is initiated with the execution of innovative business ideas.

The use of external knowledge, especially for start-ups, is increasing in importance (Presutti, Boari, & Majocchi, 2011). For start-ups, this knowledge is of an even higher importance due to their typical characteristics. Due to their smallness and newness, (Brettel, Faaß, & Heinemann, 2007) it is more difficult for start-ups to deal with external knowledge. For example, start-ups frequently cannot pay for strong protection mechanisms on their own and face challenges from knowledge-spill-overs. In addition, the change that takes place in a start-up in the early phase requires a certain capability to deal with a high amount of internal and external knowledge. Furthermore, the limitations and challenges of start-ups, such as a lack of extensive internal knowledge, are an important aspect to consider (Brettel et al., 2007).

Compared to established companies, start-ups also face entrepreneurial challenges, like an extreme resource scarcity and the lack of paying customers during early phases of product development (Blank, 2013). These entrepreneurial challenges illustrate the increased challenges that start-ups are facing. Not only must a start-up develop its own product and business model in conditions of extreme uncertainty, but it must also cope with changing markets and technologies that address all types of companies (Christensen, 1997). Learning and understanding external knowledge from the market, as well as from relevant technologies, is therefore of even greater importance for start-ups given their limited internal knowledge and history. Accordingly, the author argues that a differentiated investigation of start-ups and how they deal with external knowledge is required.

In dealing with such external knowledge, prior research devised the concept of absorptive capacity. This concept forms the core theory of this study and borrows from Cohen and Levinthal. The concept addresses the absorbing and making use of external knowledge (Cohen & Levinthal, 1990). It is initially defined as the ability of a firm to “*recognize the value of new information, assimilate it, and apply it to commercial ends*” (Cohen & Levinthal, 1990, p.128). While the roots of absorptive capacity originated from research in large R&D intensive firms (Spithoven, Clarysse, & Knockaert, 2011), research on small- and medium-sized firms and especially start-ups is relatively scarce.

1.3 Research gaps demand further research

The first gap consists of a lack of research on different company stages in the context of researching the absorptive capacity concept. Following Flatten, Engelen, Zahra, & Brettel (2011), the investigation of the important absorptive capacity dimensions in different organisational stages requires more attention from researchers. Such research is required to investigate the relevance of the core components of the absorptive capacity concept for each organisational stage. This statement indicates that there should be more research on the influence of the stage and the linked age of the company in order to identify differences in varying settings. A deeper analysis is required in order to understand the applicability and reliability of the concept for different company types and ages. Prior research focused heavily on large R&D intensive firms with their own R&D departments (Flatten et al., 2011) and frequently used patents as an outcome measure. In contrast, start-ups represent a very early stage company that typically does not have a dedicated R&D department due to their size.

Second, the core components of absorptive capacity require deeper analysis. Volberda, Foss, & Lyles (2010) identify gaps in research, arguing that the core elements of absorptive capacity, especially in the early phase of absorbing external knowledge, have just rarely been researched. In addition, a literature search for an analysis of the relevant two core components did not show significant research since the publication of the stated theoretical contribution. Furthermore, the different existing concepts (Cohen & Levinthal, 1990;

Todorova & Durisin, 2007; Zahra & George, 2002) of absorptive capacity show that the research stream is at an early stage of its emergence. In absorptive capacity literature, there are extremely limited definitions and insights about what happens in the black-boxes of its core components. So for example, no clear definition of the core component “recognizing the value of external knowledge” has been stated (Todorova & Durisin, 2007). Research on the core component of “recognizing the value of external knowledge” addresses for example evaluation criteria, routines, proximity, triggers, information filters and prior knowledge. Research into the core component of acquiring external knowledge, on the other hand, addresses for example the direction, intensity, speed, prior knowledge, knowledge sources, triggers and routines.

1.4 Purpose to address the black-box of recognition and acquisition in start-ups

The objective of this thesis is to understand how start-up companies are learning from the insights of external knowledge sources. More specifically, this research uses the theoretical framework of absorptive capacity by Todorova and Durisin to investigate the early core components of the concept and how start-ups learn from external knowledge in these phases. This early phase of external knowledge sourcing acts as an essential foundation for start-ups in learning to deal with and make use of external knowledge. The phase consists of “recognizing the value of external knowledge” and “acquiring external knowledge”.

This research addresses the two previously indicated gaps in the literature. The company form of start-ups is investigated as a first gap. Second, the research focuses on the early core components of absorptive capacity. More precisely, this second gap focuses on the “recognition of the value of external knowledge” and the “acquisition of external knowledge”. That means that the black-box of both of these components of absorptive capacity should be analyzed in detail, allowing insights on a practical level how start-ups deal with and learn from external knowledge. In the following research, both of these core components together will be called early absorptive capacity.

This research is based on semi-structured interviews with 16 start-up entrepreneurs in the early stage of their company. The semi-structured interview guide allows deep insights into the black-boxes and has been executed in order to better understand how start-ups “recognize the value of external information” and how they “acquire external knowledge”. Business to business (B2B) start-ups were chosen as a focus due to perceived differences between the absorptive capacity and the usage of external knowledge in B2B and business to customer (B2C) start-ups (see also section 3.2). The following figure 1 shows the core components of the absorptive capacity concept: recognize the value of, acquire, assimilate, transform and exploit external knowledge. In addition, the concept states knowledge source and prior knowledge as important input factors following Todorova & Durisin (2007). Figure 1 visually illustrates the focus of this research in grey.

Figure 1: Core components of the used absorptive capacity concept and the research focus of this thesis highlighted in grey

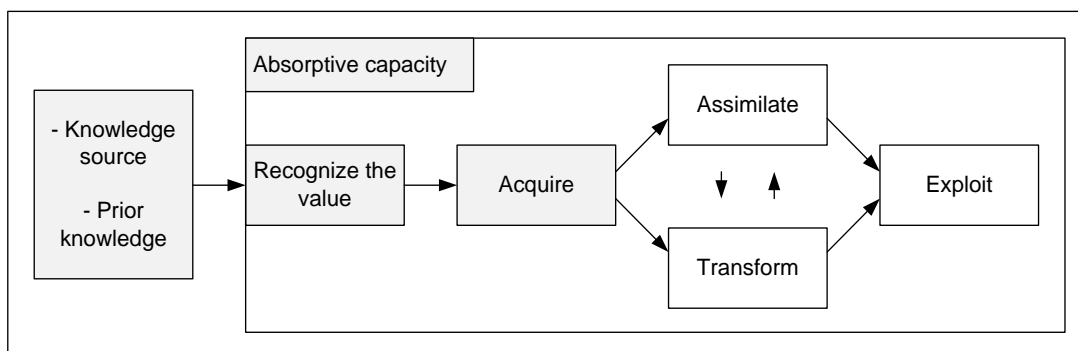


Figure adapted from Todorova & Durisin (2007).

The central research questions for this thesis contain these two dimensions and are:

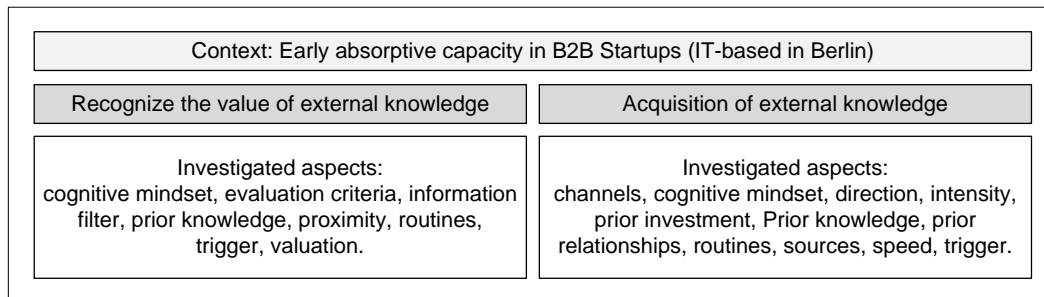
How do B2B start-ups recognize the value from external knowledge?

How do B2B start-ups acquire external knowledge?

These research questions allow a deeper understanding of the selected core components of absorptive capacity in a start-up. In addition, the following figure 2 shows the context and the investigated aspects in the two core components, based on the theory. These first topics have been used in the semi-structured interview guide in order to gain insights from the interviewees about

“recognizing the value of external knowledge” and “acquiring external knowledge”.

Figure 2: Qualitatively investigated early absorptive capacity aspects



1.5 Contribution of this study

In terms of practical relevance for entrepreneurs, understanding the early phase of developing absorptive capacity in a start-up can contribute to solving entrepreneurial challenges, especially the development of an initial product that is demanded by the market. Such a fitting product is a crucial success factor for a start-up and for start-up survival under conditions of extreme uncertainty (Blank & Dorf, 2012). Moreover, insights from this research can contribute to an understanding of how start-ups learn from external knowledge and highlight which aspects (see figure 2) to pay attention to as a practitioner. For practitioners from established companies this research can also provide valuable insights for the collaboration between established companies (from prior research) and start-ups (from this research), underscoring differences in the way companies in varying stages use external knowledge. Recognizing the value of such knowledge and acquiring it from each other can strongly impact how both parties learn from each other's external knowledge. Finally, for investors, this research can provide a framework to evaluate how a start-up learns from external knowledge. A better capability to recognize value and acquire external knowledge can be correlated with start-up performance. Accordingly, an evaluation of this capability could be used as investment criteria.

The theoretical contribution of this thesis is a deeper understanding of the development of the early core aspects of absorptive capacity in the context of start-ups. Opening this black-box about the core components of recognizing the

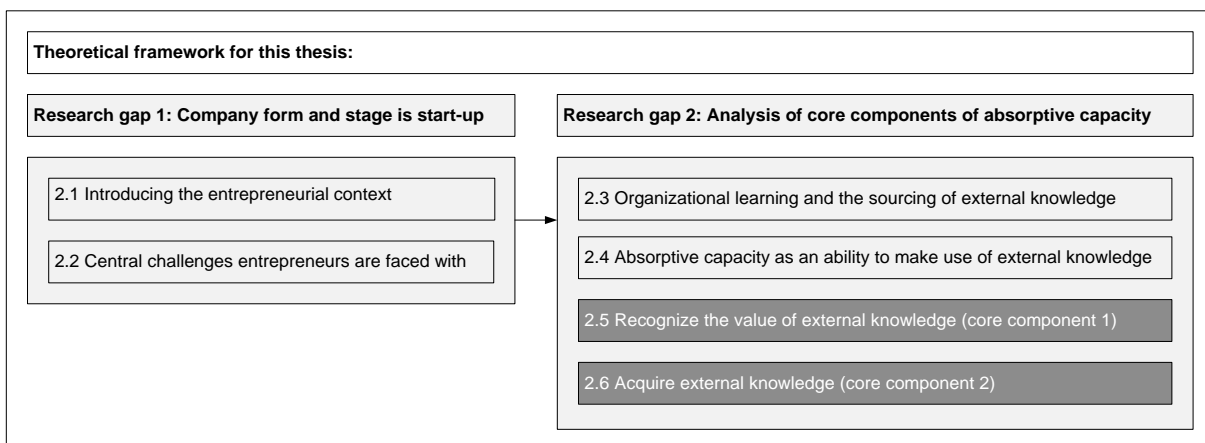
value and acquiring external knowledge in order to learn and build an absorptive capacity, is a core outcome of this thesis. Moreover, the research can be a foundation for future research on absorptive capacity in start-ups, as well as for the comparison of absorptive capacities in companies of different stages.

2. Theory

2.1 Introducing the entrepreneurial context

Relevant prior literature builds strongly on scientific publications on the topics of entrepreneurship and absorptive capacity. More specific literature on both the entrepreneurial context and entrepreneurial challenges in start-ups build a foundation to address the first research gap. The second research gap is addressed by prior research on organisational learning, the sourcing of external knowledge and on absorptive capacity with its two relevant core components: recognizing the value of external knowledge and acquiring external knowledge. These topics are growing fields and further research is required. The following figure 3 provides an overview of the theoretical framework of this thesis as already explained and highlights the two analyzed core components.

Figure 3: Visualizing the theoretical framework and the investigated core components



In order to find relevant sources, literature databases (Ebsco, Osiris, Google Scholar and ISI Web of Knowledge) have been screened for publications. With regard to non-academic publishing behaviour, literature by Prof. Lichtenthaler has been excluded from this research (Augustin, 2013). In addition, the sources of identified literature have been investigated further. While the analysis has been focused on sources related to absorptive capacity, additional sources for the specific company form of start-ups have been used, and the author investigated the references of sources. Overall, the following keywords and combinations of keywords have been used for this research:

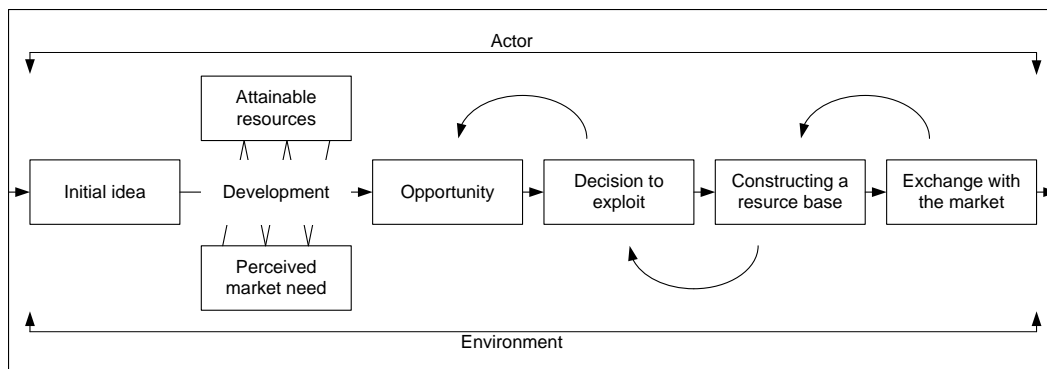
“Absorptive Capacity, Acquire External Knowledge, Entrepreneurial Challenges, Entrepreneurial Networks, Entrepreneurial Liabilities, External Knowledge, Lean Startup, Knowledge Networks, Open Innovation, Organizational Learning, Recognizing The Value of External Knowledge, Prior Knowledge”.

First of all, creating an understanding for the entrepreneurial context is a necessary precondition for this research. Therefore, a clear definition of entrepreneurship itself is required. Research on a definition of entrepreneurship shows eight important patterns to consider, namely: innovation, organisation creation, creating value, (non-)profit, growth, uniqueness and the entrepreneur as owner and manager (Gartner, 1990). Looking at these aspects and on ideas from Stevenson & Jarillo's (1990) well cited paper, the following definition is suitable for this thesis: *“entrepreneurship is the process of doing something new and something different for the purpose of creating wealth for the individual and adding value to society”* (Kao & Knight, 1993, p.69). Building on this foundation, the entrepreneurial activity in the early phase, also called entrepreneurial opportunity development, can be described as a *“continuous, proactive process essential to the formation of a business”* (Ardichvili, Cardozo, & Ray, 2003, p.109). Furthermore, effectuation, meaning a focus on existing and accessible resources (Sarasvathy, 2001) and improvisation (Baker, Miner, & Eesley, 2003), plays an important role in the decision making and the actions of entrepreneurs.

Furthermore, it is important to understand how entrepreneurs act and which processes they use in early stages of entrepreneurial activity. Shane & Venkataraman (2000) name three phases of the entrepreneurial process: the existence, the discovery and the decision to exploit entrepreneurial opportunities. These phases are followed by exploitation that can take the form of a company formation or through the sale of the opportunity to existing firms (Shane & Venkataraman, 2000). An advanced entrepreneurial process that tackles the holistic nature of entrepreneurial activities can be found in research by Veen & Wakkee (2004). It illustrates a process starting from an idea that is developed into an opportunity and followed by the commitment of one or multiple entrepreneurs to exploit the idea. Then, the required resources are acquired and an intensive exchange with other actors in the market is initiated

(Veen & Wakkee, 2004). In figure 4 this entrepreneurial process seems to be linear, while in reality it is rather iterative and dynamic (Veen & Wakkee, 2004), which is an important advancement of the model and is represented by the arrows in figure 4. The stated continuous and iterative exchange with external knowledge illustrates an area where external knowledge is heavily acquired and therefore this field is of central importance for this thesis.

Figure 4: Illustration of the iterative entrepreneurial process



Rebuild from Veen & Wakkee (2004).

In the early phase of developing an entrepreneurial company, the discovery or the creation of an opportunity is one of the first steps in the entrepreneurial process. The discovery of an opportunity assumes there is an existing opportunity in the market, independent of the entrepreneur and his actions. Kirzner (1997) and Shane (2000) identified influencing factors of opportunity discovery. They identify prior information as an important factor and alertness as a distinguishing factor of entrepreneurs. In addition there are two ways to discover opportunities: recognition of and search for opportunities, with the latter being predominant (Shane, 2000). Possible resulting competitive advantages of opportunity discovery are said to be speed, secrecy and barriers to entry (Alvarez & Barney, 2007).

In contrast, opportunity creation assumes that the opportunity is not formed by an exogenous shock, but is rather an outcome of the actions of an entrepreneur (Alvarez & Barney, 2007). This means entrepreneurs do not search for opportunities but act and observe the reactions of the market and thereby form opportunities. The formation of opportunities takes place in an iterative process

of action and reaction. Furthermore, entrepreneurial actions and decisions in opportunity discovery are described as uncertain, in contrast to risky decisions which occur in opportunity discovery (Alvarez & Barney, 2007; Shepherd, McMullen, & Jennings, 2007).

2.2 Central challenges facing entrepreneurs

The field of discovering entrepreneurial opportunities presents an example of where entrepreneurs face challenges that need to be addressed on top of the general challenges facing companies. These entrepreneurial challenges especially address the following four aspects: the reduction of extreme uncertainty, lacking resources, the initial creation of customer value, as well as gaining initial access to sources of market knowledge. Moreover, these challenges are deeply rooted in two characteristics of start-ups, namely newness and smallness (Aldrich & Auster, 1986). These challenges are going to be presented in the next paragraphs with more detail in order to allow a deeper understanding of the motivation and situation of the entrepreneurs running a start-up.

The challenge of reducing uncertainty has an integral role in the stated definition (see section 1.2) of a start-up. Uncertainty is explained by Hastie (2001, p.657), arguing that uncertainty *“refers to the decision-maker’s judgments of the propensity for each of the conditioning events to occur”*. Start-ups are described as acting in a context of extreme uncertainty and this is a challenge for entrepreneurs, repeatedly recognized in entrepreneurship literature (Elfring & Hulsink, 2003; Starr & MacMillan, 1990). As new opportunities are exploited, decisions need to be taken about opportunities where the value is not yet known or is uncertain (Alvarez & Barney, 2007). While McMullen & Shepherd (2006) name uncertainty a cornerstone for entrepreneurial theories, Alvarez & Barney (2007, p.777) explain:

“Entrepreneurial firms are organized under conditions of uncertainty, and their primary purpose is to solve transaction difficulties associated with the inability to know the value of an exchange at the time that exchange is commenced”.

Besides the explicit condition of uncertainty, 'lacking resources', or the lack of a variety of resources, is also challenging for entrepreneurs. As seen in the entrepreneurial process (see section 2.1), another important aspect is the construction of a resource base. The dimensions of building a resource base are explained by Bessant & Tidd (2007, p.271): "*acquiring the resources and funding necessary for implementation – including expert support and potential partnerships*". Prior research frequently states that entrepreneurs access their personal network and business network (Groen, 2005). To overcome this challenge of lacking resources, entrepreneurs often use social transactions instead of purely economic transactions (Starr & MacMillan, 1990), utilizing strong network ties (Leung, Zhang, Wong, & Der Foo, 2006).

The next entrepreneurial challenge addresses the initial creation of customer value and a perceived market need. But what is customer value? Here Johnson, Christensen & Kagermann (2008, p.60-62) contribute strongly to the foundation of understanding customer problems and state that customers hire products to get a job done. The authors define the term job to be done as: "*to solve an important problem or fulfill an important need for the target customer*". The transformation of customer problems into corresponding product features is addressed by Osterwalder, Pigneur, Bernarda, & Smith (2015) in their Value Proposition Canvas. The canvas illustrates visually that a fit between both sides, the customer with its "customer jobs", "gains" and "pains", as well as the company, with its "product or service", "pain relievers" and "gain creators", is required.

A fundamental aspect to understand the creation of customer value is how customer value is being evaluated. It is important to understand that customer value is often a matter of individual perception and that is why the concept of perceived value should be noted (see Eggert & Ulaga, 2002; Lapierre, 2000; Lin, Sher, & Shih, 2005; Tam, 2004). The perceived customer value addresses the difference between the benefits and sacrifices that are perceived by customers depending on their needs (Lapierre, 2000). The concept of perceived value correlates strongly with customer satisfaction and significantly influences the repurchase intention and the word-of-mouth effect. And the perception of

high value negatively impacts the search for alternatives (Eggert & Ulaga, 2002). But for entrepreneurs there is still the question of where to get knowledge about the “customer jobs”, “gains” and “pains” (see last paragraph).

Initially accessing the market to learn from the market is another important challenge that entrepreneurs face, especially with regard to specific customer jobs. In order to learn about such jobs an intense exchange with the market is required (Blank & Dorf, 2012), and prior industry experience and knowledge of the team are often beneficial. As new ventures are typically based on hypotheses about the market needs and product features (Starr & MacMillan, 1990), these hypotheses require validation from the market in order to achieve “product-market-fit”. Marc Andreessen (2007, p.2) an experienced entrepreneur and currently a manager of a venture capital firm that is amongst the biggest in the world, defined product-market-fit as *“being in a good market with a product that can satisfy that market”*.

2.3 Organisational learning and the sourcing of external knowledge

Companies are starting to open their traditionally closed innovation activities towards the theoretical concept of open innovation. The term was coined by Chesbrough (2003) and is based on Hippel’s work on lead users (see Hippel, 1986). In this model *“firms commercialize external (as well as internal) ideas by deploying outside (as well as in-house) pathways to the market”* (Chesbrough, 2003, p.36-37). Recent research states the risk of imitation that comes with opening innovation initiatives, illustrating why opening should be considered carefully (Veer, Lorenz, & Blind, 2013). Still, prior research emphasises the increasing importance of exploiting external knowledge in different forms of open innovation (Huff, Möslin, & Reichwald, 2013) and is said to have an essential influence on a company’s innovation activities (Cohen & Levinthal, 1990).

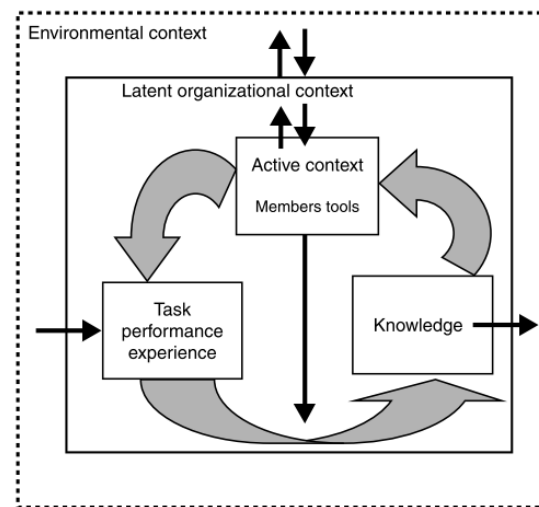
While companies are opening their innovation activities towards the external environment, the organisation can learn from and apply these generated insights. Organisational learning is a research stream addressing this point and refers to companies with their processes and outcomes: *“It can be described as the ways firms build, supplement and organize knowledge and routines around*

their activities and within their cultures, and adapt and develop organisational efficiency by improving the use of the broad skills of their workforces" (Dodgson, 1993, p.377). In other words, organisational learning addresses the knowledge base of a company and how it changes with experiences occurring within the organisational context of the company (Argote & Miron-Spektor, 2011).

Argote & Miron-Spektor (2011) are the creators of a framework for organisational learning. This framework starts with task performance experience as the input factor, which is transformed and influenced by the context. Knowledge is the outcome. Organisational experience occurs when the organisation executes its tasks and can occur in different forms, including organisational (direct and vicarious learning), content (experience success, novelty, difficulty, task heterogeneity and task or member relatedness), spatial (geographical closeness) or temporal (frequency, pace, time point, natural event, rarity) forms (Argote & Miron-Spektor, 2011).

Except the experience itself, the situational context of organisational learning is of a high relevance and can be distinguished into three levels: active, latent organisational and environmental context (Argote & Miron-Spektor, 2011). The context of organisational learning especially addresses the organisational members and used tools that include their social networks, a shared identity, power differences, a geographical separation, performance feedback, the culture, absorptive capacity and the individual's motivation (Argote & Miron-Spektor, 2011; Argote, 2013). The whole model (see figure 5) of organisational learning is iterative, in a way that the gained knowledge influences the organisation's context and future task performance experience (Argote & Miron-Spektor, 2011).

Figure 5: The organisational learning framework



Argote & Miron-Spektor (2011).

An ambidextrous organisation manages to exploit different forms of organisational learning. On the one hand, these organisations exploit the present opportunities and develop incremental innovation, but on the other hand, they also explore new opportunities (O'Reilly & Tushman, 2004). Furthermore, there is a difference whether the organisation learns explicit (also called codified) knowledge or tacit knowledge that is subjective, experimental, difficult to articulate (Nonaka, Toyama, & Nagata, 2000) and can be represented in routines or heuristics. Moreover, prior research suggests that in terms of the form of organisational learning, a cultural change from a performance-based to a learning-based culture may be required for successful organisational learning (Lorenz, 2014).

In addition, it's important to emphasise the differences in the level of organisational learning in terms of the individual, the team or the overall organisational learning. Individual learning through sharing, generating, evaluating and combining knowledge within the organisation plays a central role (Argote, 2013). In contrast to established companies, in start-ups, individual and group learning might explain a larger share of organisational learning due to the smallness of the companies. These insights indicate that it is hard to measure organisational learning with quantitative indicators and in practice, it is often measured through changes in behaviour at the organisational level (Argote, 2013).

In the context of learning from external knowledge, the concept of absorptive capacity is highly relevant and will be discussed in the next chapter of this thesis. It argues that a company requires a basic learning capability in order to be ready to learn from external knowledge in a specific domain (Cohen & Levinthal, 1990).

2.4 Absorptive capacity as an ability to make use of external knowledge

In today's world, which is largely driven by knowledge-intensive businesses, the importance of understanding the underlying concepts of learning from external knowledge grows in importance. Cohen & Levinthal (1990) developed the concept of absorptive capacity to address the capability to learn from external knowledge that is new to the firm. It is defined as the ability of a firm to *"recognize the value of new information, assimilate it, and apply it to commercial ends"* (Cohen & Levinthal, 1990, p.128). Absorptive capacity aims at innovation and performance outcomes. While absorptive capacity is a concept addressing the firm-level, it is deeply rooted in the individual member of the firm and his cognitions, motivation, actions and interactions (Volberda et al., 2010). The concept strongly builds on prior related knowledge (Cohen & Levinthal, 1990), which is formed by the organisational history and industry relevance in terms of complementarity and diversity (Cohen & Levinthal, 1990). Furthermore, Lane, Koka, & Pathak's (2006, p.856) present a definition, that allows an even deeper understanding of absorptive capacity:

"Absorptive capacity is a firm's ability to utilize externally held knowledge through three sequential processes: (1) recognizing and understanding potentially valuable new knowledge out-side the firm through exploratory learning, (2) assimilating valuable new knowledge through transformative learning, and (3) using the assimilated knowledge to create new knowledge and commercial outputs through exploitative learning".

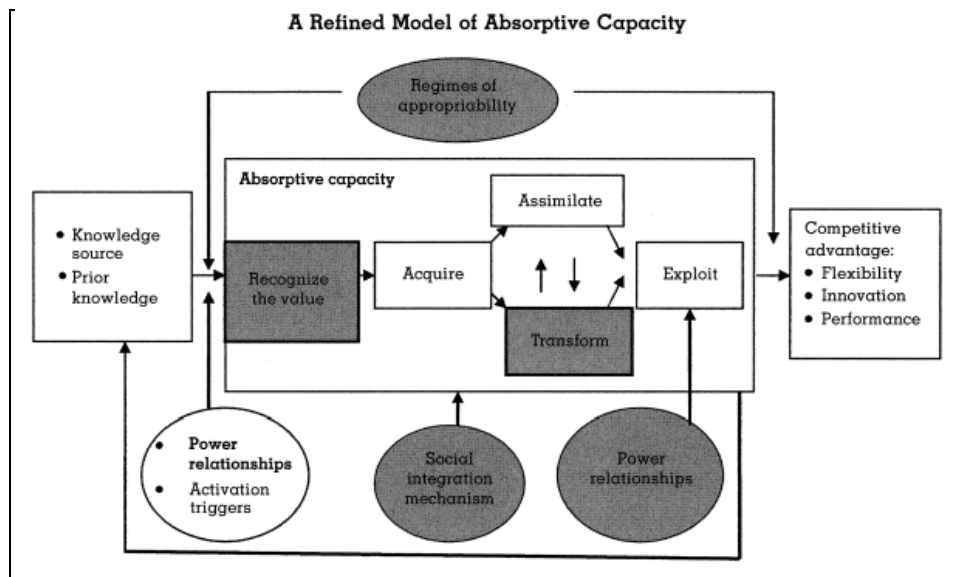
Prior research on absorptive capacity has been frequently focused on established companies. Their research and development (R&D) departments are said to be an important driver of the development of absorptive capacity and the absorption of external knowledge (Argote, 2013). This capacity can build on

tacit or implicit knowledge, which is “*personal, experiential, context-specific and hard to formalize and communicate*” (Bessant & Tidd, 2007, p.188). External knowledge can occur in different domains “*such as technology, product, processes, strategies, and markets*” (Kostopoulos, Papalexandris, Papachroni, & Ioannou, 2011, p.1336). According to a literature review, about 15% of the investigated literature argues absorptive capacity to be a firm’s resource in terms of the created knowledge base and prior knowledge, or to be both a resource and a capability. The remaining 85% argue absorptive capacity to be a capability (Lane et al., 2006). However, these studies that investigated absorptive capacity as a capability used “*compensation policies, dominant logic, knowledge sharing routines, motivation, and competencies*” (Lane et al., 2006, p.844) as measures for absorptive capacity and have not yet developed consistent measures.

Absorptive capacity is said to be a dynamic capability that aims at knowledge creation and usage, according to Zahra & George (2002). It’s directed to achieve and maintain a competitive advantage in terms of flexibility, innovation and performance, and is no longer restricted to the R&D department in an organisation. In the context of the “learning school” (Mintzberg & Lampel, 1999) a descriptive strategy that demands an experimental and adaptable mentality, Teece, Pisano, & Shuen (1997, p.516) define dynamic capabilities as “*the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments*”. Dynamic capabilities thus reflect an organisation’s ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions. Eisenhardt & Martin (2000) add that these processes are about acquiring new sets of resources and initiating market change as markets transform, which indicates that the company is adapting. The argument by Zahra & George is partly supported from a large body of literature that perceives absorptive capacity mainly as a capability rather than a resource (Lane et al., 2006).

Todorova & Durisin’s (2007) model builds on Cohen and Levinthal’s model of absorptive capacity and also extends Zahra and George’s model. It is illustrated in figure 6 (see Appendix A for a contrasting of absorptive capacity models).

Figure 6: Refined model of absorptive capacity



Todorova & Durisin (2007).

The refined model of Todorova and Durisin illustrates the core aspects of absorptive capacity. Firstly, these consist of knowledge sources, prior knowledge and the recognition of the value (Cohen & Levinthal, 1990; Todorova & Durisin, 2007). Recognizing the value addresses the cognitive ability of individuals and organisations to recognize and value external information new to the firm. This is followed by acquisition, which deals with the intensity, speed, direction and effort to acquire knowledge (Todorova & Durisin, 2007; Zahra & George, 2002). The next step covers the integration in the firm and splits into either assimilation or transformation of the knowledge. To distinguish both aspects, assimilation addresses knowledge that is consistent with the current cognitive structures and is compatible with the prior knowledge (Todorova & Durisin, 2007). That means the organisation is capable of implementing the new external knowledge in a way that is compatible with the existing values of the company. On the other hand, transformation addresses new external knowledge that is at the beginning incompatible with the organisation and its cognitive structures, therefore requiring efforts to transform the organisation (Todorova & Durisin, 2007). Finally, the exploitation of knowledge stated as “a firm’s ability to harvest and incorporate knowledge into its operations” (for the following Zahra & George, 2002, p.190). This exploitation results in the

continuous development of new products, processes, structures, knowledge or organisational structures.

Besides the core aspects, the contextual factors of absorptive capacity also require an introduction (see also figure 6). First, an important contextual aspect that influences absorptive capacity has been termed “regimes of appropriability” by Cohen & Levinthal (1990). It addresses the extent to which a firm can capture the outcome of its innovation activities and how much knowledge spills over to the public, including competitors. Furthermore, absorptive capacity is moderated by the contextual factor of activation triggers, which are events that motivate a firm to react to internal or external impulses (Zahra & George, 2002). Another contextual factor is represented by social integration mechanisms that strengthen the sharing and potential exploitation of knowledge (Zahra & George, 2002), creating connectedness and shared meanings (Todorova & Durisin, 2007). Todorova & Durisin (2007) further elaborated on the concept of absorptive capacity and established power relationships as a contextual factor that addresses the exertion of influence by powerful internal or external organisational actors in order to achieve the actors’ preferred outcome.

2.5 Recognize the value of external knowledge

Todorova & Durisin (2007, p.777) and Cohen & Levinthal (1990) emphasise the importance of the ability to recognize the value of new external knowledge, which is the first core component of absorptive capacity (see figure 7). Additionally, research on learning and innovation emphasises the “*crucial role of recognizing the value of new external knowledge for the survival of firms in dynamic environments*” (Todorova & Durisin, 2007, p.777). The importance of “recognizing the value” as a first component before the acquisition of external knowledge is further explained: “*Not being able to motivate these efforts by not ‘seeing’ or ‘understanding’ the potential of new external knowledge may be overlooked*” (Todorova & Durisin, 2007, p.777).

Figure 7: Illustration of recognize the value in the context of absorptive capacity

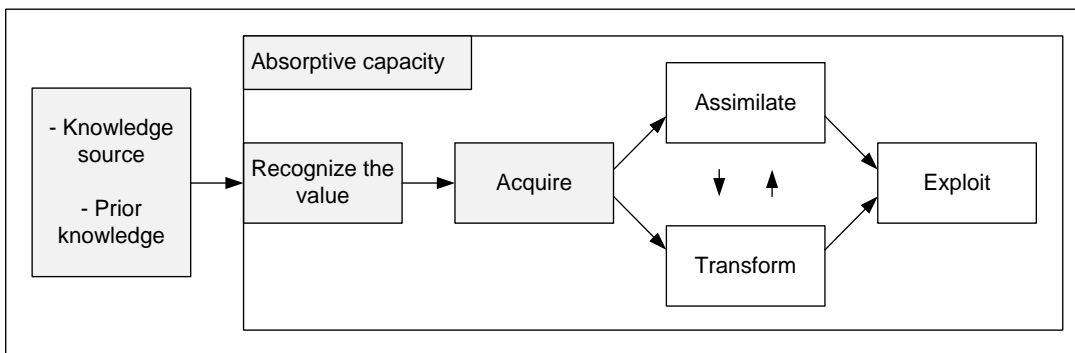


Figure adapted from Todorova & Durisin (2007).

While a clear definition of recognizing the value is still lacking, Cohen & Levinthal (1990) state that prior related knowledge, skills and evaluation criteria are important aspects to consider. Extending the insights on core factors and contextual factors of absorptive capacity from section 2.4, the recognition of external knowledge is based heavily on the prior knowledge of the organisation and the individual within the organisation, as well as the knowledge source that enables the absorption of knowledge (Cohen & Levinthal, 1990). Following the conceptualization of Todorova & Durisin (2007), recognizing the value is biased due to cognitive and structural embeddedness, and it needs to be fostered in order to enable the absorption of external knowledge to begin.

Prior research on recognizing opportunities from Baron (for the following 2006) can be valuable in order to improve the understanding of the mechanisms behind recognizing the value of external knowledge. Given that there is a lack of explicit research on recognizing the value of external knowledge in the context of absorptive capacity, the reference to research on recognizing opportunities proves valuable here. Baron states that prior research found three central factors that influence opportunity recognition: an active search for opportunities, alertness to new opportunities, and opportunity relevant prior knowledge. Pattern recognition through connecting the dots and recognizing links between apparently unrelated insights plays an important role in recognizing opportunities.

Prior research addresses proximity as a factor influencing the recognition of external knowledge's value. Proximities that increase the chance of cooperation

between two actors, and thereby a mutual access to external knowledge, are identified by Boschma (2005). These proximities are cognitive, organisational, social, institutional and geographic proximity. Furthermore, Boschma (2005, p.71) argues that *"too much and too little proximity are both detrimental to learning and innovation"*. In contrast Presutti, Boari & Majocchi (2011) argue in their research on start-ups that geographical proximity is not a positive condition to gain benefits from knowledge spill-overs, while cognitive and social proximity are beneficial for external knowledge acquisition.

Furthermore, with regard to filters and barriers to the recognition of external knowledge, prior research identifies different aspects that can negatively influence this recognition. Related to prior knowledge as an input factor, Todorova & Durisin (2007) add that absorptive capacity can be hindered by an organisation's embedded knowledge base, rigid capabilities and path-dependent managerial cognition. Henderson & Clark (1990) argue that factors like history and culture influence the outcome. They add that routines and channels become stable and thereby hard to change. The embeddedness of an organisation is also highlighted in research from Dacin, Ventresca, & Beal (1999).

For the structure and usage of knowledge sources, the outcome of research on network structures by Burt (2000) can prove valuable. This outcome can be especially valuable for the question of how to structure a network and whom to include in this network. The term structural holes goes back to Burt (2000), who argued for the structuring of networks with efficiency and effectiveness by having non-redundant contacts inside. At the same time, Burt addresses the concept of weak ties, citing the example of exchanging business cards with new contacts, and strong ties, citing R&D alliance partners. At this point, Lowik, van Rossum, Kraaijenbrink, & Groen (2012) suggest that small B2B firms can benefit more from building strong ties with innovative partners than from building weak ties. Furthermore, they identify bridging capabilities to be important for new knowledge acquisition from strong ties in the case of small B2B companies (Lowik et al., 2012). Systematic meetings with customers about their latest developments can be stated as an example here.

The types of external knowledge sources used in open innovation activities range from a focus on individual stakeholders, for example on customers (Piller & Ihl, 2009), to a more heterogeneous set of sources of external knowledge. Cohen & Levinthal (1990) add an example of building absorptive capacity from external knowledge through a supplier that does advanced technical training for its staff. An important aspect to distinguish is, whether this learning mechanism has more of an informal or formal character (Elfring & Hulsink, 2003). Finally, the differentiation between tacit and codified knowledge (see also section 2.3) needs to be stated.

Companies use routines and methods to foster the identification and recognition of the value of external knowledge. Lewin, Massini, & Peeters (2011) gathered different examples for these routines and methods: the concept of gatekeepers, probing, mining patent literature, industry trade magazines, market research, end user surveys and informal interactions with industry actors. These authors illustrate different mechanisms or routines used by companies to identify external knowledge.

Based on a dedicated literature research on recognizing the value of external knowledge, no research that focuses on the core component of recognizing the value in start-up practice could be identified. In addition, according to Volberda et al. (2010, p.937), who refer to the initial absorptive capacity model of Cohen and Levinthal, just *“few studies have broken AC down into its components and measured elements of recognition, assimilation, and utilization separately”*. There is particularly little research about the early core components of absorptive capacity according to a bibliometric map of the field (Volberda et al., 2010), and none such research is based on the absorptive capacity model of Todorova and Durisin.

First of all, the characteristics of start-ups (see section 3.2) are used to identify possible differentiating aspects in recognizing the value of external knowledge in start-ups. Research by Huggins et al. (2010) argues that smaller firms tend to have a disadvantage in terms of knowledge sourcing due to less activities in international knowledge sourcing and less use of intermediary organisations. Due to the smaller size and age of a start-up there is typically also little prior

knowledge, and most of it is derived from the background and experiences of the founding team. A disadvantage that small firms are facing is that they “*might not have the same means and opportunities to exploit external knowledge, simply because they cannot risk betting on the wrong horse*” (Schmidt, 2010, p.6).

With regard to the knowledge sources start-ups use to recognize external knowledge, prior research emphasises entrepreneurial networks. In theory, as well as in practice, the importance of entrepreneurial networks is highlighted as a success criterion for founders that has a positive impact on the identification and evaluation of external knowledge (Elfring & Hulsink, 2003; Lechner & Dowling, 2003).

For start-ups, the contextual factor of regimes of appropriability is strongly linked with the term “copycat”. This term requires an introduction as it can influence the reasoning of entrepreneurs. So-called copycat companies are replicating initially successful businesses, either in a different or the same market, with typically little innovation at the beginning (Shenkar & Green, 2010). This behaviour is one reason companies typically use appropriability regimes for reputation, external negotiations, licences, financial sector and internally as incentives for R&D personnel and as performance indicators (Blind, Edler, Frietsch, & Schmoch, 2006). As such, start-ups can’t fully benefit from their innovation efforts with emerging copycats in their domain, illustrating the negative impact of the knowledge spill-overs to copycats. But imitational learning and continuous innovation can be a domain, where entrepreneurs can learn from copycats in emerging economies (Luo, Sun, & Wang, 2011).

While these points from the literature address contextual factors, overall prior research does not directly shed light on the black-box of the core component, recognizing the value of external knowledge in start-ups. This is why research into this black-box and its dimensions is required. More specifically, light should be shed on dimensions like triggers to recognize the value of external knowledge (see Baron’s concept of opportunity recognition), directing efforts (see Burt’s network structure, different sources and existing filters), routines for recognition (see Lewin, Massini & Peeters’ examples for routines), factors that

might influence the cognitive mindset (see appropriability regimes), as well as the evaluation of recognizing the value of external knowledge (see theory of Cohen and Levinthal and prior knowledge). A visual overview is provided at the end of section 2.6.

2.6 Acquire external knowledge

Besides recognizing the value of external knowledge the second core component of this research addresses how external knowledge is acquired. Zahra & George (2002, p.189) state that acquisition “*refers to a firm's capability to identify and acquire externally generated knowledge that is critical to its operations*”. Huber (1991, p.90) adds that knowledge acquisition is “*the process by which knowledge is obtained*”. Furthermore, Zahra & George (2002) argue that effort in knowledge acquisition routines has different influential aspects: intensity, speed, direction, prior knowledge and prior investment. While speed and intensity are said to be a driver of quality, direction can influence the path in which the organisation goes, and accordingly, where it is acquiring external knowledge (Zahra & George, 2002).

Acquiring knowledge can take place in different forms. According to prior research, five typical forms are: congenital, experimental, vicarious learning, grafting and searching (Huber, 1991). While congenital learning is present at inception through individuals and their prior knowledge, experimental learning refers to experience of the organisation and vicarious learning to benchmarking from other organisations (Huber, 1991). Moreover, searching occurs as scanning, focused search or performance monitoring. Grafting is a form of acquiring an organisation or developing a joint venture (Huber, 1991).

In terms of acquiring external knowledge, different sources can be distinguished. For example, Schmidt (2010) distinguishes three clusters of sources: inter-industry, intra-industry and scientific knowledge. Knowledge from knowledge sources is either of tacit or explicit nature. Frequent knowledge types include new technologies, scientific information, research and development, professional information and intelligence, skills or expertise and market or competitor intelligence (Huggins et al., 2010). Furthermore, Schmidt

(2010) emphasises that research into the different types of knowledge to be acquired is a particularly important aspect.

In the start-up context, the Lean Startup literature and mindset can influence the acquisition of external knowledge. For example, customer interviews are frequently stated as a source with which to acquire external knowledge. In the context of Lean Startup and customer development, Blank & Dorf (2012) promote the idea of “get[ting] out of the building” in order to push entrepreneurs to get feedback, learn from the market and understand real customer problems. In start-ups, knowledge acquisition often represents iterative learning in combination with the use of prototypes to communicate to-be-built features and products (Ries, 2011). A side benefit is that such external knowledge sourcing contributes to an entrepreneurial network. Lead users can be attracted and be used for the co-development of the start-up’s product with customer interviews as a means of acquiring external knowledge (Ries, 2011). In contrast to the idea of “getting out of the building”, the so-called “stealth mode paradigm” should be also stated. It aims *“to avoid alerting potential competitors to a market opportunity”* (Blank, 2013, p.6).

Moreover, the method of external knowledge acquisition is a crucial factor. In this context Kang & Kang (2009) state that technology innovation performance depends on the sourcing method used for external knowledge and distinguish: informal networks, R&D collaboration and technology acquisition. Furthermore, Grimpe & Kaiser (2010) argue for the consideration of internal, external, collaborative R&D, firm acquisitions and the in-licencing of technology as knowledge acquisition methods. In terms of accessing sources, Grimpe & Kaiser (2010) add that offshore locations give access to more diverse knowledge, which in turn can improve the resources of a company.

Having external knowledge networks is critically important for companies in terms of innovation and the acquisition of external knowledge according to Huggins et al. (2010). Formal strategic alliances are often used between companies and result in regular, continuous exchange in order to develop a competitive advantage from the partner's resources. Companies have been found to use different forms of collaboration to gain external knowledge from

stakeholders. In light of open innovation, Lewin et al. (2011) state the following forms: the use of lead users, accessing suppliers, developing R&D alliances, co-development relationships, applying open source approaches, unfiltered input from customers, networking with research partners and initiatives in standard setting. In addition, the acquisition of a company (see also vicarious learning by Huber in section 2.6) can be another form of external knowledge sourcing besides the collaboration with external knowledge sources (Carayannopoulos & Auster, 2010).

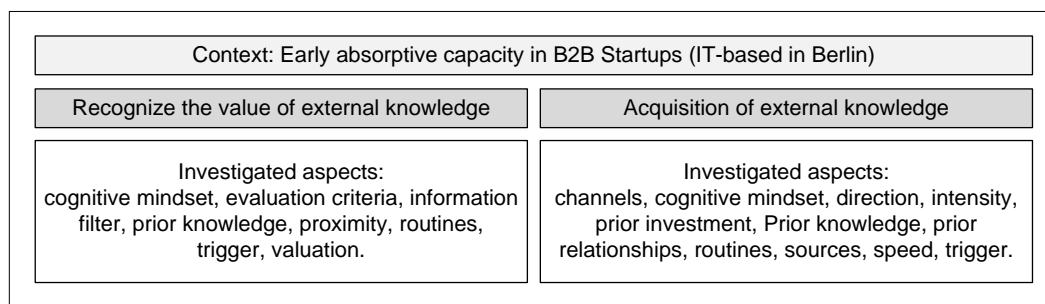
In terms of the acquisition of resources that start-ups do not possess internally, start-up firms are required to develop social networks in order to stay competitive (Huggins et al., 2010). These path dependent social networks, which start-ups are typically exploiting when they emerge, develop with the growth of a start-up, as it moves towards calculative networks that consider costs and benefits of maintaining a network (Hite & Hesterly, 2001). Over time these networks also develop modes of exploiting structural holes and are exploited more intentionally instead of through path-dependencies (Hite & Hesterly, 2001). Furthermore, Yli-Renko, Autio, & Sapienza (2001, p.607) add that *“social interaction and network ties are positively related to knowledge acquisition, but that relationship quality is negatively related to knowledge acquisition”*.

Finally, there are different influencing factors for the capability to acquire external knowledge for start-ups. The prior knowledge (Zahra & George, 2002) of the founders and the start-up team is of a crucial role. Mechanisms that facilitate the acquisition of external knowledge in the case of start-ups are said to be mobility, geographic co-location and alliances. The first two factors are attenuating with an increasing organisational size (Almeida, Dokko, & Rosenkopf, 2003).

Building upon this prior research, many questions remain unsolved, especially how start-ups decide about the effort (see Zahra & George on direction, speed and intensity) of external knowledge acquisition, the accessed sources (see Schmidt on clusters of sources and source types) and the forms of knowledge sourcing (see Huber on five forms). Furthermore, there is the question of how

prior knowledge (see Zahra & George) and prior relationships (see e.g. Huggins), the cognitive mindset (see e.g. Blank & Dorf about the mindset shared in Lean Startup), as well as triggers and routines, influence the acquisition of external knowledge. In order to analyze the black box of the two core elements of recognizing the value of external knowledge and acquiring the external knowledge, the following factors in figure 8 have been used to gain insights from the interviewees using the interview guide (see Appendix C, D):

Figure 8: Qualitatively investigated early absorptive capacity aspects



3. Method

3.1 Research design

This study has a qualitative character, answering mainly how-research questions using a semi-structured interview guide. This setting allows interviewees to describe the subject and their opinions using their own words. Interviewees talk about situations or events that allow a deep understanding of the context. At the same time, this design does not restrict interviewees with a theoretical frame and allows unprejudiced insights into the black-box of the analysis of the early phases of absorptive capacity. The insights address - a component of start-ups insufficiently researched - early aspects of absorptive capacity: recognizing the value of external knowledge and acquiring external knowledge.

The study is exploratory (Boeije, 2010), and no hypotheses are developed as the research aims to be exploratory and to draw from qualitative research that uses semi-structured interviews to disclose a theory from interviewees' insights. This semi-structured approach allows the interviewees to respond with ideas that come to their mind more freely and doesn't force them to follow a fully structured survey, with the benefit of deeper insights.

The interviewed founders representing their start-ups are the analyzed unit. Choosing this analyzed unit is important as the recognition of the value and the acquisition of external knowledge is typically done by individuals. More concretely, in an early stage start-up this recognition is done typically by founders. In later phases of absorptive capacity (assimilation, transformation etc.) knowledge is shared within the organisation.

In order to get a holistic understanding of absorptive capacity in the 15 start-ups, interviews with sixteen members of the start-ups (one start-up agreed to participate with two interviewee) have been executed. The research can be considered as a one-point-in time research, but it aims at gaining insights from the interviewees that address the life-time of the start-up and their prior knowledge. For the identification of participants, a random sampling based on

relevant start-ups has been used in order to derive relevant information from interviewees, but at the same time use a repeatable and reproducible method.

3.2 Interviewee selection

In order to gain deep and relevant insights, the following selection criteria have been applied, and subsequently, relevant start-ups have been identified. Selection criteria that apply to the choice of start-ups refer to the organisation as well as to the participating interviewees as follows. Different aspects to distinguish start-ups from other companies have been collected by Brettel, Faaß, Heinemann (2007): the liability of newness, of smallness, of growth, of dependence on founders and of innovativeness. Therefore, all the interviewed start-ups had to be newly founded businesses (max 5 years) with a team size of less than 50 people aiming at growth (scalable offers, no consulting and no agencies) and with an innovative product. The start-up had to be run by at least one of its founders at the point in time of start-up selection (June-July 2014). Besides the age of the enterprises, they were also required to be an independent organisation that makes most decisions on its own. As such, spin-offs are excluded from this study. This criteria also fits the condition of extreme uncertainty from the initial stated definition of a start-up (Blank & Dorf, 2012; Dushnitsky & Lenox, 2005).

In order to make sure a certain homogeneity and focus the study to its purpose (Mayer, 2013), the research is focused on specific start-ups with a B2B business model in the ICT sector in Berlin. The focus on B2B business models is because the author realized large differences in his practical experience at start-ups between B2B and B2C business models and pre-tests of the interview guide confirmed these differences. For example, access to valuable external knowledge has been perceived by the author as more difficult in B2B businesses as compared to B2C businesses, since fewer people have relevant domain knowledge. Additionally, the area is focused on start-ups with an office in the area of Berlin, Germany, and even more on start-ups from the industry cluster of information and communication technology (ICT). The intention of the focus is to investigate this specific domain in more detail, while at the same time Berlin is a cluster for ICT (Berlin Partner, 2014). As a cluster it offers a

significant amount of start-ups that could participate in in person-interviews (14 out of 16 relevant interviews). E-Commerce start-ups that could be seen as ICT start-ups were only included if their value creation incorporated an innovative product or service and addressed business customers (see section 3.2 on distinguishing factors of start-ups).

In order to systematically identify the start-ups, the most complete lists of Berlin-based start-ups the author could find (Thomas, 2014) were analyzed for start-ups meeting the aforementioned criteria. Applying the criteria of this section to the list resulted in 89 relevant start-ups out of 855 start-ups in the list.

Furthermore, the preconditions for the interviewees have been that they had to have spent a minimum of one year with the for-profit business. The choice of interviewee within the company has been directed towards founders, with a focus on market aspects and customer needs on the one side, and a focus on technology issues on the other side (Abernathy & Clark, 1985). Both roles are typical early roles in a start-up, especially in the ICT sector (see section 3.5 on interviewee characteristics).

For the invitation to participate in this study, a random sample of 50% of the 89 relevant start-ups was invited to participate (July-August 2014). The contact was made through the author's personal network, introductions and cold contact to one of the founders. In some cases, a second founder was contacted. In order to run enough interviews, the remaining 50% of the 89 start-ups were also later contacted for participation (August-September 2014). This second phase occurred after a response rate from the first half fell below expectations (see appendix B for sample). It is necessary to point out, that while contacting and getting feedback from the entrepreneurs out of the 89 contacted start-ups, two start-ups have been active on the market using two brands, five start-ups have closed their operations, one has been identified as not scalable, one as B2C and one has been acquired, ultimately resulting in 80 start-ups that could be interviewed (see appendix B on contacted start-ups). Of the 16 relevant interviewees from 15 start-ups that participated between the end of July and mid of September 2014, about 1/3 were contacted cold (6 interviewees), via the author's personal network (5) and via personal introductions (5). An overview of

the characteristics of the interviewees and their start-ups can be found in section 3.5.

3.3 Data collection

In order to collect the data from the interviewees a semi-structured interview guideline (Bogner, Littig, & Menz, 2009; Gläser, 2009; Mayer, 2013) was developed. The guideline was pretested (Atteslander, 2003) first with two theoretical experts in June, and then, with two entrepreneurs that did not fit to the criteria in July. Insights from these four tests have been used iteratively to clarify the interview guide, change different questions, adapt the order, reduce questions and raise awareness of challenges in using the absorptive capacity concept for start-ups. This tested semi-structured interview guideline enabled the interviewees to answer freely, but directed them towards the topics of this research in order to collect relevant and exhaustive insights. The developed guideline (see appendix C and D in German) starts with insights into knowledge sourcing in general. These questions were followed by more targeted questions addressing the recognition and acquisition of external knowledge in their start-up organisation. The guidelines ends with questions for reflection and conclusion (see appendix C).

The interviewer practiced running the interview with the four pre-tests and used neutral questions to dig deeper, for example “how do you mean that” or a repetition of the question. Depending on the level of detail of the interviewee’s response, in a second step also the explaining aspects in brackets were articulated to the interviewee. Interestingly, multiple interviewees stated afterwards that the questions of the interview directed them to reflect on and rethink their current way of dealing with external knowledge in their start-up.

In terms of the implementation of data collection, 16 out of the initial 89 relevant and contacted start-ups participated in a semi-structured interview between the end of July 2014 and mid of September 2014, with an expected duration of 45 minutes. In fact, the interviews took between 38 minutes (minimum) and 85 minutes (maximum), with an average of 59 minutes. The interviewees could answer in the language with which they felt more comfortable, either German or English, and they were promised anonymity. There were also offered an

individual analysis of their activities after the finalization of this thesis. Details about the interview situation can be found in section 3.5 about the participants in the interviews. While doing the first interviews, the interviewer gained the sensitivity to dig deeper at new and unclear statements of the interviewees.

Additional sources for data collection are used in order to strengthen consistency by triangulation (Boeije, 2010). Documentation includes notes from the founders, company documents, the website, product descriptions and in rare cases, strategy documents that were provided. Additionally, the author gained practical insights into the domain as a working student in business development at a B2B start-up in ICT from Berlin (company D) for six months, before the development of the research design.

3.4 Data analysis

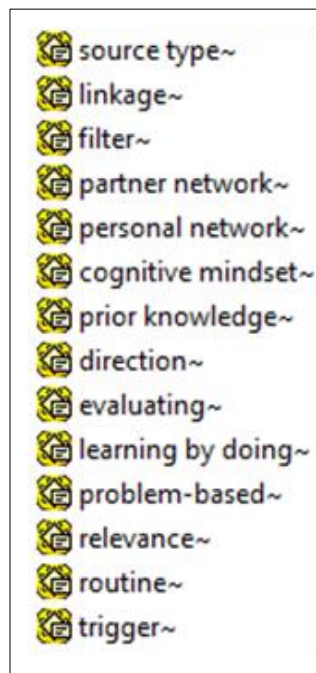
In preparation for the data analysis, the taped interviews with an average duration of 59 minutes were transcribed in their original language and coded in English, using Atlas.ti a professional software for qualitative analysis (Atteslander, 2003). For the findings of this thesis, relevant English and German citations were used. Relevant German citations were translated into English and marked as translated. During transcription, the interviews were also anonymized, and pseudonyms were used for the interviewees. This step was beneficial in reducing researcher bias during the further analysis.

For the data analysis, the 16 interview transcripts were searched and compared for patterns and relationships. Based on this analysis and theoretical sensitivity, a coding structure in the context of this research question was developed by the author (Boeije, 2010; Strauss, 1987; Glaser & Strauss, 1967). The analysis is based on grounded theory and is code-based, which means it is oriented towards the occurring themes and categories.

Finding descriptive codes for the research-relevant interview data and comparing them in detail was the major challenge in open coding and devising a coding scheme. After coding twelve interviews (including three interviews with chief technical officers) a point of saturation occurred and no new themes were found.

Axial coding addressed the merging, recombination, splitting of codes to identify their shared meaning and similarities, and the formation of categories (called families in Atlas.ti), which resulted in a two-level coding structure. These categories can be found in figure 8 and represent salient and central themes in the findings. Memos have been used to note relationships, new thoughts and conflicts in the data.

Figure 9: Final coding categories that represent recurring patterns (Atlas.ti)



In selective coding the identified categories, the theoretical sensitivity and identified relationships were used as a foundation to develop a conceptual model that forms the agenda of the findings (see section 4.1 figure 10). This model provides a structure that addresses the research question and gives an idea of the relationships between the identified categories from the data.

3.5 Start-up, interviewee and interview characteristics

Besides the stated interviewee selection criteria and the start-up selection criteria, this section gives an overview of further characteristics of the interviewed start-ups.

All the participating start-ups have been affiliated with the information and communication industry, besides that some have been affiliated to one of the following industries as a second industry: Data analytics, E-Business,

Education, Entertainment, Fashion, Finance, Health, Journalism, Market research, Psychology, Retail, Tourism. Additionally, eight start-ups addressed purely B2B markets, while eight start-ups acted in a B2B and B2C market. All the start-ups in this sample had their headquarters in Berlin, while two start-ups had a further location in San Francisco, one in Paderborn and one used sales partners in Austria and Switzerland. Furthermore, one start-up, start-up D, was motivated to participate with even two interviewees.

The participating interviewees represented members of the start-up that have been described and perceived as co-founders. There were 11 interviewees with the role of a chief executive officer (CEO), two chief marketing officers (CMO) and three chief technical officers (CTO). For nine of the interviewed entrepreneurs it was their first venture, while seven entrepreneurs had been active in an entrepreneurial way before. It is necessary to point out that all the interviewees were male. The potential interview partners were not solely directed to male interviewees, but it is a recurring pattern in the start-up scene, and in the Berlin start-up scene specifically, that the share of female founders is significantly smaller than the amount of male founders.

For the interview context, the interviews were conducted in person at the office or in a café close to the start-ups. In two of sixteen cases a telephone interview was conducted. Before the interview, the interviewer prepared background information on the start-up and the curriculum vitae of the interviewee using the start-up website, social networks, public information and the initial contact with the interviewee via e-mail or telephone. During the meeting, the interviewee was introduced to the topic using the interview guide (first page of appendix C), while the subsequent interview was recorded. At the end, the interviewee had the opportunity to ask the interviewer questions and contact details were exchanged for further questions. Besides short breaks, the interviews were conducted without further interruptions and there was a stress-free atmosphere.

The following table 1 gives an overview of the most important characteristics of the participating interviewees and their start-ups. During the interview with interviewee 16, the interviewer realized that he did not exactly fit the interviewee criteria, as interviewee 16 was not an entrepreneurial co-founder. In order to

stick to the criteria of interviewee choice the conducted interview was not used for the analysis. For the purpose of transparency and verifiability the interview is stated here, but has been excluded in the analysis. Start-up D was convinced to participate with the CEO (#4) as well as the CTO (#8), which enabled the interviewer to get a feeling for some initial differences between the roles of the interviewee (see also conclusion).

Table 1: Overview of interviewees and their context

#	Company	Second industry	Role	Target market	Further locations
Figure has been removed due to confidentiality.					

4. Findings

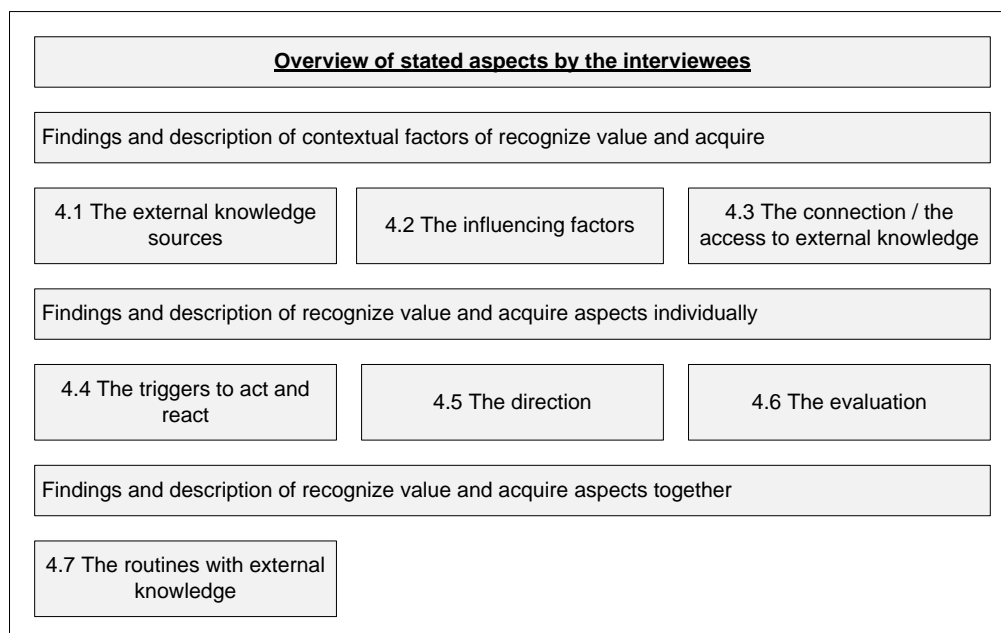
4.1 The external knowledge sources

Subsequent to the theoretical foundation on absorptive capacity of start-ups, the following section addresses the findings from entrepreneurs about how they learn from external knowledge. More explicitly, the findings are about how entrepreneurs in a B2B and ICT market in Berlin recognize the value of external knowledge, acquire external knowledge and which aspects have been emphasised in the qualitative interviews. The findings are based on the semi-structured interview guide (see Appendix C).

The following central buildings blocks give an overview of the patterns emphasised by the interviewees in the context of the core components of recognizing the value of and acquiring from external knowledge. In contrast to figure 8 from theory, which was used as a foundation for the interview guide, not all aspects were stated repeatedly by the interviewees and some had overlapping or sub-components.

The findings show the external knowledge source, the influencing factors and the connection to the organisation as factors that address both dimensions: the recognition and the acquisition of external knowledge. Besides, the data shows central themes for the recognition of the value and acquisition of external knowledge: triggers, direction and evaluation. Interviewees talked extensively about these aspects and the researcher tried to analyse them individually for both investigated dimensions of absorptive capacity. Finally, the factor of routines has been in the focus of the interviewees' statements and has been analyzed for both dimensions together, as a differentiated investigation has not been possible due to overlap in the practice of entrepreneurs. A summary and overview of the findings for recognizing the value of and for acquiring external knowledge can be found in the following figure 10.

Figure 10: Illustration of interviewees' central themes for recognizing and acquiring external knowledge



First of all, the interviewees expressed their thoughts on a wide range of sources used, and secondly, talked about different types of sources used. The questionnaire asked interviewees for a set of sources and types on the one hand, and on the other hand, the entrepreneurs came up with even more sources.

The following sources have been stated repeatedly (in declining order, while * means not explicitly asked for): customers, personal network, events, market*, regulation, inter-industry, intra-industry, vicarious learning, suppliers, competitors, market research, scientific knowledge, employee grafting, advisors, internet, investors, databases, grafting, similar entrepreneurs*, previously used sources*, acquisition grafting and similar companies*. This list of sources illustrates the wide range of used sources of external knowledge. Some of these sources can be seen as categories that are linked or include other sources, and this can result in an overlap of the sources. This overlap is especially prevalent around market related sources, entrepreneurial experience and one's personal network.

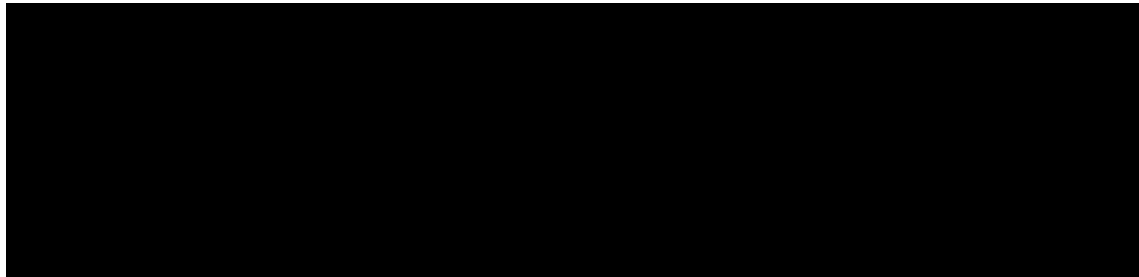
Even more the interviewees highlighted the importance of using different sources in order to combine them with their knowledge and make better decisions. Interviewees especially emphasised that using multiple contexts of sources is required for solving different problems. Interviewee 4 stated on this point:

Citations have been removed due to confidentiality.

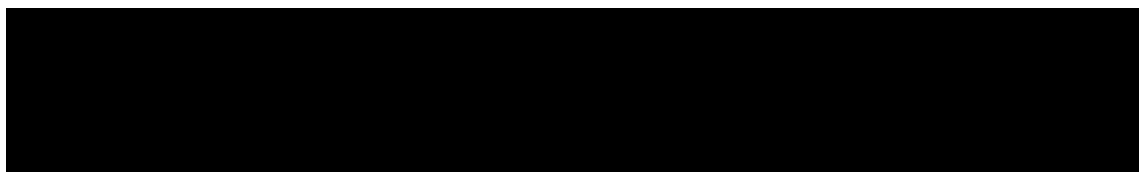


Interviewees identified potential and current customers as a highly relevant source. On the one hand, this source can provide direct feedback on a new product or feature, making sure the start-up develops in the right direction that

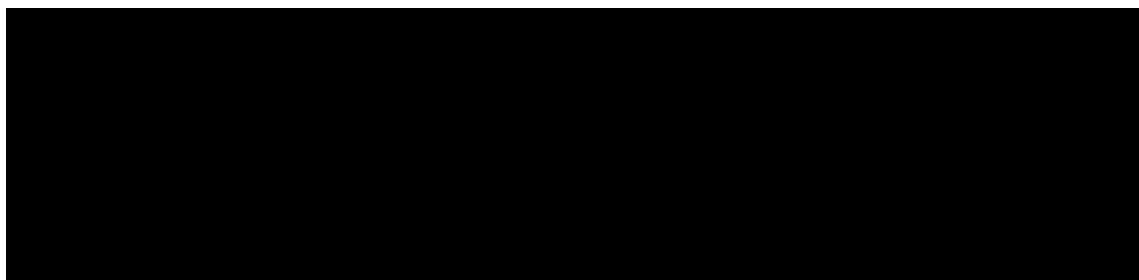
is demanded by customers. Some start-ups referred to the lean start-up principles while discussing this point. On the other hand, these customers bring valuable networks to even more customers. Economically speaking, these customers ensure the survival of the company. One start-up stated:




Several entrepreneurs even stated the market or the customer as the most important source that they use and require for economic success. These entrepreneurs emphasised the importance of combining the knowledge from the market with the product of the start-up. At the same time, technically oriented interviewees emphasised the external knowledge from the market in terms of using up-to-date technologies:

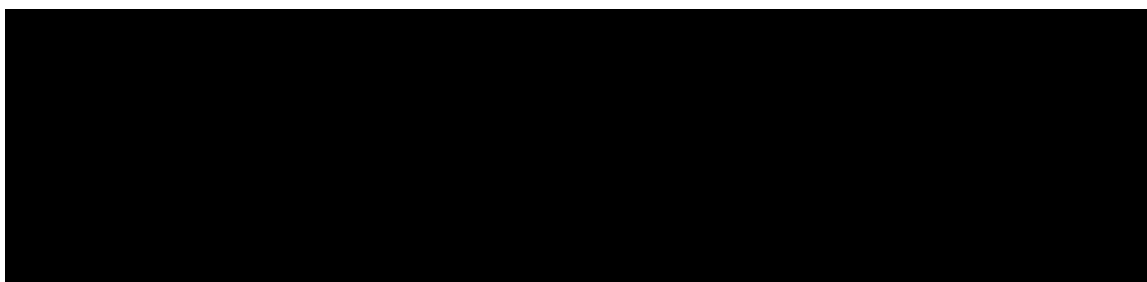


In addition, Berlin based B2B and ICT entrepreneurs revealed the personal network as an important source. Especially at the beginning of the business, the existing personal network has been of high importance. For example, one entrepreneur stated that he is using his personal network to validate external knowledge from potential suppliers. At the same time, building up a start-up in the early phase was described as developing a personal network with relevant external contacts. Interviewee 12 described the importance as follows:



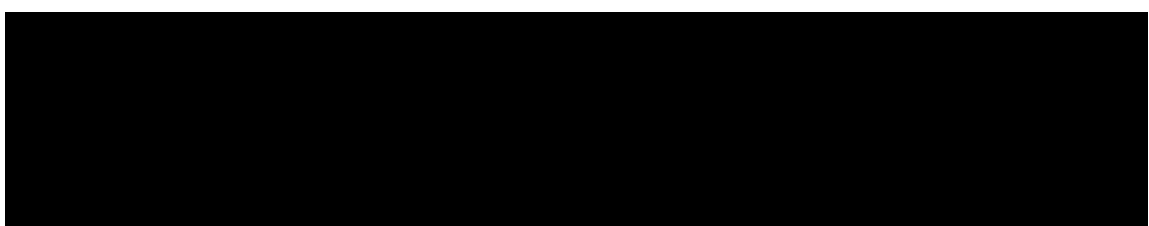


One discussed aspect is the question of the right amount of sources a start-up should have. In general, a higher number and heterogeneous sources are stated as better, as such sources allow one to deal with different external knowledge. Furthermore, finding the right external sources was stated as a central aspect in this discussion. Since maintaining contact with sources typically costs time and money for the start-up, finding the right external sources is even more important. Therefore, the benefit of the individual source needs to be evaluated for its relevance, quality and value. And, the start-up should focus on a limited number of sources. One interviewee even stated that there is a danger of overloading the start-up with external knowledge:

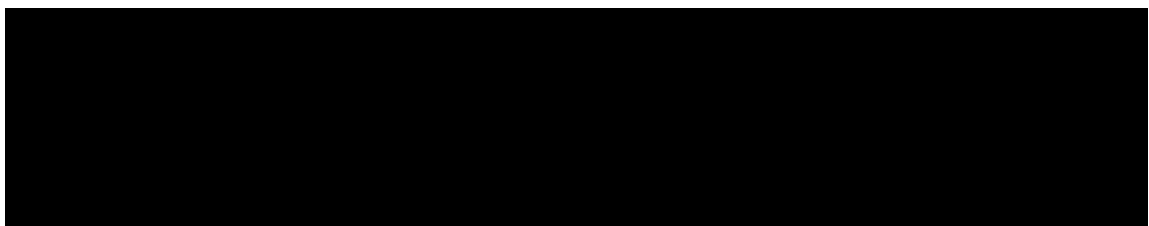


Despite the different sources, the entrepreneurs also talked about categories or types of sources that they access to learn from external knowledge. These three pairs of external knowledge types were addressed and sorted by importance: problem based and general knowledge, codified and tacit knowledge and thirdly, formal and informal knowledge exchange.

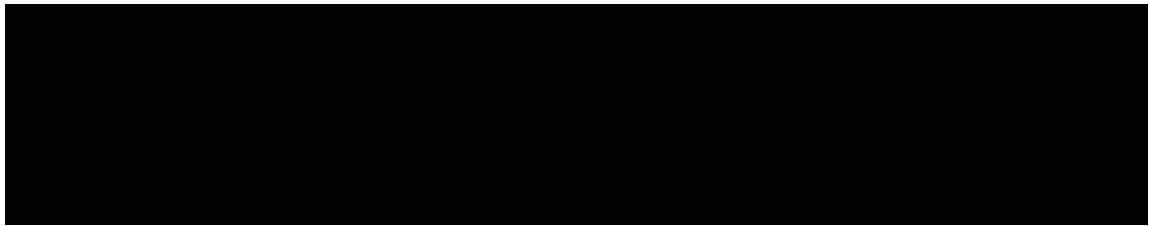
The most highlighted types of sources were problem-based knowledge and general knowledge. There is a clear emphasis in the data that problem-based knowledge is at the core of the interviewees mind when they think about learning from external knowledge. Problem-based knowledge is described as the knowledge required to solve current problems that the start-up faces. This explanation illustrates why its priority is high. General knowledge is said to be more strategy-related knowledge, it is in the back of one's mind and can build a foundation that will serve one in the future:



The analysis of codified and tacit forms of knowledge showed that entrepreneurs heavily distinguish between both of these types of knowledge sources. Codified knowledge was characterized as less relevant by the interviewees and is seen as a basic foundation, but is more easily verifiable. One entrepreneur even stated that codified external knowledge is not relevant as it can be accessed by anybody, meaning one cannot get an advantage over the competition. Tacit knowledge brings relevant insights which are sometimes hard to access and can be more relevant to a specific situation. For example Interviewee 7 stated:



Finally, the interviewees gave insights about their usage of and learning from the sources of formal and informal knowledge exchange. Informal knowledge is described as a core source drawn upon by the entrepreneurs. It is quickly and easily accessible, and often within the personal network. On the other hand, interviewees use formal sources of external knowledge, like associations or partners, for access to knowledge and long-term cooperation. Two entrepreneurs described a formalized meeting of entrepreneurs, where they exchange knowledge about their current problems, as particularly valuable. Here the formal form builds trust which is a condition for the functioning of the learning from other entrepreneurs:



4.2 The influencing factors

The analysis showed two relevant influencing factors that, as of now, have only been partly included in the concept of absorptive capacity, yet they are important for the way B2B start-ups learn. First of all, the entrepreneur's prior knowledge, formed through experience and education, was mentioned as an important factor that has already been included in the absorptive capacity concept. However, the entrepreneurs emphasised a personality trait of critical reflection and their cognitive mindset, especially with regards to openness to external knowledge. The following two paragraphs focus on these two factors.

The analysis of learning from external knowledge in the selected start-up group showed prior knowledge as an important factor that influences all the investigated parts of the organisational absorptive capacity. The interviewees differentiated clearly between prior education and prior experience, stating that this prior knowledge is also beneficial for the selection of the source of external knowledge. Interviewee 7 added:

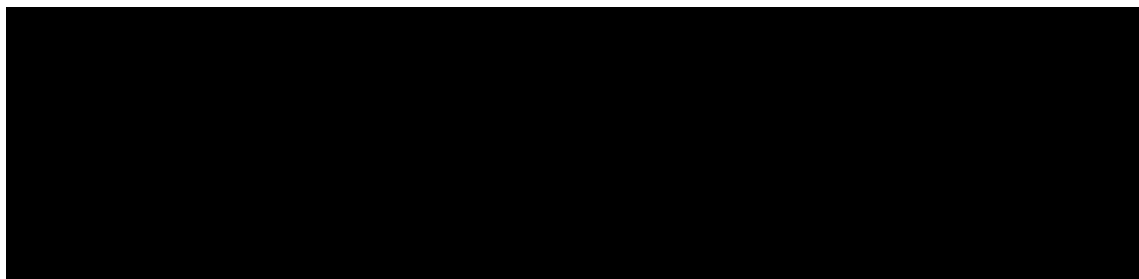
[REDACTED]

There were only a few people who talked about prior education when talking about their own prior knowledge. Moreover, prior education was not perceived as a main driver of their success. Still, two interviewees highlighted that their prior education helped them to reflect on external knowledge more and to critically question new insights from external sources. Interviewee 2 explains his thoughts on prior education as follows:

[REDACTED]

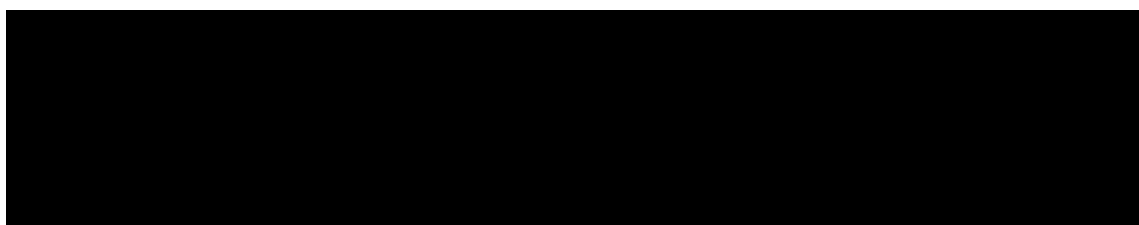
On the other hand, the interviewees expressed the strong influence of prior experience on their current business situation when talking about their prior knowledge. The entrepreneurs explained that this prior experience included internships, market development with their start-up or a previous experience as

employee often in the same industry. Prior experience was described as valuable, and the interviewees based their evaluation of external knowledge and their decisions on prior experience. Interviewee 17 highlights the impact of his prior experience on business:

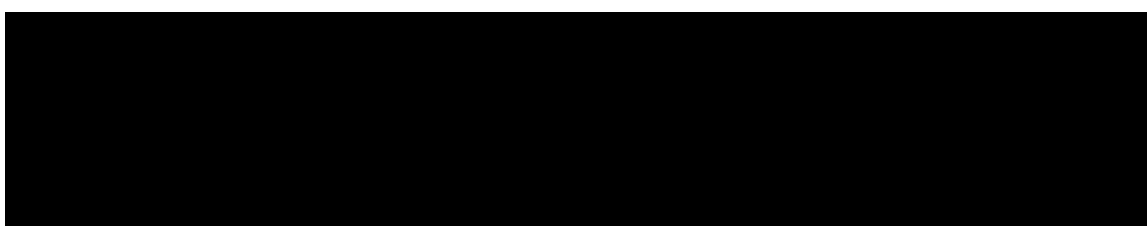


The analysis of the transcripts also uncovered that the entrepreneur's own cognitive mindset is an important pattern in the data. The entrepreneurs stated an open mindset as an important aspect in the context of learning from external knowledge. Moreover, they emphasised the importance of reflecting their own situation and their mindset towards external knowledge critically.

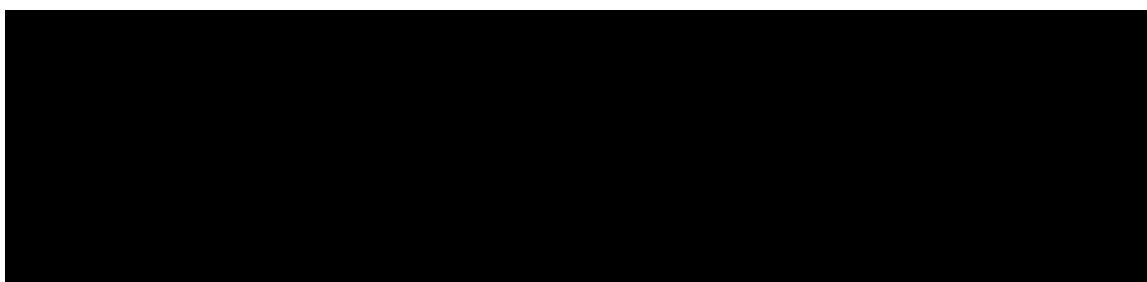
Interviewees claimed the importance of maintaining an open mindset towards – especially new – external knowledge, and stated that start-ups typically have a more open mindset compared to other companies. For example, one entrepreneur stated that from his experience it's a lot more valuable to collaborate with a start-up than with an established company due to the open mindset on both sides. Aspects like path dependency, prior experience and high expectations towards qualified sources were stated as drivers to lower the openness of entrepreneurs. The less open a mindset is, the harder it is to get external knowledge. An entrepreneur described the mindset in his start-up:



Critically questioning and reflecting on sources of external knowledge has been another important stated aspect that interviewed entrepreneurs think and talk about. Interviewee X gives a precise example for this:



In this context entrepreneurs emphasised that one needs to know what one knows and what one does not know. It's necessary, however, to know what one should know, and one needs to know where to find this required knowledge. Furthermore, entrepreneurs stated that knowing one way to solve a problem can stop one from paying attention to another, perhaps contrary, way. Finally, the willingness to admit one needs knowledge is required, as well as having the cognitive awareness of a lack of knowledge. Interviewee 17 explains his view:

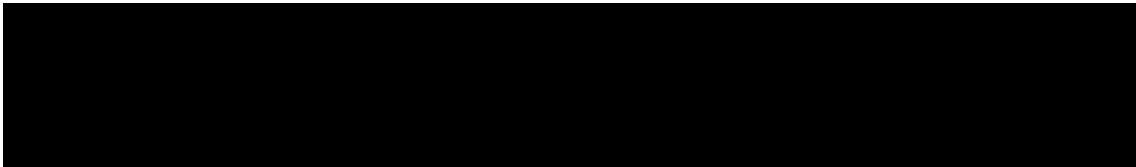


4.3 The connection / the access to external knowledge

A recurring pattern identified in the analysis has been entrepreneurs talking about the access, linkage or connection to external knowledge. In accordance with prior findings about informal knowledge the own network has been stated as a main driver of connectivity to external knowledge. At the same time it's said that sometimes it's difficult to access the market as there are established processes and relationships. Overall entrepreneurs stated their personal network and their partner network as a way to increase their access while entrepreneurs also talked about filters that restrict access to external knowledge.

The personal network forms one of the most fundamental sources of access to external knowledge. Besides the direct access to one's personal network, this personal network enables one to get feedback in form of recommendations from one's personal network and to get access to the contacts of the contacts in one's network. That shows that the personal network increases the access to

external knowledge significantly. Interviewee 14 explains in which field his personal network has been beneficial:



Moreover, entrepreneurs distinguished between weak and strong ties within their personal network and stating both forms of ties to be important.

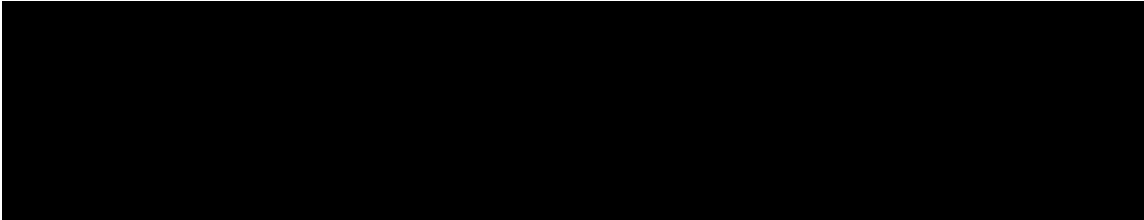
Weak ties as a type of personal network describe loose connections with other people, the entrepreneurs often named friends from other start-ups or former colleagues. Getting to know these weak contacts happens often at events or via recommendation. In order to realize the potential of their knowledge the entrepreneurs have to evaluate if and how they can push the start-up forward.

For the personal network of entrepreneurs, strong ties are about trust and history in contrast to weak ties. History also brings an increased understanding for the context of a problem that should be solved by external knowledge. The higher trust allows a wider range of discussed topics, including confidential aspects of a start-up. A side effect of such a close tie is an even higher accessibility, as one can directly talk about one's problem building on an established relationship.

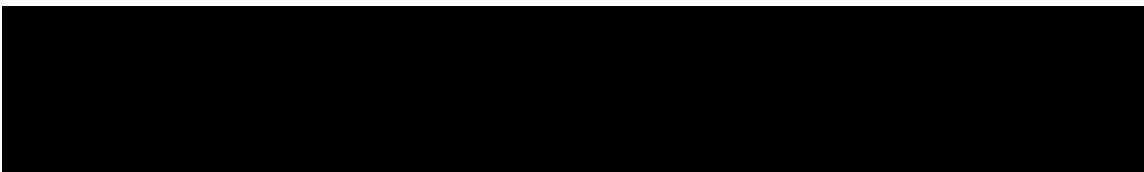
Besides the interviewee's personal network the partner network that is build up over time plays an even larger role. Starting a partnership means understanding what each other does and working together towards a goal. An ongoing cooperation leads to a closer relationship. Nevertheless, one can still differentiate between weak and strong ties here. A typical reason to initiate such a partnership is the market access that partners can bring and a collaborative project for a customer. One entrepreneur even stated that he tries to strengthen the partnership tie if it proves valuable.

Interviewees highlighted the importance of weak ties in terms of partner networks for solving problems. At the same time, these weak ties are a perfect foundation with which to forge a strong tie at a later stage, when the source

becomes relevant. As one knows the partner and can talk openly, it is easier to form such a strong partnership and one could become the preferred partner when a partner is needed.



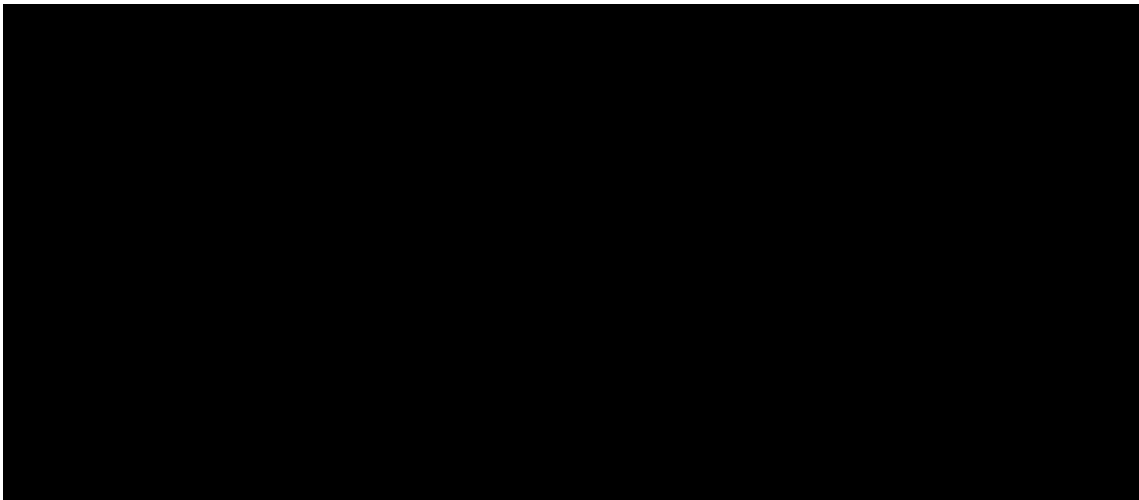
On the other hand, there are strong ties in partner relationships, which form the strongest network, as they build on trust and history. At the same time, within these partnerships, both sides understand each other's business. While cooperating they get to know each other even better and can learn from each other. But entrepreneurs also expect more detailed and continuous information from a strong tie. Interviewee 14 offered an example of this expectation:



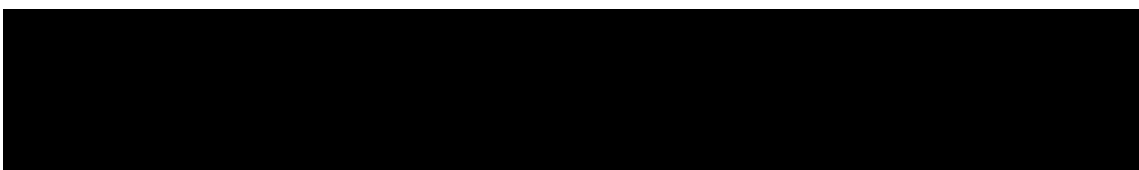
In contrast to the personal network of entrepreneurs and the partner network, filters can act in the opposite way when trying to access external knowledge. This means that instead of increasing access to external knowledge, they act like a barrier or filter. While the directing of attention and focus is a general cognitive aspect here, the entrepreneurs stated different filters repeatedly. Based on the interview guide (see appendix C and D), the interviewees talked extensively about the following aspects as filters in declining order: geographic proximity, alliances, geographical market, path dependency, clusters, prior knowledge, social proximity, cognitive awareness, prior experience, organisational proximity and institutional proximity. It should be explained that these filters have not only been described as negative, but also positive. For example in a way that a focus on the most valuable activities and sources over time happened.

One major filter that was identified is the selected sources and channels a start-up chooses. For example, different entrepreneurs stated that they have

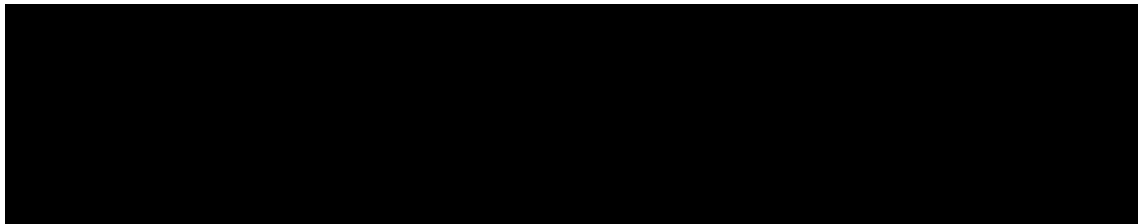
customers with specific pains, which guide them in a certain direction with their external knowledge and their needs. This is an example where external knowledge can narrow a company's path with possible implications on a company's path dependency. Another point is that some interviewees stated that they are reusing formerly successful sources. This reusing has been described as a threat to the start-up, if the organisation does not screen alternatives, but uses the previously used sources as a fixed process. For example the interviewee 1 explains:



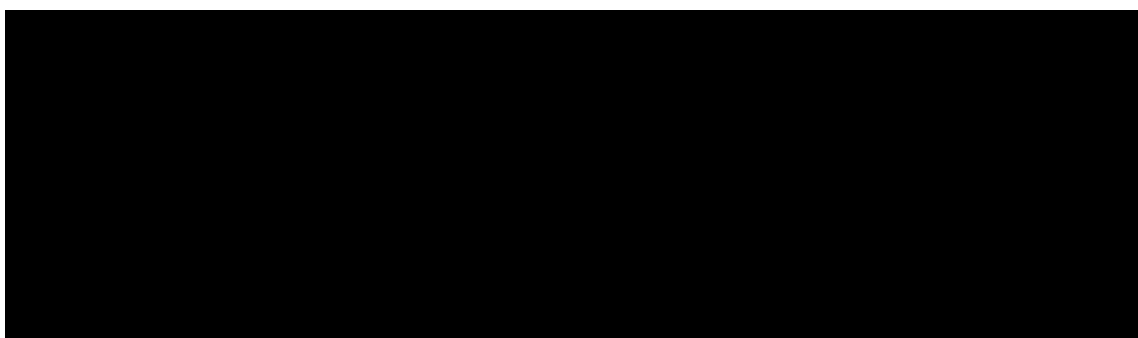
The analysis further showed proximity as another important filter that influences the connectivity and access to external knowledge. The categories of geographic proximity, social proximity, organisational proximity and institutional proximity have been stated, while geographic proximity was at the heart of discussion. Geographic proximity addresses, on the one hand, the distance in geography, but on the other hand, the geographical market distance. The latter means a company that is active in Europe is typically more approachable and more interesting for the interviewed start-up founders, than if the company is active in another geographical market. Finally, interviewee 13 argued that not being close to or being in a cluster like Silicon Valley can act as a filter:



The entrepreneurs also stated cognitive limitations that can act as a filter. These limitations have been stated as a lack of certain knowledge which makes it difficult to understand new knowledge, or as a lacking motivation or courage to do something. The entrepreneur's cultural context, in particular, can make it hard to understand certain knowledge. Interviewee 13 stated as an example that his prior knowledge limited his cognitive decision-making:



At the same time, the reflection and cognitive awareness of the interviewees for filters has been a recurring pattern in the analysis. First of all, the entrepreneurs stated that recognizing one's filters on one's own can be quite difficult. And if one were to realize them, one would probably work to address them. On the other hand, with setting a focus, entrepreneurs actively set certain kinds of filters. In conclusion, it was described as important to be reflective about one's own filters and to continuously reflect on it. Interviewee 6 explained his view on cognitive awareness for filters:



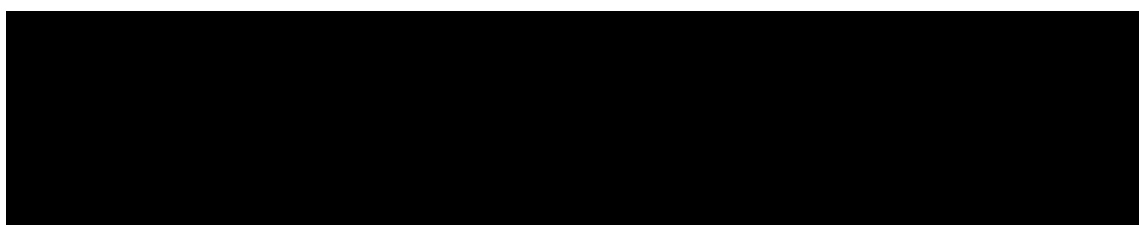
4.4 The triggers to act and react

In order to describe the data from the entrepreneurial interviewees the dimensions trigger, the direction and the evaluation will be investigated in each one subchapter of the findings. These subchapters are each separated into the core components of recognition and acquisition. This order is due to the particularly close relationship of recognition and acquisition in the context of this thesis with B2B start-ups and allows a better comparison. With the discussion

about theoretical concepts of absorptive capacity in mind, this order proves valuable. Routines often include both dimensions at the same time and are aligned on topics like market, events and regulation.

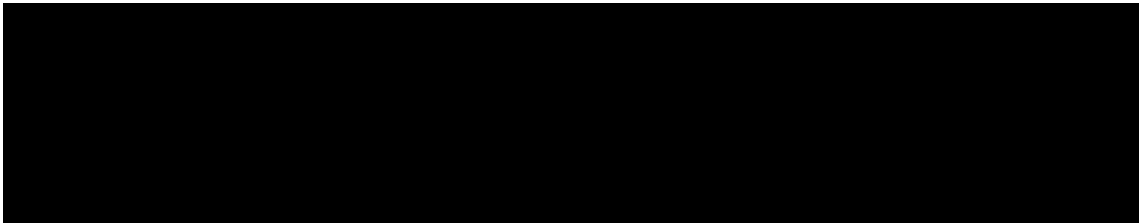
When asked for triggers or signals to recognize the value of external knowledge and triggers to acquire external knowledge, the entrepreneurs came up with different factors. Before getting into detail, it must be stated that it is difficult to distinguish between these aspects of absorptive capacity, so there will be some overlap in the analysis. Two sub-categories each have been found in the data, describing whether the trigger is triggered when the entrepreneurs became active or whether the entrepreneur was confronted passively. Additionally, learning by doing forms a central sub-category of triggers to actively acquire external knowledge. The interviewees identified the following forms of core triggers: active searching, learning by doing and problem-based acting. Additionally, the entrepreneurs also talked extensively about general knowledge, prior success, systematic learning and recommendations.

Active triggers that have been stated for the recognition of the value of external knowledge are manifold. First of all, start-ups with their whole team used an active search as trigger to identify knowledge relevant to their business. On the other hand, an entrepreneur talked about the decision to go on a four week trip to a lead market where he would be able to build general knowledge and recognize new potential ideas for his business. Another trigger that was identified is when entrepreneurs realized that they are lacking knowledge in a certain area that is, or could become, important for them. Finally, an interesting trigger is the potential to increase value towards the customer:

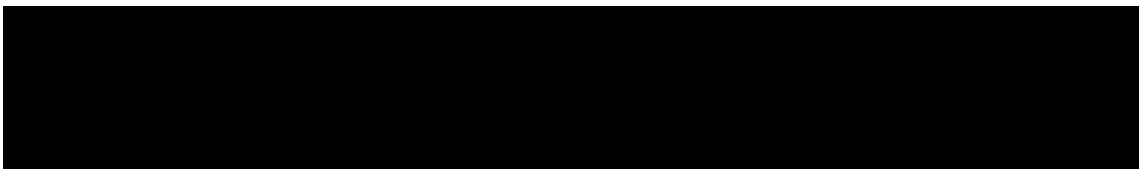


Besides active triggers, the entrepreneurs also discussed passive triggers, where they passively came into contact with external knowledge and recognized the value of it. Trust was stated as an important trigger, especially

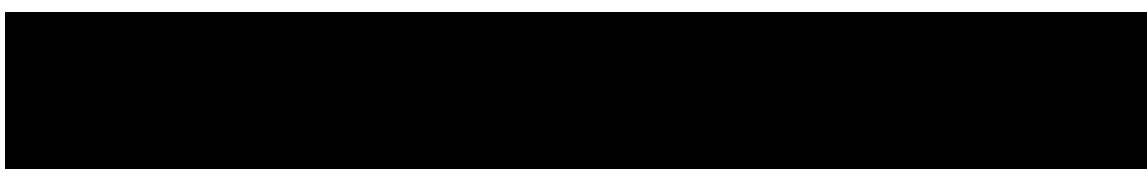
when a source gets passively in contact with an entrepreneur. At the same time, prior experience was stated as a trigger to listen carefully. Interviewee 10 stated that customers and business partners, as a source, trigger him to listen thoroughly:



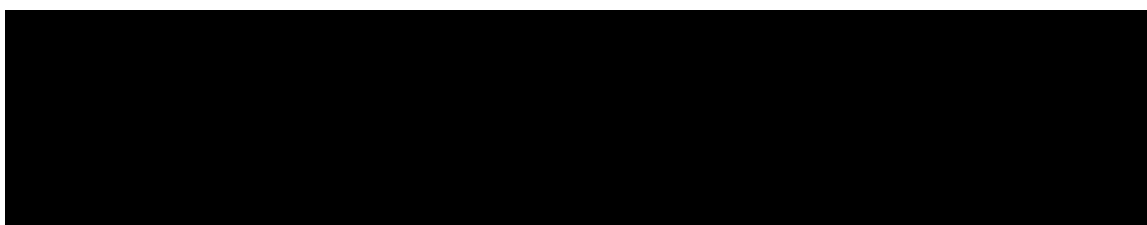
For the acquisition of external knowledge, the data also provides different repeatedly stated active triggers. First of all, a large share stated that they focus their acquisition of external knowledge on actual problems the start-up is currently facing. Typically that means that start-ups are lacking internal resources to tackle the problem. So, facing such a problem in a B2B start-up will trigger an active acquisition of external knowledge. Another point is the experience a start-up has with external knowledge success in general, and on the other hand, with a specific source. Interviewee 1 explained his perspective on triggers:



A frequently highlighted form of trigger for active acquisition is learning by doing, also known as experimental learning. In a way, this form describes a cognitive attitude of the interviewed entrepreneurs, to give new ideas a chance and test them if they can be successfully applied in their own situation. Entrepreneurs stated that systematic learning is the opposite pole, and that it is just rarely used. During and after the testing of these ideas, start-ups learn quickly and this form of learning allows them to evaluate from first-hand experience. Overall, this finding could mean that entrepreneurs reduce the first time recognition effort, while increasing the acquisition effort, and they use these first-hand insights for future recognition. Interviewee 14 explained this in his words:




To conclude the analysis of triggers, stated passive acquisition triggers are presented. In contrast to other triggers entrepreneurs talked just very rarely about passive acquisition triggers. One example of such learning is an entrepreneur who was asked for technical feedback on the system of a partner. After helping him to solve the problem, the entrepreneur had acquired some new knowledge that he could transfer to his start-up's technology base. In addition, interviewee 5 developed a feedback channel that allows them to acquire customer insights about their provided offer passively:



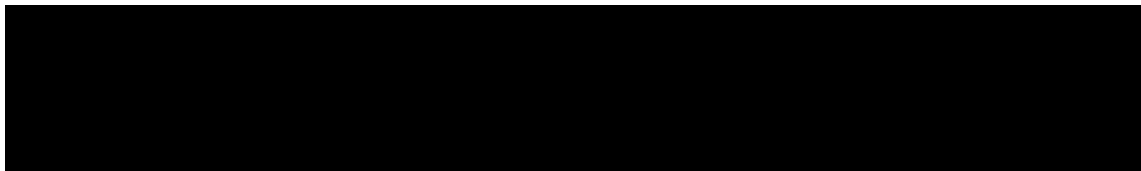
4.5 The direction

This section focuses on choosing and changing the direction in which a start-up is looking for external knowledge. Different interviewees stated that direction, intensity and speed are highly correlated and often aligned towards the problems the start-up is facing currently. Interviewee 6 explained the importance of this alignment towards problems for CEO entrepreneurs:

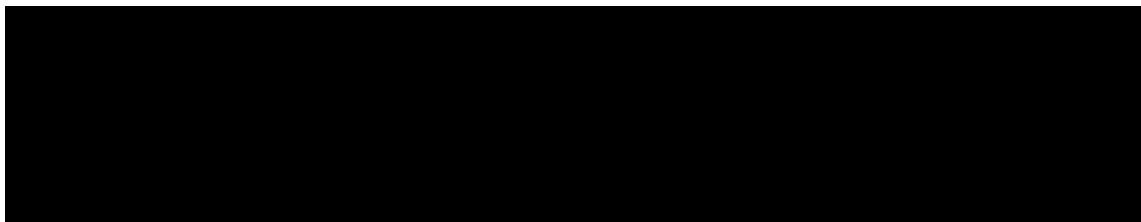


In terms of recognition of the value of external knowledge, the entrepreneurs came up with different characteristic aspects for determinants of the strategic direction. When setting the direction, the B2B ICT entrepreneurs were aiming to achieve validation for their product, find a fit with the market and assess the relevance to the current business.

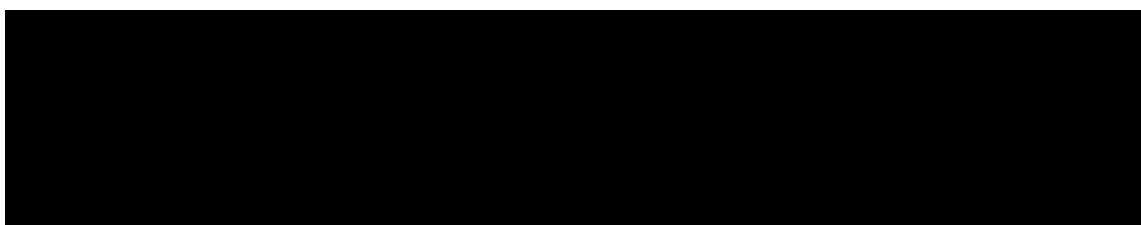
One of the aspects that entrepreneurs mentioned in the interviews was that they set direction to recognize value in order to validate their business model and product proposition. Such a direction allows them to quickly improve their product, iterate on it and improve it to match customers' needs. At the beginning of a start-up's life under extreme uncertainty, one can only work with assumptions that require validation from the market. Interviewee 1 explained this:



According to the interview insights, the market is the second driving force on the direction of recognizing value. In the data, one can see the business potential and the market size as a directing factor. An entrepreneur explained that his decisions are directed by frequency and size of the customer demand. On the other hand, interviewee 11 highlighted that only external knowledge from his target market in terms of geography and industry is relevant. And because of this relevance, a corresponding direction is chosen:

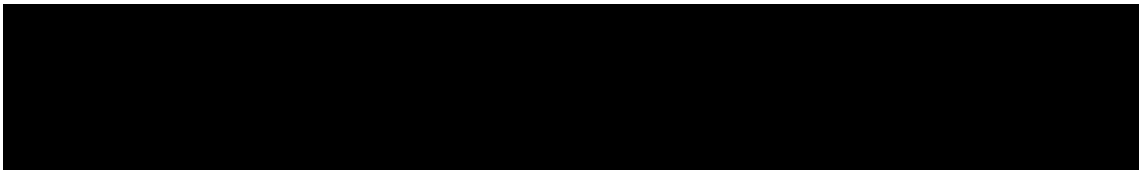


The last aspect that is influencing how entrepreneurs set the direction in recognizing value, deals with the relevance of external knowledge. On the one hand, that means it is important to understand which external knowledge is most relevant and important at the current point in time. On the other hand, that means which knowledge is most relevant regarding the market and the business. Interviewee 11 explained:



For the acquisition of external knowledge, the direction is mainly influenced by business priority and a problem-based approach that is typical for, and frequently stated by, the interviewees. Another stated argument is that setting the direction refers to the entrepreneur's prior experience with external knowledge sources. In cases where specific sources worked well, one will use them again and set the acquisition direction that way.

The first frequently stated factor for the acquisition direction refers to the business priority related to certain external knowledge. In practice that means that low priority knowledge is typically searched internally and for free, while high priority knowledge is also searched for externally and there is a willingness to pay. Interviewee 6 summarized that the priority is developed in his mind through his cognitive priority and attention, as well as through his needs and the needs of the company:



The most important factor impacting the acquisition direction is the entrepreneurial problem-based approach. Even more interviewees stated that, when there is a current problem that the start-up is facing, this problem determines the direction. At the same time, however, the problem sets a high intensity and a high speed to find a solution. But one also needs to differentiate between the different problems in terms of their relevance and urgency. The higher these dimensions, the more money and effort will be spent to find the solution through the acquisition of external knowledge.

4.6 The evaluation

The next section deals with the analysis of the data on how entrepreneurs evaluate external knowledge and its sources. This evaluation uses different criteria and has been described as a particularly difficult job for entrepreneurs. So entrepreneurs that have an open-mindset and acquire external knowledge face the challenge of how to deal with certain external knowledge: whether to

amplify or block out certain ideas and whether to stick to one's own ideas or to adapt to the external feedback.

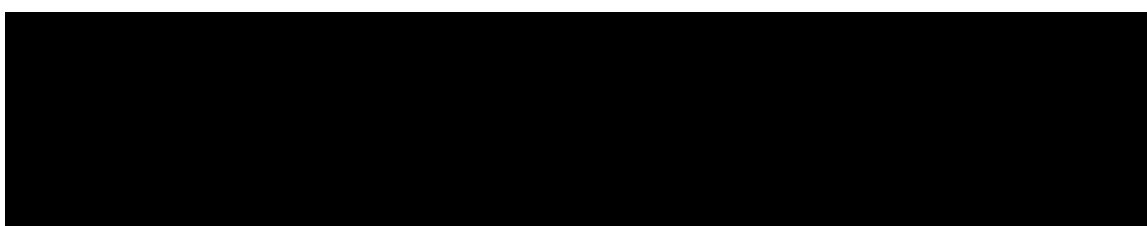
Before talking about the evaluation of recognition and acquisition individually, the evaluation of knowledge type in terms of codified and tacit knowledge require introduction. Codified knowledge is often evaluated as a basic foundation and that is why it is described as not particularly helpful. The evaluation of tacit knowledge, alternatively, is described as difficult and sometimes even requires additional external knowledge for validation.

Evaluating external knowledge and its sources in terms of the recognizing value dimension emphasises the relationship between the knowledge and the start-up. Recalling the definition of recognizing the value of external knowledge, it addresses the identification and understanding of the potential of new external knowledge. Relatedness and relevance form the core of the evaluation criteria. In addition, prior success and experience, trust and recommendation, as well as tie strength are evaluation criteria that occur in the data.

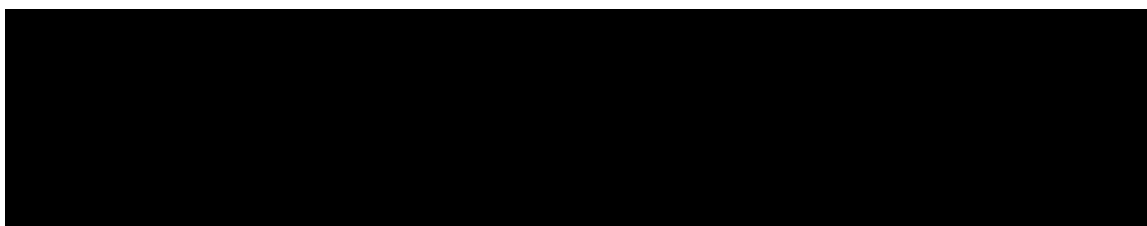
The tie strength plays a significant role in the evaluation of the value of external knowledge. Entrepreneurs distinguish between no ties, weak ties and strong ties with external knowledge sources. The strength of a tie is increased when there has been a previous evaluation. At the same time, both sides know better which knowledge is potentially beneficial for each others' business. Interviewee 14 explained this:

[REDACTED]

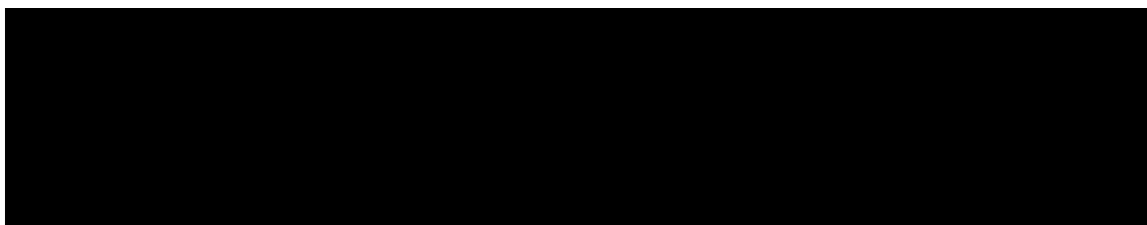
Another repeating pattern in the interview data addresses trust and personal recommendation as a factor influencing the evaluation of the value of external knowledge. So knowledge that is recommended from somebody else, like a personal contact or an expert is evaluated better. At the same time, trust linked to the recently stated factor of tie strength plays an important role in evaluation, especially for confidential matters. The importance of trust can be illustrated using an example from interviewee 1:



The history of a certain external knowledge source plays a very important role in terms of prior success and experience in evaluation of the value of external knowledge. Prior success addresses how successful the source has been in the past doing their business and sometimes just the perception of success is enough to more positively evaluate certain external knowledge from the source. Alternatively, first-hand prior experience as a practitioner or leader in the domain is described as very valuable. Both these aspects are addressed in a citation from interviewee 7:



The relatedness and relevance of external knowledge sources were also frequently stated when evaluating the value of external knowledge and have been emphasised as very important. According to the interviewees, the knowledge becomes more valuable the closer and the more relevant it is. Interviewee 14 gave an example of such a particularly valuable piece of external knowledge:

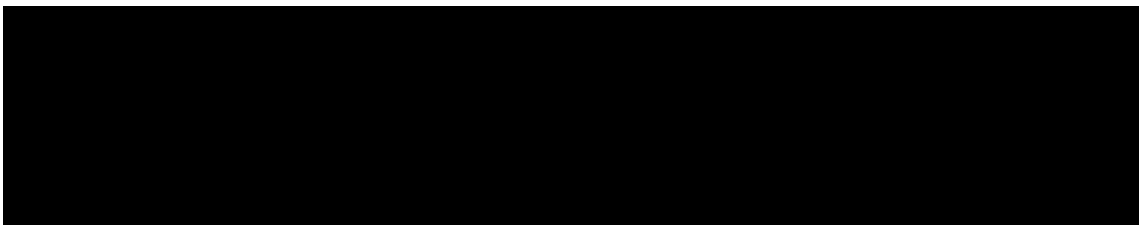


The following evaluation criteria for acquisition were found in the data analysis, ordered by an increasing frequency: validation, knowledge quality and reliability, acquisition efficiency and outcome orientation. Recalling the definition of acquiring external knowledge, it addresses a firm's capability to identify and acquire externally generated knowledge that is critical to its operations.

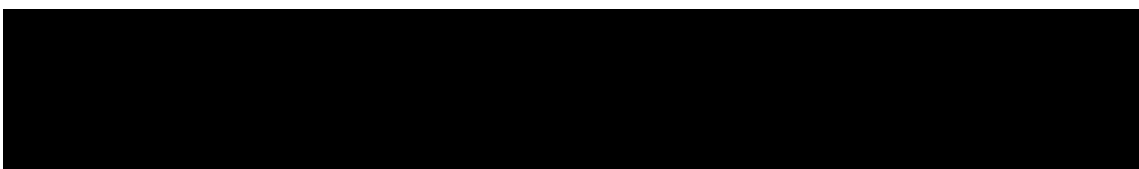
An important aspect of the acquisition of external knowledge addresses the validation of either decisions or of external knowledge itself. First of all, such validation addresses the internal decisions a start-up has made, and in order to reduce market uncertainty the team tries to achieve validation. On the other hand, validation can be valuable for insights from an external source. That means a start-up gets external knowledge from a new source or a weak tie and, in order to evaluate such knowledge, it is tested or validated with a second source. Such a validation is used to evaluate acquired external knowledge. Interviewee 9 explained this:




The next frequently stated argument of the evaluation of the acquisition of external knowledge addresses the knowledge's quality and reliability. That means the knowledge quality as well as the reliability is mainly dependent on the attributes of the source. Interviewee 14 explains his evaluation of external knowledge:




The second most important evaluation criterion of the acquisition of external knowledge identified is efficiency. The efficiency of external knowledge acquisition plays an important role in two dimensions: the easiness of the process of acquiring the knowledge and the efficiency of the final outcome for the start-up. Another entrepreneur highlights that in start-ups everything needs to be efficient, while one states that start-ups with an equal level of efficiency attract each other. Entrepreneur 1 gave a description of his efficiency evaluation:





Extending the previous argument of efficiency, the entrepreneurs frequently identified an outcome-orientation in evaluating their external knowledge acquisition. This orientation overlaps with the most important direction stated frequently by the interviewees, the problem-based direction, which aims at a solution for a specific problem. At the same time the most important acquisition trigger is learning by doing. That means the evaluation of acquired external knowledge can be best done at the end, when the outcome is achieved. For entrepreneurs whether the outcome is achieved or not forms a substantial decision criterion for evaluation.

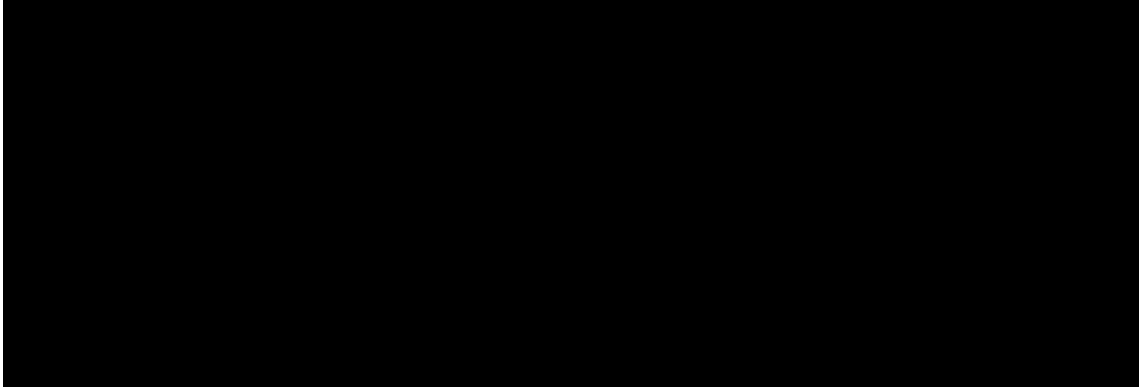


4.7 The routines with external knowledge

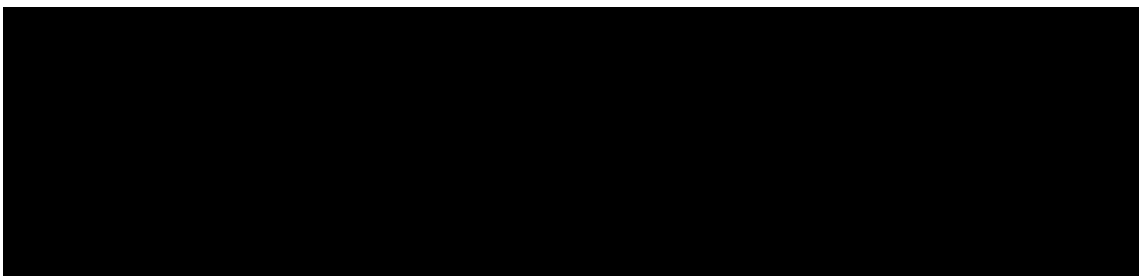
The following section about routines for external knowledge analyses the recognition and acquisition of external knowledge together due to overlap. Some entrepreneurs stated that, for them, routines express an importance of certain external knowledge. That's why this knowledge is formalized using a routine. Instead, different types of routines that have been stated frequently will be explained, as well as disadvantages of routines found in the data. Interviewees repeatedly talked about routines for regulation, for the market, for using experience and for using events. The following section analyses these aspects.

For certain industries and businesses, regulation plays a crucial factor for their business and that is why the entrepreneurs developed routines to systematically deal with external knowledge on regulation. In order to stay up-to-date, start-ups regularly monitor some aspects and hire for certain problems specialists with expert knowledge to address non-core aspects that are relevant to their

business. This method allows them to react quickly and adapt their business model to changes in legislation and dispensation of justice. Interviewee 3 explains how his start-up monitors the regulatory field:

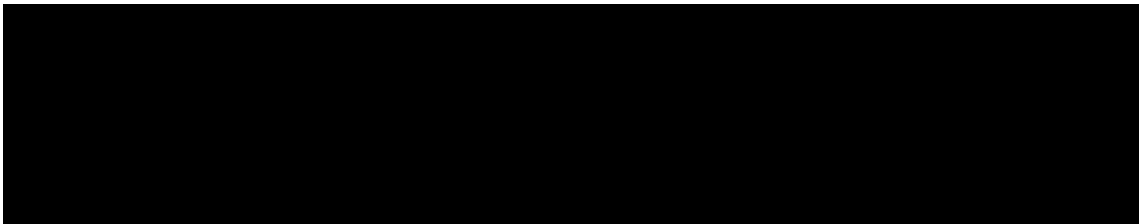


The next central aspect where routines are used addresses the access and usage of market knowledge. Entrepreneurs who talked about routines for external knowledge from the market emphasised the importance of insights from customer and competitors, due to their closeness to the business. Talking about competitors, some entrepreneurs discussed semi-routines as they screen their competitors heavily. These semi-routines are typically done in order to see what else is offered in the market, while the entrepreneurs underscored the importance of still relying on one's own strengths and not just copying other offerings. On the other hand, entrepreneurs developed sales routines to get in touch with potential new clients and routines to get feedback from existing customers. In terms of routines that use customers, interviewee 1 gave a strong example of how they use external knowledge on a continuous basis and why they use it:

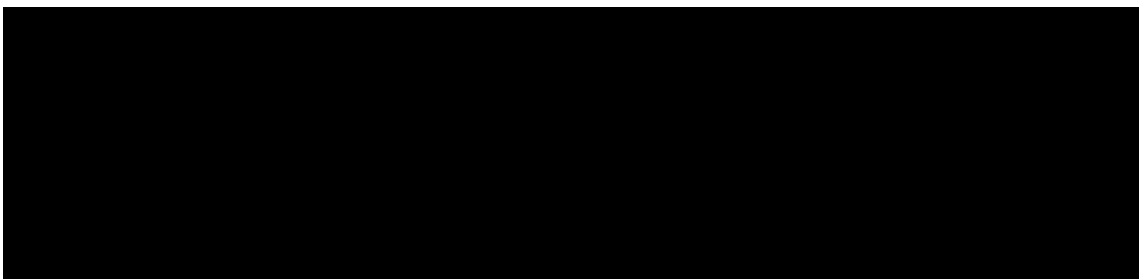



An aspect that entrepreneurs talked very much about was using routines to learn from experienced external knowledge on a continuous basis. Experienced external knowledge typically means in this context, that the source has relevant

prior experience from practice. According to the insights, these sources are used for their connections, for validation and for their practical knowledge about markets. Mostly these relationships are formalized in an advisor, a coaching, a mentoring or an investment relationship, but some of these relationships are also informal and based on a personal network. Typically, the knowledge exchange happens regularly, but not very often. In addition, it also takes place on demand if there is an important issue. Interviewee 17 described the role of routines with advisors in the following way:



The routine that can be found most frequently in the data deals with participation at events and meetings. The entrepreneurs consistently highlighted that it is important to make a selection of which events to join or to test them to quickly refine the choice. Events and meetings are used heavily by the interviewees and the entrepreneurs choose different events that might be promising for their business, or they join new events. This participation goes in hand with the stated purpose of the routine to participate at events: accessing external knowledge about specific topics, developing the start-up brand, building a network and using the opportunity to get in contact with potential customers or partners. One entrepreneur stated that he even initiated his own closed meeting where he invited some of the smartest CTO entrepreneurs in Berlin. This meeting allows its members to exchange regularly and learn from each other. To sum up the usage of events and meetings as a routine the interviewee 6 illustrates the purpose:



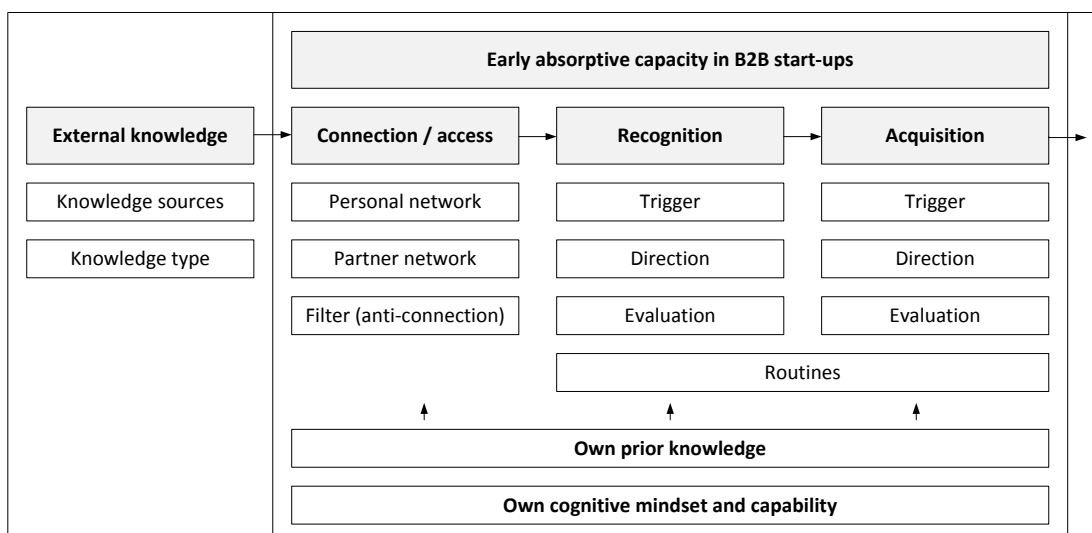


After presenting the different types of routines that have been stated the most in the data, some entrepreneurs also criticised routines and stated disadvantages that could come with their usage. In a way such routines have been described as systematic processes that are “overhead” and are not the right thing for start-ups. Another entrepreneur stated in contrast, that he realized that he would typically have to hire somebody for that topic, and accessing external knowledge with a routine is another way to address the situation. Finally, when one has routines in place for certain topics, that can prevent one from finding the best solution. This might be critical, if entrepreneurs do not look for the best knowledge, but choose directly a familiar source from an established routine.

5. Discussion

The primary purpose of this study was to investigate how start-up companies are learning from of the insights of external knowledge sources. More specifically, the research question asked: How do B2B start-ups recognize the value from external knowledge and how do B2B start-ups acquire external knowledge? This research question is answered using the theoretical concept of absorptive capacity and semi-structured interviews with Berlin based-IT start-ups targeting B2B customers. The identified recurring themes and findings of the interviewed entrepreneurs are visualized in the following figure 9, based on the concept of absorptive capacity. The central themes are marked in bold and the central early absorptive capacity components and the external knowledge are emphasised with a grey background colour.

Figure 11: Recurring patterns of early absorptive capacity stated by interviewees



In sum, the research shows that start-ups use and learn most from external knowledge sources (see section 4.1) from the market and customers as a source of knowledge. This learning happens typically through their network as a channel to the knowledge. The most frequently stated form of how start-ups learn is on demand, when a problem or a need occurs. They then use preferably informal sources to access tacit and difficult to access knowledge. Furthermore, the entrepreneurs highlighted that they recombine external knowledge with their own knowledge and use multiple and different sources to address different purposes.

When talking about the influencing factors (see section 4.2) it is helpful to recall the context of start-ups. The findings are based on interviews with the entrepreneurs and founders of typically very small teams (see section 3.2 on sample criteria). In this context, the cognitive mindset and the prior knowledge of the individual formed eminent themes that influence how start-ups learn from external knowledge. This happens through its individuals in terms of reflection and an open mindset, but also based on prior experience and prior education.

Furthermore, the interviewees emphasised the importance and usage of their networks (see section 4.3) in order to learn from external knowledge in both investigated core components of absorptive capacity. Together with cognitive filters, proximity and path dependency act as filters. These aspects raise the important theme of the connection to external knowledge. Having built up networks allows continuous learning from the personal and partner network, as

well as if needed on demand. This central role of the connection is why it's visualized as a new core component of absorptive capacity in start-ups in contrast to established models (see figure 1 and Appendix A). It is visualized in figure 11.

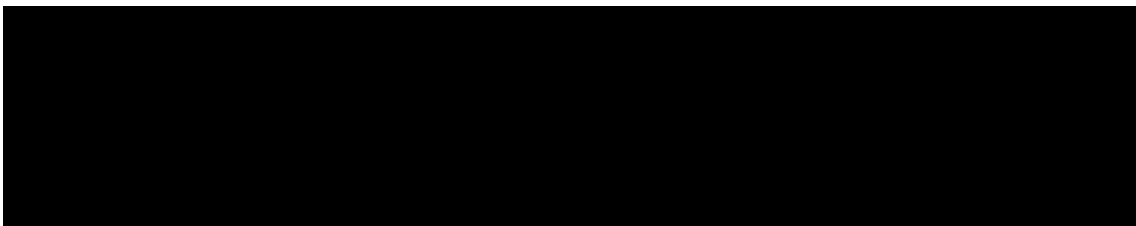
With regard to triggers of learning from external knowledge (see section 4.4), a clear separation of the recognition of value and the acquisition of external knowledge has not been possible, but an active search has been an important aspect for both. Moreover, triggers have been differentiated into active and passive triggers to learn from external knowledge, showing that learning by doing and need-driven acting are the most important forms of triggers for active acquisition of external knowledge. Furthermore, various triggers for the recognition of external knowledge have been stated, most importantly an active search, but also proximity, trust and recognized business value.

Talking about the direction (see section 4.5) of the recognition of the value and acquisition of external knowledge, it can be stated in general that the interviewees direct their efforts very often towards the current problems and needs of the start-up. While for recognition factors like the validation of a hypothesis, potential market volume and the relevance for the existing business were identified. The acquisition is directed more towards business means and present troubles.

The evaluation of external knowledge (see section 4.6) in terms of recognizing the value and the acquisition of knowledge is described as challenging by the interviewees, but offers numerous evaluation criteria. The evaluation criteria for recognizing the value address mainly the relationship with the source: the network tie strength to the external source, its trust and whether the source has been recommended from someone, the historical performance of the external source and if the source is related. While the acquisition criteria are in contrast to the recognition criteria very entrepreneurial, pragmatic, outcome-oriented – addressing the quality and reliability, the efficiency, the outcome and whether the external knowledge can be used to validate assumptions.

In terms of used routines in the analysis (see section 4.7), both early absorptive capacity dimensions have been combined and examined together due to a strong overlap. To summarize the usage of routines with external knowledge, the interviewees identified primarily routines to access and use experience-based knowledge and market knowledge. Finally, the selected participation at relevant events has most frequently been described as a powerful routine to access relevant external knowledge.

Moreover, the following aspects have been found that are either in consensus with, extending, refining or contrasting prior research. First of all, in consensus with prior research (Starr & MacMillan, 1990) the interviewees expressed that the entrepreneurial network (see section 2.6) that they build helps them to acquire external resources quicker or cheaper. Interviewee 17 stated his experience:



Prior knowledge (see section 2.5 and 2.6) was confirmed as particularly important and as originating in the prior knowledge of the individual in a start-up. Knowledge based from the individual is expected due to the specific start-up characteristics (see section 3.2). The existing data confirmed, firstly, that there is prior education as well as the even more important prior experience of the individual founder. The interviewees highlighted the prior experience as a very important driver of business and a foundation for evaluating new external knowledge.

Another theoretical stream (Huggins et al., 2010) that was confirmed addresses international co-location (see section 2.5). On the one hand, just two of the companies in the sample had a physical co-location in another country (see section 3.5). On the other hand, the two interviewed entrepreneurs stated that such locations in foreign countries (Grimpe & Kaiser, 2010) can be very valuable in adding diverse knowledge (see section 2.5). In the overall data this

finding of prior research is addressed by the frequently stated access filter of geographic proximity.

In the context of social networks of entrepreneurs, some interviewees confirmed the stated importance from prior research (Hite & Hesterly, 2001; Lowik et al., 2012) that over time start-ups become more selective in their ties and try to build strong ties to valuable partners and to their external knowledge (see section 2.5 and 2.6). Interviewee 14 explained his perspective:

[REDACTED]

With regard to prior literature on the entrepreneurial challenge of reducing uncertainty (see section 2.2) the interviewees argued that the usage of external knowledge goes beyond having an influence on the reduction of uncertainty. The usage of and learning from external knowledge extends prior literature and was described by interviewees as a way to deal with the liability of extreme uncertainty. Interviewee 5 explained his thoughts on the usage of external knowledge precisely:

[REDACTED]

Refining prior research on the acquisition of external knowledge (see section 2.6), the data shows that start-ups don't use grafting a company as a form of learning from external knowledge. According to prior research, companies can use five forms of using and learning from external knowledge (see section 2.6 and Huber, 1991). While all other forms have been addressed in the data and used, it can be stated that in start-up practice grafting a company is not used. This non usage could be explained by the resource scarcity characteristic of start-ups and the early stage of the interviewed start-ups. Furthermore, interviewees stated that they use employee grafting and rely heavily on learning by doing (correlates to experimental learning) and prior knowledge (correlates

to congenital learning). Start-ups also used vicarious learning, but consistently described the linked sources as something they screen, yet is not that valuable.

Start-ups use different sources, forms and routines to acquire external knowledge compared to prior research on companies in general (see section 2.6). While in prior research (Lewin et al., 2011) on companies' absorptive capacity the learning frequently takes place in formalized routines and from formalized sources, in B2B start-ups this typically happens informally and addresses tacit problem-based knowledge exchange.

In contrast to the existing absorptive capacity model by Todorova & Durisin (see section 2.4) the analysis came up with a new central dimension of absorptive capacity in the context of B2B start-ups, namely the access or connection to external knowledge. This dimension acts as a connecting tie between the external knowledge and the recognition of the value of external knowledge, especially in terms of the active or passive triggers and guided by the direction of recognition. Due to the recurring pattern stated by the interviewees, the author decided to propose a new central dimension.

The identified influential factor of one's own cognitive mindset and capability has not been explicitly considered in the theoretical model of Todorova & Durisin (see section 2.4). This factor might be important due to the characteristics of start-ups with their small team size, which means that the individuals' mindset and capability are of higher importance for the overall absorptive capacity.

Talking about the execution of this study and methodological learning, future researchers should make sure to use a definition for the component "recognizing the value of external knowledge" that is suitable for practical use in interviews with employees or entrepreneurs. The interviewer realized during the collection of the data, that first of all Todorova & Durisin (2007) did not provide a clear enough explanation of the component (see section 2.5) that was easily understandable for the interviewees, let alone an explicit definition. Furthermore, during the data collection the interviewees raised questions, whether recognizing the value and acquiring the value is a sequential process

and whether these components can happen independently. In the light of the recurring entrepreneurial pattern of learning by doing, or as it is referred to in academia “experimental learning”, it is unclear if recognize the value is the first step in such a learning process and if both components require a single investigation in the context of start-ups.

Furthermore, in terms of methodological learning, the characteristic smallness of start-ups influences the analysis of how start-ups use and learn from external knowledge. While Volberda et al. (2010, p.944) already stated that absorptive capacity is a firm-level construct, that is deeply rooted in the individual member of the firm – the analysis of B2B start-ups requires more emphasis on the individual-level. Moreover, one might think about whether the early absorptive capacity dimensions should be investigated also on an individual persons’ basis, as these dimensions might not necessarily require an exchange within the organisation (this thought has been triggered by the two interviews with company D). Whereas in later stages of the concept, like the assimilation, it might be more obvious that exchange within the organisation (on a firm-level) is also required.

Additionally, the method of interview choice might have lead to an underestimation of potential power relationships that influence the learning in B2B start-ups. In fact the interview data is only based on entrepreneurs with high levels of power within the organisation. That means interviews with employees with less power might uncover power relationships in start-ups that could not be found in the existing analysis.

In terms of the execution of this study, the interviewees also demanded assistance to understand the meaning of routines and systematic approaches to learning from external knowledge. This knowledge might be beneficial for future researchers, so such questions can be addressed at the end of an interview and an explanation or a practical definition can be given beforehand.

6. Conclusion

In conclusion, this study sheds light on the usage of and learning from external knowledge in B2B start-ups. Precisely the purpose of this thesis is to

understand how B2B start-ups recognize the value from external knowledge and acquire external knowledge. Entrepreneurs consistently stated in different parts of the questionnaire that market and customer insights are central sources that they use and learn from. Additionally, the knowledge is typically accessed via personal network, creating an informal knowledge exchange that typically addresses tacit knowledge about current problems. While doing so the cognition and cognitive mindset of entrepreneurs play a crucial role (see section 4.2), and they form a recurring pattern in different parts of this research. The capability to learn from external knowledge starts with the entrepreneurs' network minus their (cognitive) filters (see section 4.3) and provides a foundation to be responsive to the needs in the market. Besides, learning by doing plays a key role in the early absorptive capacity of entrepreneurs. The high importance of network, learning by doing, as well as cognition can be ascribed to the characteristics of start-ups (see section 3.2). For example, consider the limited prior knowledge, but also to the analysis that takes place on a more individual level, due to the size of start-ups. In addition, selective participation at events (see section 4.7) has repeatedly been stated as an effective routine to get market and customer feedback, and at the same time extend one's network and thereby foster one's own capability to learn. To conclude, external knowledge has been described as a way to overcome uncertainty. These aspects show the potential and value external knowledge can provide to start-ups if used properly.

The analysis at hand has been based on specific types of companies and stages, which is a limitation of this study. The start-ups are characterized by newness, smallness, growth-ambition, innovation and founder dependence and have only been selected if addressing a B2B business in the information technology industry with a location in Berlin. These characteristics show that generalization for start-ups is not possible, and an increased heterogeneity in the sample of future analysis is required. For example, heterogeneity in terms of cultural context (Stienstra, Harms, Ham, & Groen, 2012) or business model types, including for example B2C start-ups (see section 3.2). As such, a more heterogeneous perspective is also required in terms of the interviewees with their different roles, experiences and networks in different industries.

In addition to the narrowed sample, the research design is also a matter of critique and limits the applicability of the findings. With regard to such a dynamic concept (Eisenhardt & Martin, 2000; Zahra & George, 2002) as learning and absorptive capacity represent, several authors argue for longitudinal research methods (Barnett & Burgelman, 1996; Volberda et al., 2010) that allow an investigation of changes over time. Due to the conditions and temporal limitations of this research, the interviewees have been asked to talk about their past up-to today to cover a period of time. Unfortunately this approach does not allow a proper comparison over time, especially in terms of the cognitive mindset of the interviewees. Future research is required to investigate how such knowledge accumulates while the companies are interacting with external knowledge.

Future research should first of all make an effort to identifying a dominant design for absorptive capacity (see also appendix A) in the context of different conceptual models of absorptive capacity (Todorova & Durisin, 2007; Zahra & George, 2002). In such an analysis the insights from this thesis with regard to the newly identified dimension access/connection (see section 2.4 and 4.3), as well as the unclear role of recognize the value in B2B start-ups, need to be addressed. Also, of great value would be if such a concept of absorptive capacity is compatible with or in a relation with the concept of organisational learning.

Moreover, in future analysis of absorptive capacity in B2B start-ups, different perspectives of interviewees should be analysed more in-depth. In this analysis slightly different perspectives have been perceived with regard to the interviewee role (CEO, CTO, and CMO) and with regard to the interviewees' entrepreneurial experience (first time founders, serial founders). Such a study should focus on identifying differentiating patterns.

Lastly, future research might analyse what early absorptive capacity components look like in different forms of companies and stages. Analyzing these different forms and stages would contribute to the identification of differentiating factors in how companies learn from external knowledge. Therefore, one should especially contrast established companies with

innovation activities, start-ups with entrepreneurial activities, as well as hybrid forms like spin-offs and internal innovation projects and investigate them over time.

In terms of practical relevance, entrepreneurs of B2B start-ups that reflect their own business based on the findings and central themes of this thesis (see for example chapter 5 figure 11) might benefit with their business from a better valuing of their external knowledge sources. This reflection allows them a greater cognitive awareness (see sections 4.2 and 4.3) for the way they interact and build relationships with certain external knowledge sources. The high degree to which entrepreneurs stated that they can use external knowledge for typical challenges B2B entrepreneurs are facing (see section 2.2) illustrates the potential value for B2B entrepreneurs. This external knowledge has been described as especially valuable in terms of getting validation from customers and the market (see section 4.5). Besides, the interviewees described external knowledge sometimes as a disadvantage, more precisely when it is too much external knowledge (see section 4.1) that is overloading the start-up. In such cases the interviewees recommended to learn iteratively from external knowledge.

For corporate innovators in established companies the insights about early absorptive capacity in B2B start-ups can be used to think about new ways of learning from external knowledge in their own innovation projects or spin-offs (see section 2.5 and 2.6). In addition, for established companies, the knowledge can offer considerable value for the way in which they collaborate with B2B start-ups. For example, in supplier- or customer relationships or in the role of a corporate venture capitalist (Dushnitsky & Lenox, 2005) that is funding a start-up. One example could be a developed awareness for the point, that start-ups frequently use learning-by-doing, and this is a reason why they sometimes fail. Allowing such failing might be in conflict with the culture and expectations at an established company (Lorenz, 2014).

With regard to capital providers in the start-up ecosystem like venture capitalists, this study offers these investors a framework to investigate the learning capabilities of their current and future start-up investments. Keeping in

mind that start-ups require a high adaptability to market needs, such a learning capability might be a great way to distinguish successful start-ups from start-ups that fail. As the performance of a venture capitalist is measured by the financial return of his investments and a high failure rate is typical for the start-up domain, the investigation of the learning capability provides great economic potential for start-ups in the early phase. For start-ups in a later stage, creating performance data might provide indicators on their adaptability via their success in the market. But at this point in time, other investors might be already fully engaged with these successful start-ups. In addition, many venture capitalists share knowledge with their portfolio companies and act as an experienced source (see section 4.7). Sharing this framework with their portfolio companies can contribute to a higher cognitive awareness for the way their entrepreneurs interact with external knowledge.

In conclusion, the interviewed entrepreneurs frequently stated the importance of external knowledge in addressing entrepreneurial challenges, especially with regard to important knowledge about the market. With the findings and the identified central themes, actors in the start-up ecosystem have a framework to reflect on how they learn from external knowledge and how they can improve their recognition and acquisition of external knowledge.

References

- Abernathy, W., & Clark, K. (1985). Innovation: Mapping the winds of creative destruction. *Research Policy*, 14(1), 3–22.
- Aldrich, H. E., & Auster, E. (1986). Even dwarfs started small: Liabilities of age and size and their strategic implications. *Research in Organizational Behavior*, 8, 165–198.
- Almeida, P., Dokko, G., & Rosenkopf, L. (2003). Startup size and the mechanisms of external learning: increasing opportunity and decreasing ability? *Research Policy*, 32(2), 301–315.
- Alvarez, S. A., & Barney, J. B. (2007). Discovery and creation: alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, 1(1-2), 11–26.
- Andreesen, M. (2007). Product/Market Fit. *EE204: Business Management for Electrical Engineers and Computer Scientists*. Retrieved April 14, 2014, from <http://www.stanford.edu/class/ee204/ProductMarketFit.html>
- Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*, 18(1), 105–123.
- Argote, L. (2013). *Organizational learning: A theoretical framework* (2nd ed., p. 217). New York: Springer.
- Argote, L., & Miron-Spektor, E. (2011). Organizational Learning: From Experience to Knowledge. *Organization Science*, 22(5), 1123–1137.
- Atteslander, P. (2003). *Methoden der empirischen Sozialforschung* (p. 411). Berlin: Erich Schmidt Verlag GmbH & Co.
- Audretsch, D., & Fritsch, M. (2003). Linking entrepreneurship to growth: The case of West Germany. *Industry and Innovation*, 10(1), 65–73.
- Augustin, P. (2013). Vorwürfe unredlicher wissenschaftlicher Praxis gegen Professor Dr. Ulrich Lichtenthaler: Senat der WHU beschließt Aberkennung der Lehrbefähigung. *WHU*. Retrieved June 13, 2014, from http://www.whu.edu/uploads/media/PM_Aberkennung_Lehrbefeahigung.pdf
- Baker, T., Miner, A. S., & Eesley, D. T. (2003). Improvising firms: bricolage, account giving and improvisational competencies in the founding process. *Research Policy*, 32(2), 255–276.
- Barnett, W. P., & Burgelman, R. A. (1996). Evolutionary perspectives on strategy. *Strategic Management Journal*, 17(S1), 5–19.

- Baron, R. A. (2006). Opportunity Recognition as Pattern Recognition: How Entrepreneurs “Connect the Dots” to Identify New Business Opportunities. *Academy of Management Perspectives*, 20(1), 104–119.
- Berlin Partner, G. (2014). Industrie- und Dienstleistungsstandort. *berlin.de*. Retrieved July 1, 2014, from <http://www.berlin.de/wirtschaft/wirtschaftsstandort/zukunftsbranchen-cluster/>
- Bessant, J., & Tidd, J. (2007). *Innovation and Entrepreneurship* (1st ed., p. 476). Chichester: John Wiley & Sons.
- Blank, S. (2013). Why the Lean Start-Up Changes Everything. *Harvard Business Review*, (May), 1–9.
- Blank, S., & Dorf, B. (2012). *The Startup Owner's Manual: The Step-By-Step Guide for Building a Great Company* (p. 571). Pescadero: K & S Ranch.
- Boeije, H. (2010). *Analysis in Qualitative Research* (1st ed., p. 223). London: Sage Publ. Inc.
- Bogner, A., Littig, B., & Menz, W. (2009). *Experteninterviews - Theorien, Methoden, Anwendungsfelder* (3rd ed., p. 306). Wiesbaden: Verlag für Sozialwissenschaften.
- Boschma, R. (2005). Proximity and Innovation: A Critical Assessment. *Regional Studies*, 39(1), 61–74.
- Bosma, N., & Levie, J. (2010). *Global Entrepreneurship Monitor 2009 Executive Report*. (p. 72).
- Brettel, M., Faaß, K., & Heinemann, F. (2007). Controlling für innovative junge Unternehmen. *Controlling & Management*, 3, 52–67.
- Burt, R. S. (2000). The network entrepreneur. In *Entrepreneurship: The social science view* (pp. 281–307). New York: Oxford University Press Oxford.
- Carayannopoulos, S., & Auster, E. R. (2010). External knowledge sourcing in biotechnology through acquisition versus alliance: A KBV approach. *Research Policy*, 39(2), 254–267.
- Chesbrough, H. (2003). The era of open innovation. *MIT Sloan Management Review*, 35–41.
- Christensen, C. M. (1997). *The Innovator's Dilemma: when new technologies cause great firms to fail* (p. 225). Boston: Harvard Business Press.

- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35(1), 128–152.
- Dacin, M. T., Ventresca, M. J., & Beal, B. D. (1999). The Embeddedness of Organizations: Dialogue & Directions. *Journal of Management*, 25(3), 317–356.
- Dodgson, M. (1993). Organizational Learning: A Review of Some Literatures. *Organization Studies*, 14(3), 375–394.
- Dushnitsky, G., & Lenox, M. J. (2005). When do incumbents learn from entrepreneurial ventures? Corporate venture capital and investing firm innovation rates. *Research Policy*, 34(5), 615–639.
- Eggert, A., & Ulaga, W. (2002). Customer perceived value: a substitute for satisfaction in business markets? *Journal of Business & Industrial Marketing*, 17(2/3), 107–118.
- Eisenhardt, K. M., & Martin, J. a. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10-11), 1105–1121.
- Elfring, T., & Hulsink, W. (2003). Networks in Entrepreneurship: The Case of High-technology Firms. *Small Business Economics*, 21, 409–422.
- Flatten, T. C., Engelen, A., Zahra, S. a., & Brettel, M. (2011). A measure of absorptive capacity: Scale development and validation. *European Management Journal*, 29(2), 98–116.
- Gartner, W. (1990). What are we talking about when we talk about entrepreneurship? *Journal of Business Venturing*, 5, 15–28.
- Gläser, J. (2009). *Experteninterviews und qualitative Inhaltsanalyse* (3rd ed., p. 347). Wiesbaden: Verlag für Sozialwissenschaften.
- Grimpe, C., & Kaiser, U. (2010). Balancing Internal and External Knowledge Acquisition: The Gains and Pains from R&D Outsourcing. *Journal of Management Studies*, 47(8), 1483–1509.
- Groen, A. (2005). Knowledge intensive entrepreneurship in networks: Towards a multi-level/multi dimensional approach. *Journal of Enterprising Culture*, 13(1), 69–88.
- Hastie, R. (2001). Problems for judgment and decision making. *Annual Review of Psychology*, 52(1), 653–683.
- Henderson, R., & Clark, K. (1990). Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms. *Administrative Science Quarterly*, 35(1), 9–30.

- Hippel, E. von. (1986). Lead Users: A Source of Novel Product Concepts. *Management Science*, 32(7), 791–805.
- Hite, J. M., & Hesterly, W. S. (2001). Research notes and commentaries the evolution of firm networks: From emergence to early growth of the firm. *Strategic Management Journal*, 22, 275–286.
- Huber, G. (1991). Organizational Learning: The Contributing Processes and the Literatures. *Organization Science*, 2(1), 88–115.
- Huff, A. S., Möslin, K. M., & Reichwald, R. (2013). *Leading Open Innovation*. Cambridge: MIT Press.
- Huggins, R., Izushi, H., Clifton, N., Jenkins, S., Prokop, D., & Whitfield, C. (2010). *Sourcing knowledge for innovation: the international dimension* (p. 54).
- Johnson, M. W., Christensen, C. M., & Kagermann, H. (2008). Reinventing Your Business Model. *Harvard Business Review*, (Dezember), 59–68.
- Kang, K. H., & Kang, J. (2009). How do firms source external knowledge for innovation? Analysing effects of different knowledge sourcing methods. *International Journal of Innovation Management*, 13(01), 1–17.
- Kao, R. W. Y. (1993). Defining Entrepreneurship: Past, Present and? *Creativity and Innovation Management*, 2(1), 69–70.
- Kirzner, I. M. (1997). Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach. *Journal of Economic Literature*, 35(1), 60–85.
- Kostopoulos, K., Papalexandris, A., Papachroni, M., & Ioannou, G. (2011). Absorptive capacity, innovation, and financial performance. *Journal of Business Research*, 64(12), 1335–1343.
- Lane, P. J., Koka, B. R., & Pathak, S. (2006). The Reification of Absorptive Capacity: A Critical Review and Rejuvenation of the Construct. *Academy of Management Review*, 31(4), 833–863.
- Lapierre, J. (2000). Customer-perceived value in industrial contexts. *Journal of Business & Industrial Marketing*, 15(2/3), 122–140.
- Laursen, K., & Salter, A. (2006). Open for innovation: the role of openness in explaining innovation performance among U.K. manufacturing firms. *Strategic Management Journal*, 27(2), 131–150.
- Lechner, C., & Dowling, M. (2003). Firm networks: external relationships as sources for the growth and competitiveness of entrepreneurial firms. *Entrepreneurship & Regional Development*, 15(1), 1–26.

- Leung, A., Zhang, J., Wong, P. K., & Der Foo, M. (2006). The use of networks in human resource acquisition for entrepreneurial firms: Multiple “fit” considerations. *Journal of Business Venturing*, 21(5), 664–686.
- Lewin, A., Massini, S., & Peeters, C. (2011). Microfoundations of Internal and External Absorptive Capacity Routines. *Organization Science*, 22(1), 81–98.
- Lin, C.-H., Sher, P. J., & Shih, H.-Y. (2005). Past progress and future directions in conceptualizing customer perceived value. *International Journal of Service Industry Management*, 16(4), 318–336.
- Lorenz, A. (2014). Your fault or mine? The Impact of Organizational Learning from Product-related Failure on Innovation Strategy. In *DRUID Society Conference 2014* (p. 43). Copenhagen, Denmark.
- Lowik, S., van Rossum, D., Kraaijenbrink, J., & Groen, A. (2012). Strong Ties as Sources of New Knowledge: How Small Firms Innovate through Bridging Capabilities*. *Journal of Small Business Management*, 50(2), 239–256.
- Luo, Y., Sun, J., & Wang, S. L. (2011). Emerging Economy Copycats: Capability, Environment, and Strategy. *The Academy of Management Perspectives*, 25(2), 37–56.
- Mayer, H. O. (2013). *Interview und schriftliche Befragung* (1st ed., p. 227). München: Oldenburg Wissenschaftsverlag GmbH.
- McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial Action and the Role of Uncertainty in the Theory of the Entrepreneur. *The Academy of Management Review*, 31(1), 132–152.
- Mintzberg, H., & Lampel, J. (1999). Reflecting on the Strategy Process. *Sloan Management Review*.
- Nonaka, I., Toyama, R., & Nagata, A. (2000). A Firm as a Knowledge-creating Entity: A New Perspective on the Theory of the Firm. *Industrial and Corporate Change*, 9(1), 1–20.
- O'Reilly, C. a, & Tushman, M. L. (2004). The ambidextrous organization. *Harvard Business Review*, 82(4), 74–83.
- Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2015). *Value Proposition Design: How to Create Products and Services Customers Want (Strategyzer)* (p. 208). Hoboken, New Jersey: John Wiley & Sons.
- Piller, F., & Ihl, C. (2009). Open Innovation with Customers: Foundations, Competences and International Trends. *Trend Study within the BMBF Project—International Monitoring*. Aachen: RWTH Aachen University.

- Presutti, M., Boari, C., & Majocchi, A. (2011). The Importance of Proximity for the Start-Ups' Knowledge Acquisition and Exploitation. *Journal of Small Business Management*, 49(3), 361–389.
- Ries, E. (2011). *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses* (p. 336). New York: Crown Publishing.
- Sarasvathy, S. D. (2001). Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency. *The Academy of Management Review*, 26(2), 243–263.
- Schmidt, T. (2010). Absorptive Capacity - One Size Fits All? A Firm-level Analysis of Absorptive Capacity for Different Kinds of Knowledge. *Managerial and Decision Economics*, 31(1), 1–18.
- Schumpeter, J. (1942). *Capitalism, socialism and democracy* (pp. 82–85). New York: Harper.
- Shane, S. (2000). Prior Knowledge and the Discovery of Entrepreneurial Opportunities. *Organizational Science*, 11(4), 448–469.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Shenkar, O., & Green, S. (2010). What Copycats Know About Innovation. *Harvard Business Review*. Retrieved February 12, 2015, from <https://hbr.org/2010/06/what-copycats-know-about-innov>
- Shepherd, D. A., McMullen, J. S., & Jennings, P. D. (2007). The Formation of Opportunity Beliefs: Overcoming Ignorance and Reducing Doubt. *Strategic Entrepreneurship Journal*, 1(1-2), 75–95.
- Spithoven, A., Clarysse, B., & Knockaert, M. (2011). Building absorptive capacity to organise inbound open innovation in traditional industries. *Technovation*, 31(1), 10–21.
- Starr, J. A., & MacMillan, I. C. (1990). Resource cooptation via social contracting: Resource acquisition strategies for new ventures. *Strategic Management Journal*, 11, 79–92.
- Stevenson, H., & Jarillo, J. (1990). A Paradigm of Entrepreneurship: Entrepreneurial Management. *Strategic Management Journal*, 11(5), 17–27.
- Stienstra, M., Harms, R., Ham, R. A. van der, & Groen, A. (2012). Culture and entrepreneurial processes; Evidence of influence. In *ICSB International Council for Small Business World Conference* (p. 25). Wellington.

- Tam, J. (2004). Customer Satisfaction, Service Quality and Perceived Value: An Integrative Model. *Journal of Marketing Management*, (852), 897–917.
- Teece, D., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509–533.
- Thomas, J. (2014). Startups in Berlin. *berlinvalley.com*. Retrieved July 1, 2014, from <http://whats-up-in.berlinvalley.com/startups-in-berlin/>
- Thurik, R., & Wennekers, S. (2004). Entrepreneurship, small business and economic growth. *Journal of Small Business and Enterprise Development*, 11(1), 140–149.
- Todorova, G., & Durisin, B. (2007). Absorptive Capacity: Valuing a Reconceptualization. *The Academy of Management Review*, 32(3), 774–786.
- Veen, M. Van Der, & Wakkee, I. (2004). Understanding the Entrepreneurial Process. In David Watkins (Ed.), *Annual Review of Progress in Entrepreneurship Research* (Vol. 2, pp. 114–152). Brussels: European Foundation of Management Development (EFMD).
- Veer, T., Lorenz, A., & Blind, K. (2013). How open is too open? The “dark side” of openness along the innovation value chain. In *35th DRUID Celebration Conference 2013* (p. 31). Barcelona.
- Volberda, H. W., Foss, N. J., & Lyles, M. A. (2010). Absorbing the Concept of Absorptive Capacity: How to Realize Its Potential in the Organization Field. *Organization Science*, 21(4), 931–951.
- Wei, Y. (Susan), & Wang, Q. (2011). Making sense of a market information system for superior performance: The roles of organizational responsiveness and innovation strategy. *Industrial Marketing Management*, 40(2), 267–277.
- Wong, P. K., Ho, Y. P., & Autio, E. (2005). Entrepreneurship, Innovation and Economic Growth: Evidence from GEM data. *Small Business Economics*, 24(3), 335–350.
- Yin, R. (2003). *Case study research: Design and methods* (Vol. 5, p. 200).
- Yli-Renko, H., Autio, E., & Sapienza, H. J. (2001). Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal*, 22(6-7), 587–613.
- Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *The Academy of Management Review*, 27(2), 185–203.

Appendices

Appendix A: Visually contrasting three common absorptive capacity concepts

Figure 12: Absorptive capacity concept by Cohen & Levinthal (1990)

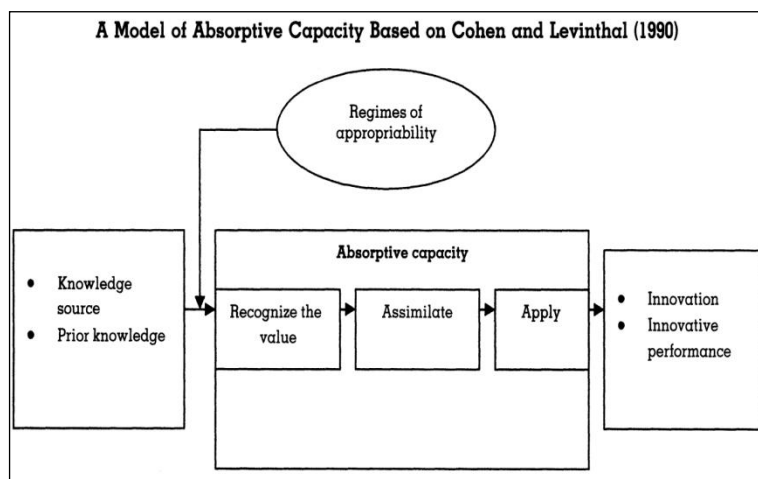


Illustration from Todorova & Durisin (2007).

Figure 13: Absorptive capacity concept by Zahra & George (2002)

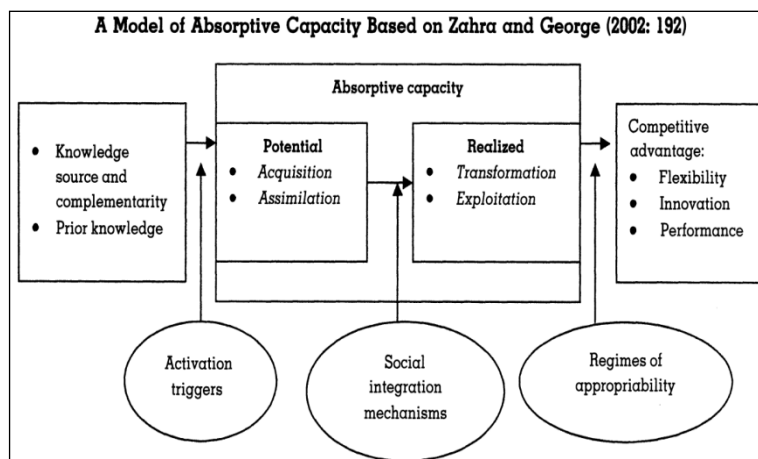


Illustration from Todorova & Durisin (2007).

Figure 14: Absorptive capacity concept by Todorova & Durisin (2007)

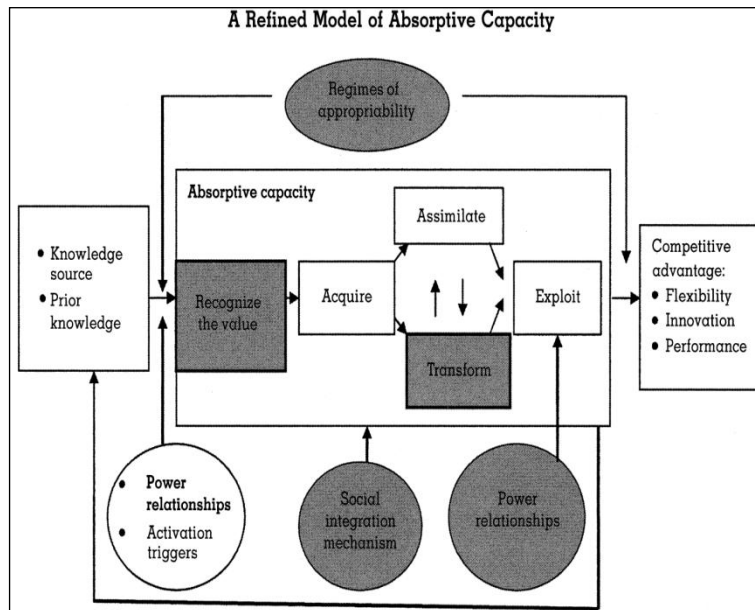


Illustration from Todorova & Durisin (2007).

Appendix B: List of identified relevant start-ups

Bar zahlen, Ezeep, Nextsocial, DELTAMETHOD, LinkLift (not scalable), Trademob, tame.it, Eventsofa, Fanpage Karma, Ordify (inactive), Paylogic, immoCommerce, TDispatch, mapegy, Keyrocket / Veodin, Rebate Networks, Adspert, Sorglosinternet, EventMobi, adsquare, Companisto, Fubalytics, Bergfürst, Arzttermine.de, Bonusbox, endore.me (inactive), 6Wunderkinder, emolyzr, Salonmeister, AdClear, Favor.it / uberall, Vidbee, evania (not new), 5apps, Ondango (inactive), Fortrabbit, TVSmiles, linkbird, K.lab Berlin, Plan.io, Madvertise (acquired), 9Cookies, Machtfit, Phonedeck, Datapine, Viasto, RapidUserTests, Rivalfox, Upload, Newsletter2Go, eyeota, djiiga, 88TC88, Personology, poachee, Signavio, OnFeedback (inactive), HQ Plus, feedify (inactive), Klickfilm, Orderbird, Expertcloud, TestCloud, NumberFour, carzapp, Colors of Eden (not B2B), MeinUnterricht (2 brands), Stickvogel, Billpay, Profitbricks, Table of visions, gigmit, Dropsan, itembase, Cloud Control, Twago, Workhub, DailyDeal, Mobile Event Guide, Digitale Seiten, 360report, adeven, GuideWriters, Veodin Software (2 brands), ExploreB2B, Divimove, Maschinendirigent, Chariteam, Papersmart.

Appendix C: Interview guide in English

Introduction

Thank you for taking the time for this interview. I'm looking forward to establish insights with you about how your company identifies, accesses and uses external knowledge.

Aim of the Master thesis and research question

For companies as well as startups there is always the one question "what product should we develop and in which market to offer this product?" My master thesis addresses this topic and investigates how startup organizations can learn from external sources of knowledge. There are different phases of dealing with external knowledge: recognize the value, acquire, assimilate, transform and exploit it. With my thesis I would like to understand how an innovative startup in B2B acts in the early phase of recognizing the value of external information and acquiring external information.

Interview process

The interview starts with general questions about how you interact with external knowledge and asks for an example. The next step will be more focused on the two relevant phases here: recognizing the value of external knowledge and acquiring external knowledge as a startup. The interview ends with a short conclusion and feedback by the interviewee. The interview is expected to take 45 minutes. These semi-structured questions include intentionally open questions, which address your experience, opinion and cognitive mindset. These questions should allow deep qualitative insights into the two phases investigated. Please answer freely and add experiences and thoughts you have spontaneously.

Confidentiality, privacy and anonymity

The analysis of the data is done confidentially and anonymously and can be published in a paper in an anonymous form. In order to evaluate the interview results, the interview is recorded, transcribed and temporarily saved for scientific purposes. The recordings are just used for this purpose and the research results will be provided to you after finalizing them. With your participation you consent with these conditions.

Do you have any questions before we start?

Introduction

1.1. Could you explain shortly how your start-up situation and milestones look like?

(e.g. Prototype, Validated Business Model, Paying Customers, Investors, IP, alliances)

1.2 Would you describe your firm as rather competitive or collaborative towards your market?

1.3 What is external knowledge for you?

External knowledge in start-ups

Definition: For the future I define it as knowledge that is new to the firm and is outside of the organization.

2.1 Give an example or can you name a situation when you learned most from external knowledge within the last year (2014)?

(example story, making clear the topic)

2.2 What did you learn from this external knowledge and in which areas?

(e.g. in terms of technology, product, process, strategy, market, cooperation, etc.)

2.3 How did you get in touch with this external knowledge?

(e.g. active-passive, which channel)

Recognize the value of external knowledge in start-ups

Definition: Recognizing the value addresses the seeing and understanding the potential of new external knowledge and aspects like prior related knowledge, skills and evaluation criteria play a role.

3.1 How do you realize that a specific external knowledge source might be valuable to your business?

3.2 How does your prior knowledge (e.g. education) influence your valuation of external knowledge?

(e.g. valuing, identification, evaluation, choice, importance, identifying as relevant)

3.3 What are triggers or signals to recognize the value of external knowledge?

(e.g. customer demand, trends, strategic fit, existing alliances, open innovation paradigm, business dev.)

3.4 Why do certain sources of external knowledge catch your attention more than others?

(e.g. cognitive, organizational, social, institutional and geographic proximity)

3.5 How do you evaluate potential sources of external knowledge? Which criteria do you use?

(e.g. efficiency, effectiveness; weak ties, strong ties; tacit and codified knowledge; formal and informal knowledge exchange; importance)

3.6 Have you developed routines to systematically investigate external knowledge on its relevance for your business and how do they look?

(e.g. advisory board, regular meetings, event participation, gatekeepers, probing, market research)

3.7 Are there information filters that prevent you from recognizing the value from certain external knowledge?

(e.g. not part of alliance, regional market, not located in a cluster, prior knowledge, path dependency, lacking intermediaries)

Acquisition of external knowledge in start-ups

Definition: Acquisition of external knowledge refers to a firm's capability to identify and acquire extern-ally generated knowledge that is critical to its operations. Acquire used in a broader way than only of buying something.

4.1 What type of external knowledge do you acquire?

(e.g. tacit and explicit knowledge; problem and general knowledge; domain)

4.2 How do you search and acquire relevant external knowledge?

(e.g. active-passive; informal networks; R&D collaboration; systematic, learning by doing;

congenital, experimental, vicarious learning, grafting and searching)

4.3 How many sources of external knowledge do you think are best suited for your business and why?

(e.g. more better or worse; path-dependent networks vs. calculative networks; Costs, benefits)

4.4 What causes you to acquire external knowledge, what's the trigger?

4.5 How does your prior knowledge influence your acquisition of external knowledge?

4.6 How do prior investments influence your acquisition of external knowledge?

4.7 How do prior relationships influence your acquisition of external knowledge?

4.8 How do you choose and change the direction, intensity and speed where you acquire external knowledge?

(e.g. in terms of industry, technology, region)

4.9 Which channels do you use to obtain information on external knowledge and why?

(e.g. inter-industry, intra-industry, scientific knowledge; personal networks, events, competitors, customers, suppliers, internet, databases, academic publications, market research, regulation)

4.10 Have you developed routines to systematically acquire external knowledge and how do they look?

(e.g. advisory board, regular meetings, event participation; get-out-of-the building)

Conclusion

5.1 Do you typically “recognize the value” before you “acquire” external knowledge or the other way?

5.2 How do you think does external knowledge influence your business outcomes?

5.3 Are there differences in how corporate companies and startups learn from external knowledge?

5.4 Would you like to add something that helps understanding the valuing or acquisition of external knowledge in your start-up?

Thank you for your time!

Appendix D: Interview guide in German

Einleitung

Vielen Dank, dass Sie sich für dieses Interview Zeit nehmen. Ich freue mich darauf Erkenntnisse mit Ihnen zu sammeln, wie Ihr Unternehmen externes Wissen identifiziert, darauf zugreift und es nutzt.

Ziel der Masterarbeit und Forschungsfrage

Sowohl Unternehmen als auch Start-ups stellen sich der Frage „welches Produkt sollten wir entwickeln und in welchem Markt sollten wir dieses anbieten?“. Meine Masterarbeit adressiert dieses Thema und untersucht wie

Start-ups von externem Wissen lernen können. Es gibt dabei unterschiedliche Phasen: erkennen des Werts, akquirieren, assimilieren und transformieren sowie die Umsetzung. Mit meiner Arbeit möchte ich verstehen wie ein innovatives Start-up im B2B Markt in den beiden frühen Phasen agiert: erkennen des Werts von externen Informationen und akquirieren von externen Informationen.

Interviewprozess

Das Interview beginnt mit generellen Fragen, wie Sie mit externem Wissen interagieren und fragt nach einem Beispiel. Der nächste Schritt ist fokussiert auf die beiden relevanten Phasen: dem Erkennen des Werts von externen Informationen und dem Akquirieren von externen Informationen als Start-up. Das Interview endet mit einer kurzen Zusammenfassung und Feedback durch den Befragten und dauert 45 Minuten. Diese semi-strukturierten Fragen beinhalten bewusst offene Fragen, welche Ihre Erfahrung, Meinung oder mentale Denkweise adressieren. Diese Fragen sollen ein tiefes qualitatives Verständnis in das Thema ermöglichen. Bitte antworten Sie frei und ergänzen Sie Erfahrungen und Gedanken die Sie spontan haben.

Vertraulichkeit, Privatsphäre und Anonymität

Die Datenanalyse ist vertraulich und anonym und das Ergebnis kann in einer anonymisierten Form in einem Paper veröffentlicht werden. Um die Interviewergebnisse zu evaluieren wird das Interview aufgezeichnet, transkribiert und temporär für wissenschaftliche Zwecke gespeichert. Die Aufnahmen werden nur für diesen Zweck verwendet und die Forschungsergebnisse werden Ihnen nach der Studie angeboten. Mit Ihrer Teilnahme stimmen Sie diesen Bedingungen zu.

Haben Sie noch Fragen bevor wir beginnen?

Einleitung

1.1. Können Sie bitte kurz erklären wie die Situation Ihres Startups und Milestones aussehen?

(e.g. Prototype, Validated Business Model, Paying Customers, Investors, IP, alliances)

1.2 Würden Sie Ihr Unternehmen eher als konkurrenzbetont oder kooperationsbetont bezeichnen, in Bezug auf Ihren Markt?

1.3 Was ist externes Wissen für Sie?

Externes Wissen in Start-ups

Definition: Für die Zukunft definiere ich externes Wissen als Wissen, welches neu für das Unternehmen ist und außerhalb der Organisation ist.

2.1 Bitte nennen Sie mir ein Beispiel oder eine Situation in der Sie im letzten Jahr (2014) am meisten von externem Wissen gelernt haben?

(example story, making clear the topic)

2.2 Was haben Sie von diesem externen Wissen gelernt und in welchen Bereichen?

(e.g. in terms of technology, product, process, strategy, market, cooperation, etc.)

2.3 Wie sind Sie mit diesem externen Wissen in Kontakt gekommen?

(e.g. active-passive, which channel)

Erkennen des Werts von externem Wissen in Start-ups

Definition: Erkennen des Werts von externem Wissen adressiert das Sehen und Verstehen des Potentials von externem Wissen und Aspekten wie vorheriges verbundenes Wissen, Fähigkeiten und Bewertungskriterien.

3.1 Woran erkennen Sie, dass eine spezielle Quelle von externem Wissen für Ihr Business wertvoll sein könnte?

3.2 Wie beeinflusst Ihr vorheriges Wissen (z.B. Ihre Bildung) Ihre Bewertung von externem Wissen?

(e.g. valuing, identification, evaluation, choice, importance, identifying as relevant)

3.3 Was sind Auslöser oder Signale um den Wert von externem Wissen zu erkennen?

(e.g. customer demand, trends, strategic fit, existing alliances, open innovation paradigm, business dev.)

3.4 Warum erregen bestimmte Quellen von externem Wissen Ihre Aufmerksamkeit mehr als andere?

(e.g. cognitive, organizational, social, institutional and geographic proximity)

3.5 Wie bewerten Sie mögliche Quellen von externem Wissen? Welche Kriterien wenden Sie an?

(e.g. efficiency, effectiveness; weak ties, strong ties; tacit and codified knowledge; formal and informal knowledge exchange; importance)

3.6 Haben Sie Routinen entwickelt um externes Wissen systematisch auf seine Relevanz für Ihr Business zu prüfen und wie sehen diese aus?

(e.g. advisory board, regular meetings, event participation, gatekeepers, probing, market research)

3.7 Gibt es Informationsfilter die Sie davon abhalten den Wert von bestimmtem externem Wissen zu erkennen?

(e.g. not part of alliance, regional market, not located in a cluster, prior knowledge, path dependency, lacking intermediaries)

Akquisition von externem Wissen in Start-ups

Definition: Die Akquisition von externem Wissen bezieht sich auf die Fähigkeit eines Unternehmens extern generiertes Wissen zu identifizieren und akquirieren, welches für Ihre Tätigkeiten von hoher Bedeutung ist. Akquisition ist hier in einem breiteren Kontext gemeint, als nur dem Kauf von etwas.

4.1 Welche Art von externem Wissen akquirieren Sie?

(e.g. tacit and explicit knowledge; problem and general knowledge; domain)

4.2 Wie suchen und akquirieren Sie relevantes externes Wissen?

(e.g. active-passive; informal networks; R&D collaboration; systematic, learning by doing, congenital, experimental, vicarious learning, grafting and searching)

4.3 Wie viele Quellen von externem Wissen halten Sie für am besten geeignet für ihr Business und warum?

(e.g. more better or worse; path-dependent networks vs. calculative networks; Costs, benefits)

4.4 Warum akquirieren Sie externes Wissen, was ist der Auslöser?

4.5 Wie beeinflusst ihr vorheriges Wissen Ihre Akquisition von externem Wissen?

4.6 Wie beeinflussen Ihre vorherigen Investitionen Ihre Akquisition von externem Wissen?

4.7 Wie beeinflussen Ihre vorherigen Beziehungen Ihre Akquisition von externem Wissen?

4.8 Wie wählen und ändern Sie die Richtung, Intensität und Geschwindigkeit mit der Sie externes Wissen gewinnen?

(e.g. in terms of industry, technology, region)

4.9 Welche Kanäle nutzen Sie um Informationen über externes Wissen zu gewinnen und warum?

(e.g. inter-industry, intra-industry, scientific knowledge; personal networks, events, competitors, customers, suppliers, internet, databases, academic publications, market research, regulation)

4.10 Haben Sie Routinen entwickelt um systematisch externes Wissen zu akquirieren und wie sehen diese aus?

(e.g. advisory board, regular meetings, event participation; get-out-of-the building)

Zusammenfassung

5.1 Erkennen Sie den Wert von externem Wissen typischerweise bevor Sie dieses akquirieren oder anders herum?

5.2 Wie denken Sie, beeinflusst externes Wissen Ihre Geschäftsergebnisse?

5.3 Gibt es Unterschiede darin wie etablierten Unternehmen und Start-ups von externem Wissen lernen?

5.4 Möchten Sie etwas hinzufügen, dass dabei hilft das Erkennen des Werts oder die Akquisition von externem Wissen in Ihrem Unternehmen besser zu verstehen?

Vielen Dank für Ihre Zeit!