

**Opportunities, Environment and Entrepreneur Interaction: Exploring the
Entrepreneurial Process**

- Insights from Germany and Japan -

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Abstract

Dealing with opportunities is crucial for entrepreneurs and businesses, as it is fundamental step in the entire entrepreneurial process. A major debate within entrepreneurship research concerns whether opportunities are discovered or created. Some authors arguing that opportunities are discovered, thus emerging from the external environment, while others believe that opportunities are created by entrepreneurs. While opportunities remain essential for the creation of new ventures, entrepreneurship literature moves towards the understanding that the entrepreneurial process is more complex and needs to be viewed as an iterative, interactive, and recursive process.

This dissertation addresses this gap in entrepreneurship research by examining how an opportunity evolves into a business, exploring the dynamic interaction between entrepreneurs and their environments over time along the entire entrepreneurial process from a holistic point of view. While many studies focus on specific aspects of the entrepreneurial process and see a one-dimensional relation between an entrepreneur and his/her environment, this thesis assumes a circular, dual relationship between the entrepreneur and the environment along the continuous and iterative development of new ventures. Thus, the dissertation proposes that both opportunity discovery and creation take place. Therefore, the research question is raised: ***How and in which way is an entrepreneur interacting with his/her environment in the process of developing a business?***

The dissertation aims to contribute to a deeper understanding of the entrepreneurial process by examining how opportunities evolve from first ideas up to running businesses. To answer the research question, a theory-integrated qualitative multiple case study approach is chosen, which allows for a theory building approach in the broadest sense as the goal is to illuminate a process, provide deep empirical insights and enlighten the dual relationship between an entrepreneur and the environment. Specifically, interviews with founders of eight start-ups from Germany and Japan that benefit from an exogeneous shift-based opportunity, demographic change, have been conducted, analyzed and compared. The research identifies four archetypical entrepreneurial processes: the cooperative one, the self-sufficient one, the product maker, and the married one. The archetypical entrepreneurial processes differ along two dimensions, namely intention of interaction and intensity of interaction.

This dissertation makes significant contributions to (strategic) entrepreneurship research by exploring the entrepreneurial process along entrepreneur and environment interaction,

suggesting that the relationship between entrepreneurs and their environment is reciprocal and evolves over time. With deep empirical insights, found patterns and the archetypical entrepreneurial processes, the dissertation contributes to strategic entrepreneurship research in general and new venture creation process research, entrepreneurship/entrepreneur-opportunity nexus, and external environment and entrepreneurial agency literature in particular by advancing our understanding of differences among entrepreneurial processes. At the same time, this new perspective has practical implications for practitioners and policymakers, particularly in the context of demographic changes, which are seen as a grand challenge, societies are facing.

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1 Introduction

1.1 Relevance of the Topic

Dealing with and developing opportunities seems to be of utmost importance not only for entrepreneurs but for all businesses. Why? – because “opportunity recognition is widely viewed as a key step in the entrepreneurial process – one from which, in many cases, all else follows” (Baron 2006, p. 104). The recognition and exploitation of opportunities is certainly one of the biggest steps in every business. Literature on opportunities reveals an ongoing discussion over the question whether opportunities are discovered or created (e.g. Alvarez & Barney 2007; Berglund, Bousfiha, & Mansoori 2020; Busenitz, Plummer, Klotz, Shahzad, & Rhoads 2014; Eckhardt & Shane 2003; Eckhardt & Shane 2010; Ramoglou & Gartner 2023; Shane 2003; Short, Ketchen, Shook, & Ireland 2010) and “entrepreneurship scholarship has indeed been preoccupied with this question for the last couple of decades” (Ramoglou & McMullen 2024, p. 273). Despite this discussion, there are people who either do not discover the opportunity or are not able to create one and last but not least do not see an opportunity but a threat (e.g. Davidsson 2015, p. 674).

Past entrepreneurship has been extensively attentive to opportunities creating “an artificial debate” (Ramoglou & Gartner 2023, p. 1522), probably “focusing on the wrong concept” (Davidsson 2023, p. 599) and majorly “constrain[ing] future entrepreneurship research” (Davidsson 2023, p. 594). So, should research start “ditching discovery-creation for unified venture creation research” (Davidsson 2023, p. 594)? Entrepreneurship research indeed has reached the point of “a historical intervention in the ‘opportunity wars’” and “should we perhaps abandon the opportunity concept altogether?” (Ramoglou & Gartner 2023, p. 1521). Probably not, as it is also clear that “entrepreneurs do not create new ventures out of thin air” (Kimjeon & Davidsson 2022, p. 643).

Opportunities can still be considered as something that “drives early-stage action”, but future research can enhance entrepreneurship as a field of study by focusing on the process of new venture creation as an “iterative and interactive process, often of high complexity and long duration” (Davidsson 2016, p. 22; 2023, p. 602), as detected by several authors (Ardichvili, Cardozo, & Ray 2003; Dimov 2007; McMullen & Dimov 2013; Menzies, Diochon, Gasse, & Elgie 2006; Rotefoss & Kolvereid 2005; Wood & McKinley 2010). However, empirically, deep insights are missing and studies “employ linear models that are presumed to occur at a single point in time” (Dimov 2011; McMullen & Dimov 2013, p. 1481). Only “few studies trace this journey from start to finish” (Dimov 2011, p. 1507). Particular interest exists in investigating the

“enabling influence of environmental changes [...] on emerging ventures” (Kimjeon & Davidsson 2022, p. 643) and future research can probe the role of “external enablers, ideas, or beliefs” (Ramoglou & Gartner 2023, p. 1527).

There are additional ideas on business development and opportunity recognition (e.g. Ardichvili et al. 2003; Baron 2006; Davidsson 2015), stemming from literature on the entrepreneurship nexus. These approaches do see the relation between the entrepreneur and the environment as a one-dimensional relationship, one side seeing the environment influencing the entrepreneur (Davidsson 2015, p. 686) and one seeing the entrepreneur influencing the environment (York & Venkataraman 2010, p. 453). These approaches do, however, fall short. The one-dimensional explanation lacks a deeper understanding and investigation of the entrepreneurial process. As pointed out by Littunen (2000, p. 301) “contingency theory emphasizes the importance of the environment in research on entrepreneurship”. Thus, taking fundamental theoretical contributions into account, such as contingency approach and structuration theory, the entrepreneurial process can be presumed as an ongoing and dual relationship between the entrepreneur and the environment, implying that opportunities are both discovered and created.

Thus, the exploration of entrepreneurial processes can be carried out “along the entire range of structure-venture-agent emphases” (Davidsson 2023, p. 606), “investigat[ing] the reciprocal nature of the relationship between starting up a new venture and the external environment” (Shepherd, Souitaris, & Gruber 2021, p. 33). Specifically, future research has the potential to identify and explore “external environment and entrepreneurial agency” (Shepherd et al. 2021, p. 33). The interaction between the external environment and entrepreneurial actions has gained recent attention, but “there is more to learn about how the players in the process of starting up a new venture can both adapt to changes to the environment and, by their actions, change the environment” (Shepherd et al. 2021, p. 33). “It is critically important that future research investigate the reciprocal nature of the relationship between starting up a new venture and the external environment” (Shepherd et al. 2021, p. 33). Also Davidsson (2016, p. 23) suggests that in the future more studies will focus on “entrepreneurship as a process”, telling a “good story [with] conflict, character, setting, sequence, and plot and arc” (Shepherd & Suddaby 2017, p. 59) has much potential. And contributions can be made along “recursive relations” (Davidsson & Gruenhagen 2021, p. 1098).

1.2 Research Question and Aim

This dissertation aims for closing this gap and tries to understand the entrepreneurial process in depth, especially how an opportunity becomes an idea and develops into a business. The dissertation aims for a realistic depiction of the circular process between the entrepreneur and the environment along the entire entrepreneurial process, from opportunity up to an active business. Thereby, the dissertation strives for a middle course between opportunity discovery and creation by assuming that both processes are essential for setting up a business, aligning with previous research indicating that opportunities are neither “undiscovered or created entities” but stem from the visions, expressions, and ideas of entrepreneurs (Bylund & Packard 2022; Dimov 2020; Ramoglou & McMullen 2024, p. 273).

To do so, the dissertation was inspired by Davidsson’s (2015) idea and reconceptualization of the entrepreneurship nexus. In contrast to previous contributions, the dissertation does not stop its investigation after opportunity recognition or business foundation (Ardichvili et al. 2003; Baron 2006; Wood & McKinley 2010), but extends the scope. It focuses on understanding and tracing the entrepreneurial process in terms of how a business activity develops out of an opportunity and what influences the development especially under the assumption that not everyone sees the same opportunities. In contrast to Davidsson (2015), a circular, interactive and dual relationship between the entrepreneur and the environment along the whole process from recognizing an opportunity up to a well-established business is assumed.

Thereby, this dissertation aligns with Gioia et al. (2022, p. 233) and sees “organizations as structural creations”, which implies that individuals within organizations start to act and “create structures, which recursively enable and constrain further action.” This means, it is recognized that human intention and decision-making are the driving force behind initiating this process, giving individuals as actors a primary role. Once this process is in motion, individuals tend to regard the created and established structures as tangible realities and base their behaviors on these perceptions. (Gioia et al. 2022, p. 233) Also, within this dissertation, opportunities are not seen as “something unknowable or non-existing”, but are considered “as the entrepreneur’s evolving vision” (Davidsson 2023, p. 601f.). Consequently, opportunity evolvment is understood as “the journey from subjective dream or idea to a viable, operating venture including manifestations of its products/services as well as demand for and use of them” (Davidsson 2023, p. 602).

Businesses and business ideas keep developing even after their foundation. They might for example redirect the focus of their product, service or invention or extend their product portfolio. Therefore, the interest does not only lie in the ‘beginning phase’. More precisely, the entrepreneurial process from first opportunity recognition up to a successful enterprise (as displayed in Figure 1) is considered. A specific aim of this research is to illuminate the ‘entire’

entrepreneurial process, from a holistic point of view. Thereby, this dissertation is able to “improve our understanding of how the outcome of the entrepreneurial process is generated” (Bouchikhi 1993, p. 550) along “recursive relations” (Davidsson & Gruenhagen 2021, p. 1098) exploring “iterative and interactive” new venture creation processes (Davidsson 2016, p. 22; 2023, p. 602). In line with the presented argumentation, the following research question is raised: ***How and in which way is an entrepreneur interacting with his/her environment in the process of developing a business?***

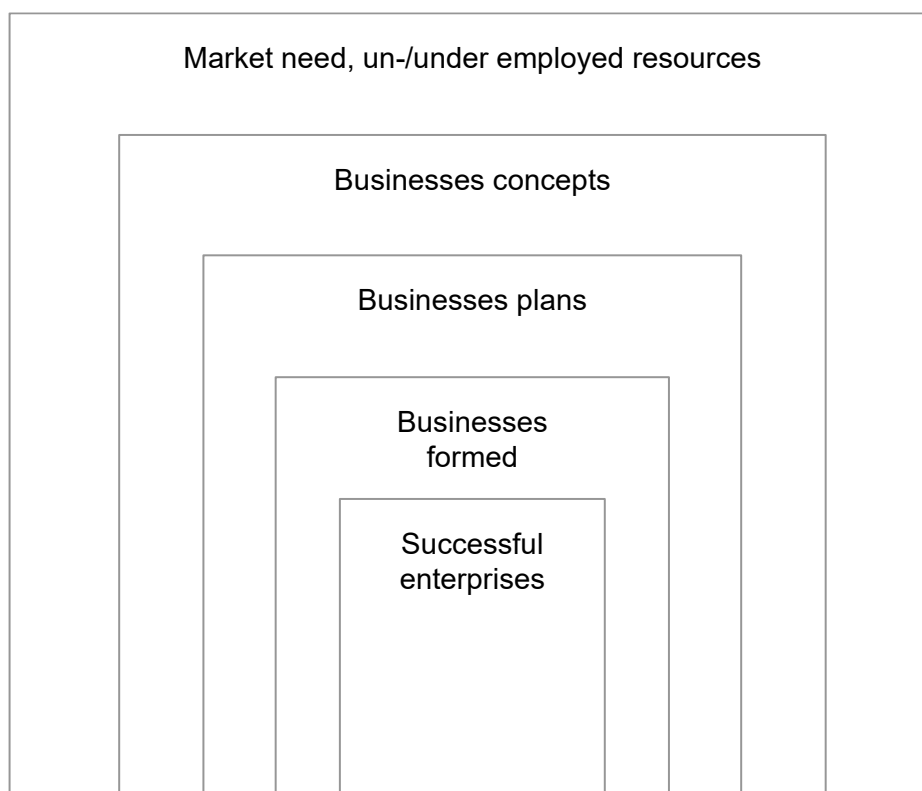


Figure 1: Business Formation Process
Source: Ardichvili et al. (2003, p. 112).

Overall, the proposed research will allow for a theory building approach in the broadest sense as the goal is not ultimately to build a theory but to illuminate a process, provide deep empirical insights and enlighten the dual relationship between and entrepreneur and his/her environment. However, exploring eight different cases of start-ups in Germany and Japan, leads to the identification of four archetypical entrepreneurial processes that differ along intention and intensity of interaction. With deep empirical insights, found patterns and the archetypical entrepreneurial processes, the dissertation aims for contributing to strategic entrepreneurship research in general and new venture creation process research, entrepreneurship/entrepreneur-opportunity nexus, and literature on external environment and entrepreneurial agency in particular. Existing presumptions are supported and extended by showing that entrepreneurial processes unfold along recursive, dual interactions that differ in

terms of focused or broad intentions for interactions and intensity of interaction that are low or high in terms of how many different points of interaction a start-up has.

The research also shows practical significance, as the outcome strives for an identification of the 'influences' on the entrepreneurial process. Having identified those 'influences', practitioners, particularly new founders, but also managers can make use out of this knowledge. They can seek support by the 'influences' in the process of making use of an opportunity. And it may be relevant for actors developing ideas into a full business (activity). Also, the outcome presents an inflection point for stakeholders in the entrepreneurship and start-up environment, such as funding programs, development banks, business angels and venture capitalists. Those stakeholders can learn more about archetypes of entrepreneurial processes in general and particularly about the entrepreneurial ecosystem in Germany and Japan. Specifically, the Japanese ecosystem is underrepresented in English-written journals. Additionally, the outcome may provide information on how businesses may deal with environmental shifts from a real-life perspective. Consequently, decision makers (also in larger companies) may be able to see threats as potential opportunities for their business activities.

Moreover, a contribution can be seen in addressing a 'grand challenge' societies are dealing with (Colquitt & George 2011, p. 432). As the study is taking demographic change as an exemplary opportunity, the dissertation deals with this tremendously important topic on a side note. Demographic change is seen as one of the challenging mega trends in the current century and "management scholars have an incredible opportunity to participate in and shape the discussion on the aging population, and to contribute research that helps policymakers, managers, and individual workers to make better, more informed decisions" (Kulik, Ryan, Harper, & George 2014, p. 934). Additionally, entrepreneurship research is currently taking new directions and future research is encouraged to avoid treating the environment as "some static, all-powerful force" and explore the interconnected relationship between start-ups and their surroundings more deeply (Shepherd et al. 2021, p. 33). Thus, the dissertation does not only fill a research gap but contributes to the academic discourse by illuminating the topic of demographic change as the initiator of an entrepreneurial process and considering the entrepreneurial process as an interplay between opportunity, environment and entrepreneur. Overall, this thesis has a high significance for strategic entrepreneurship research.

1.3 Structure of Dissertation

To answer the research question, this dissertation follows an empirical approach and is structured along six major parts, the first one being an introduction opening the topic with relevance, research gap and research aim and asking the central research question and the

last one being the conclusion providing a summary and limitations. The following paragraphs go into detail on each of the major parts of this dissertation also mentioning what the respective aim is. Insights are provided, what the reader can expect in every chapter. To ease the navigation, Figure 2 summarizes the structure of this dissertation.

After the introduction, this dissertation dives into the **theoretical foundation** of the topic. The theoretical foundation is structured along the main terms of the title and research question, namely opportunities, environment and entrepreneur. The aim of this chapter is to provide an overview of entrepreneurship research and state and define how terms are understood within this thesis. To do so, as a first step this dissertation looks at (strategic) entrepreneurship research, its status, past achievements exploring and identifying research gaps. Specifically, opportunities and opportunity research is considered, as well as the “historical intervention in the ‘*opportunity wars*’” (Ramoglou & Gartner 2023). Specific emphasis lies on new venture creation processes and the interaction between entrepreneurs and their external environment. Then, going into detail, exogeneous shift-based opportunities are explored and specifically demographic change is explained.

In a second step, ‘the’ *environment* is considered as one of the key terms to be defined. To approach the term, a short overview of understandings of a business’s environment from a management perspective is given, before going into detail on the understanding from an entrepreneurship perspective. However, a clear understanding is missing. Therefore, this dissertation aims to shed light on the term environment from a theoretical as well as real -life perspective. A literature review citing articles that consider an entrepreneur’s environment is conducted and the author coded the respective articles’ environment understanding following a grounded theory approach. Overall, eight dimensions of an entrepreneur’s environment are classified. Additionally, sensitizing interviews that were conducted with entrepreneurship experts and deductively coded are considered to eventually present the eight dimensions of the environment with real-life examples and anecdotes.

In a third step, theoretical foundation goes into detail on the term *entrepreneur*. Specifically, an overview of entrepreneurial traits and characteristics research is presented. Then this chapter clarifies what we can understand as a start-up within this thesis, which is essential for collecting empirical data. Lastly, the business model concept is explained, which helps to better understand and grasp a business in its entirety beyond the borders of the actual business. Also, the business model concept is needed for the empirical study as it represents the embedded unit of analysis.

The third part of this dissertation presents the underlying **methodology** and can be classified into two main parts: the research design and the methodological approach. The aim of this

chapter is to explain how and why methodological decisions were made and enhance transparency. Thereby, validity and traceability can be ensured. The first part goes into detail on the overall and encompassing *research design*. The chosen theory-integrated multiple case study design is presented next to where this thesis aligns itself as a process study. Then, it is explained, why a qualitative approach was chosen, before going into detail on the case study design, defining the case and embedded units of analyses. The second part of the methodology chapter presents the *methodological approach*. Here, a detailed description is provided for each step that was taken to conduct a qualitative empirical case study. Particularly, the case selection process is explained, data collection strategy is revealed, and an entire chapter deals with how the author entered the field and how data was prepared for analysis. Then the chosen data analysis strategies are presented and explained, before the last chapter presents how quality was ensured during the empirical study.

The fourth part of presents the **analysis** and outcome of the empirical study, structured along the within-case and cross-case analysis. The aim of this chapter is to provide rich and deep descriptions of entrepreneurial processes in the within-case analysis, before pattern matching and pairwise comparisons take place in the cross-case analysis to find patterns and build a typology. Particularly, the *within-case analysis* first presents the realization of the purposeful sampling plan and then presents each individual case. Each case is displayed by an executive summary, a deep and rich description of the respective entrepreneurial processes drawing a holistic picture, followed by a visualization of the cases' entrepreneurial process. The *cross-case analysis* starts with pattern matching along theoretical and emerged categories following the pattern matching techniques by Eisenhardt (1989). Pattern matching is conducted along four different conceptualities, before entering pairwise comparisons. Pattern matching and pairwise comparison support building a typology, which is presented in the latter part of the cross-case analysis, introducing four typical entrepreneurial processes that differ along intention and intensity of interaction, namely: the cooperative one, the self-sufficient one, the product maker and the married one. Lastly, empirical results are critically reflected.

After the presentation of results, this thesis enters the **discussion and contribution** in chapter five. This chapter dives into the three major and three additional contributions this thesis is able to make. Here, the insights into entrepreneurship research presented in chapter 2.1 are considered. Also, additional literature and research gaps are taken into consideration, to present a more complete picture of contributions made. The following Figure 2 summarizes the entire structure of the dissertation to help the reader to follow the storyline and show how "thinking across dimensions" was possible (Gartner 1985, p. 698).

Introduction	Chapter 1	Topic introduction & guidance	Relevance & gap Research question Structure of dissertation
Theoretical Background	Chapter 2	Entrepreneurship & opportunities	Entrepreneurship & opportunities research Demographic change
		Environment	General environment perspective Entrepreneurial environment
		Entrepreneur & new ventures	Entrepreneurial traits research Start-ups & business model design
Methodology	Chapter 3	Research design	Theory-integrated case study design Process study Qualitative multiple case study
		Methodological approach	Case selection Data collection strategy Data analysis approach Applied quality criteria
Analysis	Chapter 4	Within-case analysis	DiagCo, SipCo, TrainCo, SoundCo, BrainCo, FilmCo, PetCo, MedCo
		Cross-case analysis	Pattern matching & pairwise comparison Typology
		Reflection	Critical reflection
Discussion	Chapter 5	Contributions	Major contributions Additional contributions
Conclusion	Chapter 6	Conclusion	Summary Limitations

Figure 2: Structure of Dissertation
Source: Own illustration.

2 Theoretical Foundation

2.1 Entrepreneurship and Opportunities

The following chapters present a theoretical introduction to the field of entrepreneurship. Current evolvments in entrepreneurship research are pointed out and described, disclosing research gaps. A particularly important topic of (current) entrepreneurship research, but also this thesis, is the opportunity construct. As described in the introduction, opportunities research has met a breaking point, where researchers demand the end of “opportunity wars”. This thesis focuses on entrepreneurial processes, specifically how an opportunity becomes a running business. Therefore, one focus of the first chapter lies in the opportunity construct and past and present opportunities research. Then, this chapter dives into the exact definition of different types of opportunities, majorly focusing on exogeneous shift-based opportunities based on demographic change. A definition and explanation of demographic change is provided.

2.1.1 Entrepreneurship and Opportunities Research

“The emergence of ‘opportunities’ in entrepreneurship research seems to represent an important inflection point in the maturing and influence of entrepreneurship as a field of study.” (Busenitz et al. 2014, p. 15)

In alignment with the above statement, the opportunity construct is one of the main constructs investigated in entrepreneurship research and “future research should probe environmental influences on the emergence and development of new opportunities” (Busenitz et al. 2014, p. 14). There are ideas on business development and opportunity recognition (e.g. Ardichvili et al. 2003; Baron 2006; Davidsson 2015), which see the relation between the entrepreneur and the environment as a one-dimensional relationship. This approach does, however, fall short as the one-dimensional explanation lacks a deeper understanding and investigation of the dual interaction occurring along the entrepreneurial process. Additionally, newly developments in the research field question whether opportunities are actually of interest at all (Davidsson 2023; Ramoglou & Gartner 2023).

In the following paragraphs, past, present and future research in the entrepreneurship field in general and opportunities in particular are explored and inflection points are introduced. The deep dive into existing literature leads to the research question, which asks *How and in which way is an entrepreneur interacting with his/her environment in the process of developing a business?* To be able to answer the research question eventually, this chapter continues to look into existing literature on interaction within the entrepreneurship field. Then, this chapter

dives deeper into the discussion surrounding the ideas of opportunity creation and discovery, exploring the antagonistic viewpoints to draw a holistic picture and disclose how authors see opportunities differently. The discussion on opportunity discovery and opportunity creation shall be enlightened, guided along existing literature reviews. But what do we understand as an opportunity in the first place? Initially the different understandings of the term opportunity shall be looked at, to find a suitable definition for this dissertation.

“Expressions about opportunities are used unproblematically in everyday contexts. Yet, the question ‘What is an opportunity?’ has posed a difficult riddle in the academic study of entrepreneurship.” (Ramoglou & McMullen 2024, p. 273)

Understanding of Opportunities. Opportunities are without doubt central to any entrepreneurial activity (Busenitz et al. 2014, p. 13; Davidsson 2015, p. 677; Shane & Venkataraman 2000, p. 217, 220). However, a closer look into entrepreneurship research reveals a rather diverse understanding of the term entrepreneurial opportunity (Davidsson 2015, p. 679; Hansen & Shrader 2007; Short et al. 2010, p. 41). There are numerous literature reviews that evolved throughout the years aiming for an investigation of the term opportunity on the one hand and a review of opportunities research on the other hand (e.g. Busenitz et al. 2014; Busenitz et al. 2003; Davidsson 2015; Eckhardt & Shane 2003; Hansen & Shrader 2007; Short et al. 2010). Hansen, Shrader, and Monllor (2011) for example review definitions of the term opportunity over a time frame of 19 years and reveal that definitions can be classified along six different conceptual and eight different operational definitions. (Hansen et al. 2011, p. 292f.). Hansen and Shrader (2007) even go so far and state that only the spelling of the word ‘opportunity’ is similar among different sources. Despite the diverse understanding of the term opportunity, the inconsistency of definitions ultimately leads to inconsistencies in operationalization (Hansen & Shrader 2007) and empirical studies (Davidsson 2016, p. 20).

To understand the term, first the difference between opportunities and entrepreneurial opportunities needs to be investigated. Even though both terms get intermixed and especially in entrepreneurship research, researchers usually just refer to opportunities, there is a difference. One of the earliest works that addresses the discussion is the article by Kirzner (1997). Despite its rather special perspective on opportunity discovery, Kirzner (1997) makes clear that the sole profit-driven opportunity does not correspond to an entrepreneurial perspective. There are of course opportunities where an ‘entrepreneur’ can open a business and make profit out of the business just because price exceeds costs. In this scenario, however, the entrepreneur can hardly be seen as such as s/he only operates the business. The entrepreneur is thus only the ‘owner’. (Kirzner 1997, p. 69) Transferring this idea to the real world, a baker in a small town takes the opportunity to buy the recently closed bakery. S/he opens a new bakery. This new bakery has the chance to make profit. This situation does not refer to an entrepreneurial opportunity as there is only an owner operating the business.

This example is summarized by Shane and Venkataraman (2000, p. 220) as in this case the opportunity solely “involve[s] optimization within existing means-ends frameworks”. To conclude, an entrepreneurial opportunity¹ involves more than just making profit based on existing business models.

Entrepreneurial opportunities are based on something new (Casson 1982, p. 316; 2003, p. 179), their innovative character is emphasized throughout literature (e.g. Busenitz et al. 2014, p. 14; Casson 2003, p. 70; Shane & Venkataraman 2000, p. 220) and based on Schumpeterian innovation. Schumpeter (2000, p. 51) describes entrepreneurial development as only taking place when new combinations are carried out. Schumpeter addresses clearly that all the newness must not necessarily be groundbreaking, it may already exist but has not been e.g. used, entered, combined before. Within this dissertation, opportunities are understood in accordance with Schumpeter (2000, p. 51) as being innovative. Also, within this dissertation, opportunities are not seen as “something unknowable or non-existing”, but are considered “as the entrepreneur’s evolving vision” (Davidsson 2023, p. 601f.). Thereby, this thesis is aligned with the “opportunity-as-vision” that builds on the dual relationship between structure and actor following Giddens (1984, 1991) ideas (Davidsson 2023, p. 602). Consequently, opportunity evolvment is understood as “the journey from subjective dream or idea to a viable, operating venture including manifestations of its products/services as well as demand for and use of them” (Davidsson 2023, p. 602).



Figure 3: The Entrepreneurial Process
Source: Own illustration based on Ardichvili et al. (2003, p. 106).

Taking a closer look, Ardichvili et al. (2003) have some interesting thoughts on the entrepreneurial process. The authors see opportunities not just as created or discovered, they do see a process from opportunity recognition to opportunity evaluation and opportunity development. Initially, individuals need to recognize opportunities, which means taking basic ideas and shaping them into comprehensive business plans. Opportunity recognition is also not just one step, but comprehends perception, discovery and creation (not referring to the meaning according to the discussion of opportunity creation and opportunity discovery). During opportunity perception, an individual becomes aware of existing gaps or untapped resources

¹ As the difference of the terms opportunity and entrepreneurial opportunity has been explained, from now on the dissertation will refer to opportunity meaning entrepreneurial opportunity.

in the market, senses and perceives those market needs and underutilized resources. Interestingly and as pointed out before, not everyone 'sees' these opportunities. People may have distinct levels of awareness when it comes to spotting unmet needs or underutilized resources. Discovery then entails the step in identifying a 'fit' between specific market needs and available resources. Creation corresponds to the ability of individuals to create a new connection or 'fit' between previously unrelated needs and resources, giving rise to a business concept. This step involves innovation and the generation of new ideas. (Ardichvili et al. 2003, p. 109f.) Opportunity development is "a continuous, proactive process essential to the formation of a business" (Ardichvili et al. 2003, p. 109). During this dynamic process entrepreneurs take initial concepts and gradually refine them into more intricate business ideas, which requires active efforts. One effort might be new product development, but goes beyond the sole product and involves building an entire business entity. (Ardichvili et al. 2003, p. 109) Opportunity evaluation is a crucial aspect of the entrepreneurial process, occurring at various stages of opportunity development. Especially in the beginning, the evaluation can be more „informal or even unarticulated" to really decide if the opportunity is worth being pursued (Ardichvili et al. 2003, p. 111). After the initial evaluation and along the process, opportunity evaluation becomes much more formal, taking the forms of feasibility analyses, due diligence processes or stage gate processes. The goal is always to decide to further go down this direction or abandon an idea. (Ardichvili et al. 2003, p. 111f.) This process never really stops as Ardichvili et al. (2003, p. 109) already suggest when describing opportunity development as a continuous process:

"Firm founders do not instantaneously establish new firms, but create them through a series of actions—obtaining inputs, conducting product development, hiring employees, seeking funds, and gathering information from customers—undertaken to different degrees, in different order, and at different points in time, by different firm founders (Gartner 1985)." (Delmar & Shane 2004, p. 385)

The state of entrepreneurship and opportunities research. When we look at entrepreneurship research and its evolution, several phases can be identified (Davidsson 2016, p. 19–23).² The beginning of entrepreneurship research can be described as having an overlap with small business research, which also explains that there is a lot of discussion on the understanding of entrepreneurship and particularly start-ups, which will shortly be considered in chapter 2.3.2 (Birch 1987; Birley 1996; Birley & Norburn 1985). However, researchers soon noticed a clear difference between small businesses and entrepreneurial ventures, as most small businesses are not innovative. After the initial separation of small business and entrepreneurship research, entrepreneurship research developed an overlap

² This introductory overview is majorly aligned with what Davidsson (2016) describes as the path of entrepreneurship research. More details can be gained in the respective book chapter.

with strategy research, which still is obvious as there does exist a research field called strategic entrepreneurship. (Davidsson 2016, p. 19) This thesis can be classified as contributing to strategic entrepreneurship.

Entrepreneurship research majorly focused on personality traits and characteristics of entrepreneurs (Busenitz et al. 2014, p. 984; Davidsson 2015, p. 676; Eckhardt & Shane 2003, p. 345; Short et al. 2010, p. 41) , even though “Van de Ven warned researchers not to be tempted into the study of traits and personality characteristics” (Brockhaus & Horwitz 2002, p. 272). The overly person focused research then moved towards investigating “entrepreneurial teams (Klotz, Hmieleski, Bradley, & Busenitz 2014), social capital (Gedajlovic, Honig, Moore, Payne, & Wright 2013), and networking (Hoang & Antoncic 2003; Newbert, Tornikoski, & Quigley 2013)” as reducing entrepreneurial behavior and new venture creation, all actions and events with differences in personality was not sufficient (Davidsson 2016, p. 20). An additional approach was to explain new venture creation and entrepreneurship through describing entrepreneurship as a multi-level phenomenon focusing on aggregate levels of analysis (Davidsson & Wiklund 2001). These studies, however, also majorly focused on person and firm specific explanations, but also looked at social effects (Van Praag & Versloot 2007) and bringing in more theorizing (Shepherd 2011).

Even though current research moves away from overly opportunity focused research, it is also clear that “entrepreneurs do not create new ventures out of thin air” (Kimjeon & Davidsson 2022, p. 643). Thus, interest exists in investigating the “enabling influence of environmental changes – be they technological, regulatory, demographic, sociocultural, or otherwise – on emerging ventures” (Kimjeon & Davidsson 2022, p. 643), specifically as shifts in the business landscape provide valuable ‘building blocks’ for entrepreneurs to leverage (Davidsson 2015; Drucker 1999; Eckhardt & Shane 2003; Shane 2012). As Kimjeon and Davidsson (2022, p. 643) summarize, there are studies that address environmental shifts: there are studies addressing new technology evolvments, which present the biggest group of studies (Kimjeon & Davidsson 2022, p. 651) (examples are: Grégoire and Shepherd (2012); Song (2019), changes in regulatory policies (e.g. Eberhart, Eesley, & Eisenhardt 2017), sociocultural trends (e.g. Hiatt, Sine, & Tolbert 2009) and changes in the natural environment, mainly considering natural disasters (e.g. Dutta 2017; Ratten 2020). However, the overall amount of studies is comparably small, mainly focusing on quantitative methods, and has room to grow (Kimjeon & Davidsson 2022, p. 650). Additionally, it is remarkable that in their literature review Kimjeon and Davidsson (2022, p. 651) identified a “complete absence of studies of entrepreneurship in response to demographic change, whether based on ageing or migration.”

“The classic question with respect to entrepreneurship research has been ‘Who is an entrepreneur?’ It could now be replaced with ‘What is an entrepreneurial opportunity?’” (Singh 2001, p. 11)

Also, research considering opportunities³ evolved and as the above statement shows, for many years, major emphasis was put on the opportunity construct. Ramoglou and McMullen (2024, p. 273) even describe that “entrepreneurship scholarship has indeed been preoccupied with this question for the last couple of decades”, discussing whether opportunities are discovered or created (Alvarez & Barney 2007; Berglund et al. 2020; Ramoglou & Gartner 2023). However, newest research indicates that opportunities are neither “undiscovered or created entities” but rather stem from the visions, expressions, and ideas of entrepreneurs (Bylund & Packard 2022; Dimov 2020; Ramoglou & Gartner 2023, p. 2). So specifically, the “individual-opportunity nexus” (Davidsson 2016, p. 20; Eckhardt & Shane 2010; Shane 2003; Shane & Venkataraman 2000), sometimes also referred to as “entrepreneurship nexus” emerged (Davidsson 2015, p. 675), investigating early-stage entrepreneurship. However, Davidsson (2016, p. 20) points out that there was no real breakthrough due to diverse, complex and vague understandings of opportunities (Davidsson 2015, p. 675; 2016, p. 20). Therefore, Davidsson (2015, p. 675; 2016, p. 20) suggests to bring in alternative and “more workable” constructs such as external enablers, new venture ideas and opportunity confidence and as suggested by himself, research should focus much more on the influential nature of those constructs. As pointed out in the introduction, within this thesis, the one-dimensional relationship, one side seeing the environment influencing the entrepreneur (Davidsson 2015, p. 686) and one seeing the entrepreneur influencing the environment (York & Venkataraman 2010, p. 453) is lacking a holistic picture and a more interactive relation between the entrepreneur and the environment, implying that opportunities are both discovered and created, is presumed.

A very promising and as Davidsson (2016, p. 21) calls it “success stories” is the research on nascent entrepreneur(ship). The focus of nascent entrepreneurship lies before the actual foundation and operation of a start-up. Many studies emerged and investigated questions such as, how long does it take before a venture becomes an operational start-up, what resources are needed, how many ideas start as a team, and how many projects make it etc. (e.g. Reynolds 2005; Rosenbusch, Brinckmann, & Müller 2013). An observation is that there is an extreme heterogeneity among results and insights, especially as many studies use random samples. Therefore, there is the potential for future research in general to use “more select, and more homogeneous, samples of emerging businesses” (Davidsson 2016, p. 22).

³ Within this chapter, more insights into opportunity research and opportunity creation vs. opportunity discovery specifically are provided later on.

Also within the research scope of new venture creation processes, “problems of excessive heterogeneity across cases along innumerable dimensions” can be observed (Davidsson & Gruenhagen 2021, p. 1103). Therefore, Davidsson and Gruenhagen (2021, p. 1103) suggest to look for more homogenous case selection and purposeful sampling removing “noise” and allowing for a more accurate answer to the core research question. The authors also suggest pursuing a replication logic through investigating “other theoretically relevant samples or relevant cases from other contexts”. On another note, the authors point out that many studies reveal “temporal heterogeneity to all other diversity within samples”, which creates two main issues: One in terms of “systematically oversample processes that are of long duration” due to the chosen sampling and case selection mechanisms. And two, it is unrealistic to collect data the minute a process begins, which entails that collected data are temporally scattered as data collection takes place at different points in time. Therefore, the authors suggest to try to control “for initial state” (Davidsson & Gordon 2012, p. 869; Davidsson & Gruenhagen 2021, p. 1104). To organize cases along temporal information and timelines is helpful (Delmar & Shane 2004, p. 392, 394). And of course more homogeneous samples also reduce temporal heterogeneity. (Davidsson & Gruenhagen 2021, p. 1103f.) Additionally, today’s research landscape lacks insights beyond the borders of North America and Western Europe (and China) and more geographically diverse insights, with differing institutional contexts that are however generalizable to some extent are welcome (Davidsson & Gruenhagen 2021, p. 1097).

Overall, Davidsson (2016, p. 22) describes that the two research streams surrounding nascent entrepreneurship and opportunity research reveal that “new venture creation is an iterative and interactive process, often of high complexity and long duration” (Davidsson 2016, p. 22) as detected by several authors (Ardichvili et al. 2003; Dimov 2007; McMullen & Dimov 2013; Menzies et al. 2006; Rotefoss & Kolvereid 2005; Wood & McKinley 2010). However, empirically, deep insights are missing and studies “employ linear models that are presumed to occur at a single point in time” (Dimov 2011; McMullen & Dimov 2013, p. 1481). And only “few studies trace this journey from start to finish” (Dimov 2011, p. 1507). Additionally, most of those few studies focus on the entrepreneur and his/her actions, which falls short:

“This approach tends to ignore the fact that systemic outcomes depend not only on the variation introduced by the entrepreneur but also on which individuals comprise the system because their motives, means, opportunities, and goals influence which variations will be proposed and ultimately integrated into the system.” (Dimov 2011, p. 1508)

Therefore, researchers question the focus on opportunities and newest developments slowly move away from opportunities and their nature, but focus on processes. Davidsson (2023, p. 594) even wrote an article with the progressive title “Ditching discovery-creation for unified venture creation research”. Within his article he majorly criticizes the ongoing discussion between opportunity creation and opportunity discovery as “focusing on the wrong concept”

(Davidsson 2023, p. 599) and “constrain[ing] future entrepreneurship research” (Davidsson 2023, p. 594). He suggests to still consider opportunities but as something that “drives early-stage action”, but rather focus on venture creation (Davidsson 2023, p. 602). Venture creation is understood as “the journey from non- existence to existence of new ventures” (Davidsson 2023, p. 602) and was first introduced by Gartner (1985), who already had some ideas about the formation of new venture creation (see Figure 4). Future research can explore and investigate venture creation on and across “different levels from global to regional, industry, firm, venture, individual, and below” (Davidsson 2023, p. 599), as suggested by Davidsson and Wiklund (2001) and Shepherd (2011) or focus on the processual nature of venture creation (Davidsson & Gruenhagen 2021). Particularly from a process perspective, contributions build on Giddens structuration theory and Davidsson (2023, p. 603) states “the emerging venture at least temporarily represents a form in- between agent and structure as it transforms over time from the former to the latter”. Eventually, Davidsson (2023, p. 606) states:

“To continue the positive development of entrepreneurship research both are best laid to rest, because they now constrain and mislead our field. As part of phasing out discovery-creation, I suggested that venture creation be recognized as the core of entrepreneurship research.”

Therefore, future research is welcoming contributions “along the entire range of structure-venture-agent emphases” (Davidsson 2023, p. 606) as “a cohesive body of knowledge to act as a foundation of, to link with, and to inform the substantial literature on established organizations” is still missing (Shepherd et al. 2021, p. 12).

Specifically, Shepherd et al. (2021, p. 33) identified “external environment and entrepreneurial agency” as a field for further research. The interaction between the external environment and entrepreneurial actions has gained recent attention. Past research has for example highlighted the significance of context (Welter 2011) or investigated how the environment affects new venture creation (Fritsch & Storey 2017), but “there is more to learn about how the players in the process of starting up a new venture can both adapt to changes to the environment and, by their actions, change the environment” (Shepherd et al. 2021, p. 33). The authors encourage future research to avoid treating the environment as “some static, all-powerful force” and explore the interconnected relationship between start-ups and their surroundings more deeply. “It is critically important that future research investigate the reciprocal nature of the relationship between starting up a new venture and the external environment” (Shepherd et al. 2021, p. 33). Moreover, Ramoglou, Zyglidopoulos, and Papadopoulou (2023, p. 113) stress the importance of looking “beyond a narrow focus on market stakeholders”.

Also Davidsson (2016, p. 23) suggests that more studies shall focus on “entrepreneurship as a process”, but regards major theoretical contributions as ‘outdated’. He proposes that future research rather focuses on “a broader set of contributions from research”, and “recognizing

evidence without theory". He criticizes that most entrepreneurship research forces theoretical contributions without having much evidence rather than emphasizing interesting and "important empirical observations", as when it comes to entrepreneurship research in general and opportunity research in particular, traditionally, researchers faced criticism for perceived absence of a robust theoretical framework (Bygrave & Hofer 1992; Ramoglou & McMullen 2024, p. 275). However, particularly when it comes to researching new venture creation processes, researchers do not have a wide array of theoretical concepts "to choose from, neither inside nor outside of entrepreneurship research". Consequently, there is "both room and need for new theory" without starting from scratch (Davidsson & Gruenhagen 2021, p. 1099), presenting an "opportunity for radical theoretical contributions", particularly "developing defined process characteristics and conceptualizations pertaining to the prevalence, variance, causes, and consequences of these" (Davidsson & Gruenhagen 2021, p. 1101). Telling a "good story [with] conflict, character, setting, sequence, and plot and arc" (Shepherd & Suddaby 2017, p. 59) has much potential. And contributions can be made along "recursive relations" (Davidsson & Gruenhagen 2021, p. 1098).

Coming back to current discussion on the future of opportunity research, Ramoglou and Gartner (2023) join in and call the current situation "a historical intervention in the 'opportunity wars'". The authors state that there are "two battles at the heart of the 'opportunity wars': (1) Are opportunities discovered or created, and (2) Should we perhaps abandon the opportunity concept altogether?" The first question is a battle that has been going on for years and in which many different authors participated (Alvarez & Barney 2007; Dimov 2007; Sarasvathy, Dew, & Venkataraman 2020; Shane 2003; Suddaby, Bruton, & Si 2015; Wood & McKinley 2010).⁴ The second battle, however, is rather new and shows some very antagonistic viewpoints. On the one side are authors, who suggest to get rid of the opportunity construct altogether (Davidsson 2023; Foss & Klein 2020). On the other side, are mainly Alvarez and Barney (2020), who defend their position and the importance of the opportunity construct and attention on discovery and creation as "fruitful in moving the field forward" (Alvarez & Barney 2020, p. 306). Ramoglou and Gartner (2023, p. 1522) try to find middle ground and not be too drastic. They do however call the discussion of discovery vs. creation "an artificial debate" (Ramoglou & Gartner 2023, p. 1522) and point out that historically (previous to this discussion) entrepreneurship researchers were already referring to opportunities but cautiously, without asking fundamental questions towards the construction of the term, and rarely did anyone question the independence of the agent (Ramoglou & Gartner 2023, p. 1523). The authors also point out that actual entrepreneurial phenomena were "hijacked by the 'opportunity bandwagon'"

⁴ Later within this chapter more insights will be provided on the discussion of opportunity creation and opportunity discovery.

(Ramoglou & Gartner 2023, p. 1527). So, for future research, Ramoglou and Gartner (2023, p. 1527) suggest to focus much more on actual phenomena and integrating more diversity into research, such as looking at “external enablers, ideas, or beliefs”.

In another paper, Ramoglou and McMullen (2024, p. 274) point out that “the demystification of the opportunity concept facilitates a more realistic understanding of entrepreneurship” as “we are trapped in the wrong mode of theory development.” The authors cite Wittgenstein (1958, p. 370) and state that asking “What is an opportunity? [...] makes us expect a wrong kind of answer”. Therefore, in line with Wittgenstein, they propose to use existing knowledge about opportunities as a tool and not focus on the term’s meaning too much. (Ramoglou & McMullen 2024, p. 277) Additionally, the authors point out that starting-up a business is not only a story about making decisions, but as previous research started to emphasize, “entrepreneurs often must coax consumers (McMullen & Dimov 2013; Wood, Palich, & Browder 2019), hustle critical stakeholders (Fisher, Neubert & Burnell, 2021; Fisher, Stevenson, Neubert, Burnell & Kuratko, 2020), develop bonds and networks (Burns, Barney, Angus, & Herrick, 2016; Engel, Kaandorp, & Elfring, 2017), and engage in legitimating efforts (Fisher, 2020; Younger & Fisher, 2020)” (Ramoglou & McMullen 2024, p. 286).

Summarizing, entrepreneurship research is currently in a critical situation. After making its initial entrance and clearing up differences between small businesses and entrepreneurial ventures, research started to focus on traits and characteristics of entrepreneurs and later also entrepreneurial teams, which will also be considered in chapter 2.3.1. However, research moved away from overly-person focused approaches. For many years there was an ongoing discussion whether opportunities are created or discovered. Today, entrepreneurship research sees this discussion critically and some even suggest to abandon it altogether (Davidsson 2023; Foss & Klein 2020). The goal of this dissertation is not to join this discussion, but look forward, as suggested by other authors (Ramoglou & Gartner 2023) and specifically focus on new venture creation and its processes in a more holistic perspective exploring recursive relations (Davidsson & Gruenhagen 2021; Kimjeon & Davidsson 2022; Shepherd & Suddaby 2017) and interactions along identified “external environment and entrepreneurial agency” (Shepherd et al. 2021, p. 33). Thus, this dissertation asks the question: ***How and in which way is an entrepreneur interacting with his/her environment in the process of developing a business?***

“Within a big tent of venture creation research, we can welcome design - as well as explanation-oriented contributions along the entire range of structure-venture-agent emphases, with or without using the opportunity concept, absent any artificial division regarding our core.” (Davidsson 2023, p. 606)

Interaction. As previously mentioned, this dissertation builds on the argumentation of the contingency approach and its critics (e.g. Child 1970; Child 1972, 1997). This approach questions the deterministic relationship between the environment and the organization's structure. In contrast to prior assumptions (i.e. the bureaucratic approach), Child (1972) considers the role of strategic choice. The structure is not depending on the environment (a static view) but can be adapted accordingly depending on 'political action' by the decision makers. Consequently, Child (1972) emphasizes an interdependency and ongoing circular process between the environment, an organization's structure and its strategy.

There are some ideas on business development and opportunity recognition (e.g. Ardichvili et al. 2003; Baron 2006; Davidsson 2015). These approaches, however, lack a deeper understanding and investigation of the entrepreneurial process. In contrast to fundamental theoretical contributions, such as contingency approach and structuration theory, these approaches do see the relation between the entrepreneur and the environment as one-dimensional. But the entrepreneurial process can be presumably described as an ongoing, dual and recursive relationship between the business and the environment (Davidsson & Gruenhagen 2021; Kimjeon & Davidsson 2022; Shepherd et al. 2021; Shepherd & Suddaby 2017). Consequently, even though there are some prior ideas that focus on particular aspects of the entrepreneurial process (Ardichvili et al. 2003) or consider the issue conceptually (Davidsson 2015), the research field is under researched and lacks empirical exploration.

There are however some studies in entrepreneurship research that do mention interaction and even consider interaction along the entrepreneurial process. Gartner (1985, p. 698) for example suggests that the process of new venture creation can be described by an interplay between individuals, environment, organization and process (see Figure 4). In his paper, Gartner (1989a, p. 30) also mentions other interactive categories, such as financial institutions, legal services, advisory services and incubator organizations. Also Lumpkin and Lichtenstein (2005, p. 458) considered an interactive process of opportunity recognition based on creativity. The authors describe that there is a continuous interplay between discovery and formation, in which for example unintended and deliberate preparation, incubation, and problem solving interact with each other. Also Bruyat and Julien (2001, p. 170) see the process from an idea to a new venture creation as an interaction with the environment. Delmar and Shane (2004, p. 387) consider environmental interaction as essential, as the timing of a new venture creation process is particularly crucial as new ventures have three main disadvantages. First, emerging organizations typically lack the established credibility and assumed reliability that well-established firms have, so they must actively cultivate an external image of legitimacy to secure resources and remain competitive in the face of established firms. Second, newly formed companies lack the customer and supplier relationships that well-established firms have.

Social connections with external stakeholders play a pivotal role to secure resources and endure competition with established entities. Third, new ventures, due to their novelty, do not possess the well-established processes that existing firms have for efficiently turning resources into products and services. Thus, new ventures must acquire the resources they intend to transform, establish a series of routines for this transformation, and effectively market the resulting products and services.

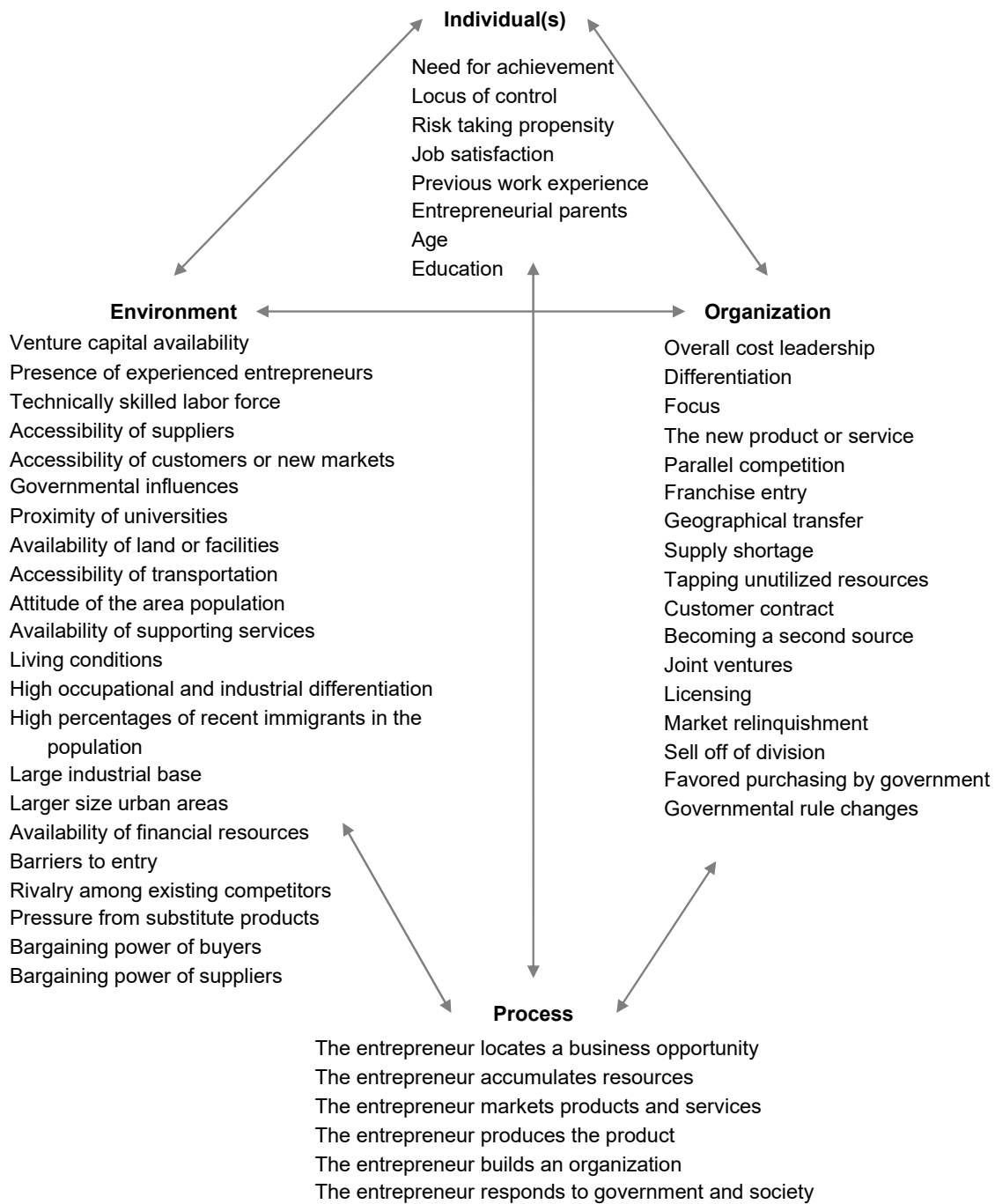


Figure 4: A Framework for Describing New Venture Creation
Source: Gartner (1985, p. 698, 702).

Discovery vs. Creation.⁵ To round up the picture, this dissertation shortly dives into the opportunity discovery and creation literature. The question between opportunity discovery and creation is one of the key topics of interest in entrepreneurial research. On the one hand, you have the idea of opportunities being discovered, which means that opportunities are ‘there’ and entrepreneurs ‘just’ have to make use out of it. The discovery perspective is mainly taken by Shane and co-authors (Eckhardt & Shane 2003; Eckhardt & Shane 2010; Shane 2003, 2012; Shane & Venkataraman 2000) and is now even referred to as the “Shanian discovery” view (Davidsson 2023, p. 594). On the other hand, you have the idea that the entrepreneur can actively create an opportunity and build a business out of it. The creation perspective is mainly promoted by Alvarez and co-authors (Alvarez, Barney, & Anderson 2013). Even though similar ideas were introduced before (Ardichvili et al. 2003; Cornelissen & Clarke 2010; Wood & McKinley 2010), today literature speaks of the “Alvarez- Barnean creation views” (Davidsson 2023, p. 594). (Davidsson 2015, pp. 680–682)

Alvarez and Barney (2007, p. 11) have an interesting metaphor for these two viewpoints: Imagine you are a mountain climber. If you follow the opportunity discovery perspective; the mountain climber would search for a mountain and climb it (mountain climbing). However, from a creation perspective, the mountain climber would start building a mountain to eventually climb it (mountain building). Many scholars imagine that opportunities are there to be discovered and the entrepreneurial mind is able to recognize and exploit those opportunities. Thus, the entrepreneur would engage in searching techniques to find those opportunities. But other scholars believe that entrepreneurs are capable of creating market gaps and customer needs that can be exploited. Thus, entrepreneurs would not search for opportunities but start an iterative learning process with twists and turns to eventually build a business. (Alvarez & Barney 2007, pp. 11–12)

Discovery and creation theory are both teleological theories that generally seek to explain how an individual’s behavior impacts his/her ability to achieve individual purposes and goals. It is assumed that human behavior is more likely to go into a direction of facilitating the accomplishment of those purposes and goals (based on Alvarez & Barney 2007; Parsons & Shils 1962). Despite the different viewpoints, both discovery and creation theory “assume that the goal of entrepreneurs is to form and exploit opportunities” (Alvarez & Barney 2007, p. 13; Shane 2003, p. 4; Shane & Venkataraman 2000, p. 211). Also, both theories assume that the base of opportunities are market or industry imperfections (Alvarez & Barney 2007, p. 13;

⁵ A more detailed description of discovery and creation theory can be found in Alvarez and Barney (2007). The thesis summarizes the broad concepts in alignment with Alvarez and Barney (2007), without going into too much detail.

Davidsson 2015, p. 682). However, the two theories differ in their analysis of the origin of these competitive imperfections (Alvarez & Barney 2007, p. 13). Discovery theory assumes that opportunities are objective and exogenous, whereas creation theory assumes that opportunities are subjective and endogenous (Alvarez & Barney 2007, p. 15; Dutta & Crossan 2005, p. 428f.). Eventually, both theories “seek to explain the same dependent variable – actions that entrepreneurs take to form and exploit opportunities” (Alvarez & Barney 2007, p. 12). Table 1 summarizes the differences. The next paragraphs will shortly introduce both viewpoint before summarizing and showing, how this dissertation does not go either way.

Table 1: Central Assumptions of Discovery & Creation Theories

	Discovery theory	Creation theory
Nature of opportunities	Opportunities exist, independent of entrepreneurs. Applies a realist philosophy.	Opportunities do not exist independent of entrepreneurs. Applies an evolutionary realist philosophy.
Nature of entrepreneurs	Differ in some important ways from non-entrepreneurs, ex ante.	May or may not differ from non-entrepreneurs, ex ante. Differences may emerge, ex post.
Nature of decision making context	Risky	Uncertain

Source: Alvarez and Barney (2007, p. 13).

Discovery Theory. A typical opinion from a discovery perspective is that opportunities arise from “objective phenomena” that can be observed by everybody (Shane & Venkataraman 2000, p. 220). These phenomena can also be described as “exogenous shocks” (Alvarez & Barney 2007, p. 13). Anyone who is associated with the specific market or industry and is generally able, knowledge and skill wise, to exploit opportunities, can take the chance. However, not everybody is creating businesses. One difference between entrepreneurs and non-entrepreneurs is alertness (Kirzner 1973, p. 67).⁶ Entrepreneurs, particularly entrepreneurial minds, are more alert of changes and shocks that can be exploited. (Alvarez & Barney 2007, p. 14) Entrepreneurs are able to bring “agency to opportunity” (Shane 2003, p. 7). So as opportunities are objectively given, entrepreneurs are able to gather all information and make a decision. Thus, decision making is not uncertain but may be risky (Alvarez & Barney 2007, p. 14). Overall, the recognition of phenomena as an opportunity is subjective (Shane & Venkataraman 2000, p. 220).

⁶ Chapter 2.3.1 will go into more detail in terms of defining and describing the entrepreneur and differentiating entrepreneurs from non-entrepreneurs.

Creation Theory. Creation theory assumes that opportunities are endogenously developed by an entrepreneur. Entrepreneurs are seen as the key actor aiming for the development of new products or services by “actions, reactions, and enactment” (Alvarez et al. 2013, p. 15). Bringing “agency to opportunity” does not exist as there is no opportunity without prior action, imagination and aspiration of an entrepreneur (Sarasvathy 2001, p. 261). Thus, entrepreneurs do not engage in any form of search for opportunities but aim for finding seeds, not necessarily in already existing industries or markets, and creating opportunities out of those seeds in a long and iterative process. The iterative process “requires sensing, developing, evaluating, and reframing opportunities” (O’Connor & Rice 2001, p. 96; Zahra 2008, p. 245). And only the particular perception of an entrepreneur of his/her environment enables the entrepreneur to develop a socially constructed opportunity. (Alvarez & Barney 2007, p. 15) Entrepreneurs know of the importance of “imagination, inspiration, and protracted endeavor – both cooperative and competitive” (Sarasvathy 2001, p. 261). Of course, in the course of building this opportunity other factors are taken into account, which often leads to the ex post assumption that an opportunity was discovered. (Alvarez & Barney 2007, p. 15) In creation theory, entrepreneurs differ from non-entrepreneurs in the beginning only slightly. However, in the process of creating an opportunity, entrepreneurs develop much more special cognitive abilities (Busenitz & Barney 1997) than non-entrepreneurs as they are following the “entrepreneurial path” (Alvarez & Barney 2007, p. 16). Creating opportunities is not connected with any prior knowledge or gathering information. Only actions, reactions and enactment of the entrepreneur guide the process. Thus, decision making of an entrepreneur is not risky but uncertain. (Alvarez & Barney 2007, pp. 16f.). Also, in the real world, entrepreneurs do not actively decide whether they believe in discovery or creation. Also as mentioned above, ex post it is possible to interpret building a business out of an opportunity as a discovery or creation process (Alvarez & Barney 2007, p. 17), but only if the opportunity became a successful venture (Davidsson 2023, p. 601). However, the entrepreneurs’ actions unveil how they think about opportunities. Table 2 summarizes entrepreneurial action from a discovery and creation perspective.

Own standpoint. This dissertation does not go either way. It aims for understanding the entrepreneurial process in depth, especially how an opportunity becomes an idea and develops into a business, without discussing whether it is created or discovered. Therefore, only the entrepreneur’s actions and interactions with the environment and vice versa are taken into account. Thereby, the dissertation strives for a middle course between opportunity discovery and creation assuming that both processes are essential for setting up a business. This approach is aligned with Zahra (2008), who takes a closer look at entrepreneurial opportunities and their evolvment. He states that opportunity evolvment is described by a “virtuous and dynamic cycle” between discovery and creation (Zahra 2008, p. 243). However, this is not an automatic process but the evolvment is shaped by the context (Zahra 2008, p.

244). Within this dissertation, context is broadened in the sense of including the whole vastness of the term environment and the process is not limited to the opportunity evolution but considers the entire entrepreneurial process, particularly including the business model evolution. The dissertation takes a step back and aims for an open mind, following a qualitative approach striving for an objective observation of the entrepreneurial process.

Table 2: Entrepreneurial Action in Discovery Theory and Creation Theory

	Discovery theory	Creation theory
Leadership	Based on expertise and (perhaps) experience	Based on charisma
Decision making	Risk-based data collection tools; Risk-based decision-making tools; Importance of opportunity costs	Iterative, inductive, incremental decision making; Use of biases and heuristics; importance of affordable loss
Human resource practices	Recruitment: Specific human capital recruited broadly	Recruitment: General and flexible human capital recruited from pre-existing social networks
Strategy	Relatively complete and unchanging	Emergent and changing
Finance	External capital sources: Banks and venture capital firms	'Bootstrapping' and 'friends, families, and fools'
Marketing	Changes in marketing mix may be how new opportunities manifest themselves	Marketing mix may fundamentally change as a result of new opportunities that emerge
Sustaining competitive advantage	Speed, secrecy, and erecting barriers to entry may sustain advantages	Tacit learning in path dependent process may sustain advantages

Source: Alvarez and Barney (2007, p. 17).

2.1.2 Exogenous Shift-based Opportunities based on Demographic Change

"Of all external changes, demographics – defined as changes in population, its size, age structure, composition, employment, educational status, and income – are the clearest. They are unambiguous. They have the most predictable consequences."
(Drucker 1999, p. 80)

As stated before, opportunities can be discovered or created. Talking about specific types of opportunities, we can see the same difference. Thus, there are those types of opportunities that are created and those that are discovered. From a traditional perspective, researchers assume that opportunities emerge from price differences in markets or external disruptions (Kirzner 1979; Miller 2007; Shane 2003). A newer stream of research focuses on the aspect that opportunities are endogenously created. (Alvarez & Barney 2008, p. 265) In this sense,

the base of opportunities is seen as the beginning of new venture creation. New venture creation is understood as “the organizing (in the Weickian sense) of new organizations” (Gartner 1985, p. 697). To organize involves arranging interconnected actions into logical sequences, yielding coherent results (Weick 1979).

Scott Shane is one of the main supporters of the discovery perspective (Davidsson 2015, pp. 680–682). Together with Jonathan Eckhardt, he described two main groups of opportunities – both objective but one based on locus of changes and one based on sources of opportunities (Eckhardt & Shane 2003, p. 241):

Based on locus of changes. Most entrepreneurship research describes new venture creation as developing new products or services. Thus, it is usually assumed that only product and service changes are the source of entrepreneurial action. However, changes along the entire value chain can lead to new opportunities and eventually new ventures. (Eckhardt & Shane 2003, p. 340) Particularly, Schumpeter (1934; 2021, p. 55) suggests five different areas of change that lead to new venture creation:

- Creation and introduction of *new products or services* that customers are not familiar with so far. A change might also apply when a new quality of a product or service is introduced.
- *New methods of production* might emerge and may lead to new venture creation. Change might appear through new scientific results that influence production processes, or an existing process is transferred to this specific product production.
- New ventures may be based on discovery of *new geographical markets*. The entrepreneur thus enters newly (opened) markets, to which the product or service is new.
- New ventures can emerge from the creation or discovery of *new raw materials* or new “half-manufactured” goods. Here again it does not matter, whether the material is actually new or was not used for this specific product before.
- Lastly, new ventures can be generated through *new ways of organizing*, e.g. through building or breaking up a monopoly position.

Based on sources of opportunities. Eckhardt and Shane (2003, p. 341) continue to summarize the findings of research on the source of opportunities. Research on sources of opportunities can be categorized along four different categories:

- Information asymmetry vs. exogenous shocks. Opportunities can evolve from information asymmetry or exogenous shocks (Eckhardt & Shane 2003, p. 341). Peter Drucker (1993, p. 57) goes a step further and names the source of opportunities

“incongruities” and not information asymmetry. He distinguishes between four types of incongruities that might occur and be a potential source for an opportunity: “an incongruity between the economic realities of an industry (or of a public-service area)”, where there is a mismatch between macro-level evolvments and the timely reaction of established businesses. However, smaller businesses may evolve and tackle those issues before the big players might even notice. (Drucker 1993, p. 58ff.) “An incongruity between the reality of an industry (or of a public- service area) and the assumptions about it” arises when people understand reality in a certain way and make assumptions about developments. This usually happens, when managers think and make up expectations about events that come up, but the reality does not look like the expectation. Thus, reality just shows a different behavior than was expected. (Drucker 1993, p. 62ff.) “An incongruity between the efforts of an industry (or a public service area) and the values and expectations of its customers” considers a mismatch between what companies expect their customers to like and dislike versus what customers really want (Drucker 1993, p. 64f.). “An internal incongruity within the rhythm or the logic of a process” concerns particularly improvements in processes that companies might not be able to detect, but opens up an opportunities for a new venture, which is able to improve (Drucker 1993, p. 66ff.). On the other side, we have those opportunities that are generated through exogenous shocks, which will be considered in detail later on.

- Supply vs. demand side changes. Eckhardt and Shane (2003, p. 343) explain that opportunities can be classified along changes in both demand and supply side. Usually, entrepreneurship research focuses on changes on the supply side (Schumpeter 2021, p. 55), e.g. entrepreneurs innovating technologies. However, also changes on the customer/demand side can occur and open a new opportunity to act on. Depending on the severity of changes in customer preferences, companies have to act upon those changes to survive. Changes in preferences might for example occur when exogeneous shifts happen in a society, such as changes in taste (Kirzner 1997, p. 70); “values, perception, and attitude” (Schumpeter 1985, p. 13). Additionally, growing markets may open up possibilities for new niches, where customers demand a specific solution (e.g. Christensen & Bower 1996; Geroski 2001).
- Productivity-enhancing vs. rent-seeking. Baumol (1990, p. 893) states that there are two types of entrepreneurial activities in societies. On the one hand there are, in alignment with Schumpeter, productive entrepreneurial activities, such as innovation and on the other hand there are unproductive entrepreneurial activities, such as rent-seeking activities and organized crime. Baumol (1990, p. 897f.) argues that Schumpeter’s (2021, p. 55) list falls short and can be expanded in terms e.g. “public welfare” and “productivity growth”. Exemplary, rent-seeking business can benefit from

new and innovative rent-seeking procedures through newly found legal rules that can be applied. Also, there are opportunities for entrepreneurs that are unproductive and do not benefit the society at all. A typical example is corruption or any business associated with (organized) crime. (Baumol 1990, p. 898ff.)

- Initiator of the change. Researchers assume that, next to the entrepreneur, there are other actors that may initiate the change leading to new venture creation. Particularly, there are advancements in technology that arise outside of the industry and are transferred, applied or used as inspiration. There are for example “government laboratories, universities, professional and technical societies, and independent inventors” that conduct research on particular elements and technologies that may be applied within an industry and present a new opportunity. Additionally, advancements in production processes or similar on the supplier side may be transferred to the downstream industry partners, resulting in new opportunities. Also, the actual users or customers through feedback may be the initiator of change leading to opportunities.⁷ (Klevorick et al. 1995, p. 190f.)

Peter Drucker also worked on the different types of innovative opportunities based on their sources (Drucker 1993). To complement the above types of opportunities summarized by Eckhardt and Shane (2003), according to Drucker (1993, p. vi) there are seven different sources of opportunities: the unexpected; incongruities; process need; industry and market structures; demographics; changes in perception; new knowledge.

To be able to consider an opportunity that fits to the proposed research, the thesis is in need of an opportunity that can be interpreted as such but may also not be detected as an opportunity or may be seen as a threat. Therefore, within this dissertation, the focus lies on exogenous shift-based opportunities. Even though exogenous shift-based opportunities can be classified as opportunities that are discovered, this dissertation does not take a discovery (nor creation) perspective but aims for an open exploration of the entrepreneurial process. However, for empirical and validity reasons, the thesis is in need to set limitations and ensure comparability among entrepreneurial processes. Therefore, this decision is made and the following paragraph will explain what is understood as exogeneous shift-based opportunities based on demographic change. As the name already tells, exogenous shift-based opportunities develop out of shifts in the environment (Eckhardt & Shane 2003, p. 342):

⁷ The article by Klevorick, Levin, Nelson, and Winter (1995) is a perfect example, why it is of interest to not only look at the entrepreneur or focus on an entrepreneur-only explanations. Rather the environment of a business may play an important role.

- Spurred by governmental action,
- Triggered by demographic changes,
- Generated by the creation of new knowledge.

Most entrepreneurship and opportunity research is based on exogenous-shift based opportunities that evolve out of the creation of new knowledge (Eckhardt & Shane 2003, p. 342). Creating new knowledge goes hand in hand with Schumpeter's (1934; 2021, p. 55) ideas on creating new products, new production processes, new raw materials, discovering new markets and new ways of organizing. Opportunities that are based on the locus of change usually build on new knowledge leading to the needed change. However, new knowledge creation is difficult to objectively detect. Therefore, within this dissertation the focus lies on opportunities triggered by demographic changes.

Particularly, "of all external changes, demographics [...] are the clearest" (Drucker 1999, p. 80). Demographic shifts may lead to opportunities but may also terminate them (Drucker 1999; Eckhardt & Shane 2003) and "population trends may well be a more important factor in the success, if not in the survival of most businesses" (Drucker 1951, p. 73). Consequently, they seem to present a good example of demonstrating how opportunities are recognized, exploited and turned into a business. Ensuring comparability among cases, the dissertation will only focus on businesses that objectively make use out of demographic changes.

So, what can we understand as shifts in demography? "The aging of the baby boomers" reflects an opportunity for example, as it may result in a shift from products and services for a young customer group to "products and services for the elderly" (Eckhardt & Shane 2003, p. 342). A second example can be seen in "the growth of the Hispanic population" witnessed in the United States that lead to an increase of "Spanish radio stations" (Eckhardt & Shane 2003, p. 342). According to Pressat (1985, p. 52), demographic change is understood as "a description of the observed long-term trends in fertility and mortality". However, demography is also changed by migration (Yaukey & Anderton 2001). Thus, within the dissertation demographic change corresponds to changes in fertility⁸, mortality⁹ and migration¹⁰.

⁸ **Fertility** is defined as "the number of births that occur in a population" (Yaukey & Anderton 2001, p. 8) and is the main determinant of the age structure of a population (Yaukey & Anderton 2001, p. 183).

⁹ **Mortality** corresponds to "the number of deaths that occur in a population" (Yaukey & Anderton 2001, p. 8). Currently, the life expectancy in the world at birth is 70 years (based on the 2010-2015 measurements) (United Nations Department of Economic and Social Affairs/Population Division 1 World Population Prospects: The 2015 Revision, Key Findings and Advance Tables, p. 6).

¹⁰ **Migration** is defined as "the number of moves across the border (in and out)" (Yaukey & Anderton 2001, p. 8). But, demographers only consider people moving as migrants when they add or subtract from a population and if they actually are residents at this new place, which includes also that they are socially affiliated to the new population (Pressat 1985, p. 144).

Research on size and composition of today's population, is mostly used to predict the future (Yaukey & Anderton 2001, p. 6). The United Nations Department of Economic and Social Affairs predicts that there will be around 8.0 billion people living on the planet by mid-November 2022, which means that the population grew by 1 billion people within 12 years (UN 2022f, p. 3). And the world population is predicted to grow even further in the future due to ever declining mortality rates. In 2019, life expectancy for females and males reached a new high with 73.8 and 68.4 years respectively. (UN 2022f, p. i) However, in 2020, for the first time since 1950, population growth rate fell below 1% and is projected to fall further (UN 2022f, p. 3), when fertility rates keep declining (UN 2022f, p. i). Also the demographic composition in terms of age structure is changing in many countries. In 2018, for the first time there were more people that are 65 years and older than there are children under the age of five. (UN 2022f, p. 6f.) The world percentage of people 65+ years are 9.7%, whereas in Europe and Northern America the percentage is highest worldwide with 18.7% in 2022. (UN 2022f, p. 7) Additionally, particularly high-income countries experience a population growth due to migration. The amount of net international migration (difference between immigration and emigration) in high-income countries exceeded the balance between births and deaths, thus leading to population growth in those countries. (UN 2022f, p. 20) With today's key findings concerning population growth, age structure and international migration, it can be stated, "demography is changing" (Yaukey & Anderton 2001, p. xiii). Today, demographic change is one of the 'grand challenges' societies are dealing with (Colquitt & George 2011, p. 432), it is one of the challenging mega trends in the current century (Kulik et al. 2014, p. 934). Especially in industrialized countries and high-income countries¹¹, the share of 'older' people is increasing: "Projections indicate that by 2050 one in every four persons in Europe and Northern America could be aged 65 years or over" (UN 2022f, p. 7). This development is called population aging (UN 2020, p. 1). Within the next paragraphs, the dissertation takes a deeper look at demographic change specifically aging in industrialized countries. First the aging phenomenon will be defined. Afterwards the situation of demographics will be described. Then, the dissertation explains causes for the change in population compositions followed by the description of effects on the business environment and companies in particular.

¹¹ High-income countries are usually defined as countries with a gross national income per capita of \$12,615 (UN 2014a, p. 144). The following countries are considered as high-income countries: Australia, Austria, Bahrain, Barbados, Brunei Darussalam, Canada, Chile, Croatia, Cyprus, Czech Republic, Denmark, Equatorial Guinea, Estonia, Finland, France, Germany, Greece, Hong KONG SAR, Iceland, Ireland, Israel, Italy, Japan, Kuwait, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Oman, Poland, Portugal, Qatar, Republic of Korea, Russian federation, Saudi Arabia, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, Trinidad and Tobago, United Arab Emirates, United Kingdom, United States, Uruguay (UN 2014a, p. 148).

Aging (of the population) is understood as the “alteration in the age structure of a population in the direction of an increase in the relative importance of old persons” (Pressat 1985, p. 7). When we look at age groups, usually demography science classifies age groups embracing 5 years. However, when aging is considered, one can simply distinguish between three groups: “children and young dependents; adults of working age; and pensioners and elderly dependents” (Pressat 1985, p. 5). Often particular ages are assigned to the age groups: 0-14 years; 15-64 years; 65 years and over (Pressat 1985, p. 7). Usually, the ‘old’ population is the percentage of the population that is 65+ years (Yaukey & Anderton 2001, p. 78). When it comes to population aging, the age group 65+ years is increasing, and the age group 15 years and under is decreasing. The age group of people between 15 years and 64 years stays relatively stable. Leading to a general increase in a population’s average age. (Pressat 1985, p. 7)

Population aging is a worldwide phenomenon (Chand & Tung 2014, p. 409). There are currently 771 million people aged over 65 years, which comprises 9.7% of the world population. The share of people 65+ years is projected (in a medium scenario) to increase to 11.7% (994 million) in 2030 and up to 16.4% (1.6 billion) in 2050 worldwide. (UN 2022f, p. 7f.) The increase in the older population is also inevitable as the children who present this generation are already born. Let us take a look at the development of age population compositions age-wise in high-income countries in 1950 and 2021.

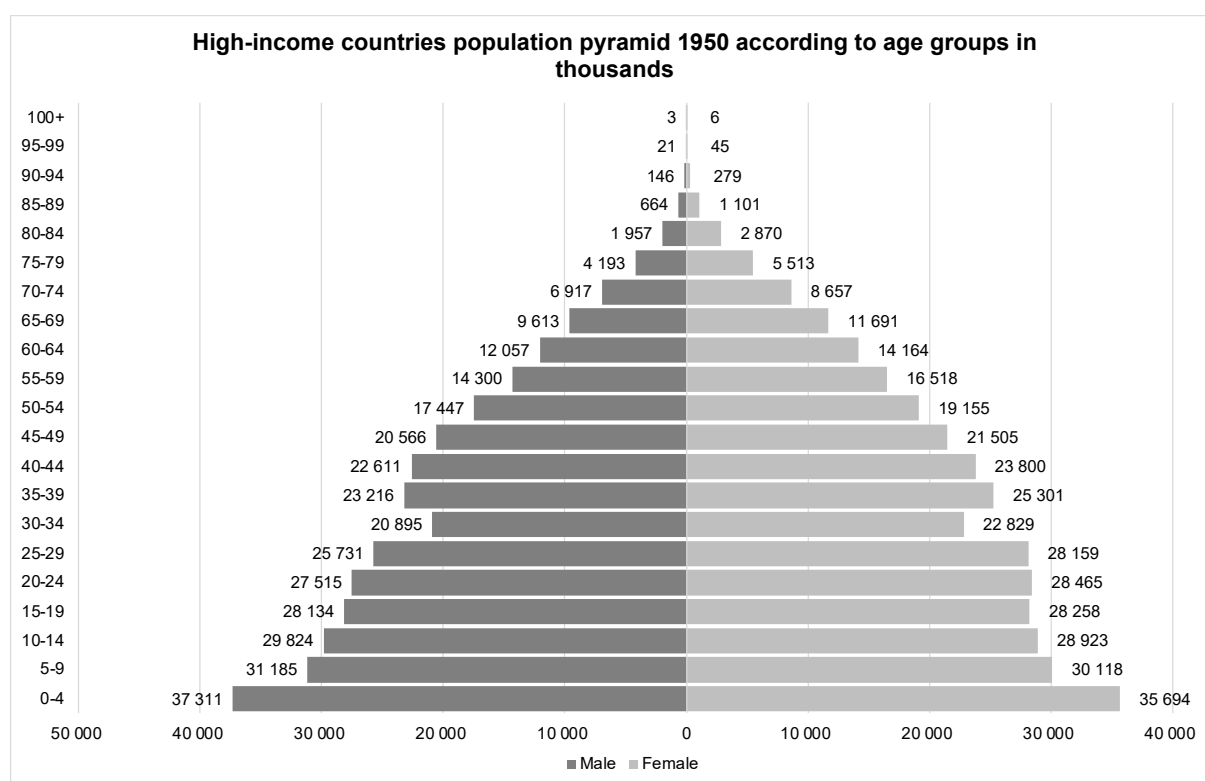


Figure 5: Population Pyramid High-income Countries 1950
Source: Own illustration based on UN (2022e).

In 1950, one sees that the age groups in high-income countries (more or less) resemble a Christmas tree. The population pyramid has a wide base and gets smaller on the top. This means that the share of younger people is (mostly) larger than the share of the next, older age group. This also means, that there are more people in the working age groups (usually 15+ till 64 years) than in the retired age groups (usually 65+ years) and this situation will be continued. Particularly in high-income countries with pension and retirement plans, the working population is compensating the retired population and takes care of them, either as geriatric nurses or at home (UN 2014b, p. 3). However, if we look at the population pyramid in 2021 of high-income countries, the population pyramid looks totally different and shows a 'bump'. There are way less children and young dependents, but the age group of working population is much larger in comparison. The working age groups are still exceeding the retired age groups. But at some point, the big 'bump' will retire, and the small group of children will become a small group of working population. So, the question is, why did the population composition develop in such a way and what does that mean for a society and businesses in particular?

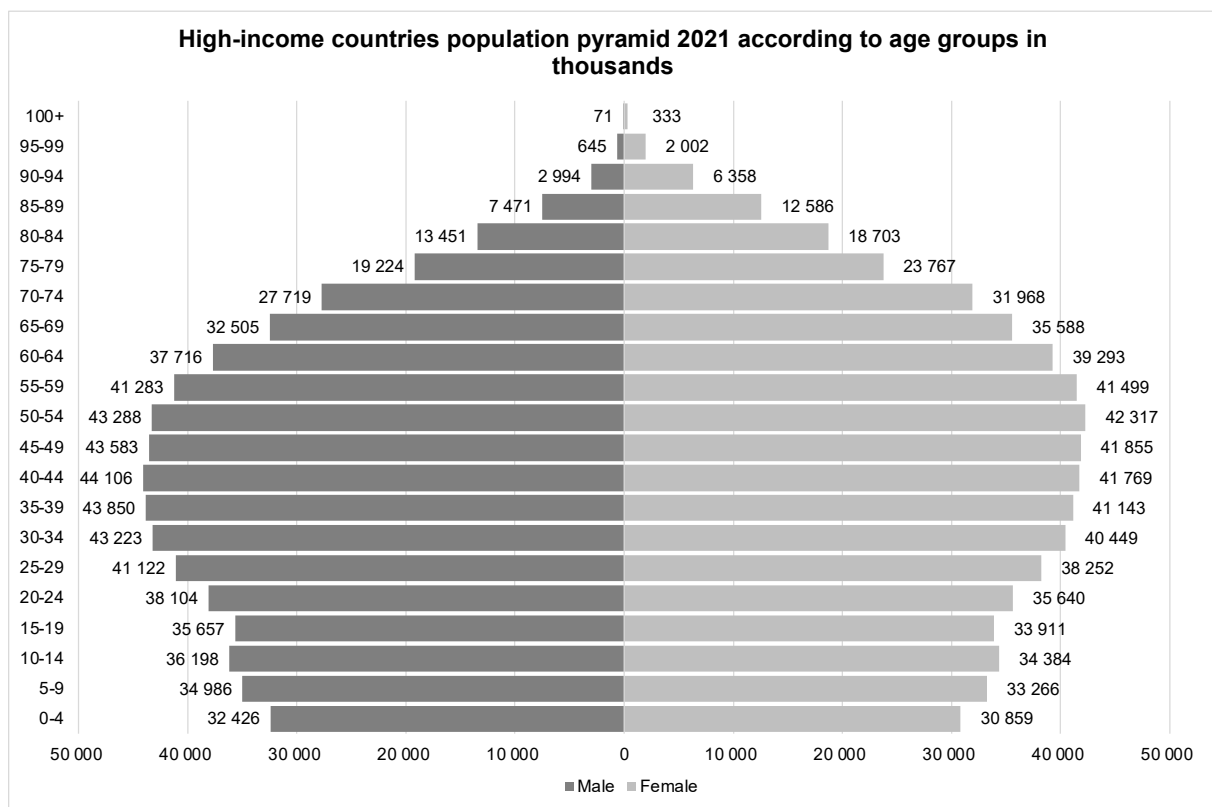


Figure 6: Population Pyramid High-income Countries 2021
 Source: Own illustration based on UN (2022e).

When it comes to **aging there are three major driving factors**: a decline in fertility (see Figure 8), an increase in life expectancy (see Figure 9) and decreasing mortality rates, whereas deaths exceed the level of births, e.g. particularly in G7 countries (see Figure 7) (Chand & Tung 2014, p. 410). Historically, many countries show that a decline of death rates particularly

in infant and child mortality happens first and then (after some time) leads to a (rapid) decline in birth rates. For example, Europe experienced a decline in death rates in the 1820s, which marks the start of a long-term decreasing development, due to among others improvements in sanitation and medical technology, clean water supply, better nutrition, and higher living standards. (Bloom & Canning 2008, p. 18f.) With lower death rates of children, after some time it becomes obvious that families do not need as many births to reach the desired family size as all children will survive (Bloom & Canning 2008, p. 20). Moreover, as countries establish improvements in the access of higher education for women, which also leads to more opportunities for women in respective labor markets and growing incomes, women are having less children. Also, the political situation in terms of access to contraceptives as well as family planning services play an important role in a lower birth rate. (Bloom & Canning 2008, p. 20; Chand & Tung 2014, p. 410) Lastly, a change in cultural and religious norms concerning family size, leads to less births (Chand & Tung 2014). However, the birth rate is not decreasing in the same pace as (child) mortality decreases. Thus, population pyramids show a 'bulge' or a 'boom' generation, as children are surviving, and the 'boom' stops with some time delay (as can be seen in Figure 6). This 'bulge' then works its way through the whole population pyramid. (Bloom & Canning 2008, p. 20f.)

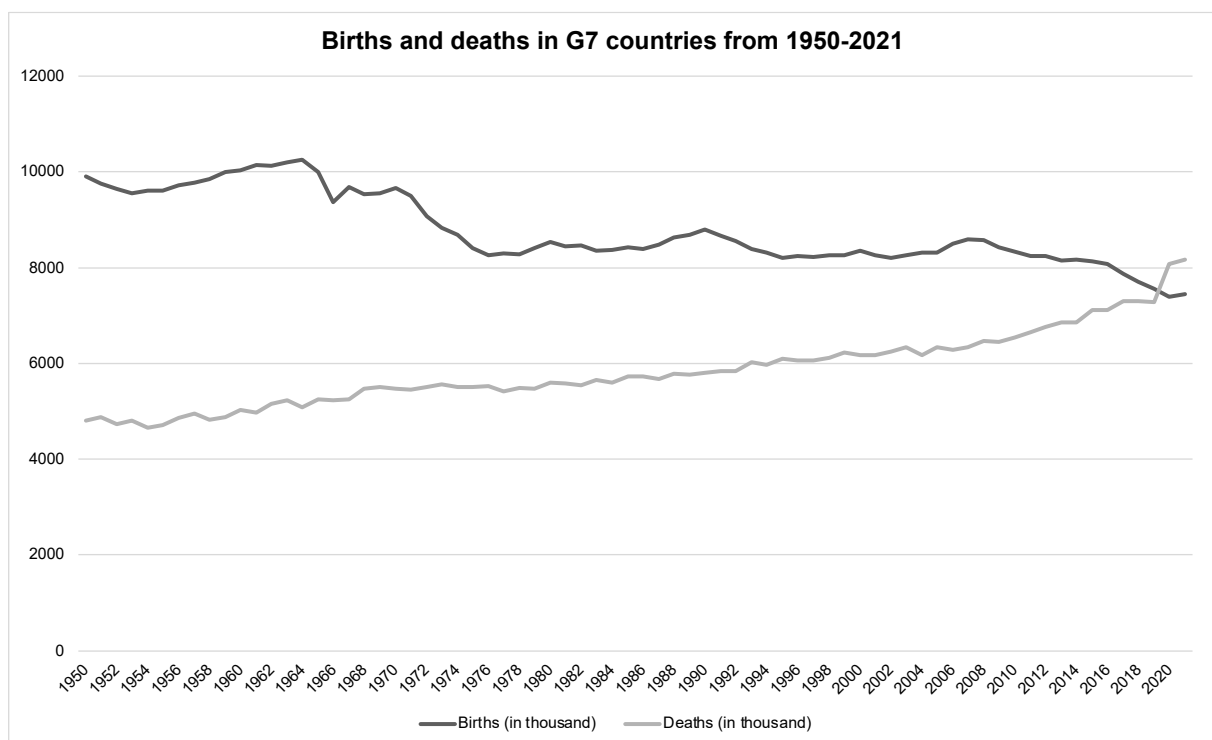


Figure 7: Births and Deaths in G7 Countries over Time
Source: Own illustration based on UN (2022b, 2022c).

Particularly, the development in Europe and North America, but also Japan can be explained by looking at historic data. In the beginning of the 19th century, World War I and the influenza

epidemic in 1918/1919, left families, which experienced losses of family members, with the fear to bring life into the world. This period was followed by the golden twenties, which however were followed by a heavy economic and financial crisis. At this time, families again were facing a situation in which it was not easy to raise children. With the beginning of World War II (WWII) many families decided to postpone their plans to build a family and have children. Additionally, during World War II spousal separation led to a low number of births. However, after the war there was a tremendous baby boom and a respective echo (when the baby boomers had children themselves after around 25 years). The echo generations of the baby boomers, however, did not have as many children, which lead to a serious change in demographics and is the key for the aging society. (Bloom & Canning 2008, p. 21) For example, a Japanese woman on average had 3.5 children in 1950, but only 1.4 children in 2010, which is below the replacement level of 2.1 children (UN 2014b, p. 3, 6). Figure 8 shows the change of fertility rates from 1950 until 2021. Particularly in the G7 countries, fertility was comparably high until mid 1960s and then dropped at a very fast pace. One can also see a decline in fertility rates of high-income countries and the world in general. The continuing decrease of fertility after the baby boom paired with an increase in life expectancy, ultimately lead to a destabilization of the age structure in most European countries as well as North America and other countries such as Japan. (Bloom & Canning 2008, p. 21) Eventually, the population in e.g. Europe and Japan is expected to shrink noticeably by 2050 (without calculating in any sort of immigration). Nevertheless, the fertility rate is expected to increase slightly in countries with a very low fertility rate, but this will not be enough to replace the population. (WorldBank 2016, p. 4)

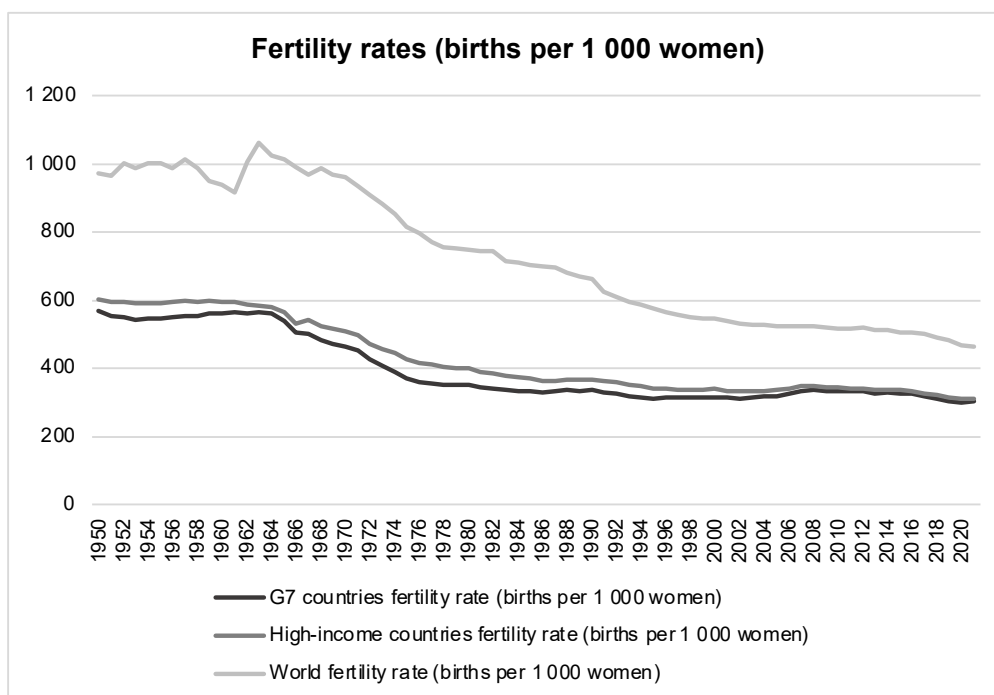


Figure 8: Fertility Rates over Time
Source: Own illustration based on UN (2022a).

As explained earlier, in addition to a drop in fertility rates, life expectancy increased in the last 70 years, as can be seen in Figure 9. For example, in 1950 a Japanese female newborn had a life expectancy of 57.6 years, but 81.8 years in 2021. In Germany life expectancy of female newborns was 64.1 years in 1950 and 78.1 years in 2021. (UN 2022d) In alignment with reasons for lower (infant and child) mortality, health care, sanitation, better hygienic conditions, but also welfare programs for elderly lead to an increase of life expectancy (Chand & Tung 2014, p. 410). As found by Preston (1975) and Pritchett and Summers (1996) there is a relation between income and health. As higher the income of a person, the better is his or her health situation and as higher is life expectancy (Preston 1975, p. 232f.; Pritchett & Summers 1996, p. 842ff.). Thus, life expectancy is higher in high-income countries. However, particularly Covid-19 had an impact on many countries' life expectancy. Life expectancy decreased e.g. by four years in the Russian Federation from 2019 until 2021. But, life expectancy increased in the same years in Australia and New Zealand by 1.2 years, as isolation diminished the risk of death for certain other causes. (UN 2022f, p. iii)

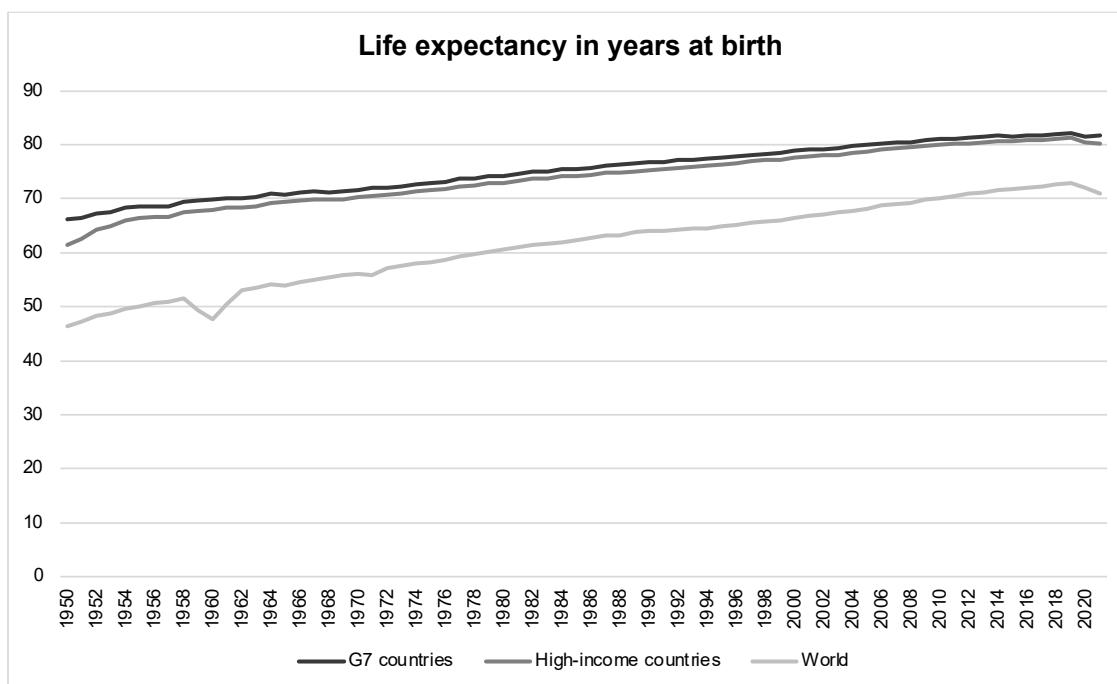


Figure 9: Life Expectancy over Time
Source: Own illustration based on UN (2022d).

But population aging is not only a grand challenge for societies, but leads to unprecedented **changes in the business world** globally “in terms of business opportunities, workforce productivity, cross-cultural management, marketing, macroeconomic public policies, and corporate strategy” (Chand & Tung 2014, p. 409) and companies in particular “in terms of product development, workforce productivity, cross-cultural management, public policy, marketing, and corporate strategy” (Chand & Tung 2014, p. 423). Without going too much into

detail, the following paragraphs summarize findings of Chand and Tung (2014), who focus on aging and its effects on global business.

Aging has a tremendous influence on a country's economy per se: First, countries experience slower economic growth due to human decline in physical and cognitive abilities, ever increasing stately retirement payments that use up money that was planned for other areas, and a shrinking labor force that leads to increasing wages. Second, poverty among the elderly increases as they are maximum working half-time, and the up-to-date skill and ability level may fall short. Thus, expenses may exceed earnings. To meet those monetary discrepancies, countries may decide to spend more on retirement payments and pensions than on e.g. unemployment payments. (Chand & Tung 2014, p. 411) Third, issues in generational equity may arise as the ever-growing elderly age groups depend highly on the younger, working generations. Therefore, there are countries that raised the retirement age due to higher life expectancy. (Chand & Tung 2014, p. 412) Fourth, an aging population leads to inefficiency in labor markets. There are less people in the workforce age groups and at the same time overall productivity decreases with increasing age. (Chand & Tung 2014, p. 412) Fifth, a shrinking workforce combined with increasing elderly, dependent population culminates into an unsustainable public transfer system. Countries have to pay more and more for retired people, which leads less money that can be allocated to other social welfare aspects and to "investments in human and physical capital" (Chand & Tung 2014, p. 412). There are, however, opportunities for many industries to benefit from an aging population, like the telemedicine industry, companies running assisted living centers or automobile companies, that are able to offer more suitable cars for the needs of an elderly population (Chand & Tung 2014, p. 416f.).

Summarizing, this chapter dived into exogeneous shift-based opportunities particularly triggered by demographic change and defined the aging population phenomenon. An aging population bears threats but also opportunities for industries, businesses and start-ups as the needs of the population and customer groups change. Population aging is a specifically interesting development as it is inevitable as the 'elderly' age groups are already born and the shift towards an aging society cannot be stopped. Only migration may change the development of age groups in countries. The situation in high-income and industrialized countries is precarious. They face an ever-increasing life expectancy and a huge 'bulge' of age groups that are or are entering the 65+ age group. In the beginning of this chapter, the dissertation talked about the creation or discovery of opportunities. The thesis will not go either way. There is the development of an aging society, but this dissertation does not classify this development as a created opportunity or an opportunity that needs to be discovered. This dissertation focuses on the interactive process between an opportunity, an entrepreneur and 'the' environment. The next chapter will go into detail on the construct of 'the' environment.

2.2 Environment

Within this dissertation emphasis lies on the interaction of the entrepreneur with his/her environment along the entrepreneurial process. Thus, the environment is one of the key terms within this dissertation and a term precision is needed. An exact definition of 'the' environment is, however, a hard one. On the one hand, there do exist contributions illuminating the rather ambiguous term environment (e.g. Boseman & Phatak, p. 26; Busenitz et al. 2014, p. 4; Kieser & Kubicek 1992, p. 367), but they are not specifically tailored for the entrepreneurial process. On the other hand, for example, Ardichvili et al. (2003) worked on a theoretical model explaining the opportunity identification process. The eventual model identified certain influences that have an impact on the process of opportunity recognition and development, namely: "entrepreneurial alertness; information asymmetry and prior knowledge; social networks; personality traits, including optimism and self-efficacy, and creativity; and type of opportunity itself" (Ardichvili et al. 2003, p. 106). Also York and Venkataraman (2010, p. 453) consider the environment and suggest that the entrepreneur can impact the government, stakeholders, ethical actions and corporations. Davidsson (2015, p. 686) sees the environment as a broad set of external enablers. As this study is, however, pursuing an approach where the entire entrepreneurial process is enlightened from a non-organizational as well as organizational view (it could also be classified as external and internal environment), a more precise understanding is needed. Therefore, the following chapter dives into the term environment from a more general and management perspective, before presenting different dimensions of the entrepreneurial environment from a theoretical and real-life perspective.

2.2.1 General Perspective of "the" Environment

Environmental factors offer businesses opportunities on the one hand, but present threats at the same time. Consequently, for managers it is of utmost importance to keep an eye on the environment of their organization. The analysis of the environment supports managers in the strategic positioning of a firm. Before analyzing the environment, it is essential to know the different layers of the environment. Johnson, Scholes, and Whittington (2008a, p. 54f.) present a business environment that consists out of three different layers, namely the macro-environment, industry and competitors/markets (see Figure 10).

- The macro-environment describes a layer of a business's environment that usually affects all other organizations as well in whichever industry they are active in. This layer can also be described as "broad environmental factors" (Johnson et al. 2008a, p. 54). In the case of a change of these factors, all organizations are affected by it. Consequently, the macro-environment is not industry related. A possibility to analyze

the macro-environment is the so called PESTEL analysis, which will be described in the following paragraphs.

- The industry, a business is active in, comprises the second layer of a business's environment. This layer comprises all the different vendors that offer the same product or service as the organization itself. In addition, suppliers and the overall customer community belongs to this layer in accordance with Porter's five forces. Porter developed his five-forces model to be able to analyze the different forces of an industry, which is for example interesting for any new entrants. Porter's five forces will also be described within this chapter for a better understanding of an organization's industry environment.
- Lastly, competitors and markets are closest to the organization. This layer describes the more direct competitors, and the business is competing with. Those direct competitors can also be described as strategic groups. "Strategic groups are organisations within an industry or sector with similar strategic characteristics, following similar strategies or competing on similar bases. These characteristics are different from those in other strategic groups in the same industry or sector" (Johnson et al. 2008a, p. 73). Possible analysis tools are "the concepts of market segments and critical success factors" (Johnson et al. 2008a, p. 55).

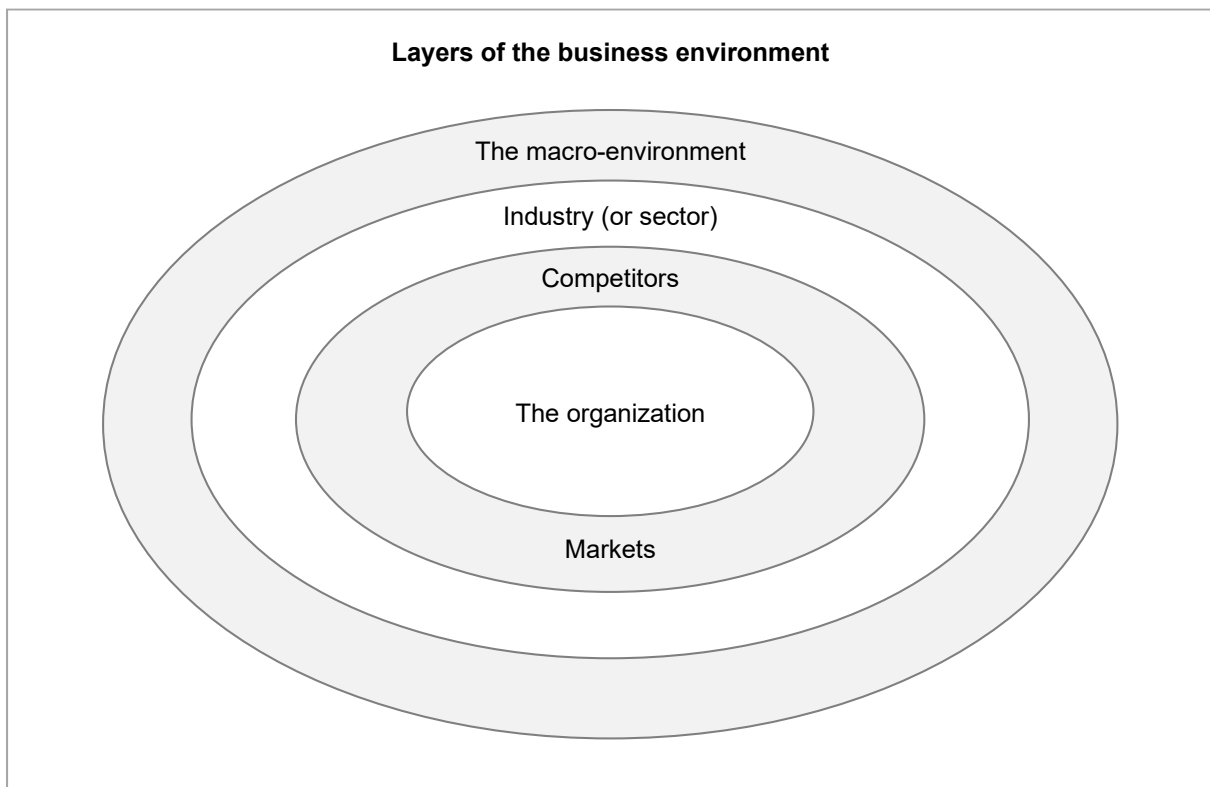


Figure 10: Layers of the Business Environment
Source: Johnson et al. (2008a, p. 54).

Within the following paragraphs each layer and particular analysis tools or concepts will be presented. The description will help the dissertation to better grasp the broad term of environment and understand which aspects might be important not only for existing organizations, but also for the process of creating a new venture. As mentioned above, the macro-environment can be displayed along PESTEL analysis, the industry or market along Porter's five forces and direct competitors or markets can be enlightened through looking at market segments and critical success factors.

For business managers or CEOs, it is of high importance to keep an eye on their global, macro-environment and particularly changes that might evolve now or in the future, so they are prepared for any implications any change might have for their business (Johnson et al. 2008a, p. 55f.). These changes are usually considered on a country level (Bamberger & Wrona 2012, p. 435). But what are managers looking at exactly? A typical tool is the **PESTEL analysis**, which "provides a comprehensive list of influences on the possible success or failure of particular strategies" (Johnson et al. 2008a, p. 55). PESTEL analysis considers six different aspects of an external business environment (Johnson et al. 2008a, p. 55):

- 'Political' describes and highlights the political situation of a country. This may also include changes of government and policy changes.
- 'Economics' goes more into detail on the general economic situation (of a country). Thus, it comprises aspects like changes in public spending policy, interest or exchange rates and investment climate.
- 'Social' considers many different aspects about the social sphere and composition of a society. Typical influences are social living conditions and attitudes, but also buying behavior and evolving cultures. Moreover, demographic change like the aging of populations is an aspect of the social environment.
- 'Technological' refers to changes, evolvments and particularly innovations in any aspect, e.g. product and service wise, but also process and material wise. Thus, it comprises any new R&D activities. The internet is a typical historical example that led to a tremendous change all over the world.
- 'Environmental' specifically highlights the role of green policy and addresses e.g. climate change, pollution and waste issues.
- 'Legal' deals with legal rules that enable or restrict activities and changes of those legal rules, e.g. existing and new laws in the economic or social area. Typical examples are laws on health and safety, as well as laws and particular restrictions on companies' mergers and acquisitions.

One of the most prominent methods to analyze the industry of an organization, is **Porter's five forces**. This method presents one of the key methodologies in strategic management and

allows managers to detect indications that influence the choice over strategy. (Bamberger & Wrona 2012, p. 424). Seeing and understanding competitive forces within an industry, helps companies to position themselves and assess the industries profitability before, during and after, while being able to shape those forces (Porter 2008, p. 26). Porter (2008, p. 25) argues that most managers do see competition too “narrowly”. Competition within an industry is not only based on direct competitors, but there are four further forces that need to be considered when competing over profits, namely: “customers, suppliers, potential entrants, and substitute products” (Porter 2008, p. 25). Figure 11 displays Porter’s five forces model.¹²

Going into detail, for any business there is the *threat of new entrants*, which are able to change the distribution of market share and “puts pressure on prices, costs, and the rate of investment necessary to compete” (Porter 2008, p. 26). Therefore, if entry barriers are high, the fear of new entrants is low (and the other way around) and thus profitability might be higher (or companies need to make higher investments to diverse themselves from competitors). According to Porter (2008, p. 26ff.) there are seven sources for entry barriers, namely: supply-side economies of scale, demand-side benefits of scale, customer switching costs, capital requirements, incumbency advantages independent of size, unequal access to distribution channels, restrictive government policy. The *power of suppliers* is a second force that may have a great influence on an industry’s profitability and competitive situations. If suppliers have a lot of power, they are able to highly impact the cost situation. They can increase or shift costs towards their customers or limit quality or service in any way. Suppliers also include, suppliers of labor. (Porter 2008, p. 29) The *power of buyers* is a third competitive force and is similar to or the “flip side” of the power of suppliers. Hence, powerful customers are able to decrease costs, demand better quality or improved services. Additionally, they can play off different competing companies against each other. (Porter 2008, p. 30) Third, there is the *threat for substitutes*, which, as the name already says, considers any product or service that might actually substitute the company’s own product as it “performs the same or similar function” (Porter 2008, p. 31). A typical example is that trains are a substitute for cars. Lastly, Porter (2008, p. 32) names the *rivalry among existing competitors* as the most obvious fifth competitive force: the more competitors there are, usually the lower the profitability of the industry. However, the power of rivalry depends on the intensity and the basis companies are competing on (Porter 2008, p. 32). Overall, to understand an industry, all five forces need to be considered to get the whole picture.

¹² This dissertation will not include a tremendously detailed description of Porter’s Five Forces but will only shortly explain each competitive force. For a detailed description, one can refer to Porter (2008), Bamberger and Wrona (2012), or Johnson et al. (2008a).

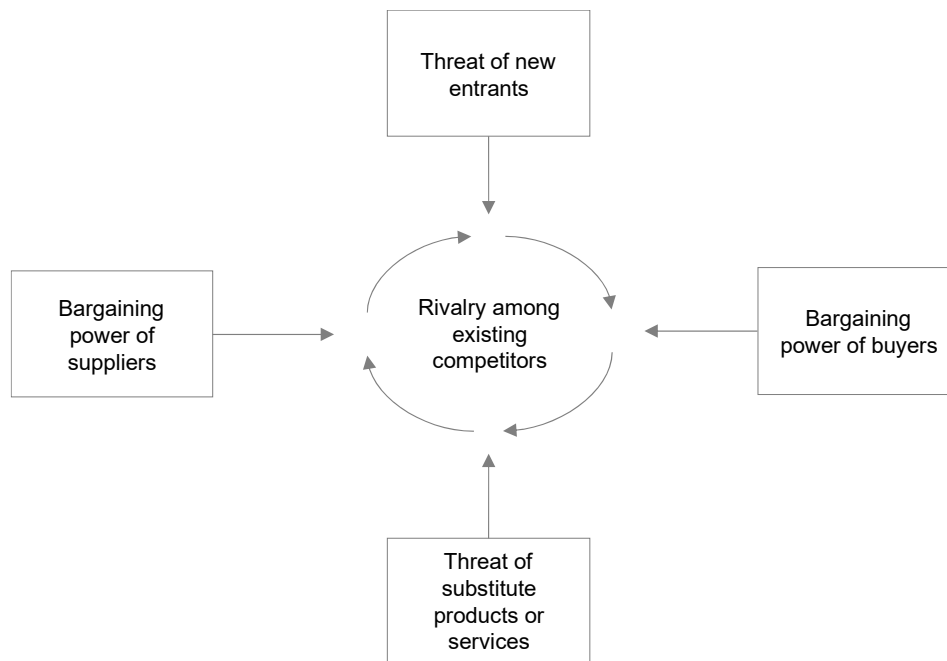


Figure 11: Porter's Five Forces
Source: Porter (2008, p. 27).

The rivalry among competitors brings us to the third layer of a business' environment, namely the **market environment and competitors**. Porter already explains a lot about competitors, but it additionally helps to find strategic groups and market segments to identify the strategic customer and critical success factors (Johnson et al. 2008a, p. 73–81). In any industry there are multiple competing organizations, however, they may distinguish themselves a lot from each other or may be very similar, which makes them belong to the same strategic group. "Strategic groups are organisations within an industry or sector with similar strategic characteristics, following similar strategies or competing on similar bases" (Johnson et al. 2008a, p. 73). A good example can be the car industry. Even though Porsche and Opel are two German car manufacturers, there are not direct competitors as they offer 'different' products for different customer groups. Both companies offer cars, but one on the higher end, for much more expensive cars, and the other offer cars on a 'cheaper' level affordable for more people. Thus, they also offer products for different market segments and strive for different strategic customers. To reach their specific customer group, it is important for both companies to identify the characteristics or factors that are specifically important for their customer segment. Consequently, even though there might be some rivalry between both firms as they belong to the same industry and might share some suppliers and the fear for new entrants, but they are actually not competing over the same customers. (Johnson et al. 2008a, p. 73–81)

The above paragraphs described the different layers of an organizations' environment. However, in alignment with Porter (2008, p. 33), there is more to it, there are more factors. Consequently, a broader understanding of what could be potential environmental factors is

additionally needed. This dissertation aims for understanding and exploring the opportunity, environment and entrepreneur interaction. Within this dissertation, particular emphasis lies on new ventures specifically start-ups. Thus, the next chapter will go into more detail on the environment understanding from an entrepreneurship perspective.

2.2.2 Entrepreneurship Perspective of “the” Environment

“I think there is this interplay between idea and founder. The baby is going to grow up at some point and gets into puberty and then it just does a few things that the founder had not intended. [...] It grows. There are many people. There are many stakeholders in the discussion. Those stakeholders all have their own interests [...] There is a certain momentum in the whole business that you cannot control.” (Transcript C, points [565–573])

The previous paragraphs described the understanding of the environment from a management perspective. However, this dissertation focuses on the field of entrepreneurship. Therefore, it is beneficial to additionally investigate the meaning and understanding of environment in the entrepreneurship field. In line with a theory-integrated qualitative research approach, an analysis of the term environment is conducted logically and systematically. To do so, the paper by Busenitz et al. (2014) was taken as a ground to analyze the different viewpoints of ‘the’ environment in the entrepreneurship field. In addition, sensitizing interviews with entrepreneurship experts, who accompany and support young start-ups in their beginnings, aim for shedding light on the construct ‘environment’. Thereby, environment can be defined along theoretical and empirical contributions generated deductively and inductively.

A systematic analysis of 30 different research articles that touch the topic of environment and emerged from a literature review conducted by Busenitz et al. (2014) was executed in order to investigate the common understanding of environment from an entrepreneurship perspective. Each article was read and the definition and understanding of environment was extracted. The 30 understandings of environment were coded and categorized in accordance with an open coding strategy (Corbin & Strauss 2015) in five steps. First the understandings were screened, and the mentioned characteristics or descriptions of environment were obtained. Then, the understandings and descriptions were coded, and the codes were condensed into categories in three steps.¹³ Lastly, each category was sorted according to micro and macro environment. Resulting, ‘the’ environment of an entrepreneur can be classified along eight dimensions. Table 3 presents the dimensions and respective articles.

¹³ During this process, it became obvious that three articles did not describe environment from an entrepreneurship perspective but only added adjectives like “complex” or “wider” environment. Consequently, the articles by Amit and Zott (2001), Calas, Smircich, and Bourne (2009) and Certo, Covin, Daily, and Dalton (2001) were not included in the final categorization of environmental layers.

Table 3: Environment from a Theoretical Entrepreneurship Perspective

Level	Category	Paper
Micro environment	Organizational environment	Bercovitz and Feldman (2008); Gans, Hsu, and Stern (2008); Gruber, MacMillan, and Thompson (2008); Jayaraman, Khorana, and Nelling (2000); Lu and Beamish (2001); Misangyi, Weaver, and Elms (2008); Peng (2003); Shrader, Oviatt, and McDougall (2000); Simsek, Lubatkin, and Floyd (2003); Steensma, Marino, Weaver, and Dickson (2000); Zahra, Ireland, Gutierrez, and Hitt (2000)
	Market environment	Bercovitz and Feldman (2008); Doh (2000); Gans et al. (2008); George and Prabhu (2000); Levy (2008); Lu and Beamish (2001); Lyles, Saxton, and Watson (2004); Maguire, Hardy, and Lawrence (2004); Marquis and Lounsbury (2007); McDougall and Oviatt (2000); Ozcan and Eisenhardt (2009); Peng (2003); Purdy and Gray (2009); Shrader et al. (2000); Spicer, McDermott, and Kogut (2000); Zahra et al. (2000)
Macro environment	Local environment	Bercovitz and Feldman (2008); Peng (2003); Purdy and Gray (2009)
	Cultural/normative environment	Bercovitz and Feldman (2008); Busenitz, Gomez, and Spencer (2000); Garud, Jain, and Kumaraswamy (2002); Lee, Peng, and Barney (2007); McDougall and Oviatt (2000)
	Institutional environment	Bercovitz and Feldman (2008); Gans et al. (2008); Garud et al. (2002); Lee et al. (2007); Levy (2008); Lyles et al. (2004); Maguire et al. (2004); Marquis and Lounsbury (2007); Misangyi et al. (2008); Peng (2003); Purdy and Gray (2009); Spicer et al. (2000)
	Legal environment	Bercovitz and Feldman (2008); Busenitz et al. (2000); Doh (2000); Gans et al. (2008); Hellmann (2007); Lee et al. (2007); Maguire et al. (2004); Purdy and Gray (2009); Shrader et al. (2000); Spicer et al. (2000)
	Social environment	Gans et al. (2008); Gruber et al. (2008); Kalnins and Chung (2006); Lyles et al. (2004); Maguire et al. (2004); Marquis and Lounsbury (2007); Peng (2003); Shane and Cable (2002); Simsek et al. (2003); Spicer et al. (2000)
	Political environment	Bercovitz and Feldman (2008); Levy (2008); Lu and Beamish (2001); Lyles et al. (2004); Maguire et al. (2004); Peng (2003); Purdy and Gray (2009); Spicer et al. (2000)

Source: Own illustration of findings.

After presenting the eight different dimensions of the environment from an entrepreneurship perspective according to the conducted literature review and coding process, the following paragraphs will go into more detail. Each dimension will be presented and described shortly in accordance with the respective articles. Each article sheds light on what can be understood as an entrepreneur's environment. In addition, each dimension will be enlightened from a practice perspective based on the conducted sensitizing interviews. To do so, each of the sensitizing

interviews was openly coded following a theory-integrated approach and each code was deductively categorized along the presented dimensions of the entrepreneurial environment.¹⁴

Overall, 306 text passages were coded with a code set of 100 different codes that were deductively categorized into ten categories. In addition to the eight theoretical environment categories, the sensitizing interviews provided information about the overall process of founding a business and the idea and opportunity construct. These two categories will be left out within this chapter but provided a good groundwork for the actual interviews with start-ups and sensitized the author in terms of circular processes along the entrepreneurial process and opportunity construct. Table 4 displays each category and the assigned codes. From a practical perspective the most frequent assigned codes were: Money (19x), Business Model (15x), Funding programs (15x), Business Angel¹⁵ (12x), Network(ing) & networking events (12x), and Customer (12x). Even though a sole counting of codes does not tell much, it may provide a first hint on which topics are important in a start-up's early life. Figure 12 displays the code cloud of assigned codes that were assigned more than four times. The bigger the word, the more often the code was assigned. However, the figure does only count the directly assigned codes and leaves out any sub-codes and can thus only be interpreted with caution but provides an interesting first overview.



Figure 12: Code Cloud Entrepreneurial Environment from a Real-World Perspective
Source: Own illustration of findings.

¹⁴ All interviews were conducted in the mother tongue of the interviewees: German. The direct quotes within this chapter were translated by the author.

¹⁵ The code Business Angel itself was assigned 12 times, but together with the sub-codes the code was assigned 24 times. However, the dissertation has to set a limitation. The result might be biased as one of the interviewees himself is a business angel. Thus, the topic may have come up much more. At the same time, the other three interviewees were employed at a university to consult start-ups in their early phase. But, the code university or consulting in any form were not as present.

As mentioned above, in the following the dissertation will go more into detail on each category describing an entrepreneur’s environment. First, a theoretical summary will be provided that was extracted from the respective research articles. Second, each category will be enlightened from a practical perspective through a short summary of what the entrepreneurship experts had to say about the category. Eventually, this chapter summarizes the findings and shows the standpoint of this dissertation. But first, Table 4 present the coding tree of the sensitizing interviews (leaving out the codes on the process and idea or opportunity).

Table 4: Environment from a Real-life Entrepreneurship Perspective

Category	Codes
Organizational environment	Resources <ul style="list-style-type: none"> ▪ Physical resources: equipment, machines, material, space ▪ Founders working and educational background, qualification ▪ Available resources ▪ Know-how ▪ External resources are the key Lifecycle of business (industry) Team interaction Employees Growing start-ups need more internal structures
Market environment	Customer Suppliers <ul style="list-style-type: none"> ▪ From strategic partners to suppliers ▪ Knowledge about suppliers Strategic partner or buyer Financial and economic frame Get feedback, communicate and interact with the market Market entry barriers Potential partners in the market Understand the market Experts in the industry
Local environment	Regional and local start-up events Designated roundtable start-up talks Inspiring localities as point of interaction & network Embeddedness in the (local) start-up ecosystem
Cultural/ normative environment	Indirect influence of founders towards funding culture Politics influence founding culture in universities Establishing a local founding culture Cultural differences concerning starting a business
Institutional environment	Establishing a local founding structure The knowledge about programs is the first step Business Model Consulting services <ul style="list-style-type: none"> ▪ Entrepreneurship Center ▪ Public Start-up institutions for consulting ▪ Initial start-up consultancy ▪ Founders training ▪ Coaching services ▪ Support services ▪ Information services

Category	Codes
	Supporting institutions <ul style="list-style-type: none"> ▪ Hub ▪ Accelerator ▪ University Money <ul style="list-style-type: none"> ▪ Crowdfunding ▪ Start-up competitions with price money ▪ Exit is money Investors <ul style="list-style-type: none"> ▪ Banks and Development banks ▪ Venture Capitalists ▪ Family offices ▪ Funding programs ▪ Business Angel <ul style="list-style-type: none"> ▪ Initial contact leads to idea mingling from Business Angel ▪ Business Angels stick to their repertoire ▪ Business Angel and founder cooperation ▪ Business Angels set the boundaries ▪ Business angels support the management of a start-up ▪ Business Angel as interim COO or CFO ▪ Business Angels as entrepreneurs ▪ From Business Angel to financial investor ▪ Business Angel network ▪ Mentorship ▪ Communication and interaction with investor ▪ Investors decide and shape the operative and strategy ▪ Too many cooks spoil the broth State institutions <ul style="list-style-type: none"> ▪ Tax office ▪ Public health department
Legal environment	Decision over legal form of business Corruption Different regulations and legal processes Taxation
Social environment	Networking to get know-how from others People Network(ing) & networking events
Political environment	Lobby Political ideas influence thoughts about entrepreneurship Politics set the public funding culture Politics set the frame Politicians Political parties

Source: Own illustration of findings.

Organizational environment. The organizational environment plays a crucial role for any business as within an ever-changing external environment, organizations need to be flexible on an organizational level to be able to act, react and adapt in order to avoid risk (Lu & Beamish 2001, p. 567; Shrader et al. 2000, p. 1230). Organizational learning is the key to survive in the case of external changes and the exploration of new opportunities (Gruber et al. 2008, p. 1654). Firms and particularly small enterprises experience organizational learning, which

creates “new organizational mindsets” and “internal environment” and offers them new opportunities to exploit (Zahra et al. 2000, p. 516). To be able to understand and reduce environmental complexity, organizations engage in “familiar routines and standards” (Peng 2003, p. 286). Going into detail, “individuals and organizations alike are embedded within both organizational and wider institutional environments” (Misangyi et al. 2008, p. 753). Others even state that individuals in organizations are conditioned by their organizational or so called “local work environment”. The embeddedness or conditioning shows in difficult situations when the norms of the work environment dictate action. (Bercovitz & Feldman 2008, p. 69) Additionally, strategy is part of the organizational environment (Gans et al. 2008, p. 983, 996) and “strategy–environment match” is the key to improved performance (Jayaraman et al. 2000, p. 1218). Then there is also inter-organizational networks that help organizations to coordinate with partners, decrease uncertainty and gain power (Simsek et al. 2003, p. 432; Steensma et al. 2000, p. 954). Sometimes, inter-organizational activities are also referred to as “coalition activities” (Steensma et al. 2000, p. 954).

Within the sensitizing interviews, the entrepreneurship experts emphasized that a big part of the organizational environment are tangible resources like equipment machines, materials and even the workspace¹⁶ and intangible resources, such as know-how¹⁷, qualifications, as well as educational resources¹⁸. However, particularly for start-ups external resources are the key. Most start-ups do not have the resources they need, and they can try to get them through affiliated people like investors or start-up consultancies or buy them like know-how that you get from employing freelancers. In the end Expi GER 2 describes it as follows: “So I do not have to be able to do everything myself. I can put it together like a construction kit”.¹⁹ Consequently, resources may be a point of interaction.

Additionally, a big part of the organizational environment is the team, employees and resulting internal structures.²⁰ The bigger the business gets, the more internal structures are needed.²¹ Thus, also the people within the organization are potential points of interaction and the structures are regulating the business. Lastly, Expi GER 3 mentions that the development of a business depends on the lifecycle of such businesses. He states that for example IT App businesses have a lifecycle of about three years, whereas businesses in the chemical industry have a lifecycle of ten years.²² The lifecycle of businesses thus depends on the industry but

¹⁶ See Transcript A, points [258, 263], Transcript D, points [103, 91].

¹⁷ See e.g. Transcript A, points [255, 259, 269].

¹⁸ See Transcript C, points [75–77, 201].

¹⁹ Transcript B, point [130–132f.], Transcript A, point [254f.].

²⁰ See Transcript C, point [236], Transcript A, point [255].

²¹ See Transcript D, points [321–325].

²² See Transcript C, point [462].

has an impact on organizational development and can be seen as an interception with the market environment.

Market environment. In the literature the market environment experiences a lot of emphasis: the market and industry are highly important aspects of a businesses' environment (Lyles et al. 2004, p. 351). Maguire et al. (2004, p. 659) goes the same way and names the industry as a key stakeholder in any businesses' life cycle. Each industry is different and a clear classification and identification of the industry is highly important for businesses to be successful (Ozcan & Eisenhardt 2009, p. 263). Of course, the market environment can change rapidly, e.g. due to (international) new entrants (McDougall & Oviatt 2000, p. 904; Shrader et al. 2000, p. 1230), new competition (Zahra et al. 2000, p. 516) but also due to changes in terms of "prices, demand, or technological standards" (Shrader et al. 2000, p. 1230), like changes in "consumer tastes" (Lyles et al. 2004, p. 355). Particularly, new entrants are a threat and for any business it seems important to look at the market environment to know the entry barriers (Doh 2000, p. 556). Thus, it is particularly important for businesses to keep an eye on the market environment and even interact with the market, especially for small businesses as they are more vulnerable to environmental changes (Lu & Beamish 2001, p. 570). So, it is no surprise that in most articles economic factors are mentioned (Bercovitz & Feldman 2008, p. 84), as well as the "broader market environment", the "competitive environment" (Doh 2000, p. 554f; George & Prabhu 2000, p. 627), "commercialization environment" (Gans et al. 2008, p. 982), "economic environment" (Marquis & Lounsbury 2007, p. 808), "material environments", "different state-level environments" (Purdy & Gray 2009, p. 357, 367), "business environment" (Zahra et al. 2000, p. 516), and even "international environments" or "foreign environments" (McDougall & Oviatt 2000, p. 904; Shrader et al. 2000, p. 1230).

The market environment may also influence the legal environment. For example, if the product will enter a market environment that is described by "productive efficiency", taking time to establish patents or IP protection rights is "relatively unimportant". (Gans et al. 2008, p. 989) Additionally, the economic or market environment and political, as well as institutional environment are connected. Businesses can take a high influence on the institutional environment, which may lead to effects on "product entry, pricing, patent protection, and media coverage". (Levy 2008, p. 950) (Peng 2003, p. 283) identifies that there are so-called "formal market-supporting institutions" that are a key aspect of the market environment as well. (Spicer et al. 2000, p. 631) mentions the importance of the economic landscape as a base and that is historically defined by "network ties and social relations".

The entrepreneurship experts highly emphasized the customer as the key stakeholder in the market environment that needs to be considered. In the end, the customer decides over the success or failure of the business. Therefore, the entrepreneurship experts emphasized the

importance of getting feedback, communicating and interacting with the market in general and the customer in particular. Expi GER 3 explains that the customer comes first in the development process of a business: “The customers always say I want that, do I pay money for it? Or do I pay ... as I said, something always comes out of a conversation with a customer”.²³ Also Expi GER 1 points towards the customer as the key player in any business’s beginnings: “And that too is basically based on talking to people. At the beginning you have to collect the know-how, the knowledge of whether the idea is viable somewhere, talk to customers, to experts from the industry, etc.”.²⁴ The key is to understand the market.²⁵ Understanding the market means also to understand market entry barriers²⁶. Moreover, the market provides a “financial frame, economic frame” that businesses act within.²⁷ The entrepreneurship experts also identified the supplier as an important stakeholder in the market environment, as well as strategic partners or strategic buyers. Interestingly, sometimes a supplier can also become a strategic partner.

Local environment. The local environment plays a particular role for new organizations. Local institutions and local administration help organizations to set up and develop. (Purdy & Gray 2009, p. 363, 372) Additionally, in unfamiliar environments it seems important to “go local”, experience and learn local customs, work with local partners, employ locally (Peng 2003, p. 286). Moreover, as mentioned in the organizational environment, it is suggested that individuals in organizations are highly influenced and even conditioned by their local work and local social environment (Bercovitz & Feldman 2008, p. 69). So, individuals and organizations in general are embedded in their local ecosystem.

The entrepreneurship experts also emphasized the embeddedness of businesses in their local (start-up) ecosystem.²⁸ Expi GER 1 describes that local networking, and local embeddedness is a success and certainly an influential factor for many start-ups.²⁹ But how are start-ups able to network locally? Expi GER 2 describes that there are designated roundtable start-up talks³⁰ and overall regional and local start-up events are a possibility to interact with local stakeholders³¹. Additionally, there are inspiring localities in your local surrounding that can be a point of interaction and network. Typically, co-working spaces are particularly helpful.³²

²³ Transcript C, points [457–459].

²⁴ Transcript A, points [268–270].

²⁵ See Transcript B, points [328f., 358–362].

²⁶ See Transcript B, point [405].

²⁷ Transcript C, point [468f.].

²⁸ See Transcript A, points [348–350, 352, 370].

²⁹ See Transcript A, point [352f.].

³⁰ See Transcript B, points [122–125].

³¹ See Transcript C, point [40], Transcript B, point [77f.].

³² See Transcript B, points [584–590, 605ff.], Transcript D, point [461].

Cultural/normative environment. Many studies consider a countries' normative environment as a measure when it comes to entrepreneurial activities (Busenitz et al. 2000, p. 995f.; Garud et al. 2002, p. 197). Societies' view and values on entrepreneurial activities and related learning opportunities differ from country to country (Busenitz et al. 2000, p. 995f.; McDougall & Oviatt 2000, p. 904f.). "In some value systems, entrepreneurs are admired for their creativity and initiative, but in others they are not" (Busenitz et al. 2000, p. 995f.). Particularly, many studies use Hofstede's cultural dimensions to describe or measure an organizations or newly created venture's cultural and normative environment. However, from an entrepreneurship perspective, some authors suggest that it might be helpful to develop or find dimensions that are "specific to the domain of entrepreneurship" (Busenitz et al. 2000, p. 995f.). Additionally, a diversity of national environments leads to differences in terms of technological advancement and generally progress (McDougall & Oviatt 2000, p. 904f.). Even though a positive and encouraging cultural and normative entrepreneurial environment, the actual success of new ventures does also need a "strong cognitive and regulatory environment" to obtain legitimacy and win external investors (Busenitz et al. 2000, p. 1000). A particular example of differing cultural environments is given by Lee et al. (2007, p. 266):

"In this regard, an entrepreneur-friendly bankruptcy law may be less effective in a cultural environment characterized by a high level of stigma associated with bankruptcy. Countries with a risk-averse culture, such as Japan, may have difficulty enacting and implementing an entrepreneur-friendly bankruptcy law, because a law that is lenient on bankrupt individuals and firms may violate informal but powerful cultural norms. In other words, in real options reasoning, high stigma in a society limits the role of lenient bankruptcy law in increasing the variance in a society."

The entrepreneurship experts also see that there are differing views on starting a business depending on cultural background.³³ Particularly, the view on business failure but also the overall view on entrepreneurship differs. Expi GER 4 describes the current founding culture in Germany as follows: "At the moment this whole start-up thing is hip, but for a long time that was not what everyone was thinking. Most people did not think whoever founds a company is super cool but is rather somewhere between crazy or greedy"³⁴. Culture also plays a role when start-ups decide to internationalize, and they need to see if they have to adapt their offerings.³⁵

A big part of the cultural environment is the local, established founding culture. There are for example politicians who are eager to create a founding culture in universities to enhance entrepreneurial activities.³⁶ Expi GER 2 is part of such a start-up consulting service in a university, "creating structures that attract people. But also, you need something like a good

³³ See e.g. Transcript B, point [391], Transcript D, points [210, 213f.].

³⁴ Transcript D, points [224–226].

³⁵ See Transcript B, points [391–393].

³⁶ See Transcript B, points [525–535].

feeling, a positive perception of people who are going in that direction, so that overall people consider moving in that direction and perceive it as attractive, and we try to create that to some extent.”³⁷ At the same time founders themselves create an attractive founding culture through creating a more attractive funding culture. As being the addressees of any entrepreneurial funding, they are indirectly able to influence the frame and requirements of funding programs.³⁸

Institutional environment. Generally, the institutional environment of businesses is a crucial environment to interact with (e.g. Gans et al. 2008, p. 996; Garud et al. 2002, p. 197, 210; Levy 2008, p. 948; Lyles et al. 2004, p. 351; Misangyi et al. 2008, p. 753), especially as the newly created business will embed itself in the institutional environment, particularly in the local institutional environment (Purdy & Gray 2009, p. 363, 375). Institutional foundations can be found in the historical institutional infrastructure, with which organizations interact and deal with (Spicer et al. 2000, p. 631, 636).

The institutional environment encompasses many different institutions, with which businesses interact and are affected by. The institutional environment may encompass academic institutions and an “individuals’ training environment”, which means that any institution that helps the entrepreneur or the business in general to advance know-how and knowledge (Bercovitz & Feldman 2008, p. 78, 86). Institutional environment can take the form of “formal market-supporting institutions” (Peng 2003, p. 283), or lobbies might be a part of the institutional environment (Peng 2003, p. 286). Normative institutions may be stakeholders like “government, industry, and NGO” (Maguire et al. 2004, p. 659). There are “different branches of different state governments, as well as state politics, dispute resolution offices were created in judicial, administrative, and later, public university settings” (Purdy & Gray 2009, p. 372). Also “technological standards” are a “key facet of the institutional environment” (Garud et al. 2002, p. 210). Garud et al. (2002, p. 197) describes further aspects of the institutional environment like “public policy regimes”, “regulatory instruments”, “mechanisms for venture capital financing”, “sources of legitimacy”, and “underlying norms of community interaction”. Lee et al. (2007, p. 264f.) distinguishes between formal and informal institutional environment and states that there are “formal regulatory institutions governing entrepreneurship” and “informal aspects of the institutional environment, such as the availability of venture capital and the level of social stigma concerning entrepreneurial failure”.

The institutional environment of organizations “governs the patterns of interaction” (Garud et al. 2002, p. 197). Being embedded in the institutional environment on an organizational but

³⁷ Transcript B, points [78–81].

³⁸ See Transcript B, point [454f.].

also individual level means that businesses are exposed to “formal but also informal pressures rooted in their institutional environments [...] and cognitive communities” (Misangyi et al. 2008, p. 753). Moreover, the institutional environment influences many legal aspects and institutional mechanisms play an important role when it comes to e.g. intellectual property protection (Gans et al. 2008, p. 996, 989). In addition to interacting with institutions in general, institutions may also change, which bears new challenges for organizations (Marquis & Lounsbury 2007, p. 799; Peng 2003, p. 275).

The entrepreneurship experts added some more examples of institutions that newly founded businesses interact with. Most and foremost are consulting services (the sub-codes in total were assigned 24 times). Usually, potential founders turn to some sort of initial start-up consultancy or entrepreneurship center, that have a “signpost function”³⁹ and provide an initial consultation up to building structures, support in founding a business, help with people management, mindset work,⁴⁰ but also provide tools and support when needed⁴¹ and help develop the business model⁴². You can find entrepreneurship centers in many universities.⁴³ There are also digital start-up platforms that aim to ease the process to found a business.⁴⁴ Overall, “a start-up facility is ultimately just a stepping stone for the founders to help them march in the right direction and talk to the right people”.⁴⁵ At those entrepreneurship centers or any sort of start-up facility, entrepreneurs have the possibility to get coaching services⁴⁶, receive founders training along the founding process⁴⁷, turn towards support services, that are able to e.g. answer questions⁴⁸ and name the right contact person⁴⁹, and use information services⁵⁰. Simultaneously to consulting potential entrepreneurs, the entrepreneurship centers or start-up facilities develop and evolve through interacting with the entrepreneurs. Expi GER 1 describes: “If you like, the HaHub or any founding institution is itself a start-up and changes with every type, with every additional project and you get to know your own strengths and weaknesses and state which things you can and cannot do, show your limits so to say”⁵¹.

³⁹ Transcript B, point [165].

⁴⁰ See Transcript B, point [62ff.].

⁴¹ See Transcript B, point [228].

⁴² See Transcript A, point [62].

⁴³ See Transcript A, point [421f.].

⁴⁴ See Transcript A, point [398f.].

⁴⁵ Transcript A, points [482–484].

⁴⁶ See Transcript B, point [168].

⁴⁷ See Transcript D, points [85–93, 136f., 151–154].

⁴⁸ See Transcript B, points [168ff., 199f.].

⁴⁹ See Transcript B, point [76].

⁵⁰ See Transcript B, point [161f.].

⁵¹ Transcript A, points [459–453].

In addition to entrepreneurship centers, potential entrepreneurs go to hubs and accelerators for consulting services. These are two further institutions that help start-ups in their earlier phases, usually after they leave the initial consultancies as the program ends (a typical one-year program like exist). Expi GER 1 describes that during the time of the initial program “together with the founding team, we try to make the bride pretty, so to speak, so that you can then pass it on to follow-up financing, follow-up programs like ... Accelerator like Airbus Lab or Tech in Munich... exactly the next level”.⁵²

Of course, money is the key to success for start-ups. How do start-ups get money? In the beginning, they have the possibility to collect money through crowdfunding, which enables the founding team to have a first market test as they can show that there is interest in the product or service on the market side.⁵³ They also have the possibility to participate in start-up competitions with prize money, where they compete with their pitches for example.⁵⁴ There are also different funding programs based on funds.⁵⁵ For any funding program, founders usually need to apply and write a proposal. Particularly the requirements and boundaries of a proposal play a significant role:

“Well, first of all, writing a proposal like this is sometimes quite healing ... painful for a founding team, but also healing, because of course when you have to get that down on paper first, you also get much sharper with each other in understanding what the business should be about.” (Transcript A, point [304–306])

However, eventually, only an exit means ‘real’ money for the founders (and investors) and is considered the ultimate goal.⁵⁶

On the ‘professional’ financing side, start-ups interact with many different investors such as: business angels, banks and development banks, family offices, and venture capitalists (VCs). Even though not all investors are institutions but people, they represent the institutional environment as they give businesses a certain frame to act within. Businesses turn towards those professional financiers only after some time and there is also a more or less natural order (in accordance with the above list) or businesses turn towards one type of financier depending on how much money they need.⁵⁷ However, any investor means that founders of start-ups are giving up shares of their company⁵⁸:

⁵² Transcript A, points [82–86].

⁵³ See Transcript B, point [329].

⁵⁴ See Transcript C, points [35f., 51–56], Transcript D, points [289f.].

⁵⁵ See e.g. Transcript A, points [74–76, 102].

⁵⁶ See Transcript C, points [425–427].

⁵⁷ See Transcript C, points [314–318].

⁵⁸ See Transcript C, points [588–581].

“But once you have matured, you can talk to business angels or venture capitalists, but you have to be very aware that with such financiers you also get co-decision-makers on board and that is always ... there has to be you see ... that can be good or that can be bad, but when you bring private investors on board, you always cut a piece of autonomy, of freedom of choice.” (Transcript A, points [276–281])

Let us take a closer look at the investors. Business Angels are probably the most reluctant in giving money⁵⁹ but bring a lot more to the table as they stick to their repertoire.⁶⁰ Even during a first, short conversation, business angels start to mingle with and work on the business idea.⁶¹ Business Angels are often highly involved in the business. They give the founders boundaries they are able to work in⁶² and cooperate closely with their founders⁶³. At the same time, they try to support the management of a start-up:

“The business angels probably also have a pretty good sense of whether the management of a start-up fits. Where is the current gap? Is there a gap in development? Is there a gap in the application? Is there a gap in the financial planning? Is there a gap in sales? Where do I have to direct the resources to make it work?” (Transcript C, points [150–153])

Sometimes it might happen that the Business Angel enters the operative business and becomes the CFO or COO of the start-up (to fill a needed gap). However, this constellation is only temporary, and they take an interim position.⁶⁴ But sometimes and mostly over time, a Business Angel might also develop into a financial investor and distances him/herself from the start-up and is less involved.⁶⁵ Overall, Business Angels might be helpful and supportive and may be needed when looking for a regional development bank. Banks and particularly development banks are able to (co-)invest in start-ups. Usually, regional development banks are of significance as their main goal is to invest in new ideas and start-ups.⁶⁶ Expi GER 3 describes the behavior of development banks as follows:

“The development banks babble longer because they primarily have to get rid of money. They only partially have the pressure that they have to find business angels. It is meanwhile ... there is more often this variant that they want someone there who invests money themselves, because those who invest money themselves are a little more careful with their money. The development banks are Fritzen, they have to spend their money.” (Transcript B, points [336–340])

The same applies for venture capitalists. They have to spend the money they have in their funds.⁶⁷ Venture capitalists are much more distanced and also “cynical, unpleasant

⁵⁹ See Transcript C, point [342f.].

⁶⁰ See Transcript C, point [286f.].

⁶¹ See Transcript C, points [257–259].

⁶² See Transcript C, point [144].

⁶³ See Transcript C, point [147f.].

⁶⁴ See Transcript C, points [621–625].

⁶⁵ See Transcript C, point [644f.].

⁶⁶ See Transcript B, point [325f.], Transcript C, points [336–340].

⁶⁷ See Transcript C, point [341].

interrogators, who say ‘I do not give a shit, if you go broke, you just go broke’⁶⁸. Despite all the slightly negative traits of a financial investor, generally any investor provides mentorship to the start-up and shape the operative and strategic direction (hopefully into a good direction).⁶⁹

“Too many cooks spoil the broth. So, you have to think about it. But it is precisely the first investors who are very, very, very important for the prosperity of a company, as research shows and practice also shows.” (Transcript A, points [282–284]).

On the state side, the entrepreneurship experts mentioned the tax office and public health department as institutions businesses interact with. Also, there are institutions and politicians that are eager to create and establish a supportive, local founding structures.⁷⁰ Overall, the knowledge about programs is the first step in receiving consultation and working on the idea.⁷¹ Moreover, the business model itself is a huge part of the institutional environment as it is framework businesses have to use and are bound to. Only pursuing an idea is not enough to become a business – creating a plausible, running business model with a sustainable competitive advantage is the goal.⁷² The business model of course changes over time.⁷³

“Ultimately, if you have a trend and a problem or a solution, then that is the idea, so to speak, but in order for it to become a business idea or even a business at all, you have to embed it in a business model, that sounds very academic and theoretical, and that is basically the frame of reference for all the numerous, other small, strategic, tactical decisions about how to solve the problem, how to get the solution to the people, how to create it.” (Transcript A, points [215–221])

Legal environment. The legal or regulatory environment in general, is a key factor for new businesses to become successful. Interaction takes place when legal factors change (Bercovitz & Feldman 2008, p. 84, 87). Without a strong regulatory environment, businesses are not able to gain legitimacy to convince investors. (Busenitz et al. 2000, p. 1000) It is essential for businesses to connect with legal or regulatory organizations to navigate through the regulatory environment (Doh 2000, p. 561). Particularly, patents, IP protection and property rights are a big part of the legal environment of businesses (Gans et al. 2008, p. 983, 996; Hellmann 2007, p. 920; Spicer et al. 2000, p. 636). To a certain extent, businesses are protected through regulations. For example, the rules for bankruptcy may be beneficial (Lee et al. 2007, p. 261, 266). Institutions in an organization’s environment do also include institutions of the legal system (Maguire et al. 2004, p. 659). Judicial and administrative regulations are

⁶⁸ Transcript C, point [350f.].

⁶⁹ See e.g. Transcript A, point [394f.].

⁷⁰ See Transcript A, point [366f.].

⁷¹ See Transcript B, points [157–160].

⁷² See Transcript C, points [68, 74, 78].

⁷³ See Transcript B, points [241–244, 354f., 399f.].

part of the legal environment (Purdy & Gray 2009, p. 372). Also technological or product standards may belong to the legal environment (Shrader et al. 2000, p. 1230).

Entrepreneurship experts also named the legal environment as one of the basic environmental influences that set a frame on start-ups.⁷⁴ “What happens relatively often is that one finds that there are legal limits in some form at some point.”⁷⁵ However, Expi GER 1 adds that “whenever legal framework conditions change, it can make life more difficult, especially those who are already in the way, but it can also basically be an impulse for new developments.”⁷⁶ They further pointed out that the legal environment is different across countries.⁷⁷ Even on a state level, different regulations apply and founders face different legal processes.⁷⁸ When it comes to the legal environment, Expi GER 2 describes that founders usually ask the question “which legal form is the right one for me?”⁷⁹, which also belongs to the legal environment. Further topics of the legal environment were mentioned: taxation rules⁸⁰ and corruption⁸¹.

Social environment. Entrepreneurs build and benefit from their social capital, e.g. they are able to network in their “ethnic, professional, religious, or social groups” (Kalnins & Chung 2006, p. 233). Building “relationships among actors” is crucial for entrepreneurs (Lyles et al. 2004, p. 357; Maguire et al. 2004, p. 659) and networks are key for success, and mostly even survival (Lyles et al. 2004, p. 351). Often personal or professional networks, which may exist through prior work or start-up experience, are built (Gruber et al. 2008, p. 1652; Lyles et al. 2004, p. 357). Along the entrepreneurial process, network ties and social relations help businesses to evolve (Spicer et al. 2000, p. 631). Exemplary, many entrepreneurs are able to find investors through direct and indirect social ties (Shane & Cable 2002, p. 364). For many businesses sensemaking goes hand in hand with reflecting through ongoing social interactions, thus a “reciprocity in the network” establishes itself (Simsek et al. 2003, p. 432). Interestingly, highly networked environments are usually linked to certain locations, thus to the local environment (Gans et al. 2008, p. 989). However, on the downside, with lacking formal institutional mechanisms, the social environment and informal network in particular may lead to inequality up to corruption (Peng 2003, p. 283). Furthermore, socioeconomic features play a certain role in the amount of business foundings (Marquis & Lounsbury 2007, p. 808f.).

⁷⁴ See e.g. Transcript B, point [391], Transcript D, point [265f.].

⁷⁵ Transcript B, point [380f.].

⁷⁶ Transcript A, points [332–334].

⁷⁷ See Transcript D, points [359–361].

⁷⁸ See e.g. Transcript D, point [392].

⁷⁹ Transcript B, point [170].

⁸⁰ See Transcript A, point [332].

⁸¹ See Transcript D, point [338].

From a real-life perspective, the entrepreneurship experts distinguished the professional and private social environment. The private social environment plays a crucial role:

“The founder must accept advice. His social environment certainly helps him in this regard. That is why you always look at the founder’s partner. Without that is always bad. Especially if you go to bed together for a long time. That plays a significant role.” (Transcript C, points [529–531])

In addition to the private social environment, the professional social environment is a crucial environmental point of interaction. The entrepreneurship experts highly emphasize the importance of networks⁸² and particularly building networks when going to network events⁸³. At network events, founders have the opportunity to meet people and get in contact with them⁸⁴, as at those events all important people and institutions are “channeled”⁸⁵. Networks are also helpful to get know-how and gain resources.⁸⁶ But networks also help in terms of exchange of experiences. Meeting people, who experienced similar events and went through the same processes, helps founders to evolve and advance their process. An exchange of views and exchanging conversations are highly important.⁸⁷ However, at some point it becomes a balancing act, and the founding team has to decide which events to attend and which events not to attend as time is a scarce resource.

“Every founder or every founding team has to manage a tightrope walk on how many events and networking events one goes to. There are many in the start-up scene. You can eat as much as you can. It is sort of a trade-off. How often do I hire myself out as a founder at such events and try to achieve something there or end up wasting time. You have to select well, that is also a kind of management quality – investing your time in networking and external contacts versus developing products or business models.” (Transcript A, points [353–360])

Political environment. Lyles et al. (2004, p. 351) emphasizes “the role of government in economic activity” and thus points towards the political environment of organizations. The government may have a supporting or neglecting role when it comes to entrepreneurial activities (Lyles et al. 2004, p. 351). Maguire et al. (2004, p. 659) also names the government as one of the stakeholders in businesses’ environments and acknowledges political activism as a critical activity. It was detected that a change in the political environment (and legal environment as well as economic factors), as part of the external environment, lead to alternative entrepreneurial activities (Bercovitz & Feldman 2008, p. 84). Spicer et al. (2000, p. 631) argue that a political environment influences entrepreneurial activity in terms of conditions for experimentation and risk taking. But, even though new businesses are initially not as

⁸² See Transcript A, points [290, 354f., 493], Transcript B, point [95]; Transcript C, point [38].

⁸³ See Transcript B, point [77].

⁸⁴ See Transcript A, point [493].

⁸⁵ Transcript B, point [95].

⁸⁶ See Transcript B, points [129–131].

⁸⁷ See Transcript D, points [252–254], Transcript B, points [394–396].

present, they may interact with the political environment through lobbying and thus may create a more predictable political environment (Peng 2003, p. 286), which also diminishes political risks small businesses are facing (Lu & Beamish 2001, p. 567). Levy (2008, p. 948ff.) addresses the “political character of markets” as well and states that businesses are able to interact with political powers to achieve a more beneficial political environment for themselves. Moreover, there are “different state governments, as well as state politics” that lead to different settings for entrepreneurial activity (Purdy & Gray 2009, p. 372). “State-level environments” may constraint or present opportunities for entrepreneurs (Purdy & Gray 2009, p. 376).

The entrepreneurship experts describe the political environment in the same way. Political stakeholders are politicians and political parties.⁸⁸ Particularly start-ups are a very political topic as “you can give yourself a modern reputation as a politician, but there is too much chatter” describes Expi GER 1.⁸⁹ Generally, politicians set the frame in terms of pushing or enabling an entrepreneurship hype.⁹⁰ They are able to influence thoughts about entrepreneurship⁹¹ and set the public funding culture.⁹² Thus, they are able to create an attractive entrepreneurship infrastructure (at least to a certain extent). However, Expi GER 1 describes that he believes an organic growth would be much more beneficial and “a start-up ecosystem has to create itself and it must emerge and thrive itself. Certainly, the one or other public funding does not do any harm, but I doubt whether it is really relevant to success”.⁹³

Summary & own viewpoint. The chapter enlightened eight different dimensions of an entrepreneur’s environment from a theoretical and real-life perspective. On a micro level, there is the organizational environment, which displays any points of interaction within the business itself, like interaction with employees. Then there is the market environment, which presents all market relevant points of interaction beyond the borders of the actual business, like the customers, suppliers or strategic partners. Here a parallel can be seen with Porter’s Five Forces. Then we have the macro environment, which is partially aligned with the PESTEL analysis. First, the local environment addresses the importance of places, like inspirational workplaces or the advantages of locating a business in a specific region, to connect with partners or benefit from regional funding programs. Second, the cultural/normative talks about cultural differences between countries concerning entrepreneurship, particularly entrepreneurial failure, but also local, regional or country specific attitude towards start-ups. Third, the institutional environment is one of the key points of interaction, as it enables start-

⁸⁸ See Transcript A, points [366–377, 369–371, 380f., 402–404].

⁸⁹ Transcript A, point [380f.].

⁹⁰ See Transcript B, point [442f.], Transcript C, point [467f.].

⁹¹ See Transcript B, points [67–69], Transcript D, points [228–231].

⁹² See Transcript B, points [442–443].

⁹³ Transcript A, points [370–373].

ups but gives them boundaries at the same time. Institutions in an entrepreneur's environment are any sort of consulting services, investors, but also state organizations. Then there are institutional frames like funding programs and the business model, entrepreneurs have to act upon. Fourth, the legal environment describes all sorts of legal regulations and legal processes that a start-up goes through. Fifth, through social network entrepreneurs are able to gain insights, experience and benefit from the exchange with other people. It can be distinguished between the professional and private social environment. Sixth, the political environment plays a crucial role in terms of creating an entrepreneur-friendly environment and entrepreneurial structures. Nowadays, politicians are eager to encourage entrepreneurial activities and are thereby able to shape the entrepreneurial environment and thus interact with entrepreneurs.

The chapter specified and particularly gave life to the term 'the' environment. However, despite a theoretical and practical exploration of the term environment, this dissertation does not claim to display an overall and universal definition of environment from an entrepreneurship perspective but aims for understanding and being sensitive about environmental influences or points of interaction.

2.3 Entrepreneurs and New Ventures

“What differentiates entrepreneurs from non-entrepreneurs is that entrepreneurs create organization, while non-entrepreneurs do not.” (Gartner 1989b, p. 47)

The business is one of the key concepts to be defined. To be able to retrace the whole story from opportunity over business ideas up to an established business, start-ups will be considered exemplary as they are easy to access and to understand and it seems easier to display the full scope of influences. First, the special role of the entrepreneur will be picked up and the importance of the entrepreneur as the main actor in any new venture creation will be explained. Then this chapter will describe characteristics of start-ups and provide insight on defining start-ups from a real-life and academic perspective. Then the business model concept will be presented as it will be used as a unit of analysis and helps to enlighten all aspects of any business within and outside of the boundaries of the actual business itself.

2.3.1 The Entrepreneur and Entrepreneurial Traits Research

“This paper is an argument to advance the proposition that the firm is the entrepreneur.” (Stauss 1944, p. 112)

Particularly in small businesses or start-ups, entrepreneurs are equivalent to the organization itself. The entrepreneur or founder has a high influence on every business activity and makes most decisions. (Von Gelderen, Frese, & Thurik 2000, p. 166) Before any business activities start, the entrepreneur has to make the decision to exploit a created or discovered opportunity (Shane & Venkataraman 2000, p. 222). In alignment with Stauss (1944, p. 112), the dissertation understands the close connection between the entrepreneur and his/her firm, business or start-up. The aim of this chapter is to dive into research around the construct of an entrepreneur and eventually explain the understanding of an entrepreneur within this dissertation, which will have an influence on empirical inquiry. Particularly within this dissertation, the focus lies on start-ups due to empirical reasons that will be pointed out as well. The paragraphs will show how a start-up is understood in the real world and in academia, even though most researchers hold back with a clear definition.

Depending on the author, one of the earliest definitions of an entrepreneur was provided by Cantillon around 1700, who describes an entrepreneur as “rational decision maker who assumed the risk and provided management for the firm” (Carland, Hoy, Boulton, & Carland 1984, p. 355). But, Schumpeter credits Mill (1848) to be the first one to mention the term entrepreneur (Carland et al. 1984, p. 355). Mill considered different functions of an entrepreneur, namely “direction, supervision, control, and risk-bearing” (Brockhaus & Horwitz 2002, p. 260). He also states that risk-bearing differentiates the entrepreneur from managers in general (Brockhaus & Horwitz 2002, p. 260). However, Schumpeter distinguishes himself

from Mill and is considered one of the first ones to address interest in researching the entrepreneur. Particularly entrepreneurs can develop economies as they combine new means. Thus, they differentiate themselves from business managers and capitalists (Schumpeter 2021, p. 35). (Carland et al. 1984, p. 354)

Historically, researchers describe that there are three dominant understandings of an entrepreneur, that can be considered as the foundation of research around the construct of an entrepreneur. These three viewpoints are by Richard Cantillon (1680-1734), Anne Robert Jaques Turgot (1727-1781) and Jean-Baptiste Say (1767-1832)⁹⁴ and Joseph A. Schumpeter (1883-1950) (Bruyat & Julien 2001, p. 167). Cantillon, Turgot and Say present the French tradition of researching entrepreneurial activity that has been picked up by Austrian economist Schumpeter (Menudo & O’Kean 2006, p. 1). Bruyat and Julien (2001, p. 167) summarize:

- “Cantillon: The entrepreneur is someone who assumes the risk and may legitimately appropriate any profits.
- Turgot and Say: The entrepreneur is different from the capitalist, who assumes the risk or uncertainty - the entrepreneur obtains and organizes production factors to create value.
- Schumpeter: The entrepreneur performs the function of innovation that enables the liberal system to persist by going beyond its contradictions.”

Since then, much research has been conducted around and about the entrepreneur. For many years, entrepreneurship research was highly focused on individuals and teams, particularly entrepreneurs or founding teams (Busenitz et al. 2014, p. 984; Busenitz et al. 2003, p. 296). Specifically, research was mostly concerned with characteristics of those individuals and teams and the comparison and differentiation of entrepreneurs and non-entrepreneurs (Busenitz et al. 2003, p. 296). However, to explore entrepreneurship and entrepreneurial activity, it is not enough to only look at the entrepreneur (or a team of entrepreneurs). The investigation of a single entrepreneur falls short, as there are certainly more parties involved that have an (in)direct strategic influence: e.g. “individuals that share equity ownership in the venture; individuals that share debt ownership in the venture; individuals that share decision-making roles in the venture; individuals that serve in leadership and subordinate roles in the venture; spouses, family, close friends, advisors; and critical suppliers and buyers”⁹⁵. (Gartner, Shaver, Gatewood, & Katz 1994, p. 6)

⁹⁴ Even though Turgot and Say never worked together, they have the same understanding of an entrepreneur.

⁹⁵ Within this dissertation, all those individuals are considered as environment. A detailed description of the understanding of environment is provided in chapter 2.2.

The realm of entrepreneurship research dealt with the entrepreneur and his or her personal traits extensively for years (e.g. Busenitz et al. 2014, p. 984; Short et al. 2010, p. 41). “Van de Ven warned researchers not to be tempted into the study of traits and personality characteristics” (Brockhaus & Horwitz 2002, p. 272). Thus, entrepreneurship research has met a breaking point where researchers “move away from overly person-focused explanations” (Davidsson 2015, p. 676) and “shift away from the ‘entrepreneurial type’ paradigm” (Eckhardt & Shane 2003, p. 345). Entrepreneurial research “requires theories based on the existence of opportunities and the actions of agents, and not simply based on the characteristics of agents” (Eckhardt & Shane 2003, p. 334). However in 2023, entrepreneurship research takes a new “humanistic turn” towards “whole-person entrepreneurship” that focuses on “who are entrepreneurs as individuals” (Shantz & McMullen 2024, p. 1).⁹⁶ Overall, the entrepreneur plays a crucial role and is worth to look at. Therefore, the next paragraphs will provide a short overview on entrepreneurs and will answer the following questions: What are entrepreneurs? What are core characteristics and what differentiates them from others?

Despite a long research tradition defining the term ‘entrepreneur’, the actual **definition of entrepreneurs** resembles a jungle (Mitton 1989, p. 10). Additionally, there is no consensus on whether we talk about one individual entrepreneur, a group or founding team, or even a whole business/firm. And is entrepreneurship an event (Shapero & Sokol 1982) or a process (Schumpeter 1934)? Also, the entrepreneur and his/ her risk-taking behavior is center of attention. Schumpeter (1934) for example does not describe the entrepreneur as a risk taker, but others do (e.g. McClelland 1961; Sutton 1954). (Mitton 1989, p. 10)

Going into detail, particularly Schumpeter (1934) and Kirzner (1979) are playing a significant role in the entrepreneurship field as they are considered being the roots of contrasting ontological viewpoints on entrepreneurial opportunities (Dutta & Crossan 2005, p. 429). Schumpeter (1934) sees the entrepreneur as a driving force in creating newness in any sense (Schumpeter 2021, p. 55) and being the main actor in “creative destruction” (Dutta & Crossan 2005, p. 430). S/he “‘shocks’ and disturbs the economic equilibrium” (Dutta & Crossan 2005, p. 429). In his understanding, Schumpeter (2021, p. 35) distinguishes between the entrepreneur, who is able to be creative, and innovative, and capitalists, who provide cash, possess the means to produce goods and thus take risk to a certain extent. Then there is the Kirznerian entrepreneur, who differentiates him/herself from others because s/he is able to discover opportunities. Kirzner (1963, p. 69) describes the entrepreneur by being particularly alert and able to engage in abstract thinking generating “rareful knowledge”. So, the

⁹⁶ Despite this new direction, this thesis will not go into detail on “whole-person entrepreneurship”. A summary of newest developments can be found in (Shantz & McMullen 2024).

entrepreneur does not just have advanced knowledge in comparison to competitors but has special abilities. Moreover, both viewpoints differ in subjectivism. For Kirzner (1979, p. 1979), the subjective perception of the environment and market is the key for an entrepreneur to start exploring and exploiting opportunities. Schumpeter (1934) does not consider subjectivism explicitly. However, both authors agree that the entrepreneur is the main actor in any entrepreneurial endeavor (Dutta & Crossan 2005, p. 431). Table 5 summarizes some prominent definitions of an entrepreneur reviewed by Gartner (1989b, pp. 49–56), the author also includes entrepreneur's characteristics (if mentioned) that will be displayed as well:

Table 5: Different Definitions of the Term 'Entrepreneur'

Author(s)	Definition of entrepreneur	Characteristic(s)
Brockhaus (1980)	"An entrepreneur is defined as a major owner and manager of a business venture not employed elsewhere" (p. 510)	Risk taking propensity
Collins and Moore (1970)	"We distinguish between organization builders who create new and independent firms and those who perform entrepreneurial functions within already established organizations. Perhaps we are, after all, thinking of the entrepreneur in the way Schumpeter viewed him: everyone is an entrepreneur only when he actually carries out new combinations, and loses that character as soon as he has built up his business" (p. 10)	Parents' occupation, education, previous job satisfaction, social attitudes
Cooper and Dunkelberg (1981)	"This paper reports upon what we believe to be the largest and most varied sample of entrepreneurs studied to date. The findings are from survey of 1805 owner-managers."	Parents, immigrants, education, number of previous jobs, age
Davids (1963a)	"Founders of new businesses" (p. 3)	Education, number of children, religious, sports and club affiliations
Draheim (1972)	"Entrepreneurship – the act of founding a new company where none existed before. Entrepreneur is the person and entrepreneurs are the small group of persons who are new company founders. The term is also used to indicate that the founders have some significant ownership stake in the business (they are not only employees) and that their intention is for the business to grow and prosper beyond the self-employment stage" (p. 3)	Credibility, fear of losing job, prior work experience, "track record", degree of "state of the art technology"
Ely and Hess (1937)	"The person or group of persons who assume the task and responsibility of combining the factors of production into a business organization and keeping this organization in operation [...] he commands the industrial forces, and upon him rests the responsibility for their success or failure" (p. 113)	

Author(s)	Definition of entrepreneur	Characteristic(s)
Lachman (1980)	“The entrepreneur is perceived as a person who uses a new combination of production factors to produce the first brand in an industry.” (p. 109)	Age, years in Israel, education, father’s occupation, achievement motivation, achievement orientation
Lavington (1922)	“In modern times the entrepreneur assumes many forms. He may be a private business man, a partnership, a joint stock company, a cooperative society, a municipality or similar body.” (p. 9)	
Liles (1974b)	“We have examined the entrepreneur who is involved in substantial ventures found in light of traditional thinking that he is a special type of individual – somehow an unusual and uncommon man – a man apart. It probably is true that a very successful entrepreneurs become men apart. But, at the beginning, when they make the decision to start an entrepreneurial career, they are in most respects very much like many other ambitious striving individuals” (p. 14)	
Litzinger (1965)	“The distinction is drawn between “entrepreneurs” who are gold action oriented as contrasted to “managers” who carry out policies and procedures in achieving the goals... Owners of mom and pop motels appear as the entrepreneurial type who have invested in their own capital and operate a business” (p. 268)	Preference, independence, leadership, recognition, support, conformity, benevolence, structure, consideration
McClelland (1961)	“...Someone who exercises control over the means of production and produces more than he can consume in order to sell (or exchange) it for individual (or household) income [...] in practice such people turned out to be traders, independent artisans and firm operators” (p. 65)	Achievement, optimism, affiliation, power, conscientiousness, asceticism, belief in achieved status, market morality
Mescon and Montanari (1981)	“Entrepreneurs are, by definition, powders of new businesses.”	Achievement, autonomy, dominance, endurance, order, locus of control
Palmer (1971)	“...The entrepreneurial function involves primarily risk measurement and risk taking within a business organization but furthermore, the successful entrepreneur is that individual who can correctly interpret the risk situation and then determine policies which will minimize the risk involved [...] that, the individual who can correctly measure the risk situation, but is unable to minimize the risk, would not be defined as an entrepreneur.” (p. 38)	
Say (1816)	“The agent who united all means of production and who finds in the value of the products [...] the reestablishment of the entire capital he employs, and the value of the wages, the interest and the rent which he pays, as well as the profits belonging to him” (p. 28–29)	

Author(s)	Definition of entrepreneur	Characteristic(s)
Schumpeter (1934)	"...Entrepreneurship, as defined, essentially, consistent doing things that are not generally done in the ordinary course of business routine, it is essentially a phenomenon that comes under the wider aspect of leadership." (p.254)	
Stauss (1944)	"This paper is an argument to advance the proposition that the firm is the entrepreneur" (p. 112)	

Source: Gartner (1989b, pp. 49–56).

The different understandings of an entrepreneur led entrepreneurship research to investigate **characteristics, traits and personality of entrepreneurs** for decades. Particularly, trait-based research has a long tradition in entrepreneurship research (Busenitz et al. 2014, p. 2), being "one of the classical and early approaches to entrepreneurship" (Baum, Frese, & . 2007, p. 41). Trait-based research aims for an explanation of why "certain individuals start firms and are successful as entrepreneurs" (Littunen 2000, p. 296). There are two different schools of thought on how entrepreneurs come into possession of those traits. The so-called trait approach school (Baum et al. 2007, p. 41; Gartner 1989b, p. 48; Littunen 2000, p. 296) explains entrepreneurial activity being based on the particular personality traits of those individuals, who possess them ex ante (McClelland 1961, 1965) or as Gartner (1989b, p. 48) describes it "the entrepreneur is assumed to be a particular personality type, a fixed state of existence, a describable species". The school of contingency thinking (Rotter 1966, 1975, 1990), assumes that the personality and trait characteristics of an entrepreneur evolve over time as a consequence of new experiences, the current situation and interaction with the environment. (Littunen 2000, p. 296)

Whether characteristics of an entrepreneur exist or evolve, tremendous research has been conducted on the personality, traits and characteristics of an entrepreneur. As pointed out by Low and MacMillan (1988, p. 147), there are also many authors who reviewed literature on personality-based entrepreneurship research: e.g. Sexton and Bowman (1985), Gasse (1982), Brockhaus and Horwitz (2002), Martin (1984). Table 5 presents the outcome of Gartner (1989b, pp. 49–56), who aimed for the most prominent articles in entrepreneurship and their exploration of characteristics. Carland et al. (1984, p. 356) went further in time and conducted a literature review on the entrepreneur from 1848 up to 1982 (mostly from an American point of view) and presents different characteristics of entrepreneurs. The following Table 6 shows the findings of Carland et al. (1984, p. 356).

Table 6: Characteristics of Entrepreneurs

Date	Author(s)	Characteristic(s)
1848	Mill (1848)	Riskbearing
1917	Weber (1917)	Source of formal authority
1934	Schumpeter (1934)	Innovation, initiative
1954	Sutton (1954)	Risk taking, need for achievement
1959	Hartman (1959)	Source of formal authority
1961	McClelland (1961)	Risk taking, need for achievement
1963	(Davids 1963b)	Ambition, desire for independence, responsibility, self-confidence
1964	Pickle (1964)	Drive/mental, human relations, communication ability, technical knowledge
1971	Hornaday and Aboud (1971)	Need for achievement, autonomy, aggression, power, recognition, innovative/independent
1971	Winter (1973)	Need for power
1973	Borland (1974)	Internal locus of control
1974	Liles (1974a)	Need for achievement
1977	Gasse (1977)	Personal value orientation
1978	Timmons (1978)	Drive/self-confidence, goal oriented moderated risk taker, internal locus of control, creativity/innovation
1980	Sexton (1980)	Energetic/ambitious, positive reaction to setbacks
1981	Welsh and White (1981)	Need to control, responsibility seeker, self-confidence/drive, challenge taker, moderate risk taker
1982	Dunkelberg and Cooper (1982)	Growth oriented, independence oriented, craftsman oriented

Source: Carland et al. (1984, p. 356).

The table shows that characteristics of entrepreneurs were already included in the earliest works of entrepreneurship research. Particularly, the ideas of McClelland (1961) of achievement motivation became highly prominent as the most researched personality theory in entrepreneurship research, peaking in the 1980s (Baum et al. 2007, p. 45). However, the diverse characteristics of entrepreneurs that were found and studied led to the assumption that there is no real consensus, while inconsistent and conflicting empirical results on the

relationship between personality traits and entrepreneurship additionally downgraded the trait-based/personality approach. Consequently, the focus on personality and characteristics was highly criticized in the 1990s (Baum et al. 2007, p. 46; e.g. Brockhaus & Horwitz 2002; Chell, Haworth, & Brearley 1991; Cooper & Gimeno-Gascon 1992; Davis-Blake & Pfeffer 1989; Gartner 1989b). The main points of critique were:

- The descriptive nature of studies that actually underestimated the influence of personalities on business creation and lack of development of theoretical frameworks (Baum et al. 2007, p. 46; Low & MacMillan 1988, p. 148)
- Early trait-based research neglected the above-mentioned thoughts of contingency thinking, which led to rather simplified assumptions (Baum et al. 2007, p. 46)
- Weak methodological groundwork in entrepreneurship research (Baum et al. 2007, p. 46; Low & MacMillan 1988, p. 153ff.; Smith, Gannon, & Sapienza 1989)

In addition to characteristics, entrepreneurs have certain abilities that differentiate them from others. According to Mitton (1989) entrepreneurs: “See a big picture perspective, spot unique opportunities, make a total commitment to their cause, see a need for total control, have a utilitarian view of what is right, welcome uncertainty, use contacts and connections, embrace competence, possess a special know-how”.

Baum et al. (2007, p. 47) put characteristics into perspective and combine research on entrepreneur’s characteristics with business creation and business success (see Figure 13). Their adapted model is based on proximal/distal distinction (Johnson 2003; Kanfer 1992) and entrepreneurship growth models (Baum, Locke, & Smith 2001). As can be seen, they differentiate between broad personality traits and specific to entrepreneurship personality traits. The assumption is that broad personality traits do not have a direct influence on business creation or business success, but influence knowledge, skills and abilities that are needed in the process. Additionally, broad personality traits influence specific personality traits that have a direct influence on goals and action strategies that in turn have a direct influence on business creation and business success. Most importantly for this dissertation, Baum et al. (2007, p. 47) include the environment as a crucial factor and state that the effect of personality traits is dependent on environmental variables.

The question arises, how much do the found characteristics of an entrepreneur differ from the characteristics of managers? At the same time, some characteristics might be beneficial in the beginning, but as soon as the new venture is created and it starts to grow and become a real business, several characteristics restrict the entrepreneur to delegate tasks and deal with internal bargaining, which starts as soon as more individuals are joining the business e.g.

investors. (Brockhaus & Horwitz 2002, p. 267) The next paragraphs will go into detail on research concerning differences between entrepreneurs and non-entrepreneurs.

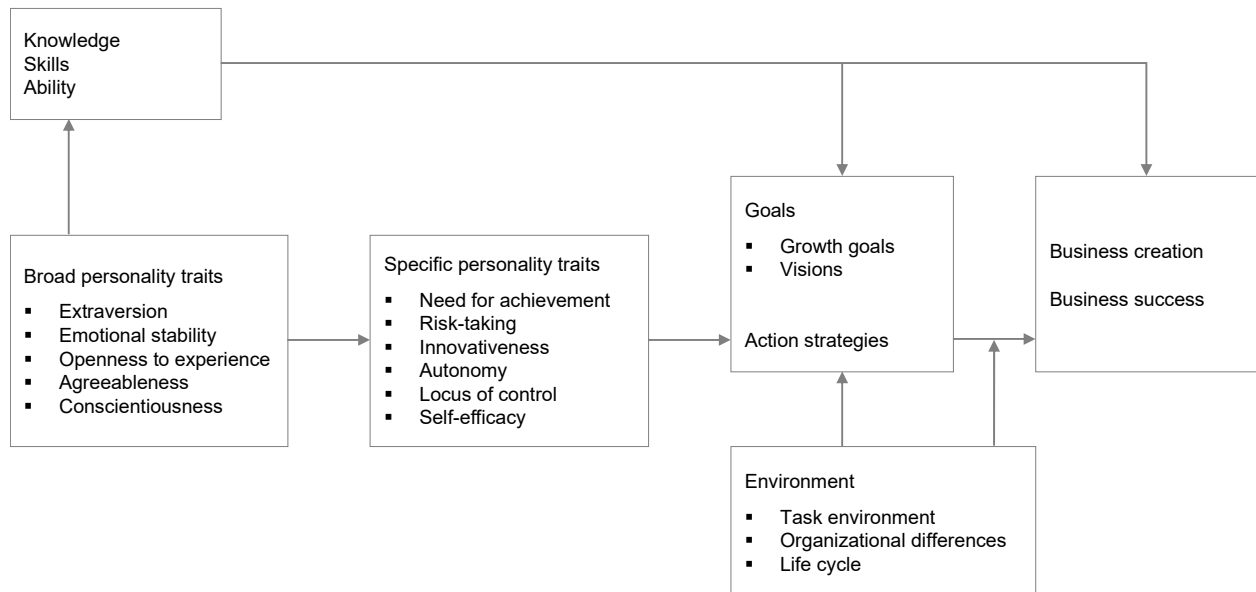


Figure 13: A Model of Entrepreneur’s Personality Characteristics and Success
Source: Baum et al. (2007, p. 47).

Much research has been conducted on the **difference of an entrepreneur and non-entrepreneurs** like managers or small business owners in the 1960s and 1970s (Busenitz et al. 2003, p. 299). Busenitz and Barney (1997, p. 11) summarize that research on the distinction between entrepreneurs and non-entrepreneurs focused on “psychological and personal/demographic differences”. Entrepreneurs are “risk-takers and rugged individualists (Begley and Boyd 1987; McGrath et al. 1992)” engage in “deviate social behavior (Shapero 1975)” and can be classified as “breed apart (Ginsberg and Buchholtz 1989)” (Busenitz & Barney 1997, p. 10). Managers in contrast are described as “being risk averse (Amihud and Lev 1981), adhering to broadly accepted norms of behavior (Pettigrew 1973), and more professional and predictable in their decision-making (Barnard 1968; Hofer and Schendel 1978)” (Busenitz & Barney 1997, p. 10). Sexton and Bowman (1985, p. 130) go even a step further and describe the entrepreneur as “a capable businessperson or executive [...] but she or he must also be a great deal more”. However, researchers were rather unsuccessful and had to conclude that psychological characteristics are not as different and there is also no significant difference in terms of personal/demographic characteristics (Brockhaus & Horwitz 2002, p. 267; Busenitz & Barney 1997, p. 11). Anyhow, the following paragraph will provide some examples of research on differences between entrepreneurs and non-entrepreneurs, to better understand what entrepreneurship researchers focused on for over two decades.

Carland et al. (1984, p. 357f.) for example see a clear definitory difference between an entrepreneur and a small business owner or manager:

*“A **small business owner** is an individual who establishes and manages a business for the principal purpose of furthering personal goals. The business must be the primary source of income and will consume the majority of one's time and resources. The owner perceives the business as an extension of his or her personality, intricately bound with family needs and desires. An **entrepreneur** is an individual who establishes and manages a business for the principal purposes of profit and growth. The entrepreneur is characterized principally by innovative behavior and will employ strategic management practices in the business.” (Carland et al. 1984, p. 358)*

Kirzner (1973, p. 67) already identified the special characteristics of entrepreneurs being their alertness. Components of alertness include e.g. “information asymmetries, different risk preferences, and cognitive differences” (Alvarez & Barney 2007, p. 14). Particularly the detection of exogeneous shocks can be traced back to alertness. Entrepreneurs are alert and detect those shocks and respective opportunities, whereas non-entrepreneur do not. (Alvarez & Barney 2007, p. 14) Thus, alertness became a common theme in exploring and explaining the action of entrepreneurs (e.g. Ardichvili et al. 2003; Baron 2006). Moreover, Busenitz and Barney (1997) found that cognition is playing a more significant role in the difference between entrepreneurs and non-entrepreneurs. Entrepreneurs do “think differently” than managers (Busenitz & Barney 1997, p. 23).

Own understanding. Going back to the initial descriptions of an entrepreneur by Cantillon, Say, Turgot and Schumpeter, they are still prevalent and present two substantively different uses of the term entrepreneur that established over time (Baumol 1993, p. 198; Bruyat & Julien 2001, p. 167). Within this thesis, the focus lies on Schumpeter's understanding of an entrepreneur, but “no definition is good in itself. A definition is a construct at the service of the research questions that are of interest to a scientific community at a given time” (Bruyat & Julien 2001, p. 167f.). In alignment with Baumol (1993, p. 198), all definitions are “considered to be complementary rather than competitive”. The entrepreneur is an individual or a part of a founding team which starts the process of building a business. As Bruyat and Julien (2001, p. 169) describe it “in other words, the individual without whom the new value would not be created”. Thus, within this thesis an entrepreneur builds a business and the thesis aligns itself with Shepherd et al. (2021, p. 14) understanding of a founder:

“A founder refers to a person who creates a venture, that is, facilitates the emergence of a new venture. Even in case of ventures created by a team, individual founder attributes are important for new-venture creation, especially the attributes of the lead founder (Wasserman 2017), who is the member of the founding team most responsible for managing the start-up process. The literature informed us that founders are heterogeneous in experiences, employment position, entrepreneurial imaginativeness, motivation and identity, affective responses, and enduring characteristics.”

2.3.2 Understanding of Start-ups

Despite all differences, most understandings agree on the fact that an entrepreneur builds a venture, business, organization, etc. Within this thesis the focus lies on start-ups. Start-ups have certain advantages that are especially important for this proposed study. The advantages can be displayed along with the quantitative and qualitative characteristics of small businesses (Peterson, Albaum, & Kozmetsky 1986, p. 64). However, for the purpose of this study, only the qualitative characteristics can provide information on the choice in favor of start-ups.

The three main qualitative characteristics are, the special role of the entrepreneur, the size, and the high flexibility (Ladwig 2016, p. 194 ff.; Storey 2016, p. 9). The entrepreneur him or herself was involved in the business from the beginning on and is thus able to provide all information on business activities and developments retrospectively. Moreover, s/he usually makes all the decisions. Within this study, the interest lies in the entrepreneurial process and the entrepreneur mainly decides on all the necessary steps. Therefore, it seems appropriate to take the main decision maker into account and consider him or her as a research object. The research object will be able to provide information retrospectively and talk about all different influences on the evolution of the business and developments after business foundation. Due to the size of a start-up, it is easy to understand it as a whole and it is allegedly easier to portray organizational ties. Also, it may be easier to trace network partners, collaborations and further influences. Lastly, a small business is assumed to directly respond to environmental shifts as it is independent. It furthermore is not affected by organizational inertia (see also Zahra 2008, p. 247) and is able to respond to changes and may also need to do so, as a small business is highly dependent on one specific customer group. In contrast to established businesses (usually larger ones), start-ups have no potential to compensate for any troubled activities with well working business divisions.

But what do we understand as start-ups? To answer this question, it is best to look at funding programs and websites that analyze start-up activities. The EXIST funding program is a start-up grant that funds early business activities – creating the business idea and writing a business plan – before an actual business is founded. They focus on small founding teams up to three founders and are only funding innovative technology-based ideas or innovative knowledge-based services particularly stemming from an academic surrounding. (EXIST 2024a) The German network of business angels for example invests in innovative, unique and competitive business ideas that have the potential to increase value and may be able to survive and dominate in the market (BAND 2024). The High-Tech Gründerfonds, one of the biggest German venture capitalist seed investors, are aiming for investing in business that are not older than three years and offer innovative technologies and business models. StartupBlink, which is a start-up research center and provides a start-up ecosystem map, analyzes the

situation for start-ups worldwide. They define start-ups as business that apply “innovative technology-enabled solution that has the potential to achieve scalability” (StartupBlink 2022b, p. 12). Innovation can take place products, services, processes or business models. Even though StartupBlink does not state any specific team size or years in existence, but they are not considering start-ups that raised more than US\$ 1 billion (StartupBlink 2022b, p. 12).

Academic publications are much more reserved about a specific definition of start-ups as their focus lies more on entrepreneurship, entrepreneurs and new venture creation (see chapter 2.1.1). Additionally, the term start-up is not as popular, and authors rather distinguish entrepreneurial ventures from small businesses (Carland et al. 1984, p. 357).

“Small business venture: A small business venture is any business that is independently owned and operated, not dominant in its field, and does not engage in any new marketing or innovative practices. Entrepreneurial venture: An entrepreneurial venture is one that engages in at least one of Schumpeter's four categories of behavior: that is, the principal goals of an entrepreneurial venture are profitability and growth and the business is characterized by innovative strategic practices” (Carland et al. 1984, p. 358.)

However, there are specific aspects about start-ups that can be named: Gartner, Carter, and Reynolds (2004, p. 285) clarify that start-ups are the emergence of new businesses. Smith (1998, p. 857) defines start-ups as micro-firms that have less than ten employees. Von Gelderen et al. (2000, p. 168) describe start-ups as small businesses that are highly influenced by the founder(s) and mention that start-ups are facing a high degree of uncertainty and need to be flexible to make quick decisions (Von Gelderen et al. 2000, p. 171). They only consider young businesses that existed less than six years (Von Gelderen et al. 2000, p. 178). Bhide (1992, p. 111) mentions that start-ups are fast growing and that there is a difference between a start-up and self-employment. Kask and Linton (2013, p. 516) mention start-ups based on inventions around radical and unique technologies.

To summarize, start-ups are indeed special and are different to being self-employed or starting e.g. a bakery around the corner. Start-ups are highly innovative in any possible direction (product, service, business model), which in turn means that they take a lot of risk and have an uncertain future that cannot be calculated in advance. The founder or entrepreneur plays a crucial role in every (beginning) step of a start-up. S/he is the main decision maker and usually the only employee for some time. Thus, the business itself is rather small, which allows it to be flexible and not path dependent. At some point in time, start-ups become full-on organizations or may fail before. Usually, the goal is to grow and reach a highly lucrative exit for the founders but mostly for investors, who are eager to have a high return on investment. Alternatively, some start-ups can develop into well-established companies such as Apple and Microsoft.

2.3.3 Business Model Concept as Unit of Analysis

In the previous chapter, it has been explained that start-ups will serve exemplary as representatives for businesses within this study. Even though start-ups are rather small and easier to understand in their entirety, they are also complex organizational entities. To be able to understand the interaction of businesses with their environments, it is essential to find a more detailed unit of analysis. In the context of this thesis, the business model design concept by Amit and Zott (e.g. Amit & Zott 2001, 2012; Zott & Amit 2010, 2013) is chosen as a suitable frame and as unit of analysis. In the following, the term business model will be explained, and a brief history of business models will be provided. The focus does, however, lie on the business model design concept and why it has been chosen as the appropriate frame.

The term business model evolved in the mid/end 1990s with the rapid emergence on internet-based businesses (e.g. Demil & Lecocq 2010; Morris, Schindehutte, & Allen 2005; Shafer, Smith, & Linder 2005; Zott, Amit, & Massa 2011). Particularly, the so-called dot-com firms used the term business model increasingly in their annual business reports, as well as throughout their marketing endeavors and business plans. The term was, however, not particularly new as it has been mentioned in an academic article in 1957 already (Bellman, Clark, Malcolm, Craft, & Ricciardi 1957, p. 474; DaSilva & Trkman 2014, p. 380).

At the same time business models became a topic of interest in academic research, whereas studies focused on real-life examples and were eager to enhance knowledge of practitioners with their research (DaSilva & Trkman 2014; Shafer et al. 2005; Zott et al. 2011). Going into detail, research developed around three main areas, namely (Bauer 2016, p. 36, based on Zott et al. 2011):

- “e-business and information technology
- strategy, in particular value creation, competitive advantage and firm performance
- and innovation and technology management.”

As implicitly mentioned, several business model approaches evolved (e.g. Amit & Zott 2012; Casadesus-Masanell & Ricart 2010; Osterwalder & Pigneur 2003; Osterwalder, Pigneur, & Tucci 2005; Zott & Amit 2010). Consequently, there are several well-known and applied concepts floating in the industry and academic sphere that all have rather diverse meanings throughout literature (DaSilva & Trkman 2014; George & Bock 2011; Linder & Cantrell 2000; Schneider & Spieth 2013; Zott et al. 2011). Additionally, no universally applicable definition exists (e.g. Amit & Zott 2001; Casadesus-Masanell & Ricart 2010; Chesbrough & Rosenbloom 2002; Johnson, Christensen, & Kagermann 2008b; Magretta 2002; Morris et al. 2005; Osterwalder & Pigneur 2010; Teece 2010).

Nevertheless, there is some common ground throughout all the different understandings of a business model. Generally, a business model displays “how a firm creates, distributes and captures value” (Bauer 2016, p. 36; e.g. Casadesus-Masanell & Ricart 2010; Demil & Lecocq 2010; Teece 2010; Zott et al. 2011). More precisely, it can be seen as a “blueprint of how a company does business” (Osterwalder et al. 2005, p. 4) or a “recipe - that fulfills important functions such as enabling description and classification” (Demil & Lecocq 2010, p. 228). The business model approach is something different than a firm’s strategy and cannot be compared to tactic concepts (Casadesus-Masanell & Ricart 2010; DaSilva & Trkman 2014). However, it is agreed that the business model “reflects a firm’s realized strategy” (Bauer 2016, p. 36) and thus displays the consequences of strategic choices (Casadesus-Masanell & Ricart 2010; Shafer et al. 2005). The key element of the business model as a theoretical concept is that it goes beyond the business’s boundaries and integrates “activities with suppliers, network partners and customers” (Bauer 2016, p. 36; Daft & Lewin 1993; Dunbar & Starbuck 2006; Magretta 2002; McGrath 2010; Morris et al. 2005; Osterwalder et al. 2005; Teece 2010; Zott & Amit 2010). As explained by Zott et al. (2011), the concept of a business model is based on four key ideas in all different understandings, namely (Bauer 2016, p. 36):

- the business model is a universally applicable new unit of analysis;
- it “emphasize[s] a system-level, holistic approach to explaining how firms do business”;
- the business model focuses on activities between a focal firm and its partners and thus also encompasses “boundary-spanning activities”;
- and it “seeks to explain both value creation and value capture” (Zott et al. 2011, p. 1019, 1038).

Particularly around real-life businesses and entrepreneurship, several so-called business model meta-models (e.g. Demil & Lecocq 2010; Osterwalder & Pigneur 2003, 2010) evolved. The difference to other approaches is that those meta-models show different elements and relationships that build a business from a practical-oriented perspective. For instance, one of the well-known meta models is the business model canvas by Osterwalder and Pigneur (2010). Especially entrepreneurs and start-up centers use the business model canvas approach to actually build businesses, as the concept can be used “as a base to visualize possible realized business strategies” (Bauer 2016, p. 36). “However, the strong managerial focus and management tool character do not necessarily oblige academic research” (Bauer 2016, p. 36).

Thus, within this thesis the business model design concept by Amit and Zott (2001, p. 216) is considered as a unit of analysis conceptualizing a firm’s business model “as a system of interdependent activities that transcends the focal firm and spans its boundaries”. The business model design concept, in contrast to other business models that evolved from a managerial background (George & Bock 2011; Spieth, Schneckenberg, & Ricart 2014), builds

on and is embedded in well-established (management) theories (Amit & Zott 2001; Morris et al. 2005), that will be explained later. The focus on theories allowed Amit and Zott to transform their initial thoughts on value creation and capture of e-businesses to a universally applicable business model concept (Amit & Zott 2012; Zott & Amit 2010). Additionally, Zott and Amit (2010, 2013) take a system activity perspective, which responds in a clear structure of a business along three elements that also describe activities beyond the boundaries of a business. The “business model depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities” (Amit & Zott 2001, p. 511). Therefore, an entrepreneur’s or business’s behavior can be analyzed from an objective point of view (Bauer 2016, p. 37). Figure 14 displays the business model concept.

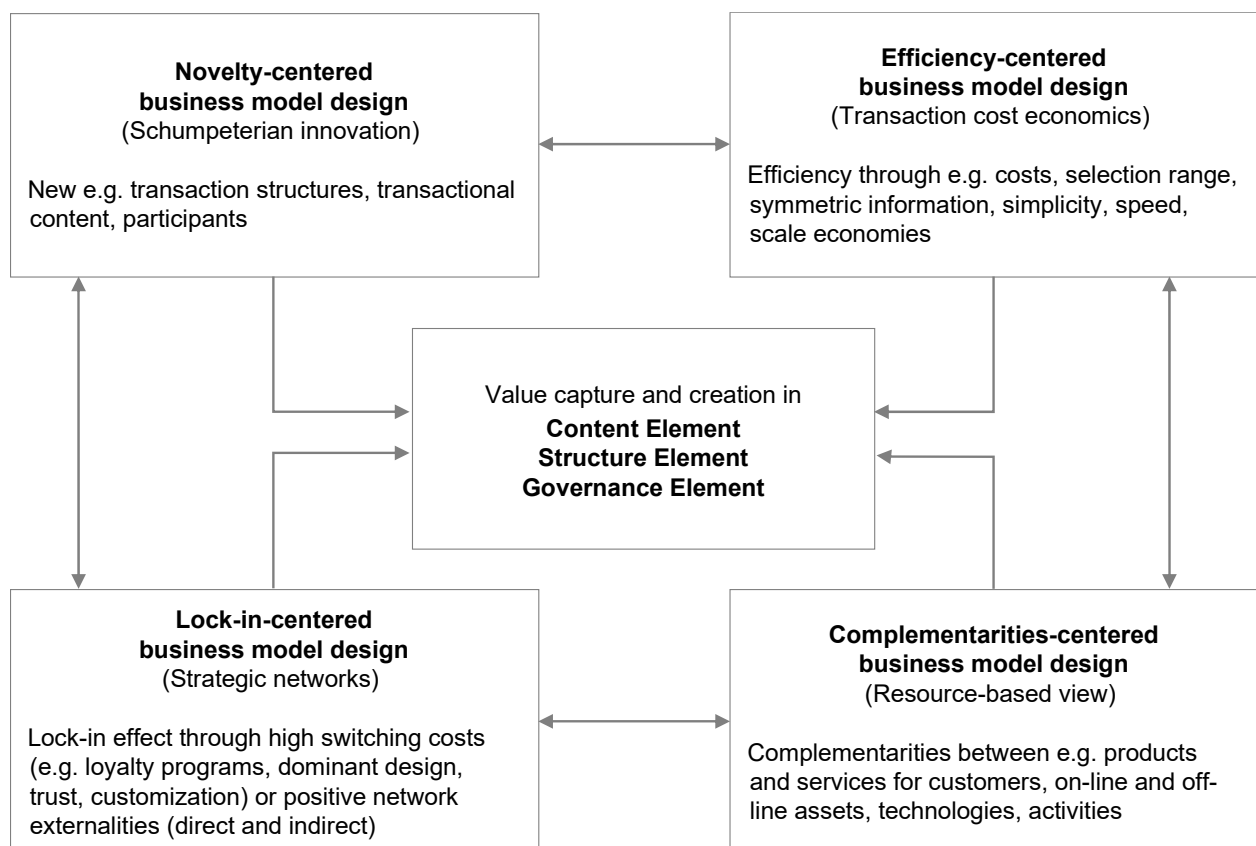


Figure 14: Business Model Concept

Source: Own illustration based on Amit and Zott (2001, p. 504) and Bauer (2016, p. 38).

Going into detail, Zott and Amit (Amit & Zott 2001, p. 511; 2012; Zott & Amit 2010, p. 220) describe a business according to three design elements, each element is intended to create and capture value. First, the content element of transactions describes what a business has to offer. Here, the business offered goods or services are explained as well as the needed capabilities to produce the product and offer the service. Second, the structure element focuses on involved actors within and outside of the business. It describes how businesses

are linked and deal with all parties involved, e.g. investors, network partners and customers beyond the scope of the business, and employees within the business. Third, the governance element describes established control mechanisms within the business and with involved parties outside of the business. Additionally, the governance element provides information on motivation instruments, such as incentives. But how can value be created and captured?

In their initial paper on e-business business models, Amit and Zott (2001) were eager to investigate how e-businesses create and capture value. They considered five different theories from the management and economics fields: the theory of creative destruction (Schumpeter 1942), the resource-based view (Barney 1991), strategic network theory (e.g. Dyer & Singh 1998), transaction costs economics (Williamson 1975, 1979, 1983), and value chain analysis (Porter 1985). However, Porter's value chain was not considered in the eventual model.

Amit and Zott (2001, p. 500) talked to 59 different e-businesses through 50 open-ended questions to find their source of value creation. Eventually, they found that there are four different business model designs based on the above-mentioned four theories. First, the novelty-centered business model design creates and captures value through e.g. novel combinations of resources and processes, new products or new way of organizing companies (Schumpeter 1934). Second, the complementarities-centered business model builds on the idea of a sustained competitive advantage (Barney 1991) as it can be achieved through the interrelation and complementarity between resources, capabilities and networks (Amit & Schoemaker 1993; Amit & Zott 2001). Third, the efficiency-centered business model creates and captures value through decreasing transaction costs as much as possible. Switching to e.g. a new product, service or supplier might be costly and inefficient due to asymmetric information, uncertainty and complexity (Williamson 1975). Therefore, business hold transaction costs to an absolute minimum and create value through high efficiency. Fourth, the lock-in-centered business model creates and captures value through long-term relationships build through e.g. strategic networks (Gulati, Nohria, & Zaheer 2000, p. 203). Businesses create a so-called lock-in effect, where loyalty and learning from each other play a crucial role.

Summarizing, the business model concept is a suitable unit of analysis that helps this thesis to grasp a business in its entirety including activities that span beyond the actual boundaries of a business. The holistic, objective and clear approach helps to consider each element of a business that is built during the entrepreneurial process. The business model concept is used as a guideline during interviews, as part of the actual analysis and ensures comparability among cases.

3 Methodology

3.1 Research Design

This chapter aims for describing the “specific architecture of the research process” (Wrona, Zapf, & Reinecke forthcoming). To do so, the “theoretical goal and objective” are the key to make the best choices about the research design (Gehman et al. 2018, p. 297). The following chapter first describes the overall idea and methodological groundwork, the thesis is aligned with. Here explanations are kept short to just provide an overview before the chapters will go into more detail on process research and the chosen case study approach.

3.1.1 Theory-integrated Case Study Design

“Above all, it is important to remember that there is still room for creativity!” (Gehman et al. 2018, p. 293)

This thesis applies a crafted research design in terms of customizing qualitative research methods to the “particular research context” (Gehman et al. 2018, p. 297). Here, it is highly important to “fit [...] methodological tools and their particular configuration [...] to the research question and theoretical aims of the project” (Gehman et al. 2018, p. 297). This study asks the questions: *How and in which way is an entrepreneur interacting with his/her environment in the process of developing a business?* Thereby, this research aims for an exploration of the entrepreneurial process and tries to understand the underlying processes, shedding light on the entrepreneur and environment interaction, eventually allowing to build theory from data.

Going into detail, this study is pursuing process research (Bamberger & Wrona 2012, p. 33), following Langley’s (1999) process approach. As Langley points out herself, her approach is not a “specific method” (Gehman et al. 2018, p. 289), but insists on studying “how things evolve over time” (Gehman et al. 2018, p. 289), exploring “stories about what happened and who did what when” (Langley 1999, p. 692). To do so, it is important to collect data that fits and is able to display the process of interest (Gehman et al. 2018, p. 290). Particularly when it comes to process research, a case study design is suggested (Pentland 1999; Van de Ven 1992). To explore the entrepreneurial process and especially the entrepreneur and environment interaction, a qualitative multiple case study is chosen.

The multiple case study is aligned with Eisenhardt’s (Eisenhardt 1989; Eisenhardt & Graebner 2007) case study approach and builds on ideas of Yin (2014) and Miles and Huberman (1994) as proposed by Eisenhardt herself (Eisenhardt 1989, p. 532f.; Gehman et al. 2018, p. 287). As

Langley points out, Eisenhardt's case study approach may be "another way of doing process research" (Gehman et al. 2018, p. 290) and is a unique approach that aims for theory-building from multiple cases (Eisenhardt 2021, p. 148). Eisenhardt adds that her theory-building approach is able to answer 'how' questions and describes processes (Gehman et al. 2018, p. 287), looking "inside the 'black box' of a process" (Eisenhardt 2021, p. 148). This thesis, however, follows the call from different researchers for more theory integration (particularly Bergh, Perry, & Hanke 2006; Judge, Cable, Colbert, & Rynes 2007; Piekkari, Welch, & Paavilainen 2009; Suddaby 2006; as shown by Wrona & Gunnesch 2016, p. 727) and applies a theory-integrated qualitative case study approach as suggested by Wrona et al. (forthcoming). This approach goes hand in hand with other authors, who, however, only integrate prior knowledge in certain research steps. Eisenhardt (1989) as well as Eisenhardt and Graebner (2007) integrate theory and prior knowledge along the way (Wrona & Gunnesch 2016, p. 728). Eisenhardt (1989) e.g. suggests using defined constructs during data collection and analysis enabling a more structured proceeding. Also, Langley (1999) supports theory integration during analysis (Wrona & Gunnesch 2016, p. 728) and states "we overemphasize the idea of induction, that we are completely theory free" (Gehman et al. 2018, p. 297). Consequently, even though this thesis is explorative and inductive in nature, theory and prior knowledge are integrated during each step, but without interfering with openness.

Summarizing, the crafted research design aims for theory building and can be classified as process research. The study aligns itself with Langley's (1999, 2007) understanding of doing process research. To do process research a qualitative case study approach in accordance with Eisenhardt (1989) based on Yin (2018) and Miles and Huberman (1994) is chosen, integrating theory and prior knowledge along the way (Wrona et al. forthcoming). To build theory from data in a systematic and structured way, the thesis aligns its analysis with Gioia's approach of grounded theory (Gioia 2021; Gioia, Corley, & Hamilton 2013), enhanced by a theoretical "repertoire to interpret" (Wrona & Gunnesch 2016, p. 1; Wrona et al. forthcoming).

3.1.2 Process Study

"Process research is concerned with understanding how things evolve over time and why they evolve in this way (Van de Ven & Huber 1990), and process data therefore consist largely of stories about what happened and who did what when – that is, events, activities, and choices ordered over time." (Langley 1999, p. 692)

Research on strategic management of organizations has been classified into two categories, namely strategic content research and strategic process research (e.g. Bamberger & Wrona 2012, p. 29ff.; Chakravarthy & Doz 1992; Pettigrew 1992, p. 6; Rajagopalan, Rasheed, & Datta 1993). Strategic content and strategic process research can be distinguished in terms of the focus or object of interest, theoretical foundations and the methodological approach

(Bamberger & Wrona 2012, p. 29; Chakravarthy & Doz 1992, p. 6). Generally, strategic content research, as the name already tells, focuses on the specific content of strategic choices, and describes those strategies in detail, while also explaining why they have been chosen. Process research aims to understand and describe strategic processes and explains the design of those processes over a longer time frame. Thus, content research is particularly helpful in answering 'what' and 'why' questions, while process research focuses on answering 'how' questions. Metaphorically, strategic content research is a picture that is taken at a specific point in time and strategic process research resembles a film that shows evolving stories (Chakravarthy & Doz 1992, p. 6). Despite the distinction throughout literature, there are many authors that argue that both research streams are inseparable interrelated and interconnected. Particularly, research on strategic management is said to only advance if both schools are considered simultaneously. (e.g. Bamberger & Wrona 2012, p. 32; Pettigrew 1992, p. 6)

"Certainly in the analysis of strategic change there seem to be strong advantages not only from linking process to content but also from exploring simultaneously the links between the contexts, content and process of change together with their interconnections through time." (Pettigrew 1992, p. 7)

Within this thesis, the entrepreneurial process is the key object of interest, and the goal is to explore the entrepreneurial process. Thus, the primary research goal leans towards strategic process research, which makes a process perspective much more beneficial to answer the research question. Additionally, process research is particularly interested in the context and environment of the research object, which is also an essential part of this thesis (Pettigrew 1992, p. 7). Taking the environment into account makes this research unique. Additionally, process research is able to answer how and why "things emerge, develop, grow, or terminate over time" (Küberling-Jost 2018, p. 9; see also Langley 2007; Langley, Smallman, Tsoukas, & Van de Ven 2013), which is the central question within this dissertation.

Process Understanding. There exist many different definitions and understandings of the term process within literature (Pettigrew 1992; Van de Ven 1992). This research aligns itself with the five process characteristics that all understandings have in common identified by Pettigrew (1992, p. 9). First, processes are embedded in their surroundings and thus it is essential when studying processes, to consider multiple levels of analysis. Second, when studying process, they are considered over a longer time frame. Third, process research can explain "context and action". Fourth, process research aims for a holistic view of the research object. And fifth, the analysis of processes is linked to "the location and explanation of outcomes". (Pettigrew 1992, p. 9) Going into detail, this thesis also aligns itself with Van de Ven's (1992, p. 196) understanding of a process as "a sequence of events that describes how things change over time". This definition takes a "historical developmental perspective, and focuses on the sequences of incidents, activities, and stages that unfold over the duration of a

central subject's existence" (Pettigrew 1992, p. 7). Transferring the understanding of process to this research, it is obvious that within this study this understanding of process is closest to the research aim. The goal is to explore the historical development of a business from its initial opportunity up to a running business. At the same time the process is understood as an interaction between the entrepreneur and his/her environment over time with all its "events, activities and choices" (Langley 1999, p. 693) and their "stories" (Pentland 1999, p. 711) aiming for "explanation and understanding" (Langley et al. 2013, p. 1).

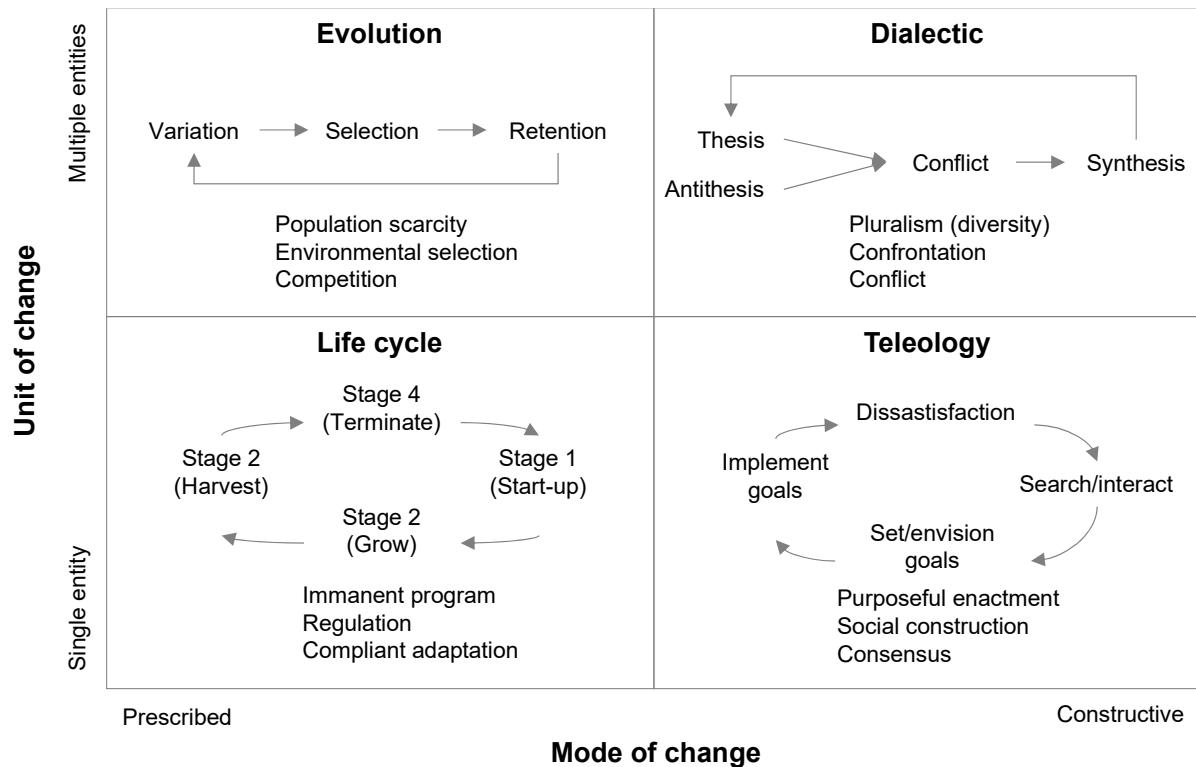


Figure 15: Process Theories
Source: Van de Ven and Poole (1995, p. 520).

Process Theory. Van de Ven and Poole (1995, p. 513) review literature on process theory and classify four ideal-typical process theories, namely life cycle, teleology, dialectics, and evolution theory. Figure 15 displays the four process theories. Even though the four forms do exist, in reality most researchers make use of more than one process theory (Pentland 1999, p. 719; Van de Ven & Poole 1995, p. 513). As described previously, the central element of the research is to understand the entrepreneurial process. Particularly, the dissertation aims for an exploration of how a business develops out of an exogenous shift-based opportunity by looking at opportunity, environment, and entrepreneur interaction. Thus, the interest lies in the emergence, development, growth or even termination of a business during its entrepreneurial process (Van de Ven 1992, p. 178; Van de Ven & Poole 1995, p. 520), and the underlying "purposeful and adaptive" interaction (Van de Ven 1992, p. 178). Therefore, the dissertation is

aligned with process theory, particularly focusing on a life-cycle and teleological perspective (Van de Ven 2007, p. 202; Van de Ven & Poole 1995, p. 520).

The life cycle perspective understands processes as different stages in life, particularly “start-up births, adolescent growth, maturity, and decline or death” (Van de Ven & Poole 1995, p. 513). The object of interest goes through each stage (Van de Ven & Poole 1995, p. 520), while being influenced by its external environment (Van de Ven & Poole 1988, p. 37). The teleological perspective assumes that organizations or their entities are pursuing a goal that they set and try to achieve in interaction with their environment (Van de Ven & Poole 1995, p. 516). Process thereby describes a continuous cycle of formulating, evaluating and modifying goals (Van de Ven & Poole 1995, p. 520).

Methodological Approach. Van de Ven (1992, p. 181) suggests “that investigators carefully design their studies to observe strategy process in such a way that is consistent with their definition and theory of process.” To be able to understand processes, “retrospective case history” and “longitudinal real-time research” is suggested. Whereby, a focus on narratives helps to build better process theory (Pentland 1999, p. 711f.). Overall, case studies seem to be particularly helpful in process research (Pentland 1999; Van de Ven 1992). Therefore, the following chapter will go into more detail on the chosen qualitative multiple case study design.

3.1.3 Qualitative Multiple Case Study Design

This dissertation follows a case study design. The case study design is able to answer the proposed research question through the detailed description of the entrepreneurial process and eventually allows for theory generation (Eisenhardt 1989, p. 535) and thus has the biggest potential to achieve the research aim, also including aspects of grounded theory and narrative research (Creswell & Poth 2018, p. 67). Additionally, the case study approach is in line with process research (Pentland 1999; Van de Ven 1992). Within this chapter, first, the choice for a qualitative approach along indication is briefly summarized. Second, the case study design will be introduced, and the multiple case study design of choice will be described. Afterwards the actual case will be presented.

Qualitative indication. To avoid the occurring issue of choosing the research design out of habit or tradition (Bono & McNamara 2011, p. 657; Flick 2009, p. 401), it is important to check whether a qualitative research design is indicated. Within this research, a qualitative approach is indicated as the research object (e.g. Flick 2009, p. 401; Steinke 2004, p. 188), namely the realistic depiction of the entrepreneur and environment interaction along the entire entrepreneurial process, considers a complex, context-embedded process. Also, there does

not exist much knowledge within the research field (e.g. Edmondson & McManus 2007, p. 1158; Flick 2004, p. 146; Flick 2009, p. 401) and a qualitative research design is particularly helpful in novel research fields (e.g. Diekmann 2007, p. 33; Edmondson & McManus 2007, p. 1159; Flick, von Kardoff, & Steinke 2004, p. 5). Considering the overall research objective (e.g. Bryman 2008, p. 31; Jack & Anderson 2002, p. 6, 13; Lee 1999, p. 43) and research question (e.g. Bluhm, Harman, Lee, & Mitchell 2011, p. 4; Flick 2004, p. 146; Flick 2009, p. 401; Maxwell 2013, p. 73; Steinke 2004, p. 188), a qualitative research design is indicated. Qualitative research has the strength to help the researcher to understand, discover or explore (interpret) (e.g. Jack & Anderson 2002, p. 6; Wright 1984, p. 19; Wrona & Gunnesch 2016, p. 725), benefitting exploratory interpretative and descriptive purposes (Lee 1999, p. 83; Lee, Mitchell, & Sablynski 1999, p. 183; Marshall & Rossman 1995, p. 41). Pratt (2009, p. 856) adds “qualitative research is great for addressing ‘how’ questions—rather than ‘how many’”. As pointed out before the research objective of this dissertation is to explore the entrepreneurial process, trying to understand the underlying entrepreneur and environment interaction, by asking *how and in which way is an entrepreneur interacting with his/her environment in the process of developing a business?*

Case Study Design.⁹⁷ The case study design considers cases of particular interest that are described and analyzed accordingly. Case study research has the main aspiration “to understand complex social phenomena” (Yin 2009, p. 4) and is per se “philosophically neutral”, which is considered to be a positive feature (Myers 2013, p. 79). The complexity of the investigated phenomenon means that the researcher is able to explore numerous dimensions and is able to present a holistic view of the case, its environment and the world, while exploring “meaningful characteristics of real-life events” (Yin 2009, p. 4). Nevertheless, case studies can be descriptive, explorative or explanative (Wrona & Gunnesch 2016, 725). The aim of this dissertation is to explore the entrepreneur and environment interaction along the entire entrepreneurial process, while describing in-depth entrepreneurial processes. Thus, the dissertation strives for a holistic view of the interaction along the entrepreneurial process in its “real-life context” (Yin 2009, p. 18). However, case study research does not only focus on the in-depth analysis of the actual case, but also considers the context of the case, which makes case study research special (Yin 2009, p. 18). The context plays an important role within this dissertation, as the environment, with which the entrepreneur interacts, can be classified as the context of the entrepreneurial process. However, “the boundaries between phenomenon and context are not clearly evident” (Yin 2009, p. 18).

⁹⁷ A detailed description of the case study design can be found in our book (Wrona et al. forthcoming). This paragraph summarizes shortly what we talk about within our book.

The Multiple Case Study Design. Case study research may either cover a single case or multiple cases (e.g. Creswell & Poth 2018; Eisenhardt 1989; Yin 2018). Within this thesis the study follows a multiple case study design. A multiple case study design is said to be of help when striving for theory development. Especially, multiple case studies are helpful in facilitating generalization of results as they offer heterogenous cases that show either similar or contrasting events (Herriott & Firestone 1983, p. 17; Wrona et al. forthcoming). Within this thesis, the goal is to develop theory through the exploration of the entrepreneurial process and the underlying environment and entrepreneur interaction. Going into detail, contrasting results are aligned with theoretical replication (Yin 2018, p. 54) and help the researcher to “refine and extend the theory” (Eisenhardt 1989, p. 542). Similar results correspond to a literal replication (Yin 2018, p. 54) and may confirm the outcome throughout cases. Thus, similar results are considered to “enhance confidence in the validity of the relationships” (Eisenhardt 1989, p. 542). At the same time, similar multiple cases allow the researcher to consider a typical phenomenon in depth, in different settings (Wrona et al. forthcoming). Moreover, multiple case studies have the advantage of a representative sample and are following a replication logic that is aligned with the logic of multiple experiments (Yin 2018, p. 53). The replication logic of the multiple case study design is promising to reveal deep and meaningful theoretical concepts that are embedded in different entrepreneurial processes that happen in different settings, making the study more “robust” (Herriott & Firestone 1983, p. 17). Additionally, as this thesis strives for exploration of a complex and unknown process, it is nearly impossible to classify a critical, extreme or unique, representative or typical, revelatory or longitudinal case (Yin 2018, pp. 47–50). Thus, a multiple case study design is chosen for this thesis.

The Case. One of the central questions when applying a case study research design is ‘what is my case’ (Miles & Huberman 1994, p. 25; Yin 2009, p. 29). A case can abstractly be defined as “a phenomenon of some sort occurring in a bounded context” (Miles & Huberman 1994, p. 25). Miles and Huberman (1994, p. 26) describe several potential phenomena that may comprise the case, namely: an individual, individuals, small group, organization, community or settlement, or even a nation. Yin (2009, p. 12) adds to this list the following phenomena: processes, programs, neighborhoods, institutions, and events. However, cases may also comprise phenomena that occur over a certain time period (Miles & Huberman 1994, p. 26). Obviously, there are several potential social units or units of analysis that may comprise a case. Consequently, it seems necessary to define the actual case within this dissertation. To do so Miles and Huberman (1994, p. 27) and Yin (2009, p. 29ff) suggest a sequence of points of inquiry on how to define the case or unit of analysis.

To be able to define the case it is helpful to reconsider the research question and the goal of the proposed research (Yin 2009, p. 30): the dissertation aims for a realistic depiction of the

circular process between the environment and the entrepreneur along the entire entrepreneurial process, from opportunity up to an active business. And thus asks the question, how and in which way is an entrepreneur interacting with his/her environment in the process of developing a business? Additionally, it is helpful to think about what is not the focus of the study (Miles & Huberman 1994, p. 27). Clearly, the focal point is the actual business interacting with its environment. However, neither the business nor the environment are the core of the proposed research. But the entrepreneurial process is the actual case or the unit that shall be analyzed in terms of interactions. Thus, within this dissertation the case comprises a temporal sequence of events for a more or less concrete time (Miles & Huberman 1994, p. 26).

Generally having defined the case or unit of analysis within this dissertation, further clarifications are in order as described by Yin (2009, p. 32). In a next step, the phenomenon and context need to be defined (Yin 2009, p. 32). Again, coming back to the goal of the proposed study, the phenomenon that shall be investigated is the interaction between an entrepreneur and his/her environment along the entrepreneurial process. The context of the to be investigated phenomenon of interaction is, as just mentioned, the entrepreneurial process during which an opportunity is developing into an actively operating business.

Despite further clarifications, the unit of analysis still seems to be rather abstract and vague. Therefore, in a next attempt for clarification the “real-life ‘case’ to represent the abstraction” is considered (Yin 2009, p. 32). Additionally, it is helpful to reflect the case definition in terms of previous literature (Yin 2009, p. 32f.). The case focuses on the interaction between an entrepreneur and his/her environment. The business is in turn represented by its founders as the main experts for the entire entrepreneurial process. To be able to explore interaction in depth, the business model design concept (Amit & Zott 2001, 2012) is taken into account as a proxy for the business. Particularly, the business model elements content, structure and governance represent the embedded units of analysis as they are individually considered throughout the entrepreneurial process. It is assumed that each element might interact with the environment and it is therefore important to get deep and rich insights. The environment is on the other hand considered as the context and is clarified along dimensions presented in chapter 2.2.2.

Consequently, within this dissertation each case represents one unique entrepreneurial process and thus one business. This business is represented by the three business model design elements. Along each business model element, the entrepreneur may be interacting with the environment and this interaction is considered as the embedded unit of analysis. The environment of the business is considered as the context. Figure 16 represents the described embedded multiple case study design.

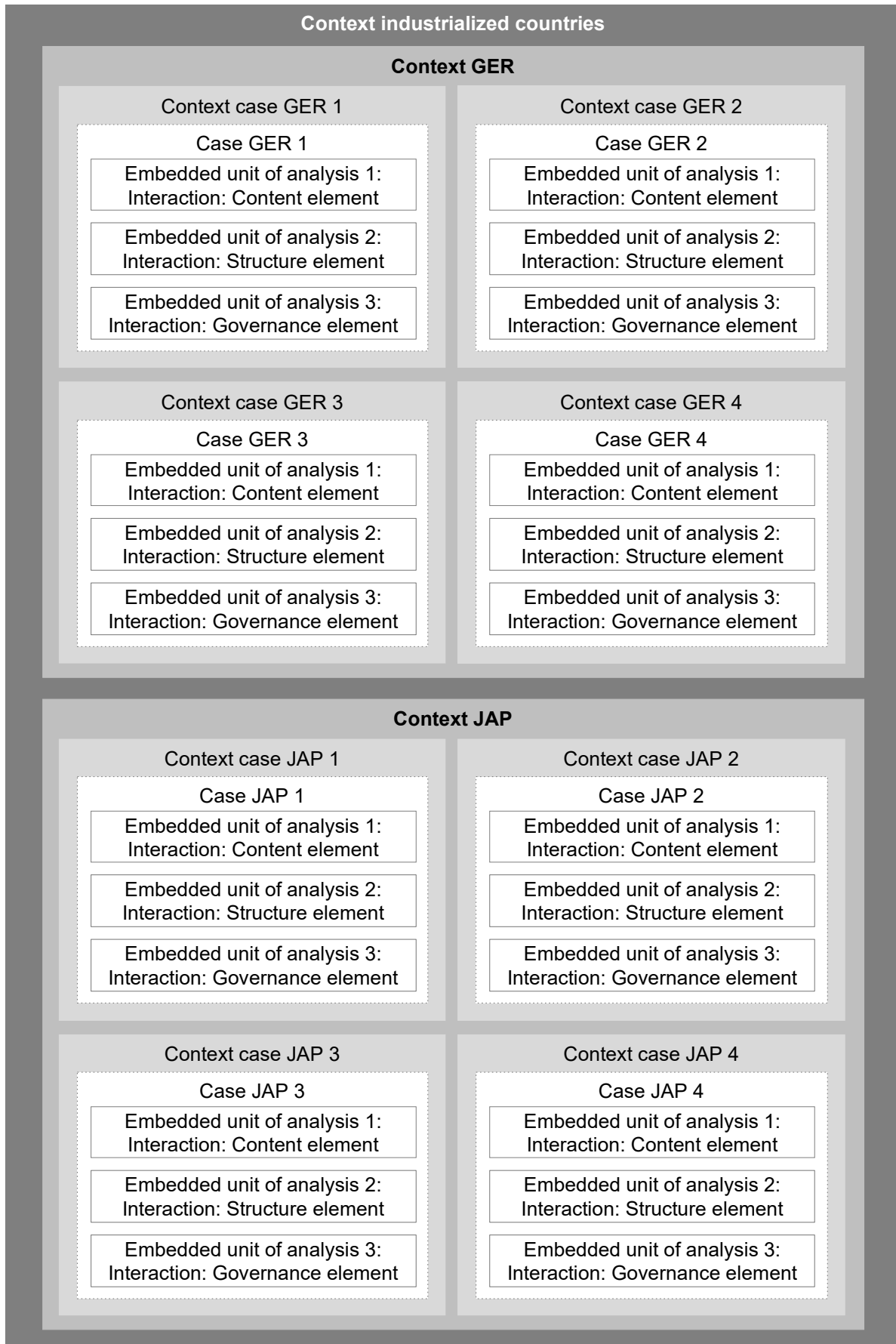


Figure 16: Embedded Multiple Case Study Design
 Source: Own illustration based on Yin (2009, p. 40).

3.2 Methodological Approach

“For while systematic data create the foundation for our theories, it is the anecdotal data that enable us to do the building. Theory building seems to require rich description, the richness that comes from anecdote. We uncover all kinds of relationships in our “hard” data, but it is only through the use of this “soft” data that we are able to “explain” them, and explanation is, of course, the purpose of research.”
(Mintzberg 1979, p 587)

The following chapter describes how the ‘anecdotes’ were collected. First, case selection will be described, and the purposeful sampling plan will be explained, followed by a detailed description of Germany and Japan as one of the chosen purposeful selection criterions. Afterwards, the instrument for data collection, namely expert interviews are described, and the semi-structured interview guideline is presented, followed by a description of how the field was entered and what data was collected. This chapter also presents the chosen within-case and cross-case analysis approach and describes how the analysis was carried out. Eventually this chapter considers how quality was ensured during the entire research process.

3.2.1 Case Selection

“Sampling is crucial for later analysis. As much as you might want to, you cannot study everyone everywhere doing everything.” (Miles & Huberman 1994, p. 27)

In alignment with the presented quote by Miles and Huberman (1994, p. 27), it is essential to define and select the “‘right’ cases, groups and materials” (Flick 2007a, p. 25). Especially in qualitative case study research sampling takes place rather purposefully than randomly (Miles & Huberman 1994, p. 27 based on Kuzel 1992 and Morse 1989). Even for highly inductive studies, the researcher has some prior ideas on whom to focus on (Miles & Huberman 1994, p. 17). For a multiple case study design, a sampling frame supports a replication logic by keeping some settings similar and purposefully changing other properties along thoughtfully chosen problem dimensions in order to have some representational value but also to introduce controlled variations. (Miles & Huberman 1994, p. 29; Wrona & Gunnesch 2016, p. 734) Thus, pursuing a sampling strategy is key. Among others, Patton (2002, p. 230ff.) presents 15 different purposeful sampling strategies, to collect “information-rich cases” (Patton 2002, p. 242).⁹⁸ Each strategy serves a specific purpose that aims for the best way of answering the research question, also depending on the research objective and the resources the researcher has. Also, the number of cases can be chosen in advance. This choice is, however, a hard one and cannot rely on any “statistical grounds” (Miles & Huberman 1994, p. 30). The answer

⁹⁸ A detailed list and explanation of each sampling strategy can be found in the book by Patton (2002, p. 230ff.) himself and was also explained in Miles and Huberman (1994, p. 28) and Flick (2007a, p. 27), as well as in the forthcoming book of the author. Therefore, within this dissertation it was refrained from giving a prolonged explanation of each strategy.

can only be derived conceptually. It is important as a researcher to choose an amount of cases that gives “confidence in our analytic generalizations” (Miles & Huberman 1994, p. 30).

In alignment with a theory-integrated qualitative case study approach (Wrona & Gunnesch 2016) and current gaps in entrepreneurship research (Davidsson & Gruenhagen 2021, p. 1103), as well as a high level of prior knowledge, a purposeful sampling strategy is chosen. A multiple case study in accordance with Yin (2009) and Eisenhardt (1989) shall be conducted in a **context affected by demographic change** to exemplarily illustrate the entrepreneurial process based on an exogenous shift-based opportunity (frame).

Especially in industrialized countries there is a tremendous demographic change (see chapter 2.1.3). Consequently, it can be assumed that particularly start-ups in industrialized countries are making use out of demographic change. According to the UN there are 36 developed economies in the world (UN 2014a, p. 145). As this dissertation is written in **Germany**, a first institutional context is set easily. However, the aim is to generalize findings through a set variation in terms of the institutional context. Germany belongs to the group of countries that have major developed economies (G7). As there are common funding programs for Start-ups, like EXIST, Horizon 2020, etc. in the EU (BMW 2020; EU 2020), only G7 countries outside of the EU (Canada, Japan and the US), are considered for a varying institutional context.

This dissertation does, however, not aim for a cultural study. Thus, it is important to keep cultural differences as minimal as possible. Especially in the start-up world, business failure is pretty common (e.g. Bauer 2016). However, the handling of failure is highly different. For some cultures, failure is a potential learning experience whereas in other cultures failure is seen highly critical (Byrne & Shepherd 2015). Hofstede’s dimension uncertainty avoidance displays the feeling towards risk/failure to a certain extent. Therefore, the cultural dimensions according to Hofstede are considered, (Hofstede 1980; Hofstede 2001; Hofstede 2020; Hofstede, Hofstede, & Minkov 2010). Aiming for the most minimal deviation in cultural dimensions, Japan is the closest to Germany (sum of deviation to Germany along all cultural dimensions: Japan: 103 < Canada: 123 < USA: 137). Thus, to be able to generalize the findings even more, allowing for a replication logic in terms of collecting cases from other relevant contexts (Davidsson & Gruenhagen 2021, p. 1103), a further step will be to collect data in **Japan**, which presents the ‘perfect’ variation in institutional environment without varying culture (too much).

Moreover, only start-ups making use out of this exogenous shift-based opportunity, namely demographic change, will be considered (boundary). Lastly, due to lacking language skills, only interviews conducted in German or English are considered. **Summarizing, inclusion criteria are Start-ups from Germany and Japan benefitting from demographic change that are able to communicate in German or English.**

Based on the presented theoretical framework, there do exist some prior ideas on problem dimensions that are deemed important for the conducted research study (Wrona & Gunnesch 2016; Yin 2009). Following a purposeful sampling strategy (Kelle & Kluge 2010; Miles & Huberman 1994), the cases will present a **heterogeneous sample with maximum variation** (Patton 2002, p. 234f.) in terms of three main inclusion and variation dimensions that are chosen according to their linkage with observable circumstances (Bauer 2016; Eisenhardt 1989; Eisenhardt & Graebner 2007), namely:

- **Established for ‘some time’;**
- **Institutional setting (as mentioned above);**
- **Software or hardware product;**
- **Prior experience of the founders.**

Based on the sensitizing interviews as well as common knowledge of start-ups, capital intensity is assumed to potentially lead to differing interaction processes as the influence of investors may differ (e.g. as pointed out by Davidsson & Gordon 2012, p. 862). Capital intensity of the product can be determined whether the start-up is offering software or hardware product. Additionally, prior experiences of founders either in terms of work experience or start-up experience, might result in differing existing networks. The start-ups shall also already be established for some time as the development of the business idea does not stop as soon as a business is founded and it is unrealistic to actually collect data the minute a process begins (Davidsson & Gruenhagen 2021, p. 1103f.). During the data collection phases, some interviews were conducted that were excluded afterwards, as they did not meet the inclusion criteria. Overall, prior experience of the founders, the differentiation of software and hardware product, the timeframe, as well as the initial request of benefiting from demographic change can be seen as respective control variables that ensure more homogenous cases that are however, purposefully, heterogeneously varied. Especially the “sub-sample comparison” of the cases along the variation dimensions is key. (Davidsson & Gordon 2012, p. 862).

Even though the Eisenhardt approach is “not about a specific number of cases [...] 4 to 10 cases are common and often work well” (Eisenhardt 2021, p. 153). However, the number of cases depends on the overall design of the study as well as pragmatic factors, which in the case of this dissertation was mainly cognitive limits (Eisenhardt 2021, p. 153). The derived inclusion and exclusion criteria lead to a conceptually derived amount of cases in accordance with Miles and Huberman (1994, p. 29f.). Within this dissertation, the purposeful sampling plan encompasses **eight different cases** that vary in terms of the institutional environment, hardware and software product, as well as the prior experience of founders. Figure 17 displays the chosen purposeful sampling plan and the number of cases accordingly.



Figure 17: Purposeful Sampling Plan
Source: Own illustration.

Germany. Germany's **economic development** is characterized by growth and reconstruction. Germany is one of the defeated nations of World War II and faced a precarious situation overall and economy wise afterwards. Since then, the German economy grew into being the fifth largest economy worldwide measured according to the Purchasing Power Parity with US\$ 4,238 billion. This makes Germany the largest economy in Europe. However, today, Germany faces a decrease in the work force due to demographic change. Low fertility rates mean less people that are able to work and put pressure on the social welfare system. (CIA 2021a)

Berlin is considered the **start-up** capital in Germany and ranks 12th place out of 1,000 cities in the worldwide ranking of best cities for start-ups (StartupBlink 2022a).⁹⁹ Thereby, Berlin is the 2nd best city for start-ups after Paris in the EU (StartupBlink 2022b, p. 25) and is slowly, but surely, entering the top ten cities for start-ups worldwide (StartupBlink 2022b, p. 73). Germany ranks place 6th worldwide in comparison to 100 countries. (StartupBlink 2022b, p. 19) The German start-up scene is described as decentral in accordance with Germany's federal state structure. Thus, "non-centric start-up ecosystems" are developing in different cities and states with diverse key topics, e.g. energy & environment in Berlin, transportation in Munich, fintech

⁹⁹ The StartupBlink ranking for cities and countries is based on a quantity, quality and business environment score, each based on certain, measurable characteristics, focusing on "objective, quantifiable data" (StartupBlink 2022b, p. 11). For the quantity score e.g. the number of start-ups, coworking spaces and accelerators are considered (StartupBlink 2022b, p. 15). For the quality score e.g. the total private sector investment, presence of exits and unicorns and the amount of start-ups that are backed by accelerators are taken into account (StartupBlink 2022b, p. 15). For the business environment score e.g. internet speed, number of patents per capita, English language proficiency and R&D investment are looked at (StartupBlink 2022b, p. 16).

in Hamburg. Thus, not only are start-up ecosystems decentralized, but those ecosystems show a high level of diversity. There are city specific organizations that are eager to create a beneficial start-up ecosystem to make the respective city as attractive as possible. (StartupBlink 2022b, p. 73ff.) For example there are local start-up hubs like ruhrHUB (ruhrHUB 2024) and funding programs that support and fund regional start-ups like bm-t in Thuringia (bm-t 2024), Gründung innovativ in Brandenburg (ilb 2024) and BB I MBG in Saxony Anhalt (BB-MBG 2024). Germany wide, start-ups benefit from several funding programs, like EXIST, which specializes in the support of academic spin-off start-ups in their pre-founding phase (EXIST 2024b) and High-Tech Gründerfonds that focuses on seed investments (HTGF 2024).

Japan. Japan as well as Germany is one of the defeated nations of World War II and faced a precarious situation post WWII overall and **economy** wise. Since then, the Japanese economy experienced an extraordinary growth for three decades and developed into an advanced economy, but the growth slowed down in the 1990s. Today, Japan is the fourth largest economy worldwide measured according to the Purchasing Power Parity with US\$ 5,224 billion. This makes Japan the third largest economy in Asia (surpassed by China and India). However, Japan's economy is suffering from demographic change, particularly from low birth rates, which means that there are less people in the work force. (CIA 2021b)

Tokyo is considered the **start-up** capital in Japan and ranks 15th place out of 1,000 cities in the worldwide ranking of best cities for start-ups (StartupBlink 2022a). Japan as a country ranks place 20 worldwide in comparison to 100 countries and gained two ranks since 2020. (StartupBlink 2022b, p. 19). The start-up ecosystem in Japan is evolving. Japan's economy is usually characterized by big, partly state-owned company conglomerates, which are innovative and interested in open (and outsourced) innovation. Japan is creating and building a start-up ecosystem. (StartupBlink 2022b, p. 119) Even though there seems to be a lack of investments and funding programs, the Japanese government acknowledges the importance of a start-up ecosystem and established local accelerator programs and governmental funding. But the change to an entrepreneurial mindset is a difficult, gradual and slow process. Further support is focusing on enabling Japanese start-ups to go global. However, a key problem of Japan's economy is the diminishing workforce due to demographic change. Thus, particularly the start-up ecosystem is in need of foreign talent with an entrepreneurial mindset (and less risk averse). (StartupBlink 2022b, p. 119) There are several cities, like Fukuoka and Kobe, that offer a so called 'start-up visa' (METI 2024) that allows foreigners to stay at least one year in Japan and build up a business without meeting much further factors. (StartupBlink 2022b, p. 119)

Germany and Japan evolved into advanced economies and are part of the G7 countries. Both countries face a tremendous demographic change due to low birth rates, which is one of the key issues for further economic development. Culture-wise, Germany and Japan are

particularly alike concerning risk aversion, which is important for starting businesses. Also, both countries acknowledge and support the importance of a start-up friendly environment. However, Germany is more progressed with a larger funding landscape. But Japan is eager to follow. Thus, keeping in mind the purposeful sampling plan with maximum variation, Germany and Japan are fitting environments to collect data varying institutional contexts.

3.2.2 Data Collection Strategy

To collect data, interviews are the method of choice. Even though case study research can make use of qualitative or quantitative data (Eisenhardt 1989, p. 534f.), within this research a qualitative case study approach is chosen, specifically collecting interviews. The exploration of the entrepreneurial process over time is classified as a specific topic of interest that is not “sufficiently limited in size and location” (Jorgensen 1989, p. 13). To be able to explore the whole spectrum of interactions over a much longer time-period (several years), steering the interviewee in this direction while meeting on a personal level is beneficial. Interview material may be complemented by further data material (Eisenhardt 1989, p. 534f.; Yin 2009, p. 101). Within this research, complementary data from the start-up’s websites or online platforms (e.g. northdata.de; linkedin; pitchbook) is used to improve, complete or re-check information. Thereby, this dissertation also addresses the call from Davidsson and Gruenhagen (2021, p. 1104) to use multiple data sources ensuring validity. To keep the identity of interview partners disclosed, the websites will not be cited in the within-case analysis.

There are several forms of interviews, which are classified differently among authors (e.g. Hopf 2004, p. 204; Lamnek & Krell 2010, p. 326; Wrona et al. forthcoming). Applying Flick’s (2009, p. 215) checklist for the interview type, it becomes obvious that problem-centered interviews that are semi-structured are especially suitable to answer the research question. Problem-centered interviews have the advantage of giving „room for narratives”, while focusing on a particular research object and process of interest (Flick 2009, p. 212). Thus, the problem-centered interview makes use of prior knowledge to a certain extent, grasping the object of interest, which is in alignment with the theory-integrated qualitative case study approach. Thereby, the problem-centered interview mixes inductive and deductive interview techniques, which is highly beneficial to answer the research question. (Misoch 2019, p. 71f.)

Within this thesis a semi-structured interview guideline is applied with “plenty of freedom of movement in the formulation of questions, follow-up strategies and sequencing” (Hopf 2004, p. 204). The guideline helps to identify and frame the interview towards the main topics of interest, answering the research question (Yin 2009, p. 102). Additionally, semi-structured

interviews are especially helpful “to obtain both retrospective and real-time accounts by those people experiencing the phenomenon of theoretical interest” (Gioia et al. 2013, p. 19).

Summarizing, semi-structured, problem-centered interviews are conducted with founders of start-ups. Each case represents one start-up, and founder(s) are interviewed. Thus, data was sourced from key informants for each case respectively (Kumar, Stern, & Anderson 1993). Therefore, within this dissertation, interview partners were selected assimilated with the following criteria, which developed out of the theoretical background (see chapter 2.2 and 2.3) and the research questions: Entrepreneurs, who founded a start-up; that makes use out of an exogenous shift-based opportunity; benefits from demographic change; and who were involved in the business’s development from the beginning on and play(ed) a central role.

The semi-structured interview guideline was developed in alignment with Eisenhardt (1989), Gioia et al. (2013), Yin (2009) and relevant theoretical knowledge. Special emphasis lies on the conversational style of the interview, making it much more flexible adapting to the situation, real behaviors, emotions and environments (Eisenhardt 1989, p. 538f.; Yin 2009, p. 83ff., 106), while being prepared and open to any new directions or changes in the sequence of questions (Yin 2009, p. 85), giving room for “twists, turns, and roller-coaster rides” (Gioia et al. 2013, p. 19). The “controlled opportunism” is a special strength of theory-building qualitative research and shall not be interchanged with unsystematic behavior (Eisenhardt 1989, p. 539). Figure 18 shows the basic structure of the interview guideline (an elaborate guideline is included in the Appendix).

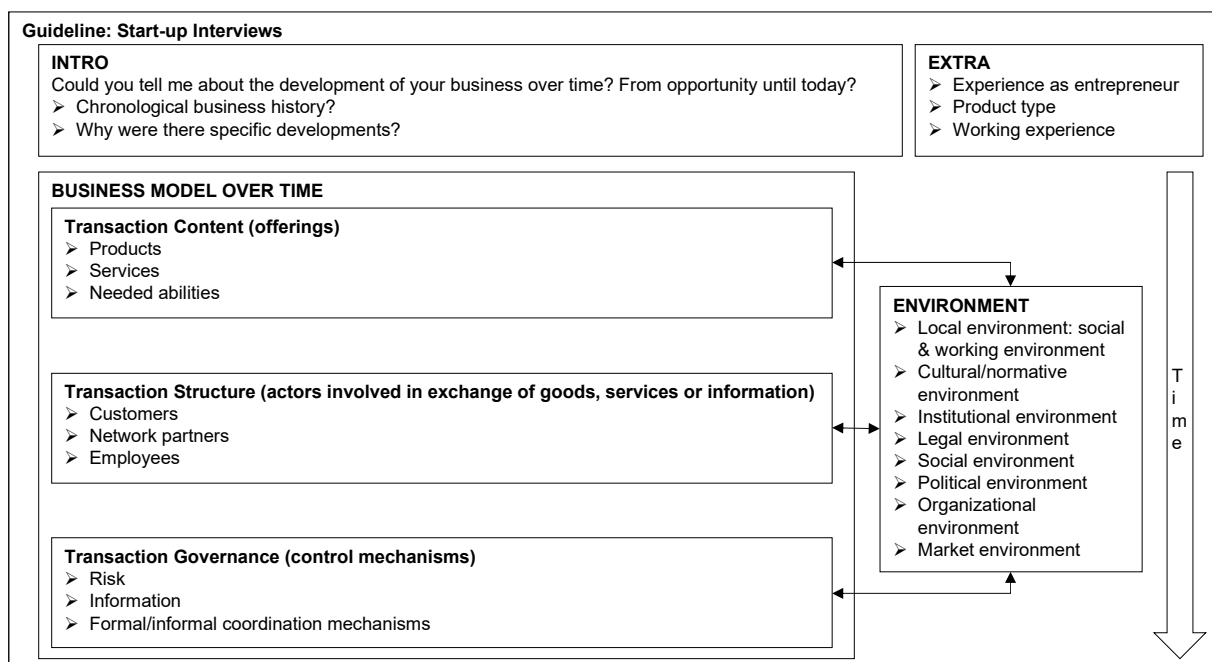


Figure 18: Semi-structured Interview Guideline
 Source: Own illustration.

The development of the semi-structured interview guideline followed the presented theoretical groundwork. In a first step, as suggested by Gioia et al. (2013, p. 19), the research aim and research question were taken into account. As can be seen in Figure 18, the main idea of the interview guideline is to explore the interaction of the environment with the entrepreneur over time. Based on a theory-integrated design, theoretical frameworks displayed in Chapter 2 were used as a basis. To be precise, two main concepts were considered:

- The business model design concept with its three elements, content, structure, and governance element, as a proxy to investigate the business in depth.
- The previously described dimensions of ‘the’ environment (see Table 3) were considered as important points of interaction throughout the entrepreneurial process.

Every interview started with the same question “**Could you tell me about the development of your business over time? From opportunity until today?**” The question was formulated to get an initial overview over the timeframe of the business development. This question is rather unspecific and allows for “broad opportunities for self-expression” (Hopf 2004, p. 208) and has some narrative characteristics, as the entrepreneurs started to talk about the business in a biographical manner.

With the initial portrait of the timeline, it was possible to go more into detail and explore how and in which way is an entrepreneur interacting with his/her environment in the process of developing a business. Thus, after this initial phase, the interview continued based on the two theoretical concepts. Particularly, the business model concept was considered to detect any changes, inflection points, developments throughout the business. To be able to also explore interactions with the environment, the different spheres of the entrepreneurial environment were included. The idea is to make a certain sphere of the environment a subject of discussion, if it has not been mentioned so far. The business model concept is used in the same way. The guideline was only used as “reminders” (Yin 2009, p. 87) and to “help clarify concepts, and help set priorities” (Miles & Huberman 1994, p. 38).

Thereby, several common mistakes in conducting interviews ought to be avoided. Firstly, refraining from formulating numerous specific questions helped to be able to avoid a “lack of patience” (Hopf 2004, p. 208). Without the comfort of pre-formulated questions, it was necessary to listen carefully and ask further questions adapted to the situation. Flexibility was ensured and the mistake of ticking off questions could be avoided. (Hopf 2004, p. 208) During the interview, it was important to refrain from suggestive or closed questions in order to keep the interview flow going (Hopf 2004, p. 208). This is a much more difficult task to fulfill and it might be helpful to “practice [the] interviewing technique” (Pettigrew & McNulty 1995, p. 850). Due to prior experience with the business model design concept as a unit of analysis (Bauer

2016), the interviews were conducted in an open-minded and conversational style. It was highly important to let the interviewee speak without interrupting to support the explorative character of the study and enhance a much more open and narrative style of the interviews.

The interview guideline was developed in German and English. The dissertation dealt with language barriers (particularly in Japan). As pointed out by Resch and Enzenhofer (2018, p. 131), usually researchers do not indicate the language of data collection. “Language oppression and language (in)visibility” are a key issue in (cross-language) qualitative research (Temple & Young 2004, p. 162). However, dealing with issues of multilingual data collection and making those issues and solutions visible it is an important step in ensuring high quality of the qualitative research attempt (Resch & Enzenhofer 2018, p. 143). For the German sample, the German interview guideline was used, and the interview was also conducted in German. The advantages as a native speaker of talking to interviewees in their mother tongue range from showing sympathy and politeness and allowing the interviewee to express themselves as freely as possible. In their mother tongue, interviewees also feel as secure as possible and can give precise and ‘correct’ answers. (Marshan-Piekkari & Reis 2004, p. 224; Wright 2007, p. 59f.; Wright, Lane, & Beamish 1988, p. 59f.)

Data collection in Japan was conducted in English deciding on using a relay language (collecting data in English rather than in Japanese) (Resch & Enzenhofer 2018, p. 137). This decision was made out of several reasons: First, the strategy of using a relay language is often used for expert interviews (Resch & Enzenhofer 2018, p. 137). Second, a professional interpreter or translator as well as a community researcher would bear the issue of finding a suitable person, who has the required translation skills and who is able to pursue the aim and purpose of the study. Without the required skills, the translator may also have a negative influence on the outcome of the interview (Resch & Enzenhofer 2018, p. 136). Third, in advance to the research stay in Japan, the author, talked to several people who live or have lived in Japan. One German professor, who lives, teaches, and does research in Japan (and in Japanese), recommended to do the interviews in English, as Japanese leads to high barriers for the interviewee. S/he would be bound to his/her cultural conduct. From his experience, the professor stated that interviews would be much more open in English. Additionally, all interview partners were asked if they would feel comfortable being interviewed in English.¹⁰⁰ However, some interviewees denied the interview request due to language barriers.

¹⁰⁰ The founder of FilmCo is from Germany and the interview was conducted in German. This case is particularly interesting as cultural differences are eliminated completely, while the institutional setting is varied.

3.2.3 Entering the Field

"There are no patent recipes as to how a way into the field should be sought and found." (Wolff 2004, p. 196)

The realization of the proposed research took place over a time frame of six months and can be divided into three phases (as displayed in Figure 19). All four entrepreneurship experts for the first, pre-study data collection phase stem from the personal network of the author (whereas one expert was introduced by a contact person). There were no gatekeepers that had to be overcome (e.g. Flick 2007a, p. 34; Patton 2002, p. 310; Wolff 2004, p. 199). All experts were contacted via e-mail with a 100% response rate. Three interviews were conducted in a personal appointment, one interview was done via telephone due to scheduling problems. The interviews were transcribed in December 2017 and used for sensitization to build the semi-structured interview guideline for the interviews with entrepreneurs.



Figure 19: Phases of Data Collection
Source: Own illustration.

The second data collection phase in Germany started in January 2018 and ended in the beginning of March 2018. The interviews with DiagCo and SipCo resulted out of personal contacts. An online search for start-ups through different media articles lead to contacting several start-ups via e-Mail, Xing and LinkedIn. The founders of DiagCo suggested looking for start-ups via their former investor's webpage. This search led to contacting three more start-ups. Overall, eight start-ups in Germany were contacted with a 75% response rate and 50% agreeing on an interview. The positive responses led to six interviews, whereas only five out of those six were conducted personally in the offices or private homes of the founders. The sixth interview was conducted via skype, to ensure a personal note within the interview.

The third data collection phase in Japan showed some initial difficulties due to the missing network, which could be overcome. It was of utmost importance “finding gatekeepers who open the doors to the field and to the right persons” (Flick 2007a, p. 34). March and April 2018 were used to develop a network in the start-up ecosystem in Japan and conducting interviews. Networking was the key to enter the field in Japan (as pointed out by Wolff 2004, p. 196). Meeting with different actors in the ecosystem led to numerous points of contact and a tremendously interesting insight into the Japanese start-up world. Generally, the process of data collection in Japan can best be classified as hands-on field work, benefitting from a “snowball’ effect” (Pettigrew & McNulty 1995, p. 851)

The initial points of contact to an entrepreneur and a doctoral fellow stem from the author’s personal network in Germany. Both in turn introduced start-ups, accelerators, incubators, which led to further start-up contacts. Also, the research environment at the host university led to several contacts to a further accelerator, who in turn introduced two new start-ups. Overall, data collection in Japan resulted from looking at 246 different start-up websites, meeting two accelerators, meeting with the German Chamber of Commerce Japan, and attending one international start-up conference in Tokyo. All communication was accomplished via LinkedIn or Facebook (preferably) as well as e-Mail. As suggested by Flick (2007a, p. 34), in the case the interviewee required further information, an information flyer was provided (see appendix). Usually, a small text was sufficient to explain the endeavor. However, particularly Japanese founders were eager to prepare, and this led to a more detailed explanation of the research interest and stressing the open as well as conversational style of the interview. At no point in the study, the semi-structured interview guideline was made available in advance.

The sensitizing interviews in Germany and Japan lasted between 1 and 1.5 hours. The interviews with entrepreneurs in both countries lasted 1.5 up to 2 hours on average. In line with Yin (2009, p. 101), entrepreneurs were asked if they could contribute further information about their start-ups. To complete the picture, triangulating data was used, namely information from websites (e.g. the businesses’ websites, linkedin, northdata, pitchbook) and news articles. Ultimately the statement by Wolff (2004, p. 196) best explains the field research experiences:

“The trial paths, detours and false trails that researchers often complain about and feel to be burdensome, and even the failed attempts at gaining access – which are normally carefully suppressed – all then become ‘critical events’, the analysis of which opens up chances of making discoveries.”

All conducted interviews with founders of start-ups from Germany and Japan were recorded with an Olympus digital voice recorder DM-650 (ensuring a high quality tape recorder) (Flick 2007a, p. 54) and subsequently transcribed. Particularly for theory-building approaches where coding evolves from the data itself, transcripts are necessary “materials at hand” (Flick 2007a,

p. 101). Pursuing theory-building, interview recordings and transcripts were inevitable (as for example similarly suggested and conducted by Gersick (1988, p. 12).

All sensitizing interviews with entrepreneurship experts in Germany were recorded and transcribed, as they were used for sensitization and clarification of the term environment. The interviews were deductively coded to shed light on the real-life perspective of an entrepreneur's environment. The results of the analysis were applied in chapter 2.2.2 as theoretical background. Table 7 shows an overview over the collected data material.

Table 7: Overview of Data Material: Sensitizing Expert Interviews Germany

Role	Interview partner (position)	Interview code	Interview material
Expi GER 1	Expi GER 1 (Entrepreneurship professor)	Transcript A Expert Interview Expi GER 1	57:20 min
Expi GER 2	Expi GER 2 (Head of Start-up hub)	Transcript B Expert Interview Expi GER 2	67:50 min
Expi GER 3	Expi GER 3 (Business Angel)	Transcript C Expert Interview Expi GER 3 ¹	31:06 min 29:25 min
Expi GER 4	Expi 4 (Entrepreneurship trainer)	Transcript D Expert Interview Expi GER 4	43:14 min
4 Interview partners		4 Transcripts	228:55 min

¹ Expi GER 3 asked to pause the recording to discuss something with a colleague. Therefore, there are two recordings, but the interview is written down in one transcript.

Source: Own illustration of findings.

Initially, only one data collection phase with entrepreneurship experts in Germany was planned. However, as soon as the third data collection phase in Japan started, most interview partners were recruited through speaking to entrepreneurship experts. At the same time, it became obvious that it would be helpful to also acquire knowledge about the entrepreneurship ecosystem in Japan. As those conversations were not “necessary for answering the research question” (Flick 2007a, p. 54) but background knowledge for sensitization, the collected expert interviews were not transcribed (an overview over the material can be found in the appendix).

To be able to enter the field and convince entrepreneurs to engage in the presented research, it is important to ensure that the interviewee is feeling comfortable, protecting the entrepreneur's integrity. Particularly for start-ups opening up about the entrepreneurial process is to a certain extent personal, emotional and sensitive. (e.g. Bauer 2016, p. 39; Cope 2011, p. 515; Gioia et al. 2013, p. 19) Even though many informants are willing to reveal proprietary

information, the key to open and honest answers is transparency, discretion and anonymity (Bansal & Corley 2011, p. 236; Bauer 2016, 39; Gioia et al. 2013, p. 19). However, as Gioia et al. (2013, p. 19) pointed out, it is important to distinguish anonymity from confidentiality. Therefore, interviewees were informed about interview recording and its purpose and all interviewees agreed to being recorded. Any information that exposed the individual or the business are anonymized in the transcript by changing names of e.g. the individual, businesses and business partners, as well as sites (Flick 2007a, p. 75).

Going into detail, transcripts were conducted of “spoken discourse” (O’Connell & Kowal 1995, p. 94), as the data collection method of choice is interviews, triangulated with written data. Also a personal transcription style was developed (e.g. Du Bois 1991, p. 78; Kowal & O’Connell 2004, p. 249) through making appropriate decisions following several authors (Bruce 1992, p. 145; Du Bois 1991, p. 78; Flick 2007a, p. 54; Kowal & O’Connell 2004, p. 251). First, the goal within this research lies in the actual content of the entrepreneurial process. To be able to retrace the interaction, founders are chosen as experts to report retrospectively on the entrepreneurial process. In line with Du Bois (1991, p. 74); Kowal and O’Connell (2004, p. 251), **only verbally expressed data** is included in the transcript, which is necessary for analysis. Any cognitive errors made by the interviewee were corrected into their intended version (Drew 1995, p. 67f.). Verbal expressions are ought to be transcribed in **standard orthography** only as it helps tremendously when it comes to readability and facilitates the actual transcription process (Du Bois 1991, p. 74; Kowal & O’Connell 2004, p. 250). The same argumentation leads to the decision to **not include a system to transcribe notations** as the goal is to analyze the content and it is thus redundant to include any notations (Du Bois 1991, p. 78; Flick 2007a, p. 54). Notations would also impede readability making them obsolete (Kowal & O’Connell 2004, p. 249; O’Connell & Kowal 1995, p. 98f.). Moreover, a **line format** is chosen allowing for an increased readability and it is more economical as it is easier for the transcriber to achieve (e.g. Drew 1995, p. 68; Du Bois 1991, p. 80; Kowal & O’Connell 2004, p. 250). Additionally, an inclusion of the temporal sequence is not needed, as the aim of the interview as well as the actual conduction of the interview had a much more narrative style. Despite the conversational style, the goal of the research is not to analyze a conversation but to investigate the entrepreneurial process in depth. Consequently, conversational elements were also not included in the transcript. The Interviewer is shown as “I” and the Interviewee received a respective code, as can be seen in Table 8 (Flick 2009, p. 301). The actual transcription is aligned with Flick (2009, p. 302).¹⁰¹

¹⁰¹ Transcripts can be viewed upon request. Reviewers received full access to all original transcripts.

All interviews were transcribed using MAXQDA features for transcriptions and were provided with a unique code (McLellan, MacQueen, & Neidig 2003, p. 69f.). The exact list of codes can be seen in Table 8. After transcribing, all interviews were checked against the tape as described by Flick (2007a, p. 52) and McLellan et al. (2003, p. 73) in an attempt to “tidying up” collected data (LeCompte 2000, p. 148). Thereby, the process was “convenient and comfortable” and allowing for a first insight into the data (Du Bois 1991, p. 75). The transcription process was not only perceived as “manual labor” but was seen as a stepping stone into analysis, which will be described in more detail in the following chapter (Du Bois 1991, p. 75).

Table 8: Overview of Data Material: Cases and Interview Codes

Case	Transcript code	Interview partner in transcript (position)	Recording code	Interview material
DiagCo	DiagCo GER 1	F1 DiagCo (Founder)	DiagCo GER 1	161:59 min
		F2 DiagCo (Founder)		
SipCo	SipCo GER 2.1	F1 SipCo (Founder)	SipCo GER 2.1	92:12 min
	SipCo GER 2.2	F2 SipCo (Founder)	SipCo GER 2.2	47:17 min
TrainCo	TrainCo GER 3	F TrainCo (Founder)	TrainCo GER 3	121:09 min
SoundCo	SoundCo GER 4.1	F1 SoundCo (Founder)	SoundCo GER 4.1	83:37 min
	SoundCo GER 4.2	F2 SoundCo (Founder)	SoundCo GER 4.2	99:27 min
BrainCo	BrainCo JAP 1	B BrainCo (Business partner)	BrainCo JAP 1	87:25 min
FilmCo	FilmCo JAP 2	F1 FilmCo (Founder)	FilmCo JAP 2.1	15:12 min
			FilmCo JAP 2.2	88:19 min ¹
PetCo	PetCo JAP 3	F PetCo (Founder)	PetCo JAP 3.1	82:53 min
			PetCo JAP 3.2	17:27 min
			PetCo JAP 3.3	23:37 min
			PetCo JAP 3.4	29:25 min
MedCo	MedCo JAP 4	F MedCo (Founder)	MedCo JAP 4	91:46 min
8 Cases	10 Transcripts	11 Interview Partners	14 Recordings	1041:45 min

¹ For the case FilmCo two recordings were made. During the interview recording stopped and the recording device had to be re-started. The collected data is presented in one transcript.

² During the interview the founder of PetCo switched the interview space several times (from restaurant to office to restaurant). Therefore, several recordings exist, but they are written down in one transcript. The breaks are indicated in the transcript.

Source: Own illustration of findings.

3.2.4 Data Analysis

After transcribing the collected data material, the cases are analyzed. Going for a multiple case study design, the case studies are analyzed first by themselves and afterwards be compared. A within-case and cross-case analysis in accordance with Eisenhardt (1989) will respectively shed light on the entrepreneur and environment interaction while making use out of an exogenous shift-based opportunity. The analysis follows three approaches suggested by process research (Langley 1999): narrative strategy, grounded theory strategy and visual mapping strategy. The grounded theory approach based on Gioia (Corley & Gioia 2011; Gioia & Chittipeddi 1991; Gioia et al. 2013) will be enhanced by a theoretical repertoire to interpret (Wrona & Gunnesch 2016). Thereby, the study will be able to identify and understand the dual relation between the environment and the entrepreneur evolving over time. Data analysis is carried out computer-based with the support of Maxqda (as suggested by Marshall and Rossmann (2011, S. 218 f.)). The following chapter describes the conduction of the within-case analysis in detail and the procedure and presentation of results. Then, the cross-case analysis is described along with its procedure and eventual presentation of results.

Within-case analysis. The within-case analysis follows process research and is aligned with Eisenhardt (1989) and Wrona et al. (forthcoming) and “involves detailed case study write-ups for each site” (Eisenhardt 1989, p. 540) to become “familiar with each case as a stand-alone entity” (Eisenhardt 1989, p. 540). Particularly, three of Langley’s (1999) strategies for making sense of qualitative data are used, namely: narrative strategy, grounded theory strategy and visual mapping strategy. In a first step, each case will be presented in detail following Langley’s (1999, p. 695) **narrative strategy** (see also Eisenhardt 1989, p. 540; Pettigrew 1990, p. 282), constructing “a detailed story from the raw data” (Langley 1999, p. 695) deep diving exemplary into “vivid and rich” “excerpts” in the form of vignettes (Jarzabkowski, Bednarek, & Lê 2014, p. 280). Within this thesis, the narrative is a part of “the product or outcome of the research” (Lerman, Mmbaga, & Smith 2022, p. 288). “The story is an abstract conceptual model” that helps the researcher to generalize from findings through the “process story” (Langley et al. 2013, p. 9). Particularly, the detailed description and narration of case stories displays the richness of the process and “communicate[s] process understandings in ways that resonate with experience while incorporating theoretical insight” (Langley 2007, p. 277). At the same time, authenticity is ensured through a detailed description, convincing the reader “of having ‘been there’” (Golden-Biddle & Locke 1993, p. 599). Consequently, narrative strategy is particularly suitable for this smaller amount of cases, where detailed and rich descriptions may find the space they need (Langley 1999, p. 695). When narrating a case story, the story does not only present a “sequence of events” but a great story entails “conflict, character, setting, sequence, plot, and arc” (Shepherd & Suddaby 2017, p. 61) and has 5 major characteristics to implement (Langley et al. 2013, p. 9; Pentland 1999, p. 712):

- The case story presents a sequence of time with a “beginning, middle, and end”.
- The case story displays focal “protagonists or antagonists” that are involved, caring about narratives of “someone or something”.
- The case story shows the story from a particular and “identifiable narrative voice”.
- The case story presents the viewpoints of the narrator and thus shows “an evaluative frame of reference of what is right or wrong, appropriate or inappropriate”.
- Lastly, the case story also presents “other indicators of context over time and place”.

Despite the advantage of richness, narrative strategy has the disadvantage to “sacrifice [...] generality” in favor of a detailed and rich description (Langley 2007, p. 277). Also narrative strategy is characterized by a rather unstructured way of analyzing data (Langley et al. 2013, p. 8; Pentland 1999, p. 712). Thus, usually narrative strategy is accompanied with a more structured analytical method that enables the expression and duplication theoretical concepts that allow for a higher abstraction level (Langley et al. 2013, p. 8).

Therefore, **grounded theory strategy** is applied and supports a structured narration of case stories and reach a higher abstraction level of each entrepreneurial process (Langley 1999, p. 699). For grounded theory strategy, this thesis follows the Gioia method (Gioia & Chittipeddi 1991; Gioia et al. 2013). Gioia methodology is particularly suitable due to two reasons. First, Langley (1999, p. 699f.) points out Gioia methodology is best suited for analyzing narrative data that has a clear storyline or plot. As this thesis explores the clear storyline of a start-ups entrepreneurial process, Gioia methodology is a suitable approach to construct the narration based on concepts, key themes and dimensions that emerge from the data. Second, Gioia sees himself as a constructivist and assumes that an organization and its processes are socially constructed referring to them as “structural creations” (Gioia et al. 2022, p. 233). Gioia et al. (2022, p. 233) explains “organization members (agents) engage in actions that create structures, which recursively enable and constrain further action”.

Grounded theory in general is a coding-oriented approach of qualitative social research and is a “very structured and technical procedure” (Wrona et al. forthcoming). Overall, the Gioia method presents a grounded theory approach that promotes the integration of prior knowledge through “informed theorizing” (Gioia et al. 2013, p. 19), which adds into a theory-integrated qualitative research approach, and presents a highly structured and systematic way of a grounded data analysis. Also, this approach enables researchers to present both the informants' experiences in their own and the researchers' observations in theoretical terms that apply beyond a specific case, which is the aim within this thesis (Gioia 2022, p. 177f.).

Gioia in his numerous publications (Corley & Gioia 2011; Gioia 2021; Gioia & Chittipeddi 1991; Gioia et al. 2013) provides detailed instructions and examples on how to code data material

and develop theories that are grounded in the data. The coding procedure summarizes, condenses and interprets data aiming for the development of a data structure (Gioia 2021; Gioia et al. 2013). The data structure allows researchers to configure their data into a sensible visual aid and provides a graphic representation of how they progressed from raw data to terms and themes in conducting the analyses. Additionally, the data structure, and particularly the 2nd order themes and aggregated dimensions enable researchers to extract novel findings and easily compare to existing literature. (Gioia et al. 2013, p. 20f.) Additionally, the data structure easily visualizes and carefully documents each analysis step and thereby ensures and displays how themes and dimensions are grounded in the data, ensuring a rigorous analysis (Langley 1999, p. 699f.). In the following each step will be described:

First, interviews, thus the collected data, are looked at searching for similarities and differences and condensed into concepts labeled in informants' own terms (Gehman et al. 2018, p. 286; Gioia et al. 2013, p. 20). Thereby through valuable insights from the informants, a deep understanding of the experiences of organizational members is generated (Gioia 2017, p. 456f.). At this stage no interpretation takes place, but the informant is seen as a knowledgeable agent (Gioia et al. 2013, p. 20). Thereby, inductive theory development is grounded in the social construction of our informants and represents the reality which we try to understand and gives them a voice in research. (Gioia 2017, p. 456f.; Gioia 2022, p. 176f.) During this first stage of analysis, Gioia describes that usually the researcher gets lost (Gioia 2021, p. 24; Gioia et al. 2013, p. 20). However, "you gotta get lost before you can get found" (Gioia et al. 2013, p. 20). Within this study, concepts are formulated in English, which allows for a first abstraction level particularly for those interviews conducted in German.

Second comes the evolvment from 1st order concepts to theoretically informed 2nd order themes, allowing for more structure and decreasing the number of concepts into a manageable amount of 2nd order themes. To create 2nd order themes, the researcher moves into the theoretical realm and seeks for similarities and differences among concepts from an informed, interpretative and more objective point of view. (Gioia et al. 2013, p. 20) The key question during this process is "can I see something the informants themselves do not see, as I look from different points of view?" (Gioia 2021, p. 25). Thus, as a researcher one tries to understand if there is some deeper structure or process at a second-order theoretical level (Gehman et al. 2018, p. 286). However, while incorporating existing knowledge, it is favorable that nascent themes emerge that have not been considered before. Thereby, themes and dimensions are created that represent the big picture and a larger narrative to explain the phenomena being observed. (Gioia et al. 2013, p. 20) At this point also the researcher is considered knowledgeable "as someone who can think creatively and at multiple levels of analysis simultaneously" (Gioia 2021, p. 25). Then, the derived 2nd order themes are

aggregated (if possible) further into theoretically informed second order dimensions (Gehman et al. 2018, p. 286; Gioia 2021, p. 25; Gioia et al. 2013, p. 20). Numerous authors describe this as a third step. However, Gioia (2021, p. 25) himself does not like to call it a third step as this step is still operating on a theoretical, second-order level. Overall, the aggregation process allows the researcher to merge “the data in a new way” (Wrona et al. forthcoming).

In a third and pivotal step, the emerged concepts, derived themes and aggregated dimensions act as the “basis for putting together a data structure” (Gioia 2021, p. 26). Gioia emphasizes the importance of a data structure on the one hand as demonstrating rigor in qualitative research and on the other hand indispensable with the words “you got no data structure, you got nothing” (Gehman et al. 2018, p. 286). With the visualization in the form of a data structure, researchers are able to better show how they derived their conclusions from data including the informant-based and researcher-based perspective (Gioia et al. 2022, p. 233f.). Based on the static picture of the data structure, a movie can be created by exploring dynamic relationships among the aggregated themes and dimensions developing them into a grounded theory model pursuing the goal of process research (Gehman et al. 2018, p. 286; Gioia et al. 2013, p. 22). Gioia also calls this development the “Grand Shazzam!” (Gehman et al. 2018, p. 286). The systematically derived, dynamic, inductive theoretical model describes or explains the processes and phenomena under investigation (Gehman et al. 2018, p. 286). Particularly, a (process) model can be build connecting data and theory, as all major emergent concepts, themes, and dimensions but also their dynamic interrelationships, which may be represented by arrows, are contained (Gioia et al. 2013, p. 22). Ultimately, the grounded model explains the hows and whys of the phenomenon of interest, which can affirm existing concepts, extend existing knowledge, and ideally generates new perspectives (Gioia et al. 2022, p. 233f.).

The process model is developed by applying **visual mapping strategy** displaying the entrepreneurial process of each case individually (Langley 1999, p. 700). The visual map enables the researcher to display numerous dimensions simultaneously, while also showing “precedence, parallel processes, and the passage of time”, which is essential for this study to answer the research question (Langley 1999, p. 700). The advantage of visual maps is that they can show a lot of insights in one figure. Thereby, the content of each process is condensed and visible at a glance. (Langley 1999, p. 702). The data reduction of visual maps is, however, flexible and not as radical as other approaches (Langley 1999, p. 702). Even though, visual maps sometimes lack the complexity of the process they represent, but “these diagrammatic representations are nevertheless often crucial in describing and communicating dynamic process theorizations” (Langley et al. 2013, p. 8). Despite its advantages, visual maps are usually an “intermediary step between the raw data and a more abstract conceptualization” (Langley 1999, p. 702). Eventually, Visual mapping will help to find patterns among cases

through a comparison of the different visual maps looking for “common sequences of events and common progressions in sources of influence” (Langley 1999, p. 702). Visual maps usually consist out of two main elements (Langley et al. 2013, p. 8): “Boxes tend to represent states and arrows relations of precedence or distinctive processual elements or flows”. There are, however, many visual maps that include loops of development (Langley et al. 2013, p. 8; Miles & Huberman 1994, p. 153). For this study, the visual map will follow a process approach.

Summarizing, each case will be presented and analyzed within itself first. The presented within-case analysis strategies are applied simultaneously. There is no real stepwise procedure, but the analysis is ongoing. Nevertheless, the presentation of results is conducted stepwise. The within-case analysis of each case begins with a short executive summary also pointing out what makes this case special. Then, each case’s story, will be described in detail following narrative strategy. Here it is important to present the reader with the historical development of the entrepreneurial process in a descriptive way. To be able to narrate in a dense, structured, objective, and to a certain extent abstract way, the data material is coded following Gioia’s’ coding approach. The developed data structure in accordance with Gioia is presented and particularly used to describe the process and develop a visual map following visual mapping strategy. A visual map will be created for each case, which summarizes the entrepreneurial process in one image and displays different themes and dimensions of the circular interaction between the entrepreneur, environment, and opportunity.

The **realization of the within-analysis** looked as follows: First each interview was coded line by line, letting “informant terms, codes, and categories emerge” (Gioia et al. 2013, p. 20; Wrona et al. forthcoming), a process that is similar to Corbin and Strauss (1990) open coding approach (Gioia et al. 2013, p. 20). During this initial step, only descriptive codes, which are very close to the interview text, are assigned. Then, the codes were condensed into 1st order concepts. No interpretation is taking place, but codes were sorted and merged if very similar. Next to content codes, for each case a category was built including all temporal codes to collect all information for the timeline of events in one place. Then, the 1st order concepts were scanned for similarities and differences, as well as interpreted following a theory-integrated coding approach (Gioia et al. 2013, p. 20; Wrona et al. forthcoming). This step allows for the development of 2nd order themes, which were lastly aggregated into 2nd order dimensions. Table 9 provides an overview over the number of codes, concepts, themes and dimensions.

After the grounded theory coding approach (Gioia 2021; Gioia et al. 2013) was conducted, a data structure for each case was developed, which then enabled a detailed and thick description of each case’s entrepreneurial process. The thick descriptions allow for deep empirical insights, which is also enhanced by direct quotes from interviews. With the help of the thick description and the data structure, eventually higher abstraction is reached by building

a visual map. A visual map is presented for each case individually, while also summarizing the entrepreneurial process and reflecting on the core of the case. The design of the visual map is inspired by Scheidgen and Brattström (2023, p. 11) and Langley (1999, p. 701.).

Table 9: Overview of Number of assigned Codes, Concepts, Themes and Dimensions

Case	# of coded text passages	# of assigned codes	# of 1st order concepts	# of 2nd order themes	# of 2nd order aggregated dimensions
DiagCo	325	288	101	16	3
SipCo	366	350	65	13	3
TrainCo	394	396	79	19	2
SoundCo	369	340	95	13	3
BrainCo	145	140	42	11	2
FilmCo	320	297	94	14	3
PetCo	202	191	49	7	2
MedCo	256	217	57	12	2

Source: Own illustration of findings.

Cross-case analysis. The cross-case analysis is aligned with Eisenhardt (1989) and aims for finding novel insights in opportunity and entrepreneurship research, particularly about the entrepreneur and environment interaction, by taking a “look beyond first impressions” (Eisenhardt 1989, p. 533) and to bring results to a new abstraction level finding insights that are not immediately apparent. At the same time, cognitive biases can be countered. In general, the cross-case analysis allows for comparing multiple cases to identify patterns, similarities, and differences that can contribute to a deeper understanding of a phenomenon. Thereby, a more structured and diverse exploration of the data is encouraged, and ultimately enhances the accuracy and reliability of the theory developed from analysis. (Eisenhardt 1989, p. 540f.) To conduct the cross-case analysis and find patterns, different pattern matching techniques are used based on Eisenhardt (1989).

Within this thesis, the cross-case analysis follows the first and the second tactic suggested by Eisenhardt.¹⁰² First, Eisenhardt (1989, p. 540) proposes to choose specific categories or dimensions, that are relevant to the research question, to group cases based on these

¹⁰² As a third tactic, Eisenhardt (1989, p. 541) suggests to separate collected data into different data sources. However, within this thesis, only interviews were used as data material triangulated by additional sources to validate certain facts. Therefore, further data material does only play a minor role.

categories and then compare them. These categories can be suggested by existing literature, the research problem itself, or they can be decided by the author. By examining within-group similarities and intergroup differences across these categories, researchers can identify meaningful patterns. Therefore, *in a first step* following the Eisenhardt (1989; 2021, p. 152) approach as conducted by Hannah and Eisenhardt (2018, p. 3171) and McDonald and Eisenhardt (2020, 492), preliminary, tentative constructs from the within-case analysis as well as theoretical constructs, such as entrepreneur characteristics and environment understanding are considered and compared across cases. Then in a cyclical process alternating between theory and observations, constructs emerge, develop and clarify, eventually leading to the emergence of archetypical entrepreneurial processes. All emerging concepts are compared to existing literature for refinement. This iterative approach allows to continually enhance insights, construct well-grounded logical propositions, and align them with established theories.

Second, Eisenhardt (1989, p. 540f.) suggests to select pairs of cases and systematically list their similarities and differences. This technique forces the researcher to look beyond the surface-level, by focusing on differences in seemingly similar cases, and by comparing seemingly different cases for underlying similarities, which can lead to deeper insights. Thereby, new categories and concepts that were not initially anticipated can emerge. Thus, *in a second step*, the eight cases are compared pairwise to identify and acknowledge more subtle resemblances and variations, which cannot be discovered by comparing pre-set and evolving concepts. “Process differences across cases” may emerge (Eisenhardt 2021, p. 154). But, the step is not only about finding varying results, but “the emergent theory captures process similarities across cases” (Eisenhardt 2021, p. 153). After conducting each tactic, results can be synthesized through integrating the findings from different tactics into a coherent narrative and identifying overarching themes and insights that emerge from the cross-case analysis. Then conclusions concerning the research question can be drawn, which are supported by the gathered evidence from the cases.

With found patterns and a pairwise comparison, the process of building a typology from individual cases is started following Kelle and Kluge (2010, p. 91ff.). In the case of this thesis, pattern matching and pairwise comparisons represent the first step of finding relevant comparative dimensions (Kelle & Kluge 2010, pp. 93–96), as well as the second step grouping cases and analyzing empirical regularities (Kelle & Kluge 2010, pp. 96–101). With the analysis across cases, contexts emerge and similar processes can be understood and explained, evolving into different types of entrepreneurial processes (Kelle & Kluge 2010, pp. 101–104). Eventually as a fourth step, each type of entrepreneurial process is characterized and explored in depth (Kelle & Kluge 2010, pp. 105–107).

The **realization of the cross-case analysis** looked as follows: First suitable categories based on theoretical concepts and conceptual thoughts presented in the theoretical framework and subjective observations were chosen for the pattern matching step. Overall, four different types of categories were chosen as inflections for finding interesting and surprising patterns. For each type of category, a short introduction is given. Then the information on the category as well as a representative quote from the respective case is shown in a table, which is used to find patterns. For each category a summary of found patterns is provided. Afterwards, a pairwise comparison of cases is conducted. With the help of pattern matching and pairwise comparisons, following Kelle and Kluge (2010, p. 91f.)'s process of building archetypes, chapter 4.2.2 builds a typology of ideal typical entrepreneurial processes. The archetypes of entrepreneurial processes are aiming for telling a "good story" emphasizing "the distinct importance of narrative or storytelling in theorizing" (Shepherd & Suddaby 2017, p. 59f.). Here again narration strategy and visualization strategy are applied (Langley 1999, p. 695, 700).

3.2.5 Applied Quality Criteria

All empirical studies face questions for quality standards, thus, to ensure validity, empirical studies are making use out of specific quality criteria. If quality criteria are met, an empirical study is usually accepted among scholars. (Wrona 2005, p. 39; 2006, p. 202; Wrona et al. forthcoming) Throughout literature there is an ongoing discussion over appropriate quality criteria for qualitative empirical studies (e.g. Easterby-Smith, Golden-Biddle, & Locke 2008; Flick 2007b; Gibbert, Ruigrok, & Wicki 2008; Jarzabkowski, Langley, & Nigam 2021; Kirk & Miller 1986; Miles & Huberman 1994; Reid & Gough 2000; Steinke 2004; Symon, Cassell, & Johnson 2018; Wrona & Gunnesch 2016; Wrona et al. forthcoming).¹⁰³ Within this thesis, adapted quality criteria are used to ensure a high quality of the empirical study. Eventually, limitations will be presented in chapter 6.2, reprising quality criteria and showing how the results are limited in terms of generalizability.

To ensure *internal validity* (Miles & Huberman 1994, p. 278), all interviews were conducted at either the interviewees business office or preferred location (e.g. a favorite coffee shop, co-working space), where s/he is feeling comfortable, and integrity is protected. Interviewees were informed and agreed to interview recording. Any information that exposed the individual or the business are anonymized in the transcript (Flick 2007a, p. 75). Thereby, interviewees were open to reveal proprietary information despite it being personal, emotional, and sensitive.

¹⁰³ There are also many other methodological books and journal articles that present researchers with some practical tips and tools, how to ensure the quality of qualitative empirical studies (e.g. Flick 2007b; Gephart 2004; Miles & Huberman 1994; Patton 2002; Symon et al. 2018).

Complementary data from the business' websites or online platforms were used to improve and check the description of the timeline of events. Additionally, entrepreneurs were asked if they would be willing to share publicly available pitches or company information, which some entrepreneurs agreed to. Data analysis is carried out computer-based with the support of Maxqda (as suggested by Marshall and Rossman (2011, p. 218f.)). Following a narrative strategy (see also Eisenhardt 1989, p. 540; Langley 2007, p. 277; Pettigrew 1990, p. 282) allows for thick descriptions, enabling to display the richness of the process (Langley 2007, p. 277) and ensuring authenticity (Golden-Biddle & Locke 1993, p. 599). The entire presentation of results builds on direct quotes from interviews, to ensure authentic, transparent, and traceable conclusions. Opportunities to discuss and receive feedback on preliminary results at any stage of the study by fellow colleagues and researchers in the field, were used.

External validity (e.g. Flick 2007b, p. 6; Miles & Huberman 1994, p. 279; Sinzig 2017, p. 113; Wrona 2006, p. 206) is achieved as the thesis builds theory from data in a systematic and structured way aligning itself with Gioia (Gioia 2021; Gioia et al. 2013), enhanced by a "theoretical repertoire to interpret" (Wrona & Gunnesch 2016; Wrona et al. forthcoming). A purposeful sampling strategy is chosen (Kelle & Kluge 2010; Miles & Huberman 1994), specifically a heterogeneous sample with maximum variation (Patton 2002, p. 234f.), allowing for more generalizable results through a set variation in three key dimensions: institutional setting; software or hardware product; prior experience of the founders. Each within-case analysis builds on a thick description achieved through narration strategy (Langley 2007, p. 277). A cross-case analysis develops ideal types of entrepreneurial processes, which allows for transferring found characteristics of individual processes to other small and large enterprises, striving for a high abstraction level (Wrona 2006, p. 206f.). Limits of the study are pointed out in chapter 6.2 (Miles & Huberman 1994, p. 279).

The entire methodology chapter aims for a transparent and explicit research process ensuring *reliability* (Flick 2007b, p. 6; Miles & Huberman 1994; Wrona 2006, p. 207; Wrona & Gunnesch 2016, p. 740). Going into detail, a semi-structured interview guideline was developed in alignment with Eisenhardt (1989), Gioia et al. (2013), Yin (2009) and based on relevant theoretical knowledge. Special emphasis lies on the conversational style of the interview, making it much more flexible adapting to the situation (Eisenhardt 1989, p. 538f.; Yin 2009, p. 106), aiming for reliable and dependable interviews, which are transcribed. Procedural reliability is achieved through the clear distinction in results. Particularly, the presentation of the within-case analysis is conducted along three analysis strategies presented by Langley (1999). First, a detailed description of each case's story in alignment with narrative strategy and grounded theory strategy is presented, allowing for an in-depth analysis in a structured and technical way. The coding approach by Gioia (Gioia 2021; Gioia et al. 2013) enables the

thesis to build a data structure emerging from data and striving towards theoretical abstraction. Third, a visual map summarizes the entrepreneurial process in one image and displays different elements and dimensions of the circular interaction between the entrepreneur, environment and opportunity based on the emerged 2nd order themes and aggregated dimensions. The cross-case analysis builds largely on interpretation and abstraction scope.

To ensure *objectivity* (LeCompte 2000, p. 146; Miles & Huberman 1994, p. 278), the approach, each step and all respective decisions within this thesis are transparently described. In the analysis part, standardized methods were used. The within-case analysis builds on narrative, grounded theory and visual mapping strategy (Langley 2007). Additionally, opportunities to challenge preliminary results at any stage of the study by fellow colleagues and researchers in the field, were used to achieve more objectivity (Miles & Huberman 1994, p. 278).

This empirical study shows practical significance, thus *utilization* (Miles & Huberman 1994, p. 280), as the outcome strives for an identification of the 'influences' on the entrepreneurial process. Having identified those 'influences', practitioners, particularly new founders, but also managers can make use out of this knowledge. They can seek support by the 'influences' in the process of making use of an opportunity. And it may be relevant for entrepreneurs developing ideas into a full business (activity). Additionally, the outcome may provide information on how businesses may deal with environmental shifts from a real-life perspective. Consequently, decision makers may be able to see threats as potential opportunities. To be used by practitioners all over the world, the chosen language is English, and the attempt is to write as easy as possible without losing touch with appropriate research language.

Table 10: Applied Quality Criteria

Criterion	Operationalization	Applied operationalization
Internal validity	<ul style="list-style-type: none"> ▪ Proximity to everyday life and empirical embeddedness (e.g. in-vivo codes, direct quotes from interviews) ▪ Use of computer programs for analysis ▪ Data triangulation ▪ Use of 'falsification logic' (search for counterevidence) 	<ul style="list-style-type: none"> ▪ Direct quotes from interviews; in-vivo codes if applicable; rich and thick descriptions of business development processes ▪ Use of MAXQDA for analysis ▪ Data triangulation through additional material (websites, professional and personal social media) ▪ Searching for counterevidence through constant interpretation cycles according to grounded theory, plus discussions with colleagues and researchers
External validity	<p>Reference to context is surrendered through</p> <ul style="list-style-type: none"> ▪ Theoretical sampling (maximized contrasting of sample) ▪ Development of (extreme/ideal) prototypes ▪ Communicative validation 	<ul style="list-style-type: none"> ▪ Heterogeneous sample with maximum variation ▪ Development of typical business development processes
Reliability	<p>Procedural reliability through explication (disclosure of interpretation, transparency and traceability)</p>	<ul style="list-style-type: none"> ▪ Traceable and transparent research process ▪ Transcripts of data material ▪ Transparent and thick description of data collection and analysis of data material ▪ Disclosure of interpretation schemes
Objectivity	<ul style="list-style-type: none"> ▪ Documentation of research process ▪ Disclosure of subjectivity ▪ Standardized methods 	<ul style="list-style-type: none"> ▪ Documentation of research process in methodology chapter ▪ Use of established and standardized analysis methods (case study, grounded theory, process research, theory-integrated qualitative case study approach) ▪ Indication of subjective interpretations; discussions with colleagues and researchers
Utilization	<ul style="list-style-type: none"> ▪ Practical contribution ▪ Learning from results ▪ Accessibility ▪ Understandably written (content and language wise) 	<ul style="list-style-type: none"> ▪ Practical contribution ▪ Understandably written (content and language wise)

Source: Own illustration based on Miles and Huberman (1994, p. 280) and Wrona (2006, p. 208).

4 Analysis

4.1 Within-Case Analysis

The following chapter presents the within-case analysis of the eight collected cases. As described in the previous chapter, cases were chosen according to a purposeful sampling plan designed along certain inclusion and exclusion criteria. The following Figure 20 presents the reality of the purposeful sampling plan and each case's position. Table 11 summarizes the key characteristics that led to the decision over the positioning of the cases.

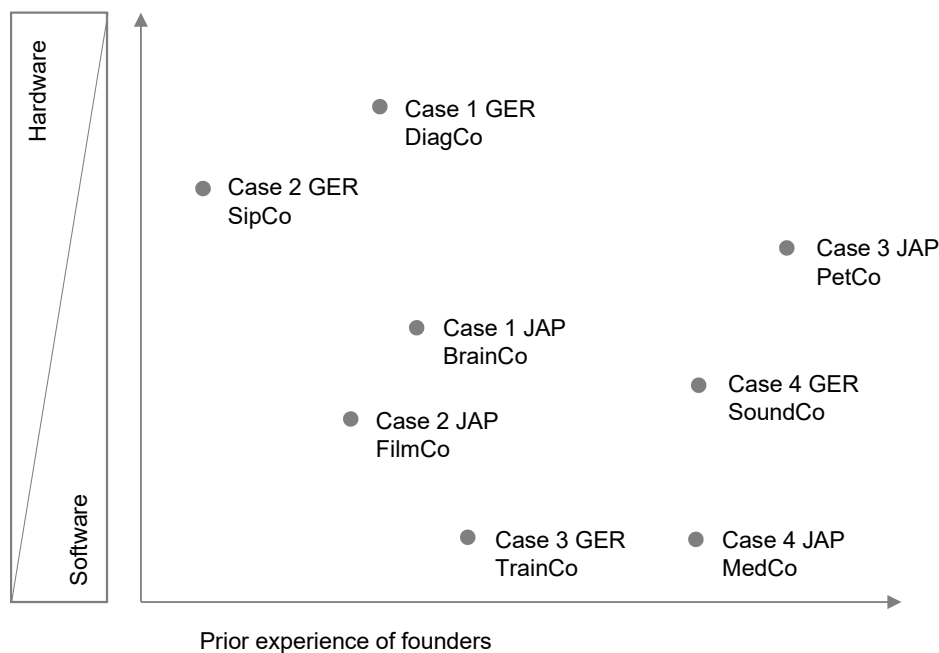


Figure 20: Reality of Purposeful Sampling Plan
Source: Own illustration of findings.

All case interviews were collected in a time frame of four months in 2018.¹⁰⁴ Therefore, each case and respective entrepreneurial process will only be interpreted from the beginning of the venture until 2018.¹⁰⁵

¹⁰⁴ The interviews for the German cases, as well as the interview for FilmCo were conducted in the mother tongue of the interviewees: German. The direct quotes within this chapter were translated by the author. The interviews for BrainCo, PetCo, and MedCo were conducted in English. The quotes are direct quotes from interviews.

¹⁰⁵ The time frame of the data collection was optimal. In the beginning of 2020, Covid hit and the pandemic situation troubled humans and also businesses up until 2022. The years between 2020 and 2022 are not representative for any business (and data collection in Japan would not have been possible at all, whereas interviews at the start-ups sites would also not be possible). After 2022, particularly the

Table 11: Sampling Information

Case	Industry	Product	Benefitting from demographic change	Founders experience
DiagCo	<ul style="list-style-type: none"> Medical technology and high-tech industry 	<ul style="list-style-type: none"> Hardware diagnostic tool High development costs due to 10+ years development time¹⁰⁶ 	<ul style="list-style-type: none"> Diagnostic tool for illnesses such as “Alzheimer, Parkinson, Picture Illnesses and various others”.¹⁰⁷ 	<ul style="list-style-type: none"> First-time founders Working experience as researchers (research group leader, professor)
SipCo	<ul style="list-style-type: none"> Medical technology industry 	<ul style="list-style-type: none"> CE-certified hardware, medical product 	<ul style="list-style-type: none"> Cup for dysphagia patients, 60% of the over 50-year-olds do have dysphagia¹⁰⁸ 	<ul style="list-style-type: none"> First-time founders F1, F4 SipCo previous working experience in medical industry¹⁰⁹
TrainCo	<ul style="list-style-type: none"> Medical technology industry 	<ul style="list-style-type: none"> App-based neurological disease recognition and treatment 	<ul style="list-style-type: none"> Neurological diseases increase with an aging society 	<ul style="list-style-type: none"> First-time founders F1 TrainCo previous founding experience in the US
SoundCo	<ul style="list-style-type: none"> Medical technology industry 	<ul style="list-style-type: none"> App-based Tinnitus treatment Headphones through partner 	<ul style="list-style-type: none"> Tinnitus is a disease that usually comes with age 	<ul style="list-style-type: none"> F2 repeating founder F1 SoundCo div. start-up experiences
BrainCo	<ul style="list-style-type: none"> Medical technology industry 	<ul style="list-style-type: none"> Dementia pills as hardware product Cloud-based neurological disease treatment 	<ul style="list-style-type: none"> Neurological diseases increase with an aging society 	<ul style="list-style-type: none"> First-time founder Previously self-employed in family business (insolvent)

start-up scene in Europe entered the next crisis straight away. With the Ukrainian war and high inflation, the start-up scene was shaken up. Venture capitalists, family offices, business angels and any sort of investor are trying to keep their money together and are refraining from investing. However, the situation cannot be considered as ‘normal’, which means that 2018 represents a status of entrepreneurial processes that are free of any external events that may limit the generalizability of events.

¹⁰⁶ See Transcript DiagCo GER 1, points [2021–2024].

¹⁰⁷ Transcript DiagCo GER 1, points [19–23].

¹⁰⁸ See Transcript SipCo GER 2.1, point [790f.].

¹⁰⁹ See Transcript SipCo GER 2.1, points [62f., 1078], SipCo GER 2.2, points [15–17].

Case	Industry	Product	Benefitting from demographic change	Founders experience
FilmCo	<ul style="list-style-type: none"> High-tech industry 	<ul style="list-style-type: none"> Algorithm for consumer-oriented insurance marketing 	<ul style="list-style-type: none"> With aging society, benefit from increase of the insurance market share 	<ul style="list-style-type: none"> First-time founders F2 FilmCo previous work experience in insurance sector
PetCo	<ul style="list-style-type: none"> IoT/ AI industry 	<ul style="list-style-type: none"> IoT cat toilet 	<ul style="list-style-type: none"> The cat ownership increases with increasing lonely, elderly people 	<ul style="list-style-type: none"> Serial entrepreneur
MedCo	<ul style="list-style-type: none"> Medical technology industry 	<ul style="list-style-type: none"> App-based, virtual medical data card 	<ul style="list-style-type: none"> Doctors' appointments increase with aging society, higher need for medical data storage 	<ul style="list-style-type: none"> F MedCo founded twice

Source: Own illustration of findings.

In the following within-case analyses, first each case will be introduced through a short executive summary. A respective timeline of events is provided to introduce the temporal sequence of events and allow for organizing cases along temporal information and timelines (Delmar & Shane 2004, p. 392, 394) and ensure a “detailed chronological tracking” that is essential for process research, ensuring validity (Davidsson & Gruenhagen 2021, p. 1104). Then, narration strategy is applied. A thick description of each case’s process is provided, which builds on the conducted grounded theory coding following the Gioia method. For each case an individual Gioia tree was built. The extensive narration allows for telling a “good story [with] conflict, character, setting, sequence, and plot and arc” (Shepherd & Suddaby 2017, p. 59) and describes the process in detail allowing for “important empirical observations” (Davidsson & Gruenhagen 2021, p. 1099). Also the entire entrepreneurial process is traced “from start to finish” (Dimov 2011, p. 1507). Lastly, a visual map is created for each case to reach a higher abstraction level. Here again, the visual map supports a detailed temporal tracking, but focuses much more on the content and recursive relationship of events, decisions, directions (Langley 1999, p. 701; Scheidgen & Brattström 2023, p. 11). The tool of a visual map enhances traceability and validity and enables a more structured tracking, specifically from a retrospective. (Davidsson & Gruenhagen 2021, p. 1104)

4.1.1 Case 1 GER: DiagCo

“DiagCo’s platform for propagating disease-identifying seeds in a patient’s [...] sample is unique. It stands out from the mass of other approaches pursued.” (News article about DiagCo)

The case DiagCo consists of two business ventures, namely Diag and DiagCo, which are aiming for the development of a diagnostic hardware tool, which detects illnesses such as “Alzheimer, Parkinson, Picture Illnesses and various others”.¹¹⁰ Diag was founded in 2014 as a company with limited liabilities.¹¹¹ After some difficulties that will be described later on, Diag was declared insolvent in the beginning of September 2017.¹¹² Immediately after the declaration of insolvency, DiagCo was founded on September 29th 2017. All assets from Diag were integrated into DiagCo.¹¹³ Except for the name (that only changed unnoticeably), nothing changed after the insolvency (from now on the name DiagCo will be used, which refers to both Diag and DiagCo except when declared otherwise).¹¹⁴ Figure 21 displays a timeline of events and Table 12 summarizes the key business characteristics.

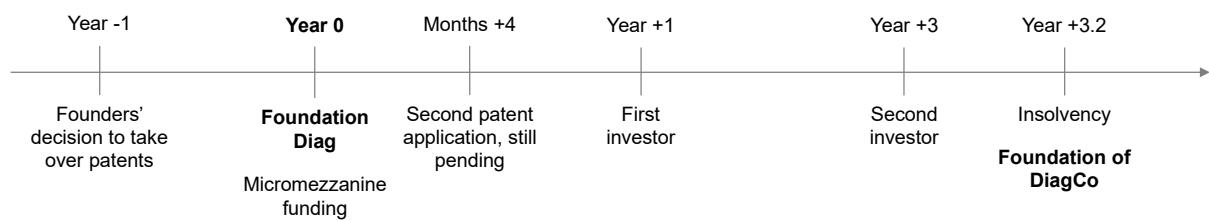


Figure 21: DiagCo Timeline of Events
Source: Own illustration of findings.

A key point in DiagCo’s story is the main plot character of the FondInc and the new big investor. Both play a significant role on most levels concerning the business. The investor does not only provide financial means but takes an active role, especially covering the position of CFO later. Both investors at some point decided over product development and even though other stakeholders do also play a role, nothing keeps the founders more on their feet than the investor. But there is some sort of bias as insolvency is a significant and crucial point in DiagCo’s story, which may overshadow any other developments. Looking into the product, nothing changed much, the founders are still pursuing their vision of building a disposable diagnostic tool that eventually will find an (international) market.

¹¹⁰ Transcript DiagCo GER 1, points [19–23].

¹¹¹ See Transcript DiagCo GER 1, points [35, 252–255].

¹¹² See Transcript DiagCo GER 1, points [103–105].

¹¹³ See Transcript DiagCo GER 1, points [367–371].

¹¹⁴ See Transcript DiagCo GER 1, point [112f.].

Table 12: Overview Business Characteristics DiagCo

Characteristic	DiagCo
Founders	<ul style="list-style-type: none"> ▪ Two founders
Team size	<ul style="list-style-type: none"> ▪ Two employees ▪ Fluctuating students writing theses or working as student assistants
Investors	<ul style="list-style-type: none"> ▪ Micro mezzanine funding ▪ Further small, local task specific fundings ▪ FondInc funding program ▪ Private investor
Years active & foundation	<ul style="list-style-type: none"> ▪ DiagCo has been actively following the entrepreneurial path since 2013 ▪ Diag was founded in 2014, went insolvent in September 2017 ▪ DiagCo was founded in September 2017

Source: Own illustration of findings.

Entrepreneurial Process of DiagCo. Beginning. DiagCo's story begins with two coincidences. The founders applied for a patent in 2011 on a diagnostic technology, which was needed for their research and granted in Europe and the US.¹¹⁵ In mid-2013 the university decided to not continue the patent and offered the founders to take over the patent for 13,000.00€, which was a lot of money for the founders to privately invest.¹¹⁶ Simultaneously, F1 DiagCo got asked to do an interview about the question why there are so few start-up spin-offs from research. She discussed how professors could support following businesses in an academic setting and was referring to the offer she received.¹¹⁷ The founders did see the potential in the patent to have much broader application possibilities.¹¹⁸ So, the interview seemed to be the final impulse to make their "first entrepreneurial decision" and take over the patent.¹¹⁹ Both founders agreed that it was total coincidence:

"There are always situations where there are strangely seemingly independent but converging factors that then have an effect. I sometimes ask myself if that would not have been the case, then we would be on a completely different path. It is also fascinating in a way. The random factor is always there somehow." (Transcript DiagCo GER 1, points [1911–1915])

The following year was used to sketch a development concept, and a market concept needed to pursue a seed investor.¹²⁰ The founders knew from the beginning, that they would need a (higher) investment. The development of a market-ready, medical product is expected to take

¹¹⁵ See Transcript DiagCo GER 1, points [16f., 30].

¹¹⁶ See Transcript DiagCo GER 1, points [7–10, 14–19, 248–250].

¹¹⁷ See Transcript DiagCo GER 1, points [1893–1900].

¹¹⁸ See Transcript DiagCo GER 1, points [460–462, 473–475, 1960–1962].

¹¹⁹ Transcript DiagCo GER 1, points [14f., 1901f.].

¹²⁰ See Transcript DiagCo GER 1, points [35–37].

years and costs minimum two to three million.¹²¹ To overcome some first minor financial issues, DiagCo applied for and received small fundings on a local level, as they had some relations to local stakeholders, who are eager to keep and develop start-ups in their region¹²² – communication is the key.¹²³ They did, for example, receive some local state funding to cooperate with a business consultancy, which they talked to in December 2013.¹²⁴

The founders are eager to place their topics and business in political minds and started early on to build political relations with local politicians at e.g. events.¹²⁵ Also the local politicians are interested in having a relationship with DiagCo as they are highly interested in pushing the local high-tech start-up scene.¹²⁶ DiagCo benefitted from its relationships especially when applying for local funding programs. Governmental representatives helped DiagCo to use the right and needed vocabulary in their applications,¹²⁷ provided points of support¹²⁸ and sometimes even bend the application deadline in favor of DiagCo.¹²⁹ Overall, DiagCo is eager to build and invest in their (local) network for the long-run.¹³⁰ Therefore, DiagCo is carefully selecting and using events to position themselves and presenting their ideas understandably, while creating a momentum and being recognizable.¹³¹ After years of working on their network, the founders state that the continuous placement is now enabling faster and easier funding.¹³² Globally, DiagCo is going for gate openers. They are convinced that they need to build key partnerships to so-called opinion makers that will then help to open the right doors.¹³³

However, finding funding programs in the early phase was still rather difficult as DiagCo did not meet requirements and writing applications always using the right vocabulary was a challenge.¹³⁴ Also, DiagCo had difficulties finding a seed investor.¹³⁵ Therefore, the founders went back and forth and finalized the market and development concept in July 2014 together with the before mentioned business consultancy and eventually founded their business.¹³⁶ With the consultancy they grew a solid, trusting and long-term cooperation.¹³⁷ The consultancy also

¹²¹ See Transcript DiagCo GER 1, points [593–596, 1966–1971, 2021–2024].

¹²² See Transcript DiagCo GER 1, point [766f.].

¹²³ See Transcript DiagCo GER 1, points [1625–1628].

¹²⁴ See Transcript DiagCo GER 1, points [965f., 970].

¹²⁵ See Transcript DiagCo GER 1, points [1620–1623, 1628–1632].

¹²⁶ See Transcript DiagCo GER 1, points [1596–1599, 1625f., 1655–1657].

¹²⁷ See Transcript DiagCo GER 1, points [1665–1668, 1747–1749].

¹²⁸ See Transcript DiagCo GER 1, points [1674–1678].

¹²⁹ See Transcript DiagCo GER 1, points [1625–1628].

¹³⁰ See Transcript DiagCo GER 1, points [791f., 994–996, 1007f.].

¹³¹ See Transcript DiagCo GER 1, points [770f., 786–789, 805–807, 828–831, 834f., 1021–1024].

¹³² See Transcript DiagCo GER 1, points [763–766].

¹³³ See Transcript DiagCo GER 1, points [755–759].

¹³⁴ See Transcript DiagCo GER 1, points [93–95, 1727–1730, 1767–1769].

¹³⁵ See Transcript DiagCo GER 1, points [194f., 222–224, 265–267].

¹³⁶ See Transcript DiagCo GER 1, points [972–975].

¹³⁷ See Transcript DiagCo GER 1, points [993f., 977–981].

connected DiagCo to a legal consultancy when they had issues.¹³⁸ The legal and business consultancy together helped DiagCo navigate through their difficult financial situation while going through the conflict on investor level (which will be described later on) and eventually suggested insolvency as an option.¹³⁹ As a result of the concept development phase, the founders applied for another patent in 2014, which is still pending¹⁴⁰ and is created to:

“Protect the important aspects and write so much nonsense around it that you yourself may not even be able to use, but where ultimately someone in the immediate vicinity of what you are doing cannot make a small variation and then patent it for themselves. That is the risk.” (Transcript DiagCo GER 1, points [1799–1802])

For further protection, the founders registered a trademark for their brand name ‘Diag’ and for their logo in the US and Europe to protect their company.¹⁴¹

Characterizing and defining the market was a key challenge that led to numerous discussions around ‘the’ customer.¹⁴² First, the founders considered research as their market but overthrew this idea quickly due to the small market size and very limited funding.¹⁴³ Then they started to talk to their research network, which was able to provide a connection to actual patients.¹⁴⁴ So “academic contacts are also not completely pointless”¹⁴⁵ and “you have to maintain networks, even if you cannot use them for ten years”¹⁴⁶. Investigating the path of patients with dementia and talking to doctors and care facilities showed requirements that are needed around the topic of dementia.¹⁴⁷ With the collected knowledge, the founders dived into calculating the market size based on demographic and public survey data in the beginning of 2014.¹⁴⁸

Insurances benefit most from a precise diagnostic tool as it helps them to reduce costs when high-cost medication is only used for the actual patients with dementia (or other diseases, which can be diagnosed with DiagCo’s technology).¹⁴⁹ But as soon as DiagCo visited events with their ideas in 2015 and 2016, they learned that also the pharma industry has huge interest as they are in need of a diagnostic technology for actually testing their medication in development, but developing technology themselves is costly and time intensive.¹⁵⁰ So since 2016 DiagCo is actively talking to several big and small pharma companies directly and see

¹³⁸ See Transcript DiagCo GER 1, points [985–987].

¹³⁹ See Transcript DiagCo GER 1, points [978–981].

¹⁴⁰ See Transcript DiagCo GER 1, points [1784–1791].

¹⁴¹ See Transcript DiagCo GER 1, points [380–382].

¹⁴² See Transcript DiagCo GER 1, points [600f., 1101–1103, 1219–1221].

¹⁴³ See Transcript DiagCo GER 1, points [1079f., 1090–1099].

¹⁴⁴ See Transcript DiagCo GER 1, points [1026–1034, 1003–1008].

¹⁴⁵ Transcript DiagCo GER 1, point [1003].

¹⁴⁶ Transcript DiagCo GER 1, point [1007f.].

¹⁴⁷ See Transcript DiagCo GER 1, points [651f., 1134–1138, 1140–1145].

¹⁴⁸ See Transcript DiagCo GER 1, points [292f., 312–318, 1128–1130].

¹⁴⁹ See Transcript DiagCo GER 1, points [611–620].

¹⁵⁰ See Transcript DiagCo GER 1, points [1169–1172, 1181, 1186–1188].

them as potential customers.¹⁵¹ However, the pharma industry is highly competitive and particularly seed investors were cautious.¹⁵² Overall, DiagCo identified three potential market areas: “the clinical area, pharmaceutical area, research area”.¹⁵³ Depending on the step and time, DiagCo focuses on different interest groups that represent potential customers.¹⁵⁴

Middle. After the development of a second market and development concept, in the end of 2015, DiagCo found its first investor, the FondInc a Seed Venture Capital investor, who started to pay in January 2016.¹⁵⁵ To receive the investment, the actual location of DiagCo was important.¹⁵⁶ At the time DiagCo already moved from the home set-up to a life science campus, where the location would meet the needed prerequisites (like having an office and laboratory next to each other, having access to an airport), while also offering the benefit of being close to the local government.¹⁵⁷ For DiagCo choosing the ‘right’ location was key, as the business address and office space provide the right amount of trust, professionalism and credibility.¹⁵⁸

The founders describe the investment as not as much in the high-tech medical sector reaching 600,000.00€. ¹⁵⁹ But, the FondInc contract builds on several investment rounds bound to milestones.¹⁶⁰ The founders of DiagCo experienced the FondInc approach as very structured and standardized without any flexibility (especially contract wise) and did not see a fit to their approach.¹⁶¹ They explain that the FondInc put its own interests before DiagCo and the relationship was rather superficial and blocking to some extent.¹⁶² And even DiagCo’s employees did not have a good relationship towards the FondInc.¹⁶³ But, the FondInc offered DiagCo a frame for exchange among their other start-ups and only with the seed investment from the FondInc, DiagCo was able to win over the second investor, which the FondInc was also eager to find as a next step.¹⁶⁴ Also, with the FondInc, DiagCo started to build the product. The underlying technology never changed for DiagCo¹⁶⁵ and early on, DiagCo had a goal how their product should look like: “miniaturization, automation and do it with disposable material”.¹⁶⁶ However, the product development took different steps and the definition of the

¹⁵¹ See Transcript DiagCo GER 1, points [652–654, 665–667, 687f., 696–698].

¹⁵² See Transcript DiagCo GER 1, points [1176–1179, 1184–1186].

¹⁵³ Transcript DiagCo GER 1, point [1210f.].

¹⁵⁴ See Transcript DiagCo GER 1, points [607–609].

¹⁵⁵ See Transcript DiagCo GER 1, points [35–37, 42, 341f., 334f.].

¹⁵⁶ See Transcript DiagCo GER 1, points [1279–1291].

¹⁵⁷ See Transcript DiagCo GER 1, points [1502f., 1609–1612, 1693–1695].

¹⁵⁸ See Transcript DiagCo GER 1, points [1271–1275].

¹⁵⁹ See Transcript DiagCo GER 1, point [44f.].

¹⁶⁰ See Transcript DiagCo GER 1, points [154, 1353–1356].

¹⁶¹ See Transcript DiagCo GER 1, points [131–134].

¹⁶² See Transcript DiagCo GER 1, points [139–141, 1325f., 1328–1330, 1355].

¹⁶³ See Transcript DiagCo GER 1, points [1327f., 1332–1334].

¹⁶⁴ See Transcript DiagCo GER 1, points [174–176, 503f., 508, 892f.].

¹⁶⁵ See Transcript DiagCo GER 1, point [1164f.].

¹⁶⁶ Transcript DiagCo GER 1, point [558f.].

'right' sequence of development changed, also based on the particular situation and especially the investor.¹⁶⁷ The actual amount of investment dictates the speed of development.¹⁶⁸ Money per se controls and regulates.¹⁶⁹ Also the FondInc had its own idea how to develop a prototype:

"Due to the financial bracket that we had received from FondInc, the only possibility with the old device was to very slowly, very manually, very time-consuming first stutter the data together in order to then be able to raise the money to do the things that actually make sense." (Transcript DiagCo GER 1, points [57–60])

In May 2017, DiagCo started talking to a big private investor, who is able to finance the entire development.¹⁷⁰ After getting to know each other and a close check-up for realizability and credibility, the investor decided to invest.¹⁷¹ Seeing a huge market potential, the second investor can and is eager to pay for the entire development process, but does not want any new financing rounds.¹⁷² The FondInc, however, plans with several investment rounds.¹⁷³ Thus, the ideas of the new investor did not fit the books of the FondInc.¹⁷⁴ Consequently, a difficult contractual situation evolved between the old and the new investor, leading to a severe conflict.¹⁷⁵ The FondInc was not able to find a way with the new investor.¹⁷⁶ Eventually the founders gave up and decided (after talking to their legal consultancy and also to their future investor) that an insolvency would be the only solution to end the FondInc cooperation.¹⁷⁷ Diag went insolvent in September 2017, insolvency proceedings started on October 1st, 2017. On September 28th, 2017, DiagCo was founded. The new business DiagCo took over all assets and started its path only with the big private investor.¹⁷⁸ The founders saw the insolvency as the only possibility to go forward, "but that is also such a totally redundant adventure".¹⁷⁹

End. With the second, big private investor; DiagCo has a close, constructive and cooperative relationship. The investor even established one of his employees as Chief Finance Officer and brings in a lot of knowhow capital, product and market wise.¹⁸⁰ Additionally, with the investor, DiagCo is able to apply for further funding programs, with which the investor already has experience.¹⁸¹ Essentially, the founders learned that being able to talk to an investor is

¹⁶⁷ See Transcript DiagCo GER 1, points [297–299].

¹⁶⁸ See Transcript DiagCo GER 1, points [506–508].

¹⁶⁹ See Transcript DiagCo GER 1, point [1508f.].

¹⁷⁰ See Transcript DiagCo GER 1, points [69f., 352–357].

¹⁷¹ See Transcript DiagCo GER 1, points [1306–1308].

¹⁷² See Transcript DiagCo GER 1, points [69f., 77–81, 83–85, 87–91, 123, 915].

¹⁷³ See Transcript DiagCo GER 1, points [131–134, 137–139].

¹⁷⁴ See Transcript DiagCo GER 1, points [123–125, 157–159].

¹⁷⁵ See Transcript DiagCo GER 1, points [103–105, 130].

¹⁷⁶ See Transcript DiagCo GER 1, points [70–73].

¹⁷⁷ See Transcript DiagCo GER 1, points [358f., 393–396, 978–981].

¹⁷⁸ See Transcript DiagCo GER 1, points [105–108, 367–371].

¹⁷⁹ Transcript DiagCo GER 1, point [115f.].

¹⁸⁰ See Transcript DiagCo GER 1, points [1321–1324, 1342–1350].

¹⁸¹ See Transcript DiagCo GER 1, points [102f., 1344].

important and not only money counts.¹⁸² In the future, even though DiagCo may not need more money, they consider bringing in a strategic investor for further knowhow or a partnership.¹⁸³

After their insolvency and getting rid of the FondInc, the founders were able to follow their own path supported by their new investor.¹⁸⁴ DiagCo decided to self-develop a miniature, disposable prototype.¹⁸⁵ The founders knew that disposable material was the best approach to decrease costs of production, but also to follow governmental hygiene regulations in becoming a medical product.¹⁸⁶ Development time is prognosed to take ten years as “it is not just an app.”¹⁸⁷ DiagCo is still developing their product, which has highest priority.¹⁸⁸ Overall, the founders pointed out that the market and development concept is never finished, and the following challenge is to keep developing, building credibility and sell their concepts.¹⁸⁹

DiagCo has a rather small, close-knit team and is eager to grow into nine to ten people, which depends on special funding that they are waiting to receive.¹⁹⁰ Even though employees are important they are more on the executing end. An exception is their first employee, who complements the founders’ scientific knowhow with his engineering knowhow, which is a “dream match” and enables a very close relation.¹⁹¹ Overall, the founders are emphasizing the importance of an open and trustful communication.¹⁹² However, they themselves are highly controlling.¹⁹³ The strict control mechanisms in the laboratory are, to some extent natural, required and checked by governmental organizations.¹⁹⁴ They are also eager to establish professionalized and formalized internal processes as well as a general quality management system.¹⁹⁵ Nevertheless, the founders have difficulties to actually write down standards and establish them as set control and coordination mechanisms.¹⁹⁶ The following figures first show the developed data structure and then an overall visualization of DiagCo’s entrepreneurial process is presented.

¹⁸² See Transcript DiagCo GER 1, points [896f., 899f.].

¹⁸³ See Transcript DiagCo GER 1, points [922–926].

¹⁸⁴ See Transcript DiagCo GER 1, points [165–169].

¹⁸⁵ See Transcript DiagCo GER 1, points [542–544, 551–554, 561–563].

¹⁸⁶ See Transcript DiagCo GER 1, points [323–326, 531–538, 569–572].

¹⁸⁷ Transcript DiagCo GER 1, point [2097f.].

¹⁸⁸ See Transcript DiagCo GER 1, point [542].

¹⁸⁹ See Transcript DiagCo GER 1, points [292f., 554–556].

¹⁹⁰ See Transcript DiagCo GER 1, point [1400f.].

¹⁹¹ See Transcript DiagCo GER 1, points [1380–1385].

¹⁹² See Transcript DiagCo GER 1, points [1389–1393].

¹⁹³ See Transcript DiagCo GER 1, points [1458–1462, 1495–1500, 1529–1533].

¹⁹⁴ See Transcript DiagCo GER 1, points [1485–1487, 1491f.].

¹⁹⁵ See Transcript DiagCo GER 1, points [1503–1506, 1561–1564].

¹⁹⁶ See Transcript DiagCo GER 1, points [1545–1554].

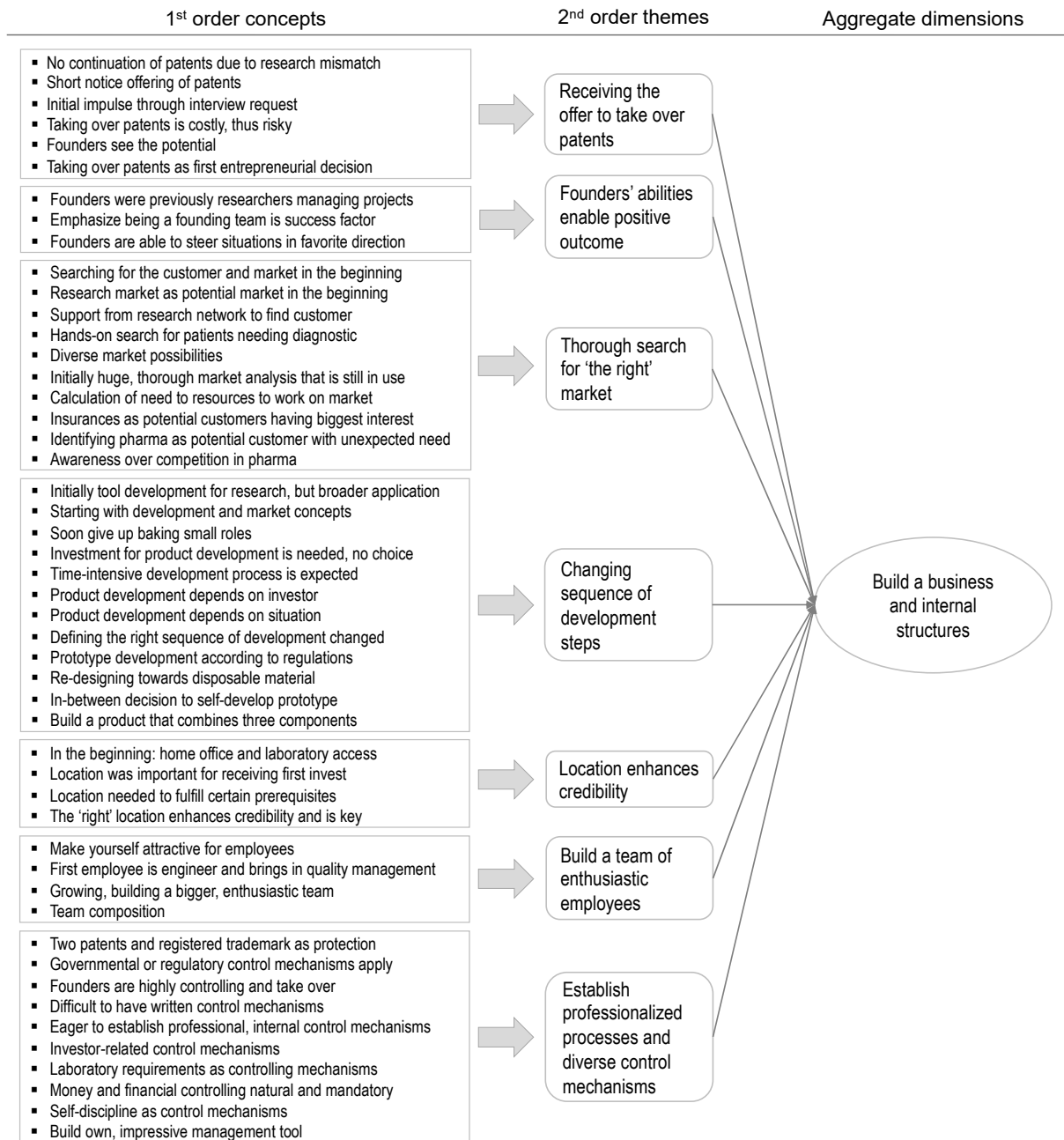


Figure 22: DiagCo Data and Concept Structure
Source: Own illustration of findings.

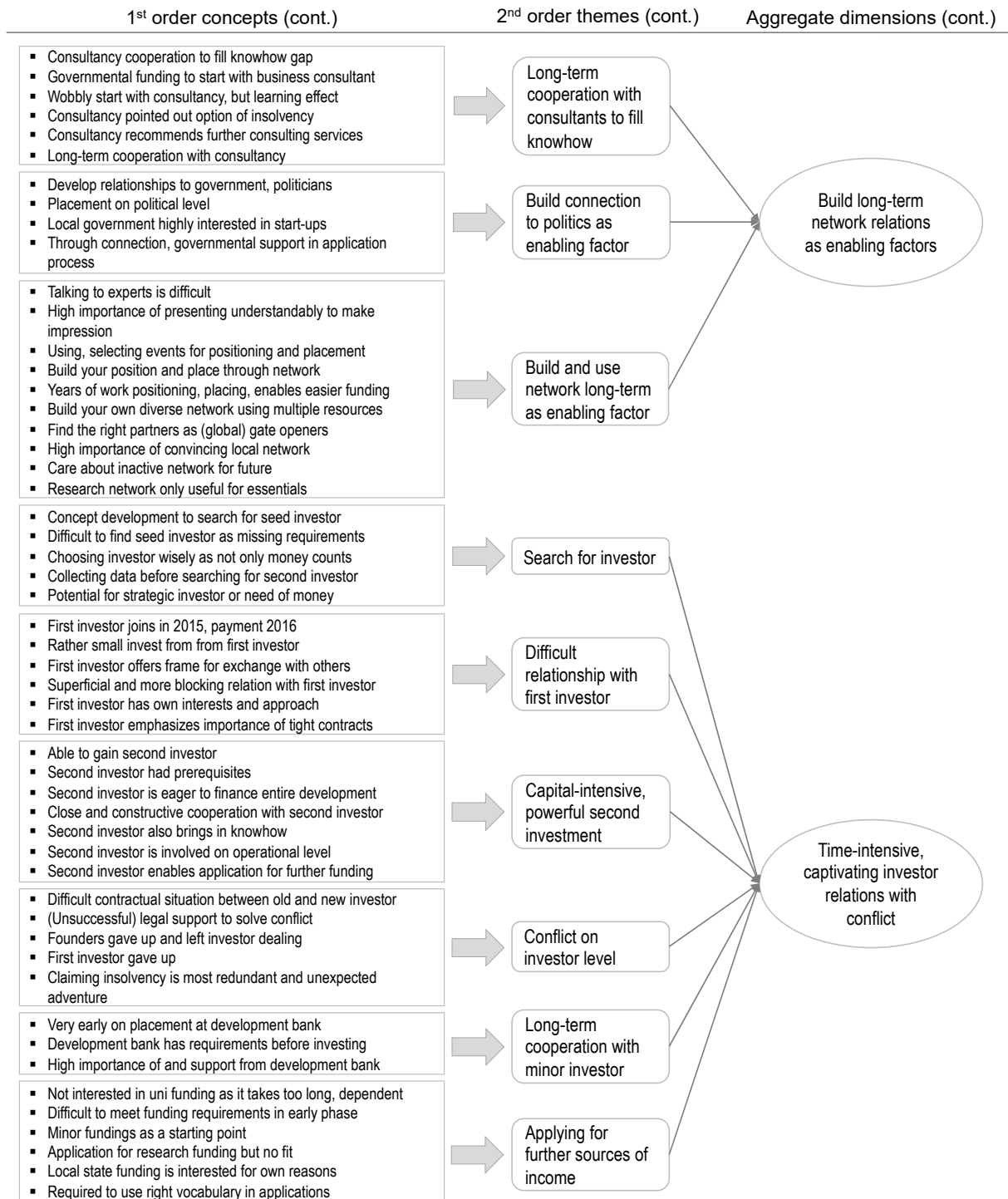


Figure 23: DiagCo Data and Concept Structure (cont.)
Source: Own illustration of findings.

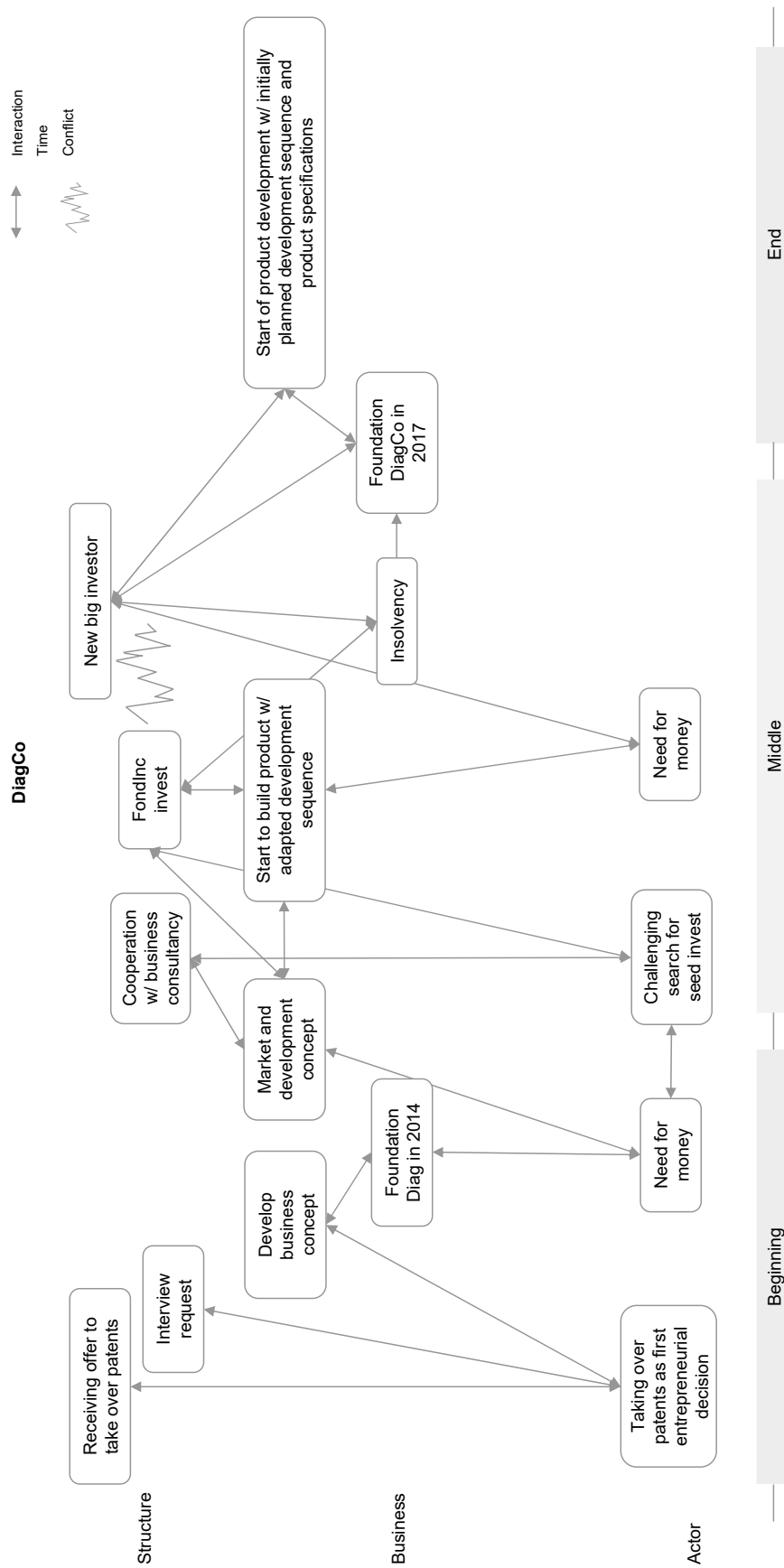


Figure 24: DiagCo Visualization Entrepreneurial Process
Source: Own illustration of findings.

4.1.2 Case 2 GER: SipCo

“With some inventions, you wonder why nobody thought of it before.” (News article about SipCo)

The case SipCo describes the entrepreneurial process of the start-up SipCo, which builds its business in the medical technology field, around a CE-certified hardware, medical product - a specialized cup. SipCo was founded on January 3rd, 2017, as a company with limited liabilities.¹⁹⁷ A concrete timeline of events is displayed in Figure 25.

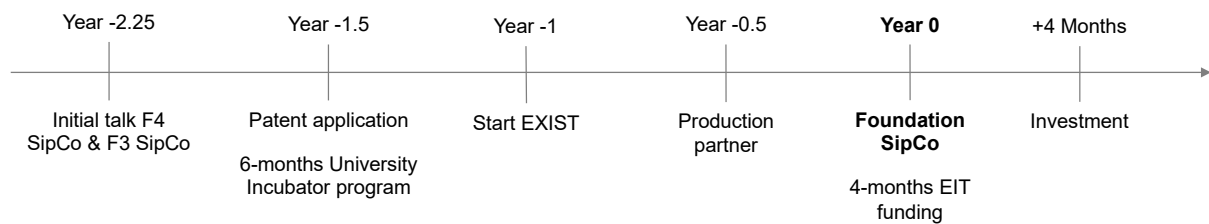


Figure 25: SipCo Timeline of Events
Source: Own illustration of findings.

SipCo was founded by a founding team: F1 SipCo is a medical engineer responsible for sales and marketing. F2 SipCo is a mechanical engineer focusing on finances and patents as well as property rights. F3 SipCo is also a mechanical engineer and responsible for technological development. F4 SipCo is a nurse and nursing scientist, who functions as the clinical expert for the team and takes care of (clinical) studies, but also sales.¹⁹⁸ An overview over some key characteristics of SipCo can be seen in Table 13.

SipCo went from an idea to a market ready product within just some years. The focus of SipCo's early story was to solve the issue of a cup with a specific membrane that is able to keep the liquid level up. The founding team started their business as a university spin-off with the help of an incubator program and focused all their efforts on product development, which had its ups and downs – becoming a medical product, applying for patents and overcome technology and production issues. Specifically, the iterative product development process is an interesting feature of the entrepreneurial process. Entering the entrepreneurial path also the team itself struggled but were fortunate enough as being part of an incubator, to receive professional help. In addition to the incubator with their mentor and advisory board, SipCo built its support system over the years, on which the team relies on for advice. Particularly, the importance of the mentor is a key characteristic of the process as well. Eventually, with the support of their mentor, SipCo was able to introduce a functioning and marketable product.

¹⁹⁷ See Transcript SipCo GER 2.1, point [61f.].

¹⁹⁸ See Transcript SipCo GER 2.2, points [275–282].

Table 13: Overview Business Characteristics SipCo

Characteristic	SipCo
Number of founders	<ul style="list-style-type: none"> ▪ Four founders
Team size	<ul style="list-style-type: none"> ▪ One half-time employee ▪ One master thesis student ▪ Advisory board
Investors	<ul style="list-style-type: none"> ▪ EXIST funding program ▪ EIT funding program ▪ One investor
Years active & foundation	<ul style="list-style-type: none"> ▪ SipCo has been actively following the entrepreneurial path since 2014 ▪ SipCo was founded in 2017

Source: Own illustration of findings.

Entrepreneurial Process of SipCo. Beginning. SipCo's story begins with two incidents. First, is an in-class discussion of one of F4 SipCo's university courses, talking about the problematic situation of dysphagia patients and the lack of novel ideas to help them. The idea came up that an easy solution would be a cup where the liquid level is always up.¹⁹⁹ The second incident happened at a local public folk festival in October 2014, where F4 SipCo started to talk to F3 SipCo about his in-class discussion and if F3 SipCo had any ideas how to create a cup, which keeps the liquid level up. F3 SipCo was hooked and said he has some ideas.²⁰⁰

From the beginning on, the basic performance requirement for SipCo's product was clear (create a cup, which holds the liquid level up), but finding the right mechanism was tricky.²⁰¹ The two founders decided to get F2 SipCo on board, as he was highly interested in patents. They started to look at the competition and noticed that no competitor was solving the issue with an "active component". Quickly, F3 SipCo, working as a student assistant with polymer or silicone membranes, had the idea to go for a membrane.²⁰² "That was sort of the brilliant idea."²⁰³ "And exactly that was then more or less the subject of the patent", which SipCo started to apply for immediately, doing only minimal patent research.²⁰⁴ SipCo received a patent for all relevant markets such as USA, Canada, Japan, China and Europe.²⁰⁵ In addition, SipCo registered two brand names in 2018.²⁰⁶

¹⁹⁹ See Transcript SipCo GER 2.1, points [17–24].

²⁰⁰ See Transcript SipCo GER 2.1, point [26f.].

²⁰¹ See Transcript SipCo GER 2.1, points [276–280].

²⁰² See Transcript SipCo GER 2.1, points [28–34, 280–286], SipCo GER 2.2, point [463].

²⁰³ Transcript SipCo GER 2.2, point [480].

²⁰⁴ Transcript SipCo GER 2.2, points [463–467].

²⁰⁵ See Transcript SipCo GER 2.1, point [1093f.], SipCo GER 2.2, point [721f.].

²⁰⁶ See Transcript SipCo GER 2.2, point [310f.].

Middle. Then, the team entered a trial-and-error phase experimenting with different materials. They knew that theoretically a membrane would solve the issue and continued exploring their options with a membrane, which they were able to prove as a working mechanism.²⁰⁷ The team did some structured evaluation through talking to their university professors, who noticed that SipCo has way too many options and told them which material would be best for production.²⁰⁸ For SipCo using private social contacts was key:

“Private contacts were very, very important for, shall we say, professional feedback and for getting a little bit of feedback to start with, to say ok yes that is right or just go to this and that. [...] We would not have come up with something like that if we had not somehow asked the right people at the beginning.” (Transcript SipCo GER 2.1, points [637–643])

F2 SipCo states that finding the right membrane material was “genius”²⁰⁹ and describes the development process as “scientifically with the necessary spark of creativity”²¹⁰. They reached a break-through in August 2015, when F3 SipCo found a potential membrane material that would fulfill the performance requirement and has mass suitability.²¹¹ But after one month, the material suddenly did not work anymore, which was “an event that almost cost us our heads and necks”.²¹² Thus, the team had to take a step back and look for another material again.²¹³ They already had an alternative material in mind, which they did not look at intensively before as evaluating different materials is expensive.²¹⁴ By September 2015, SipCo had a new, functioning, mass suitable material for their membrane that did not cost a fortune.²¹⁵

With a working membrane material, the founding team applied for a start-up event, which led them to be accepted into an incubator program from September 2015 until April 2016, closely connected to the university.²¹⁶ The incubator provided SipCo with office space, a list of potential suppliers and producers, a pool of investors, the right network in the start-up scene as well as in the medical scene, opened a lot of doors, and supplied SipCo with a certain, positive image.²¹⁷ Also, the incubator provided a support system SipCo needed.²¹⁸ For example, when a fight among the founding team arose on different working styles and how to handle organizational topics, which caused severe problems. The incubator provided SipCo with a

²⁰⁷ See Transcript SipCo GER 2.1, points [287–291, 293, 296–298], SipCo GER 2.2, points [87–89].

²⁰⁸ See Transcript SipCo GER 2.2, points [486–490].

²⁰⁹ Transcript SipCo GER 2.2, point [480].

²¹⁰ Transcript SipCo GER 2.2, point [506].

²¹¹ See Transcript SipCo GER 2.1, points [146–148], SipCo GER 2.2, points [89–95].

²¹² Transcript SipCo GER 2.1, points [148–151], SipCo GER 2.2, points [369–374].

²¹³ See Transcript SipCo GER 2.1, point [151f.], SipCo GER 2.2, point [375f.].

²¹⁴ See Transcript SipCo GER 2.2, points [413–421].

²¹⁵ See Transcript SipCo GER 2.1, points [152–157].

²¹⁶ See Transcript SipCo GER 2.2, points [95–101].

²¹⁷ See Transcript SipCo GER 2.1, points [548, 557–571, 578f.], SipCo GER 2.2, points [631, 646–654].

²¹⁸ See Transcript SipCo GER 2.2, points [212–215, 649f.].

neutral and professional coach, who was able to solve the issues. Eventually, SipCo established coordination mechanisms and structures, such as a weekly jour fix meeting among the founding team, and was able to get back together on a positive note.²¹⁹

Moreover, the incubator played an important role in finding a mentor. SipCo was able to win over their mentor in 2016 through a rather bold approach – they just called and asked for advice.²²⁰ Initially, SipCo met their mentor on an irregular basis.²²¹ But since he is also part of the advisory board, he takes part in the regular advisory board meetings, considering topics such as the investor search and production issues.²²² The advisory board comes together every two months for a highly structured and effective board meeting. The chairman prepares and shares the agenda for the board meeting beforehand. To do so SipCo sends material before as preparation. Further meetings take place additionally.²²³ During all those meetings, the mentor and advisory board support the founding team in anything:

“And that is exactly what I would say is essential, that you get people on board who have done all this before, because you can save a lot of work and also proceed efficiently if you get the right tips.” (Transcript SipCo GER 2.2, points [207–210])

After the incubator program, SipCo applied for EXIST funding, which brought some structure, as the application pushed SipCo to substantiate their approach in terms of market size and general direction, which was finalized later. F2 SipCo emphasizes that it is helpful to write things down.²²⁴ At the time, SipCo built a network of medical experts to receive validation through e.g. doctors and nurses positive feedback.²²⁵ Especially around mid-2015, the founding team boldly just went into doctor’s practices and asked for feedback and some doctors wrote letters of intent describing the positive features and usefulness of SipCo’s cup, which eventually helped to receive EXIST funding.²²⁶ During EXIST all three founders had side jobs.²²⁷ Additionally, during the EXIST funding period it became obvious that SipCo needed more market, marketing and sales knowhow.²²⁸ Thus, F2 SipCo and F3 SipCo addressed their friend F1 SipCo, who started to work on the market concept immediately, before all four founders joined full time in April 2017, which resulted in a financial burden for all founders.²²⁹

²¹⁹ See Transcript SipCo GER 2.1, point [470f.], SipCo GER 2.2, points [221–225, 229–242].

²²⁰ See Transcript SipCo GER 2.2, points [202–204, 533f., 621f.].

²²¹ See Transcript SipCo GER 2.1, point [470f.].

²²² See Transcript SipCo GER 2.1, points [508–514, 522f.], SipCo GER 2.2, point [534f.].

²²³ See Transcript SipCo GER 2.1, points [507–515, 519–521], SipCo GER 2.2, points [207–210].

²²⁴ See Transcript SipCo GER 2.1, points [731–733], SipCo GER 2.2, points [733–735, 749–751].

²²⁵ See Transcript SipCo GER 2.1, points [405–409].

²²⁶ See Transcript SipCo GER 2.1, points [429–431, 438–442].

²²⁷ See Transcript SipCo GER 2.1, point [65f.].

²²⁸ See Transcript SipCo GER 2.1, points [38–40].

²²⁹ See Transcript SipCo GER 2.1, points [44–52, 63–67, 1033f.], SipCo GER 2.2, point [102f.].

To develop a finished prototype, SipCo needed money to survive.²³⁰ SipCo was able to win over a strategic investor along their supply chain, which was pure coincidence.²³¹ SipCo was on the search for a packaging service provider. The sales employee walked into SipCo's office and briefly mentioned something about investing money. Then, the CEO of the packaging service provider just asked the founding team to come over and the partnership started.²³² SipCo uses the money to progress in product development and get CE-certification; and to stimulate the market and prepare sales.²³³ The investor required a thorough business model that is based on plausible and well-researched assumptions.²³⁴ Eventually, SipCo received the investment in April 2017.²³⁵ SipCo is perceived as being "already part of the company [...] as a sister or cousin" and they are closely working together. Also for the investor the investment is "a big thing".²³⁶ Even though the investor is not involved in the da-to-day business, he brings in network and "puts in one's two cents" on assembling and the overall supply chain.²³⁷ F2 SipCo describes the role of their investor as being "smart money"²³⁸ or "money knowledge"²³⁹.

Overall, F1 SipCo describes that product development had two big influences: the production and certification as a medical product.²⁴⁰ Particularly in the medical field, product development is taking a proportionally large amount of time due to the high requirements of a CE-certification.²⁴¹ On the production side, everything was handcrafted until the beginning of 2017 when SipCo bought a 3D printer and printed the cup, while still assembling the cup and the membrane themselves.²⁴² However, SipCo strived for professional production and needed two different producers: one for the membrane and one for the other parts, for which SipCo found a regular producer.²⁴³ But producing the membrane requires special knowhow and SipCo was eager to find a partner. But they did not get the support they wanted. The cooperation with the membrane producer had many problematic issues: no support, the producer does not think "left or right", difficulties finding a time slot for production, no control. F1 SipCo even mentions that it would have been better to invest in machines, rent a space and produce themselves.²⁴⁴

²³⁰ See Transcript SipCo GER 2.2, points [104–106, 564–574].

²³¹ See Transcript SipCo GER 2.1, points [256–259].

²³² See Transcript SipCo GER 2.2, points [542–547].

²³³ See Transcript SipCo GER 2.1, points [54–59], SipCo GER 2.2, points [115–117, 127–132].

²³⁴ See Transcript SipCo GER 2.1, points [738–743].

²³⁵ See Transcript SipCo GER 2.1, points [63–67], SipCo GER 2.2, point [68].

²³⁶ Transcript SipCo GER 2.1, points [1117–1123].

²³⁷ Transcript SipCo GER 2.1, points [257–261], See SipCo GER 2.2, points [210f., 552f.].

²³⁸ Transcript SipCo GER 2.2, points [107–111].

²³⁹ Transcript SipCo GER 2.2, point [608].

²⁴⁰ See Transcript SipCo GER 2.1, points [199–202].

²⁴¹ See Transcript SipCo GER 2.2, points [137–143].

²⁴² See Transcript SipCo GER 2.1, points [217–222].

²⁴³ See Transcript SipCo GER 2.1, points [231–234].

²⁴⁴ See Transcript SipCo GER 2.1, points [230f., 236–245].

But product development also had further influences. Being part of an incubator who is connected to a hospital, SipCo had a starting point there.²⁴⁵ SipCo engages with nurses for user feedback and builds a network of speech therapists, who are in contact with patients, clinics and nursing homes. To receive CE certification, SipCo's cup needs validation from speech therapists anyway.²⁴⁶ SipCo describes the product development process as an iterative step going back and forth to customers, consumers and people involved in the process:

"We just went to the hospitals with the first prototypes and presented it to them and said: would it help you. And then proceeded iteratively. Then they said something to us, gave us feedback. We implemented that. Then we went back." (Transcript SipCo GER 2.2, points [171–174])

Particularly, when you show prototypes to people "and let them play around with it, there is just so much that can go wrong".²⁴⁷ Especially, the shell and lid experienced a lot of development.²⁴⁸ Also producing those parts as a whole is technologically challenging and it is easier to just produce several parts and then assemble them, which also reduces costs.²⁴⁹ Overall, it is "very important that you spend a lot of time with customers", which SipCo did as soon as they had their first prototype²⁵⁰:

"So I think that is what sets us apart and it is also very important that you look at the customers right from the first day and then talk to them straight away and show them everything you have." (Transcript SipCo GER 2.2, points [169–171])

However, finding a customer is entrepreneurial luck.²⁵¹ In the beginning, SipCo pursued a one-use version for hospitals.²⁵² This means SipCo faces a highly structured B2B market, which enables long-term customer retention, but hospitals look for cost reduction, which needed to be proofed first.²⁵³ However, many people addressed their interest in the cup and SipCo developed a second product line. The home version came on the market in mid-2018 and is essentially the same product, but with higher quality, disinfect able components, meeting hygienic standards as a medical product (the membrane is the same), and can be used for about a week.²⁵⁴ In this B2C market, SipCo faces an unstructured market with high potential. SipCo's approach is to show relatives of the care-dependent people the benefits of their cup. As soon as the relatives are convinced, SipCo can sell them their cup and customers have low

²⁴⁵ See Transcript SipCo 2.1, point [530f.], SipCo 2.2, point [96].

²⁴⁶ See Transcript SipCo GER 2.1, points [209–213, 379–384, 396–399].

²⁴⁷ Transcript SipCo GER 2.2, point [335f.].

²⁴⁸ See Transcript SipCo GER 2.1, points [183–186].

²⁴⁹ See Transcript SipCo GER 2.2, points [353–361].

²⁵⁰ Transcript SipCo GER 2.2, points [171–176].

²⁵¹ See Transcript SipCo GER 2.2, point [143f.].

²⁵² See Transcript SipCo GER 2.1, points [304–308, 351], SipCo GER 2.2, point [317].

²⁵³ See Transcript SipCo GER 2.2, points [151–157].

²⁵⁴ See Transcript SipCo GER 2.1, points [311–325], SipCo GER 2.2, points [318–320].

price-sensitivity.²⁵⁵ So, SipCo does have two different products, use cases, markets with different requirements, and different pricing models, which is a certain obstacle.²⁵⁶

Technically, there is a certain amount of dysphagia patients. This assumption was enough to get EXIST funding, but in a next step, SipCo had to look into the market a little deeper and investigate if they are able to address all those potential buyers. Therefore, SipCo started to develop a strategic positioning, targeting and segmentation strategy. A key problem is that many dysphagia patients do not know they have a problem.²⁵⁷ F1 SipCo has a specific plan:

“My marketing strategy is really a stimulation, a demand stimulation. [...] And then a lot of work simply has to flow into the stimulation. So that the market is really stimulated, that people know that they have a swallowing disorder and that [our cup] helps.” (Transcript SipCo GER 2.1, points [806–813])

To do so, SipCo is raising awareness, e.g. by going to trade fairs and winning start-up prizes.²⁵⁸ SipCo is also well connected to the public institution for dysphagia, which results in visibility. Through one of the institutions members, SipCo appeared as a case study in a book, creating a radiating effect.²⁵⁹ Additionally, SipCo cooperates with medical experts and hospitals on clinical studies, which have the advantage that they prove the products effectiveness, and the results can be used for marketing material, as well as raising awareness.²⁶⁰

End. Since product development has reached a certain point of saturation, SipCo is eager to build long-term customer relationships. SipCo aims for sales partnerships with hospitals and does a lot of door-knocking, also in care homes, but also uses private contacts.²⁶¹ SipCo also thinks about bringing their product into standard care of insurances in the long-term, which means that insurance would pay for the cup.²⁶² Now, SipCo is looking for an investor with whom they want to reach economies of scale and survive, while bringing in sales expertise.²⁶³ In this search, SipCo is highly structured: they use existing networks, their investor, data banks and entrepreneurship centers to look for an investor, write down all information and rank them according to weighted characteristics. Overall, for SipCo it is important to keep the number of investors low, while adding a high amount of value.²⁶⁴ The following figures first show the developed data structure and then present a visualization of the entire entrepreneurial process.

²⁵⁵ See Transcript SipCo GER 2.2, points [157–164].

²⁵⁶ See Transcript SipCo GER 2.1, points [348–351].

²⁵⁷ See Transcript SipCo GER 2.1, points [755–759, 768–774, 779–782, 798–800].

²⁵⁸ See Transcript SipCo GER 2.1, points [1109–1113, 1124f., 1129–1131, 1141–1144].

²⁵⁹ See Transcript SipCo GER 2.1, points [531–539].

²⁶⁰ See Transcript SipCo GER 2.1, points [158–162].

²⁶¹ See Transcript SipCo GER 2.1, points [157f., 376–378, 390f.].

²⁶² See Transcript SipCo GER 2.1, points [612–615].

²⁶³ See Transcript SipCo GER 2.1, points [941f., 954–959], SipCo GER 2.2, point [596f.].

²⁶⁴ See Transcript SipCo GER 2.2, points [587f., 612–616].

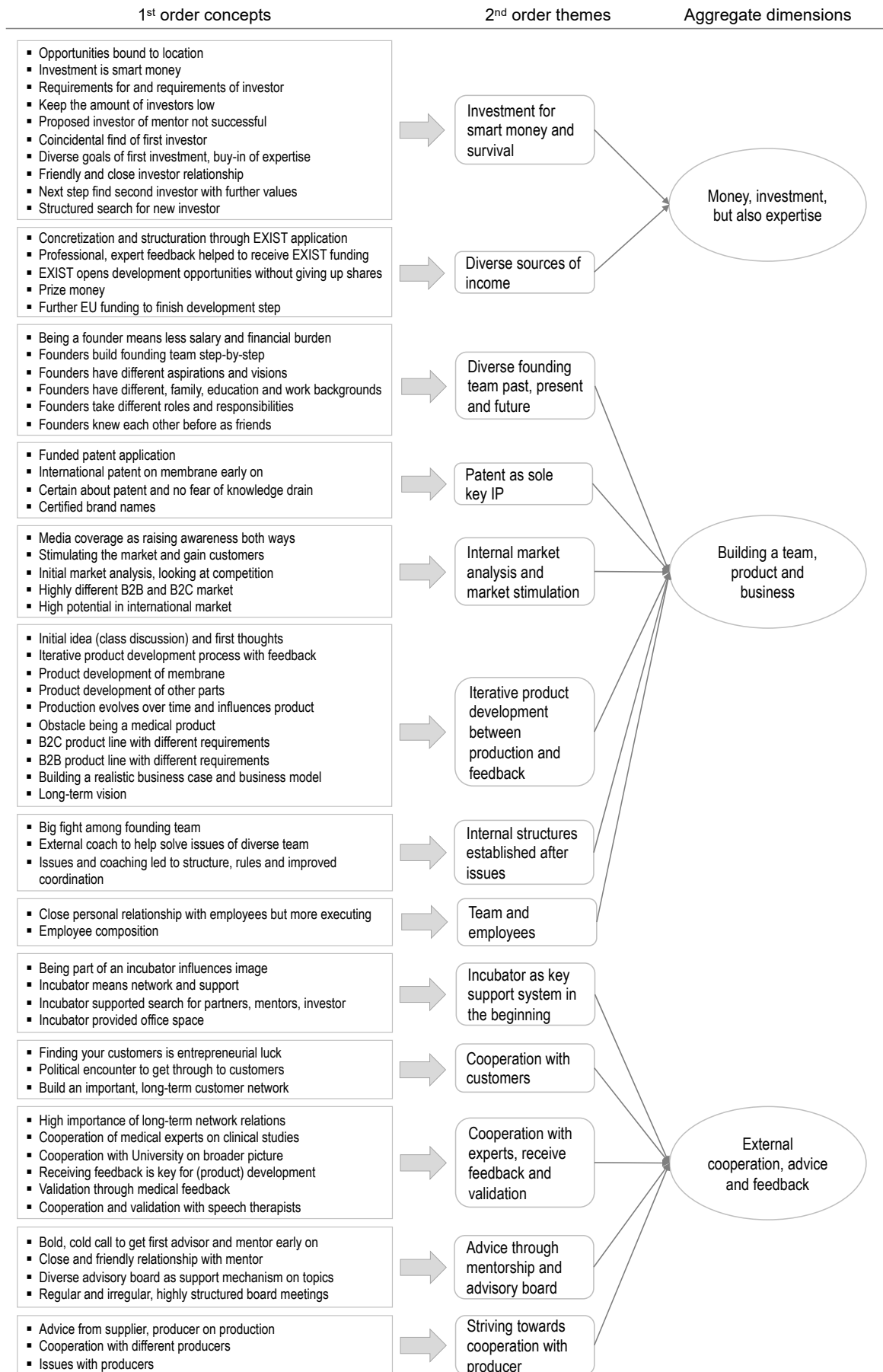


Figure 26: SipCo Data and Concept Structure
Source: Own illustration of findings.

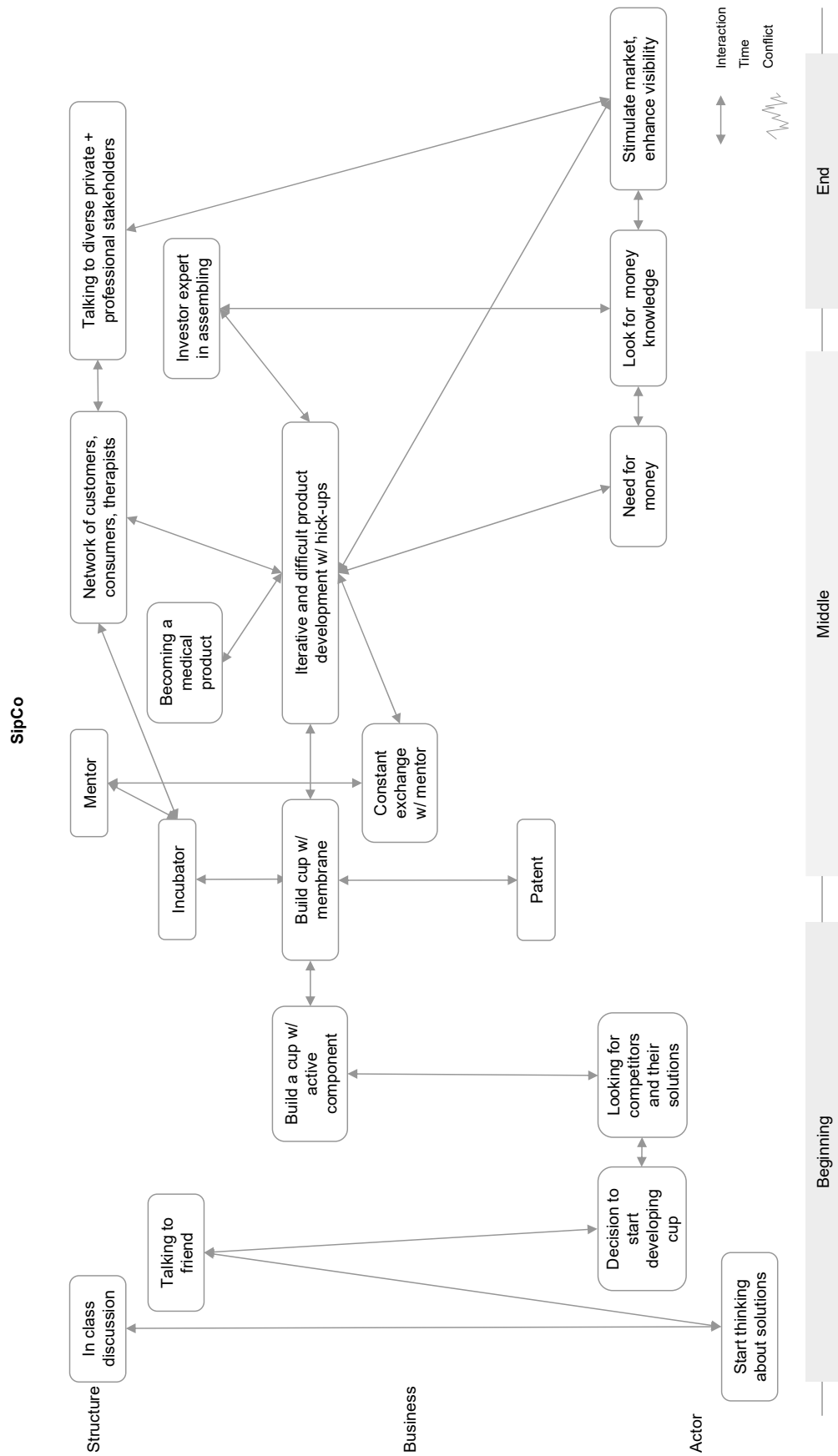


Figure 27: SipCo Visualization of Entrepreneurial Process
 Source: Own illustration of findings.

4.1.3 Case 3 GER: TrainCo

“From fundamental research to digital health product without detours: For TrainCo, this vision is becoming more and more a reality.” (News article about TrainCo)

The case TrainCo describes the entrepreneurial process of the digital health start-up TrainCo, which was founded in 2017 as a company with limited liabilities (Figure 39 provides a detailed timeline of events). TrainCo is building an App-based product in the field of neurology based on research by F2 TrainCo and F3 TrainCo.

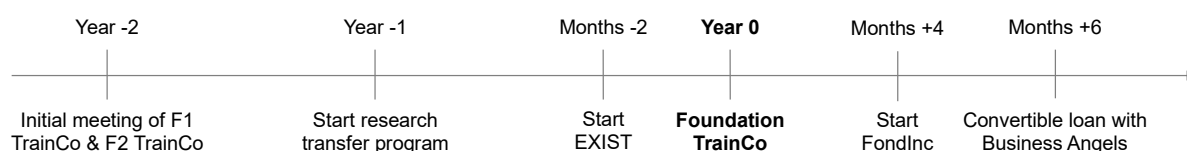


Figure 28: TrainCo Timeline of Events
Source: Own illustration of findings.

TrainCo was founded by four interdisciplinary founders. The interview was conducted with F1 TrainCo, who has previous entrepreneurship experience and comes from an entrepreneurial family, is the Chief Executive Officer.²⁶⁵ F2 TrainCo, the idea provider, is a doctor and director of two research institutes, acts as the Chief Medical Officer.²⁶⁶ F3 TrainCo worked for F2 TrainCo and as the executor from the research side is the Chief Science Officer. F4 TrainCo, the Chief Product Officer, is the visionary mind.²⁶⁷ An overview of the business characteristics can be seen in Table 14:

Table 14: Overview Business Characteristics TrainCo

Characteristic	TrainCo
Number of founders	<ul style="list-style-type: none"> Four founders
Team size	<ul style="list-style-type: none"> Ten to eleven employees Outsourced IT team of four people
Investors	<ul style="list-style-type: none"> Two business angels Research transfer program EXIST funding program FondInc funding program
Years active & foundation	<ul style="list-style-type: none"> TrainCo has been actively following the entrepreneurial path since 2015 TrainCo was founded in 2017

Source: Own illustration of findings.

²⁶⁵ See Transcript TrainCo GER 3, points [18f.; 224f., 826f., 1103f.]

²⁶⁶ See Transcript TrainCo GER 3, points [21–23, 821].

²⁶⁷ See Transcript TrainCo GER 3, points [41–47].

The TrainCo founding team takes a highly cooperative approach to building a product and business. Their entrepreneurial process begins with the cooperation of a very diverse team with different skill sets, that combines its forces to build something good. The knowledge of all four founders combined can look at a potential business idea in a holistic way. Each founder has his own set of expertise. Starting the business as a cooperation of four different individuals is just the beginning of a highly cooperative business model. TrainCo cooperated with diverse and multiple stakeholders along the way to build the best product and achieve value not only for customers and consumers but also for others such as researchers. TrainCo listens to diverse stakeholders for advice and direction, whereas no stakeholder plays a significantly important role. Eventually, through cooperation, TrainCo was able to build a business that not only benefits customers and consumers but provides ground for aiming for higher causes in the future. The following figures show the developed data structure and then present a visualization of the entire entrepreneurial process.

Entrepreneurial Process of TrainCo. Beginning. TrainCo's story begins with F2 TrainCo who conducts fundamental research in the field of neurology with F3 TrainCo and experiences pressure to engage in research transfer. Thus he went to an entrepreneurship center, but never thought about business.²⁶⁸ There, he met F1 TrainCo, who was always eager to become an entrepreneur, but did not have his own business idea.²⁶⁹ F1 TrainCo was immediately interested and suggested to start a project together.²⁷⁰ At this point "the idea was not really a business".²⁷¹ Then, F1 TrainCo introduced F4 TrainCo to the group as a valuable source for the team and they started to work with advisors from the research field immediately. The first advise they needed was how to position themselves and not be perceived as researchers who go to the "bad side".²⁷²

The fundamental research of F2 TrainCo and the PhD thesis of F3 TrainCo are the substantive base for the initial project.²⁷³ The research hypothesizes that certain tools and trainings may be able to work against and thus elongate the disease process of dementia.²⁷⁴ However, research shows that usually working against the disease is too late, as the disease starts ten to 15 years earlier, and patients are already too sick when being diagnosed.²⁷⁵ Which also means that several pharma companies failed in developing medication to 'heal' the disease as

²⁶⁸ See Transcript TrainCo GER 3, points [393, 1235–1237].

²⁶⁹ See Transcript TrainCo GER 3, points [9f., 19ff., 869f.].

²⁷⁰ See Transcript TrainCo GER 3, points [22ff., 42ff.].

²⁷¹ Transcript TrainCo GER 3, point [35].

²⁷² Transcript TrainCo GER 3, points [943–949].

²⁷³ See Transcript TrainCo GER 3, points [125–131].

²⁷⁴ See Transcript TrainCo GER 3, points [440–446].

²⁷⁵ See Transcript TrainCo GER 3, point [76].

results were not measurable.²⁷⁶ Thus, TrainCo set themselves the goal: “We make your brain performance easily measurable”.²⁷⁷ So, they need to build a product that is able to diagnose the disease early as well as prevent it to some extent. The realization of the importance of a diagnostic, recognition tool can be seen as an internal aha moment.²⁷⁸ In a first step, the team builds a hardware brain ergometer for brain training.²⁷⁹

To finance the core founding team, TrainCo was able to receive funding from the research transfer program, a newly established state funding program with little professionalization, in the end of 2015. F1 TrainCo, in his position at the entrepreneurship center, knew exactly how to write the respective applications.²⁸⁰ Thus, TrainCo received funding very quick and easy.²⁸¹ Under the roof of the research transfer program, TrainCo applied for a patent for the developed brain ergometer in order to create IP.²⁸² However, being part of the research transfer program, the patent does also belong to the university. “The negotiations now with the university were - to put it mildly – catastrophic.”²⁸³ TrainCo had severe difficulties to transfer the patent to its own IP later on and only with support from their investors, particularly from the FondInc they navigated the sensitive topic.²⁸⁴ Nevertheless, TrainCo was overall lucky when it comes to finances due to three reasons: first, they were mostly the “guinea pig”²⁸⁵, second, they had good contacts to the respective state and country ministries²⁸⁶, and they are located in the “hotspot for dementia in Germany” and even in Europe²⁸⁷.

With their goal to measure brain performance, TrainCo applied for EXIST funding. Writing proposals is hard and time-intensive, but getting things straight through reflection is a key to go forward.²⁸⁸ While writing the EXIST application, meeting the prerequisites and having the research results about the diagnostic importance in mind, the founding team went through a “change of heart towards intervention and early detection”.²⁸⁹ Even though they were content about the research side, the business side did not look so promising for a brain ergometer. Consequently, TrainCo decided to look for a digital, app-based solution, which became part of the EXIST application. TrainCo received EXIST funding from September 2017 until January

²⁷⁶ See Transcript TrainCo GER 3, points [436f., 443–447].

²⁷⁷ Transcript TrainCo GER 3, point [451].

²⁷⁸ See Transcript TrainCo GER 3, points [70–76].

²⁷⁹ See Transcript TrainCo GER 3, points [33, 40].

²⁸⁰ See Transcript TrainCo GER 3, points [51–57, 636f.].

²⁸¹ See Transcript TrainCo GER 3, points [400–402].

²⁸² See Transcript TrainCo GER 3, points [33f., 596–600].

²⁸³ Transcript TrainCo GER 3, point [604].

²⁸⁴ See Transcript TrainCo GER 3, points [636–640].

²⁸⁵ Transcript TrainCo GER 3, point [763].

²⁸⁶ See Transcript TrainCo GER 3, points [754–756].

²⁸⁷ See Transcript TrainCo GER 3, points [283–285].

²⁸⁸ See Transcript TrainCo GER 3, points [573–576].

²⁸⁹ Transcript TrainCo GER 3, point [424f., 429f.].

2019, with the goal of finalizing the programming of a customizable app.²⁹⁰ They employed a freelancer, who helped to program the app and became one of the first employees, M1 TrainCo, who later became Chief Technology Officer. However, one programmer was not enough.²⁹¹ Therefore, the founding team decided to outsource the programming to an existing team with the contractual possibility to buy the entire team “at the push of a button”.²⁹²

Middle. In the beginning, the App integrated three different products. But they noticed quickly that following three different products is too much and “for some reason we called each other and said we’re doing ‘track’ now” (the early diagnosis tool).²⁹³ “It was a medical decision; it was less market driven.”²⁹⁴ The team also decided to follow the games for good approach, as TrainCo does not want to earn revenue at any cost, but wants to focus on a thorough product development. The games for good approach was developed in cooperation with a fellow, well-known researcher, who is an expert in app navigation.²⁹⁵

Through EXIST, the founding team noticed that “there is an incredible amount of music on the market right now”. TrainCo tried to stay “under the radar”, but they received some media coverage, which led to a lot of questions from doctors, neurology centers and people in 2017.²⁹⁶ Thus, the high demand for TrainCo’s product led to the decision to speed up the development process, which means the need for more money. They found the right venture capitalist, who was eager to invest in TrainCo right away.²⁹⁷ However, EXIST was not delighted and TrainCo decided to let go of the venture capitalist but negotiated that they would get further funding by the FondInc, which would alternatively invest.²⁹⁸ The FondInc has controlling mechanisms and each money transfer is attached to milestones. However, F1 TrainCo explains that the milestones can easily be reached and “a relationship of trust was built up fairly quickly”.²⁹⁹ F1 TrainCo even further collaborates with the FondInc and supports two of their start-ups.³⁰⁰ Being part of the FondInc program legitimates TrainCo nationally and internationally as a high quality and neutral start-up (as does EXIST).³⁰¹ Being neutral is one of the key concepts in TrainCo’s philosophy and influenced the decision over the suitable and ‘right’ funding programs.³⁰²

²⁹⁰ See Transcript TrainCo GER 3, points [157–163].

²⁹¹ See Transcript TrainCo GER 3, points [723–729].

²⁹² Transcript TrainCo GER 3, points [733–738].

²⁹³ See Transcript TrainCo GER 3, points [456–461, 466f.].

²⁹⁴ Transcript TrainCo GER 3, points [467f.].

²⁹⁵ See Transcript TrainCo GER 3, points [239–240, 249–252].

²⁹⁶ Transcript TrainCo GER 3, points [163–172].

²⁹⁷ See Transcript TrainCo GER 3, points [179, 486].

²⁹⁸ See Transcript TrainCo GER 3, points [484–487].

²⁹⁹ Transcript TrainCo GER 3, points [543–546, 548f.].

³⁰⁰ See Transcript TrainCo GER 3, point [547f.].

³⁰¹ See Transcript TrainCo GER 3, points [550–552, 563f.].

³⁰² See Transcript TrainCo GER 3, points [557–564].

To receive money from FondInc, TrainCo was forced to found the business. But EXIST regulates that they can only support start-up ideas but no existing companies, so an actual foundation can only take place after EXIST.³⁰³ Therefore, TrainCo filed an application to exceptionally found the business during EXIST, which worked and they were able to make a capital raise quickly, speed up the development process and build up the team.³⁰⁴ To speed up the process even more, TrainCo then decided to also get a convertible loan from the business angels in February 2018 after the FondInc got on board, as the terms were good.³⁰⁵

TrainCo's philosophy, values and vision also played a significant role in the choice of business angels. For TrainCo it is of high importance that there is a match, and they chose business angels cautiously after a scanning process.³⁰⁶ The business angels are much more involved in TrainCo than the funding programs and do not only mean money: "That was always very important. If Angels, it is that they are not just bringing in money, so it really was not about the money".³⁰⁷ Both business angels were chosen to increase the expertise within TrainCo. TrainCo needed a financial advisor and one business angel is exactly that – a former top manager who specialized in finances and financial prognosis. The other business angel has profound knowledge with medical products and supports the admission process of becoming a certified medical product. He also looks for new regulations that need to be integrated in TrainCo's product.³⁰⁸ Investors do not interfere in the day-to-day business, as the founding team has the majority of shares.³⁰⁹ However, F1 TrainCo likes to consult with the investors on bigger decisions, as sharing decision making also means sharing responsibility. So, F1 TrainCo believes in a four to six-eye-principle.³¹⁰

With the additional money, TrainCo was able to employ 14 to 15 people (including the founding team) by March 2018.³¹¹ More employees mean more manpower and speeding up the product development process.³¹² Finding people was rather easy as employees are proud of what they are trying to achieve and are gladly telling their social environment about their work and what kind of 'good deed' they are doing. A factor that should not be underestimated.³¹³ The other way around, F1 TrainCo is highly motivated and influenced by his team.³¹⁴ To engage

³⁰³ See Transcript TrainCo GER 3, point [481f.].

³⁰⁴ See Transcript TrainCo GER 3, points [192–197].

³⁰⁵ See Transcript TrainCo GER 3, points [491–494].

³⁰⁶ See Transcript TrainCo GER 3, points [529–531, 1141–1143].

³⁰⁷ Transcript TrainCo GER 3, point [513f.].

³⁰⁸ See Transcript TrainCo GER 3, points [514–522].

³⁰⁹ See Transcript TrainCo GER 3, point [536].

³¹⁰ See Transcript TrainCo GER 3, points [539–543].

³¹¹ See Transcript TrainCo GER 3, point [717].

³¹² See Transcript TrainCo GER 3, point [492f.].

³¹³ See Transcript TrainCo GER 3, points [682–685].

³¹⁴ See Transcript TrainCo GER 3, point [1112f.].

employees, TrainCo has regular, weekly update meetings and irregular, bigger constructive feedback and development meetings to bring TrainCo forward.³¹⁵

With additional money and resources, TrainCo plans to launch its app-based gateway product to early dementia diagnosis and intervention only eight months after business foundation.³¹⁶

But, the actual design process was kind of tricky:

“With dementia, we really had a gamification approach, where you build up a world It did not go down well. They [the consumers] all wanted, F4 TrainCo always called it dentist chair design. Really rock solid because gamification always gets the science out of the way. Because at the end of the day, the challenge is always, people just have to carry out the test and what drives them to carry out the test. Fear. It would be stupid. It should also be a bit of fun. I think the new design looks pretty cool and has a few more features, but it should not be too relaxed.” (Transcript TrainCo GER 3, points [892–899])

F1 TrainCo describes consumer feedback as the cheapest and leanest way of product optimization. The possibility to speak with 40 to 50 patients a day at the hospital where F2 TrainCo works, offers endless opportunities to test any steps with real-life consumers.³¹⁷ Despite the close cooperation with patients, doctors and insurances, TrainCo also cooperates with further potential customers such as “hospitals, nursing facilities”.³¹⁸

But who is the customer and who is the consumer? Particularly in Germany, digital health start-ups aim for B2C, meaning that their customers are insurances, and the consumer pays nothing for the product. But insurances are “tough people, like the hardest experience ever”.³¹⁹ However, TrainCo wants to go this route anyway and wants to become the first start-up ever that is part of the standard care of all insurances rather than going for individual selective agreements. To get into standard care, the app is going through a study of nine months that is carried out by an objective and neutral team. “We are probably the first ones to do that. But because we are just so certain how our results will be. We're going to tackle the issue now”. Going this route, F1 TrainCo describes their approach as going for B2B2C.³²⁰ Thus, also cooperation with customers and consumers takes place on a B2B2C level.³²¹ Moreover, the pharma industry, which TrainCo never thought about before, showed some interest as they are struggling with drug testing. It is quite difficult to find a group of sick people way before the sickness even broke out noticeably to test medication.³²²

³¹⁵ See Transcript TrainCo GER 3, points [694f., 701–703].

³¹⁶ See Transcript TrainCo GER 3, points [156f., 202, 418f.].

³¹⁷ See Transcript TrainCo GER 3, points [875–889, 891–896].

³¹⁸ Transcript TrainCo GER 3, points [279–282].

³¹⁹ Transcript TrainCo GER 3, point [842].

³²⁰ See Transcript TrainCo GER 3, points [269–279].

³²¹ See Transcript TrainCo GER 3, points [900–902].

³²² See Transcript TrainCo GER 3, points [323–334].

End. Even though the product is launched, the app is designed in such a way that other potential ideas can be integrated in the future mostly for different business cases, which allow TrainCo to have less pressure but bear the risk of getting distracted.³²³ So, in addition to the actual diagnostic and intervention service, TrainCo is open to a built-in research platform and even writes a business plan for this alternative.³²⁴ The research platform presents a win-win situation as TrainCo can integrate newest research projects in their app, gets feedback on their scientific developments, gains validation and reputation, gets access to grand money, while the research institutes can gain access to data sets.³²⁵ Overall, TrainCo has “[...] eight very active scientific advisors that nationally and internationally, all provide input specifically in one area.”³²⁶ TrainCo also has a collaboration with a big research institute, which uses the TrainCo app to test their approaches.³²⁷ A key to a good cooperation is being physically close. Therefore, TrainCo moved its office space in 2018 to a designated themed-campus, which enables them even closer cooperation with research.³²⁸ Additionally, TrainCo has similar collaborations with universities nationally and internationally.³²⁹ The strong cooperation with different researchers, allows TrainCo “access to studies that no other start-up has access to”.³³⁰ And the embeddedness in the research ecosystem, differentiates TrainCo from other digital health start-ups, which is also “is the main reason investors were interested in us”.³³¹

In addition to the research platform, TrainCo is integrating approaches of their main competitors in their app to enhance their position.³³² The digital health start-up industry is open minded and transparent.³³³ TrainCo also collaborates with businesses outside of their industry, e.g. with artificial intelligence companies investigating whether their app-based approach can also be used differently.³³⁴ Moreover, TrainCo’s hardware brain ergometer is used by several R&D departments, with which a cooperation is going on.³³⁵ On a marketing level, TrainCo is cooperating with hospitals. The hospitals advertise that they are using TrainCo’s product and thus have an excellent dementia branch, which is a win-win situation again.³³⁶ TrainCo is also connected to state and country politics. Despite the economic side, TrainCo cooperates with

³²³ See Transcript TrainCo GER 3, points [355–362, 368–371].

³²⁴ See Transcript TrainCo GER 3, points [958, 963f.].

³²⁵ See Transcript TrainCo GER 3, points [189f., 964–968, 977].

³²⁶ Transcript TrainCo GER 3, points [932–939].

³²⁷ See Transcript TrainCo GER 3, points [954–958].

³²⁸ See Transcript TrainCo GER 3, points [674–676].

³²⁹ See Transcript TrainCo GER 3, points [120f., 1197].

³³⁰ Transcript TrainCo GER 3, point [182].

³³¹ Transcript TrainCo GER 3, points [184–191].

³³² See Transcript TrainCo GER 3, points [970–975].

³³³ See Transcript TrainCo GER 3, points [1285–1287].

³³⁴ See Transcript TrainCo GER 3, points [987–994].

³³⁵ See Transcript TrainCo GER 3, point [69f.].

³³⁶ See Transcript TrainCo GER 3, points [299–303].

German politics to develop models to tackle social issues.³³⁷ Especially, in Germany engaging in politics is much more important than e.g. in the US.³³⁸ At the same time, TrainCo is eager to give back as particularly the state they are located in, invested a lot.³³⁹

With all different channels of (external) collaboration, TrainCo started to introduce internal control mechanisms. TrainCo established project management tools in 2015, where every employee writes down daily what they did. Capturing the information enables any other (new) team member to take over and TrainCo's internal knowledge is stored, risk is diversified. Also, as a digital health start-up offering a medical product, TrainCo has the regulatory obligation to document everything and be able to show it retrospectively up to 15 years.³⁴⁰ To decrease knowledge leakage, TrainCo aims for keeping employees long-term and lock them in, e.g. through creating a beneficial corporate culture, offering transparent and fair payments, flexible working hours and workplaces like in attractive co-working spaces.³⁴¹ But, TrainCo is also looking out for tight-knit contracts with employees and gets everything legally "double and triple checked, even if we pay double or triple for it."³⁴² TrainCo also established an overall task management and roadmap, so that team members stay motivated through looking at the big picture. The transparency within the different parts of business goes hand in hand with TrainCo's values of being an open and transparent start-up.³⁴³ Despite the two ways of protecting knowledge from leakage through employees, F1 TrainCo still describes TrainCo as a rather naïve start-up when it comes to IP protection.³⁴⁴ The software is not yet protected, but TrainCo works on that. However, the actual IP is the collected data and evaluation.³⁴⁵

Through its entire path, the core value of TrainCo is to generate sustainable revenue with their product and not engage in one financing round after the other.³⁴⁶ Thus, organic self-growth is the goal.³⁴⁷ "We are definitely not exit-driven, but we are all still relatively young and maybe it will not be our last start-up".³⁴⁸ And the team is convinced that growth through "non-dilutive funding and strategic partnerships" bears the potential to become much bigger than going for the exit strategy.³⁴⁹

³³⁷ See Transcript TrainCo GER 3, points [294–299].

³³⁸ See Transcript TrainCo GER 3, point [224f.].

³³⁹ See Transcript TrainCo GER 3, points [855–859].

³⁴⁰ See Transcript TrainCo GER 3, points [663–672].

³⁴¹ See Transcript TrainCo GER 3, points [661, 672–674, 692f.].

³⁴² Transcript TrainCo GER 3, points [656–659].

³⁴³ See Transcript TrainCo GER 3, points [693–701].

³⁴⁴ See Transcript TrainCo GER 3, point [659f.].

³⁴⁵ See Transcript TrainCo GER 3, points [642–647].

³⁴⁶ See Transcript TrainCo GER 3, point [221].

³⁴⁷ See Transcript TrainCo GER 3, point [1012f.].

³⁴⁸ Transcript TrainCo GER 3, point [1035f.].

³⁴⁹ Transcript TrainCo GER 3, point [1016f.].

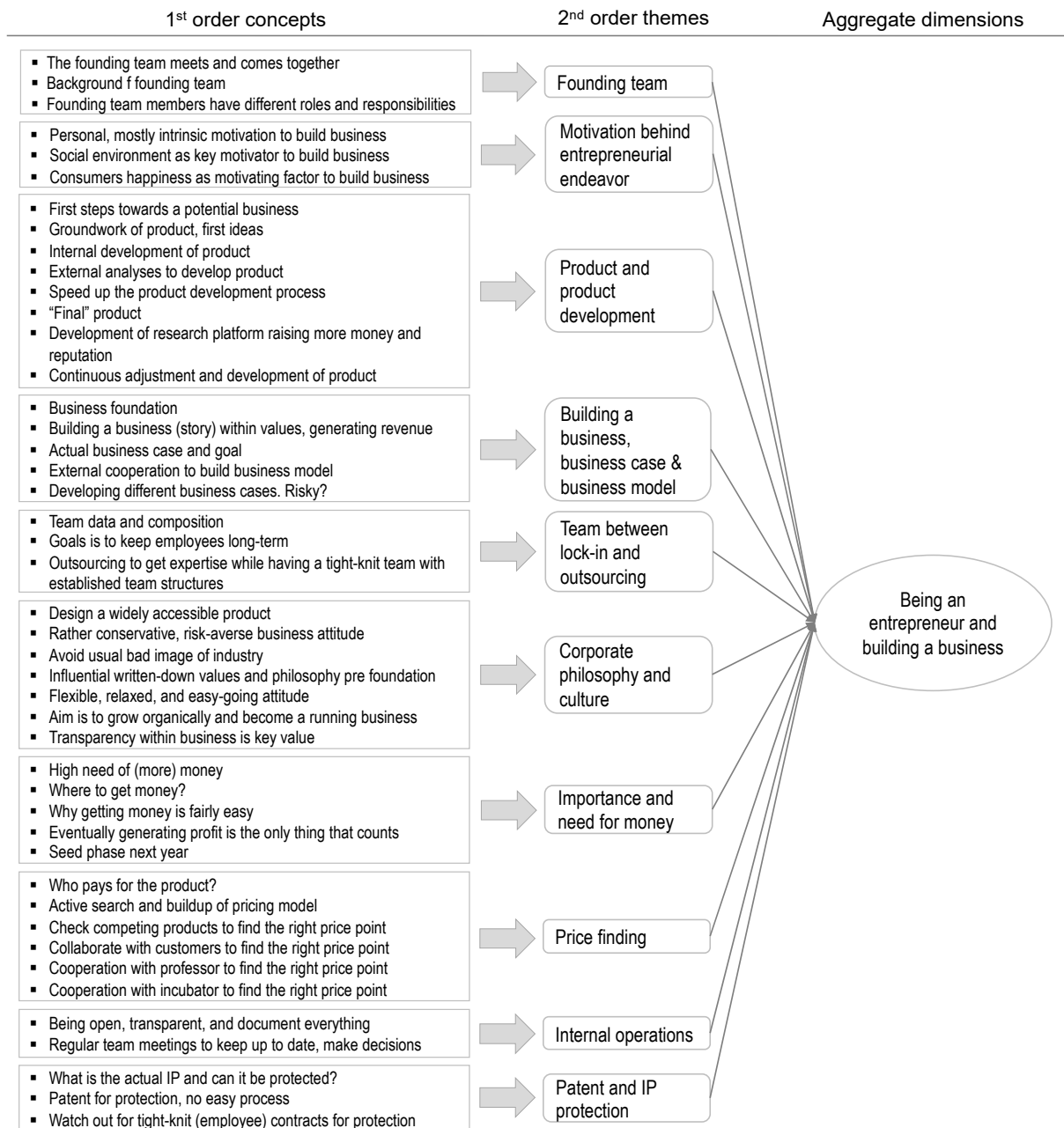


Figure 29: TrainCo Data and Concept Structure
Source: Own illustration of findings.

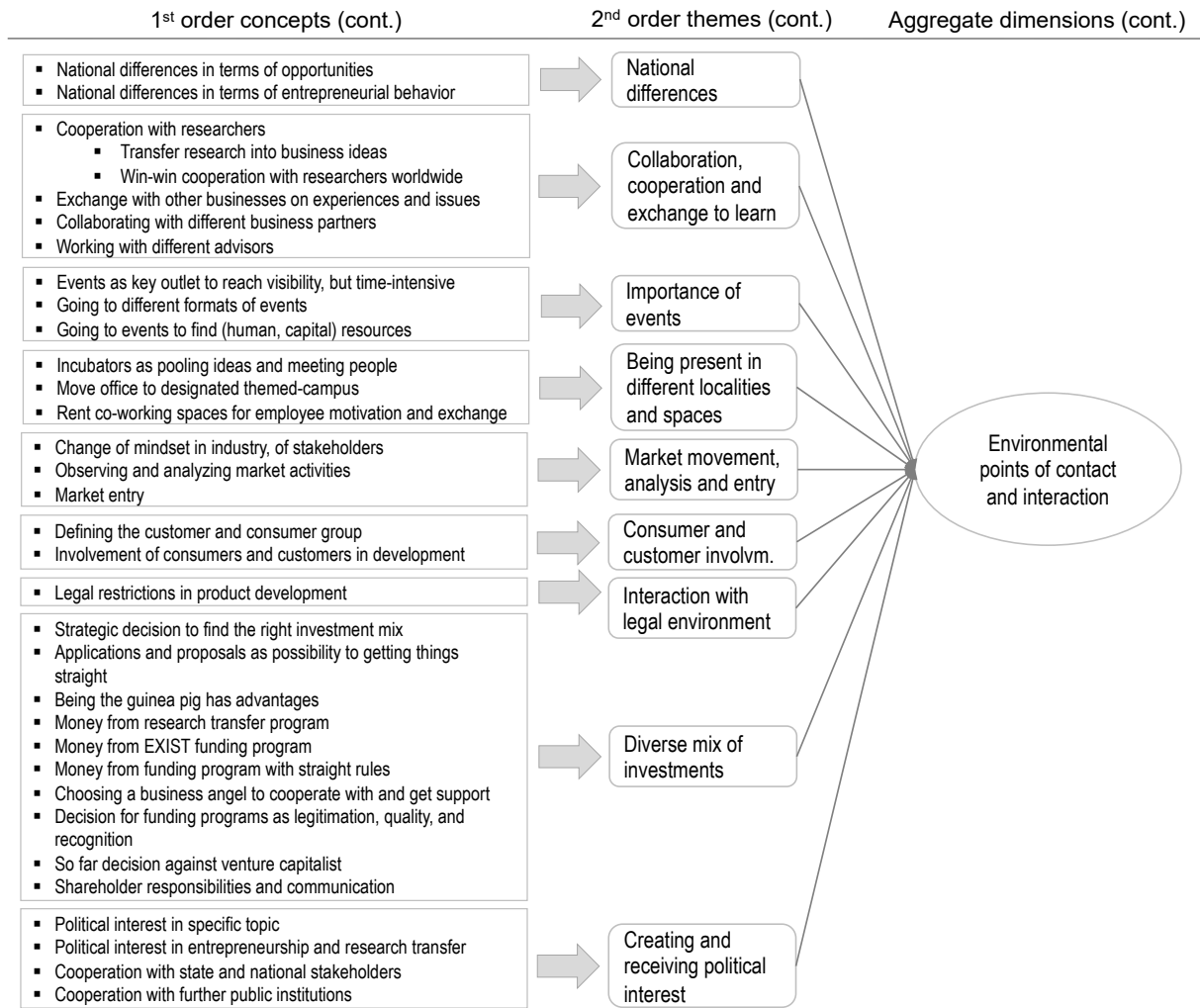


Figure 30: TrainCo Data and Concept Structure (cont.)
 Source: Own illustration of findings.

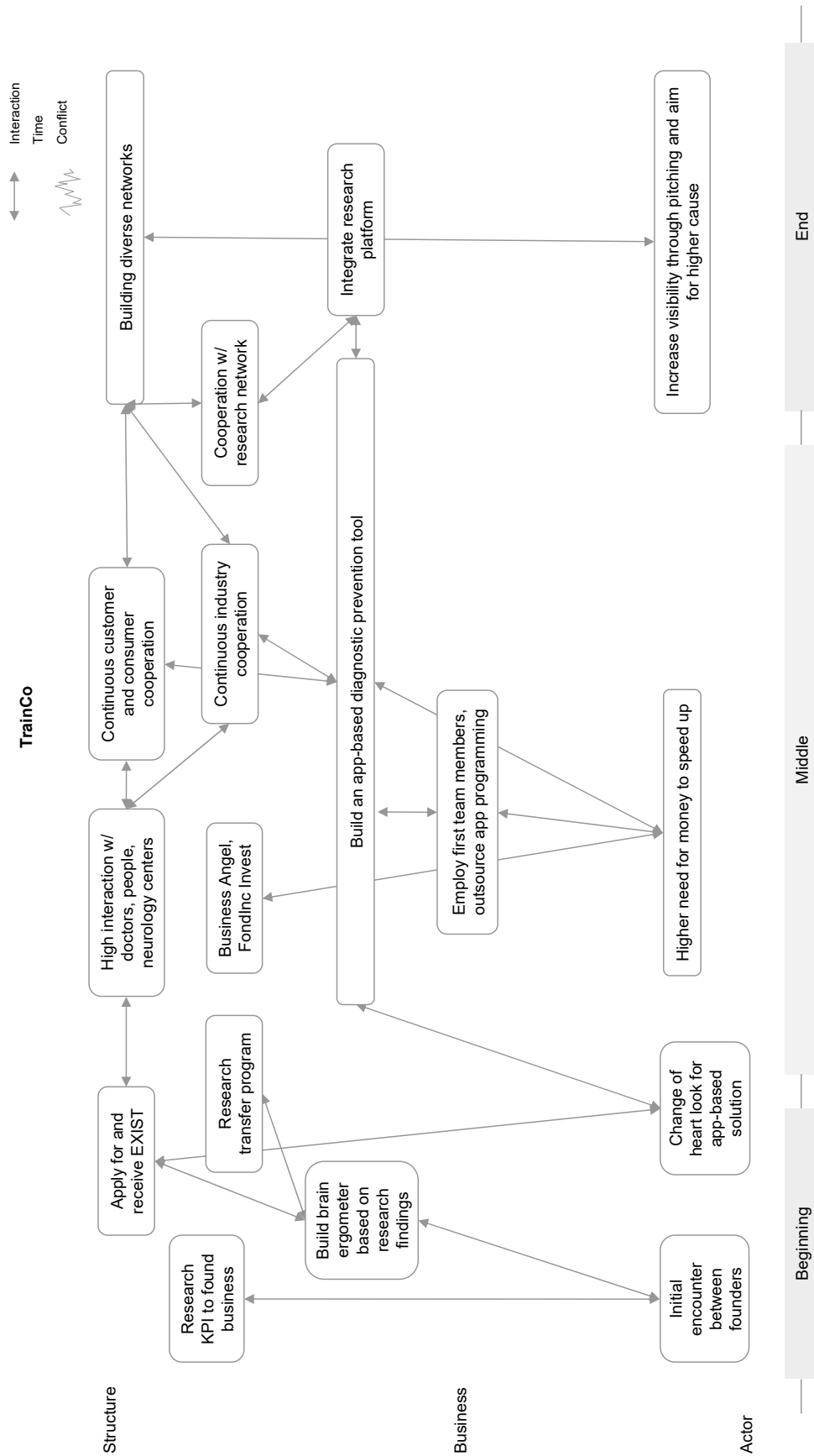


Figure 31: TrainCo Visualization of Entrepreneurial Process
Source: Own illustration of findings.

4.1.4 Case 4 GER: SoundCo

“With TTrack, the SoundCo team has developed pioneering technology in digital audiology. In a very short time, academic research results were translated into an applicable form of therapy that was accessible to patients. With this technological know-how, SoundCo has the potential to decisively shape the growing eHealth sector.” (News Article about SoundCo)

The case SoundCo considers the digital health start-up SoundCo, which was founded in 2012 as a company with limited liabilities.³⁵⁰ SoundCo revolutionized the health market in favor of digital health solutions with a digital, customizable medication for tinnitus.³⁵¹ TTrack has been introduced as an app-solution therapy with insurance reimbursement in September 2015.³⁵² SoundCo introduced its second product TAudio, a digital self-use hearing screening, in 2017, which complements SoundCo’s portfolio and establishes SoundCo as a digital audiology start-up.³⁵³ A detailed timeline of events can be seen in Figure 32.

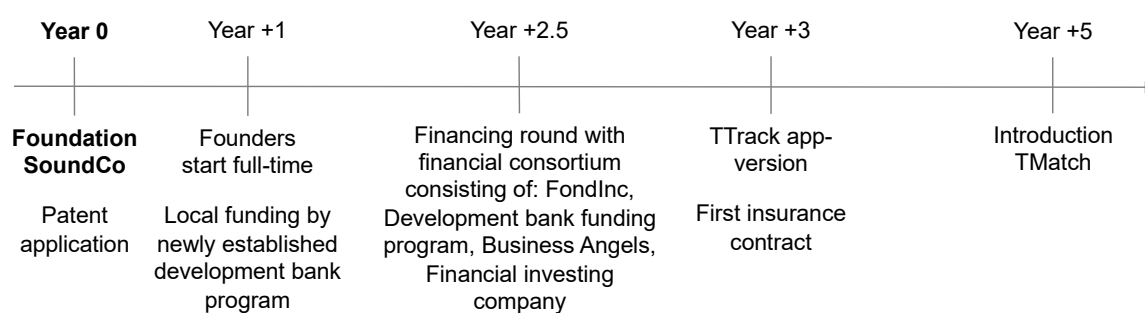


Figure 32: SoundCo Timeline of Events
Source: Own illustration of findings.

SoundCo was founded by four founders. F1 SoundCo, who has a business and IT background, had numerous corporate and start-up stations, e.g. worked for a start-up before it was sold.³⁵⁴ This start-up was founded by F2 SoundCo, who also has an IT background.³⁵⁵ After the sale, F2 SoundCo and F1 SoundCo split their time between freelance projects and SoundCo, before joining SoundCo full-time.³⁵⁶ F1 SoundCo functions as the CEO, F2 SoundCo as the CTO and F3 SoundCo as the head of research and development.³⁵⁷ F4 SoundCo left the business early on due to personal reasons.³⁵⁸ Table 15 summarizes the key characteristics of SoundCo.

³⁵⁰ See Transcript SoundCo GER 4.1, point [311], SoundCo GER 4.2, point [1104].

³⁵¹ See Transcript SoundCo GER 4.2, points [419–425, 430–435].

³⁵² See Transcript SoundCo GER 4.1, point [300], SoundCo GER 4.2, points [62–66].

³⁵³ See Transcript SoundCo GER 4.1, point [301], SoundCo GER 4.2, points [108–113].

³⁵⁴ See Transcript SoundCo GER 4.1, points [1062, 1281–1289], SoundCo GER 4.2, point [1148f.].

³⁵⁵ See Transcript SoundCo GER 4.2, points [1143–1147].

³⁵⁶ See Transcript SoundCo GER 4.1, point [1287f.], SoundCo GER 4.2, points [23–25].

³⁵⁷ See Transcript SoundCo GER 4.2, points [19–21].

³⁵⁸ See Transcript SoundCo GER 4.1, points [1293, 1297], SoundCo GER 4.2, point [1169].

Table 15: Overview Business Characteristics SoundCo

Characteristic	SoundCo
Number of founders	<ul style="list-style-type: none"> ▪ Four founders, but shrunk to three
Team size	<ul style="list-style-type: none"> ▪ Ten employees
Investors	<ul style="list-style-type: none"> ▪ Local funding program ▪ FondInc funding ▪ Local development bank funding program ▪ Two Business Angels ▪ One financial investing company
Years active & foundation	<ul style="list-style-type: none"> ▪ SoundCo has been actively following the entrepreneurial path since 2012 ▪ SoundCo was founded in 2012

Source: Own illustration of findings.

The founders of SoundCo were able to overcome many obstacles that nearly forced them to give up and build a business that now represents a role model in the app-as-a-medical product field in Germany, SoundCo pursued its path as the first movers they are and used the advantages of being the first ones while providing more structure, guidelines and rules for following businesses. Along the way, the founders were confident and aimed for independence as much as possible. However, cooperating with insurances played a crucial role in the business's success. Only through reaching insurance reimbursement with many different insurances, was SoundCo able to market their product to consumers. Becoming a medical product, creating a patent and reaching insurance reimbursement was a rocky road, and the founders would probably not go on this road again. However, as they achieved some success, they are now eager to become the business around anything with hearing.

Entrepreneurial Process of SoundCo. Beginning. SoundCo's entrepreneurial path starts rather unspectacular. F4 SoundCo, who works in an ENT doctor's office, connects to F3 SoundCo, who needs to write his final thesis, and they considered some new clinical studies that show the benefits of music training for tinnitus. F2 SoundCo already knew about those studies, as he had tinnitus himself and was interested in the topic.³⁵⁹ At that time, F1 SoundCo, who previously worked for F2 SoundCo, connects with F3 SoundCo and brings the team together.³⁶⁰ Together, they decide to start a project, with potential but also obstacles.³⁶¹ With F1 SoundCo and F2 SoundCo's entrepreneurial background and F3 SoundCo's thesis and ideas, the team first applied for a patent (which they received), as it is usually something

³⁵⁹ See Transcript SoundCo GER 4.2, points [12–17, 1162–1165].

³⁶⁰ See Transcript SoundCo GER 4.2, points [18–21, 1145].

³⁶¹ See Transcript SoundCo GER 4.1, point [125f.].

investors want to see, also competitors are put off and you need a patent before you can start anything.³⁶² However, in retrospective, the founders state that the patent is doing more harm than benefit and they would not apply for it again, as it is quite challenging, costly and takes time.³⁶³ To apply for the patent, they needed to found a business first, which they did in 2012.³⁶⁴

At the same time as applying for a patent, SoundCo was confronted with the idea that their product would need to be certified as a medical product, which means that you must have a market ready product first, which is a key challenge.³⁶⁵ Becoming a medical product is highly regulated and very costly.³⁶⁶ Additionally, SoundCo needed more advice than anticipated and was forced by authorities to cooperate with an external consultant, which increased costs even more but gave good advice.³⁶⁷ SoundCo became an expert in the medical product certification process and is one of the most successful examples within the field.³⁶⁸ However, the founders describe the certification process as “If I had known that, I would never have done it”.³⁶⁹

Middle. The founding team started to develop their first product TTrack internally behind closed doors, “trying a lot ‘head through the wall’” with many failures.³⁷⁰ During development, the founders asked themselves who is the patient, consumer or customer?³⁷¹ The question for the patient was rather obvious, however, tinnitus patients have a low willingness to pay and are burned out.³⁷² Despite first resentments of the difficulty, the team decided to go for insurance reimbursement due to success reasons.³⁷³ Eventually they went to their first insurance with a finished product, presenting a revolutionary web-based approach to ‘heal’ tinnitus - TTrack.³⁷⁴

In the beginning, SoundCo kept their financial independence and mainly financed themselves through prize money.³⁷⁵ The founding team actively decided against any sort of acceleration program or incubator as especially F1 SoundCo is not convinced of the concept and is eager to make it on his own.³⁷⁶ However, the need for money was higher and one year after

³⁶² See Transcript SoundCo GER 4.2, points [1053–1059].

³⁶³ See Transcript SoundCo GER 4.2, points [37–40, 1022f., 1028–1031].

³⁶⁴ See Transcript SoundCo GER 4.1, point [311].

³⁶⁵ See Transcript SoundCo GER 4.1, points [125–129], SoundCo GER 4.2, points [32–37, 535–539].

³⁶⁶ See Transcript SoundCo GER 4.1, points [534–541], SoundCo GER 4.2, points [44–46, 528–535, 633–636].

³⁶⁷ See Transcript SoundCo GER 4.2, points [40–44, 580–585].

³⁶⁸ See Transcript SoundCo GER 4.2, point [163f.].

³⁶⁹ See Transcript SoundCo GER 4.2, point [32].

³⁷⁰ Transcript SoundCo GER 4.1, point [140f.].

³⁷¹ See Transcript SoundCo GER 4.1, points [130, 444–445].

³⁷² See Transcript SoundCo GER 4.1, points [348–351, 357f., 383–385, 446f.], SoundCo GER 4.2, points [231–233].

³⁷³ See Transcript SoundCo GER 4.1, points [142–145], SoundCo GER 4.2, points [810f., 829–832].

³⁷⁴ See Transcript SoundCo GER 4.1, point [844f.], SoundCo GER 4.2, points [422–425, 429f., 453f.].

³⁷⁵ See Transcript SoundCo GER 4.1, point [552], SoundCo GER 4.2, point [731f.].

³⁷⁶ See Transcript SoundCo GER 4.1, points [613–617, 619–625].

foundation, SoundCo became part of a local funding program by the town development bank. SoundCo was the first start-up to receive the newly established funding and thus had very good conditions with a 100% funding rate.³⁷⁷ Being the first ones, allowed SoundCo to co-develop the organizational funding program processes.³⁷⁸ F1 SoundCo points out that the development bank established the funding program to keep start-ups within the town.³⁷⁹ With the money, SoundCo was able to employ their first employees.³⁸⁰

“And then we brought in investors because we just had to”.³⁸¹ After one and a half years with the funding program, SoundCo decided to do a financial round with a financial consortium consisting of the FondInc, another local development bank funding program, two business angels and a professionalized investing company.³⁸² The financial round was primarily done to finance first steps towards the market and a marketable product,³⁸³ but the investors are not always helpful and “others are also completely useless”.³⁸⁴ One business angel supports the sales team as he has some industry knowhow.³⁸⁵ The financing company can bring in some ideas on topics like internal structures and accounting software.³⁸⁶ And all investors do bring in their experience and network.³⁸⁷ Mostly, SoundCo only does regular financial reports.³⁸⁸ But, investors are asking many questions, sometimes too many.³⁸⁹ SoundCo is obligated to consult with investors on decisions with a certain financial frame, but the investors usually follow the CEO's decision.³⁹⁰ Additionally, any bid strategic moves are discussed with the investors.³⁹¹

With the investment, SoundCo entered a two-year process of reaching their first contract with an insurance.³⁹² SoundCo faced a very difficult, slow and rigid health market, where change is hard but possible.³⁹³ With persistence, endless conversations and flexibility, listening to what insurances want,³⁹⁴ also using the momentum and media attention for tinnitus in their favor,³⁹⁵ SoundCo changed their product from web to app version, and business approach and reached

³⁷⁷ See Transcript SoundCo GER 4.2, points [48–51].

³⁷⁸ See Transcript SoundCo GER 4.2, points [686–688].

³⁷⁹ See Transcript SoundCo GER 4.1, point [981f.].

³⁸⁰ See Transcript SoundCo GER 4.1, point [978f.], SoundCo GER 4.2, points [57–59].

³⁸¹ Transcript SoundCo GER 4.1, point [553].

³⁸² See Transcript SoundCo GER 4.2, points [698, 709–719, 733–735].

³⁸³ See Transcript SoundCo GER 4.2, points [736–739].

³⁸⁴ Transcript SoundCo GER 4.2, point [790f.].

³⁸⁵ See Transcript SoundCo GER 4.2, point [723f.].

³⁸⁶ See Transcript SoundCo GER 4.2, points [781–786].

³⁸⁷ See Transcript SoundCo GER 4.1, point [568f.], SoundCo GER 4.2, points [797–799].

³⁸⁸ See Transcript SoundCo GER 4.2, points [723–726, 777f., 786–788].

³⁸⁹ See Transcript SoundCo GER 4.1, point [570f.].

³⁹⁰ See Transcript SoundCo GER 4.2, points [755–760].

³⁹¹ See Transcript SoundCo GER 4.2, points [748–751, 755–761, 767–769].

³⁹² See Transcript SoundCo GER 4.2, points [66–68].

³⁹³ See Transcript SoundCo GER 4.1, points [340f., 404–413], SoundCo GER 4.2, points [433–435].

³⁹⁴ See Transcript SoundCo GER 4.1, points [849–851, 857–862].

³⁹⁵ See Transcript SoundCo GER 4.2, points [10–12].

a first reimbursement agreement.³⁹⁶ A breaking point, SoundCo's business went through the roof: "it even went into the daily topics: 'App on prescription, boom'."³⁹⁷ For patients to use TTrack, SoundCo started to cooperate with SennCo and sells their headphones.³⁹⁸

Until March 2018, SoundCo was able to gain 27 insurances in Germany, which means around 60% of the population can use TTrack on prescription.³⁹⁹ Also, patients do come on their own, as all insurances do marketing for TTrack.⁴⁰⁰ However, insurances do compete and envy each other.⁴⁰¹ Also, insurances do have different interests and motives, which SoundCo needs to manage.⁴⁰² To ease the cooperation with insurances, SoundCo built and still is building (standardized) processes and interfaces, developed new payment methods, and is eager to build a better process for insurance forms to enable a smoother transfer, which even became sort of their second business.⁴⁰³ SoundCo had to work on payment processes, as TTrack is prescribed by doctors but can be bought in the app store. As a cooperation with apple was not possible, SoundCo had to build a way around the app store payment mechanisms and allow patients to download the app, while their insurance pays.⁴⁰⁴ SoundCo was eager to bring digitalization to the insurance world, which failed big time.⁴⁰⁵ Most stakeholders in the health market are against digital solutions.⁴⁰⁶ However, SoundCo is now cooperating with insurances to make the prescription and reimbursement process as digital as possible.⁴⁰⁷

Additionally, SoundCo tries to "break the ice" with doctors on digitalization.⁴⁰⁸ Considering doctors, SoundCo did have a rather rough start as they were not able to offer doctors any benefit.⁴⁰⁹ However, with insurance reimbursement, doctors are now able to make a higher revenue from prescribing TTrack and SoundCo tries to stay open to doctor's opinions and show that their view matters.⁴¹⁰ They cooperate with doctors on product improvements and improving payment systems and processes, and transfer from doctor to insurance.⁴¹¹

³⁹⁶ See Transcript SoundCo GER 4.2, points [66–71].

³⁹⁷ Transcript SoundCo GER 4.1, point [148f.].

³⁹⁸ See Transcript SoundCo GER 4.2, points [921–928, 935f.].

³⁹⁹ See Transcript SoundCo GER 4.1, point [158], SoundCo GER 4.2, points [91–95].

⁴⁰⁰ See Transcript SoundCo GER 4.2, point [85f.].

⁴⁰¹ See Transcript SoundCo GER 4.1, points [392–394, 559–561].

⁴⁰² See Transcript SoundCo GER 4.1, points [287–289, 822–826, 837f.].

⁴⁰³ See Transcript SoundCo GER 4.1, points [159–162, 168–172, 394], SoundCo GER 4.2, points [506–512].

⁴⁰⁴ See Transcript SoundCo GER 4.2, points [984–989].

⁴⁰⁵ See Transcript SoundCo GER 4.2, points [517–522].

⁴⁰⁶ See Transcript SoundCo GER 4.1, points [249–251, 268–271].

⁴⁰⁷ See Transcript SoundCo GER 4.2, points [522–526, 550–554, 557–560].

⁴⁰⁸ See Transcript SoundCo GER 4.2, points [875–882].

⁴⁰⁹ See Transcript SoundCo GER 4.2, points [76–79, 191–194].

⁴¹⁰ See Transcript SoundCo GER 4.2, points [188–191, 205–207, 218–220, 458–462, 860–863].

⁴¹¹ See Transcript SoundCo GER 4.2, points [470–477].

Despite all difficulties, SoundCo became an expert in developing medical products, establishing itself as a start-up specialized on hearing issues.⁴¹² Consequently, they entered a second development phase, developing their second product TAudio, a self-use hearing screening provided in doctor's offices or that can be rented by companies.⁴¹³ In contrast to their first development process, the founders entered a cooperative development phase with diverse stakeholders.⁴¹⁴ Even though the beginning was hard,⁴¹⁵ over time the team was able to build its own very good network,⁴¹⁶ in which everyone knows that it is easy to cooperate with SoundCo, they have high credibility and value.⁴¹⁷ Location plays an important role when it comes to network building and stakeholder management. SoundCo has the advantage that many stakeholders are present in their hometown, and they can easily get in contact.⁴¹⁸ However, finding the right point of contact is tricky and they take detours often.⁴¹⁹

First, SoundCo cooperated with a local hospital to reach the clinical validation needed for TAudio to become a medical product. In order to do so, SoundCo applied and received a local town funding specifically for this research cooperation.⁴²⁰ A prerequisite for the funding was to have a research partner by your side, which SoundCo had with the hospital.⁴²¹ The hospital in turn, was able to use the results for their publications and SoundCo received the needed clinical appreciation.⁴²² SoundCo is eager to gain even more impact on research and was already approached by research as researchers want to use SoundCo's outlet to gain data.⁴²³

SoundCo builds a cooperative triangle between insurances, ENT doctors and themselves. The founders used their network for any development step and particularly to benchmark quickly, if needed.⁴²⁴ Also TAudio is a certified medical product and SoundCo was eager to get a high classification so any doctor not only an ENT doctor is able to prescribe their software, but did not reach it yet.⁴²⁵ Again, special headphones are necessary. Therefore, SoundCo cooperated with SennCo again to develop headphones that are specialized for self-use hearing screenings and combine the traits of consumer and professional hardware. As an outcome, SennCo created those headphones and are now officially selling them not only to SoundCo, but other

⁴¹² See Transcript SoundCo GER 4.1, point [150f.], SoundCo GER 4.2, points [159–167].

⁴¹³ See Transcript SoundCo GER 4.1, points [188–190], SoundCo GER 4.2, points [111–117, 145–147].

⁴¹⁴ See Transcript SoundCo GER 4.2, points [475–477].

⁴¹⁵ See Transcript SoundCo GER 4.2, points [231–233].

⁴¹⁶ See Transcript SoundCo GER 4.1, point [569f.], SoundCo GER 4.2, points [164–167].

⁴¹⁷ See Transcript SoundCo GER 4.2, points [194–197].

⁴¹⁸ See Transcript SoundCo GER 4.1, points [966–971, 1123–1126].

⁴¹⁹ See Transcript SoundCo GER 4.1, points [562–564].

⁴²⁰ See Transcript SoundCo GER 4.2, points [117–119, 359–361].

⁴²¹ See Transcript SoundCo GER 4.2, points [381–383].

⁴²² See Transcript SoundCo GER 4.2, points [379–381, 395–400].

⁴²³ See Transcript SoundCo GER 4.1, point [315f.], SoundCo GER 4.2, points [402–4013].

⁴²⁴ See Transcript SoundCo GER 4.2, points [164–170].

⁴²⁵ See Transcript SoundCo GER 4.2, points [170–175].

interested customers.⁴²⁶ Through this highly cooperative development process, SoundCo was able to introduce their product TAudio in 2017.⁴²⁷

The founders grew their employees into a team of ten people,⁴²⁸ which was not always easy as the city where SoundCo is located is rather expensive, which made some employees not start working for SoundCo or leave.⁴²⁹ Despite the rather small number of employees, SoundCo already build some structures to grow even further.⁴³⁰ The founding team is, however, aware that they still need to learn more about HR practices and managing people.⁴³¹ For now, the team shall be independent and autonomous and thereby accountable for their own actions.⁴³² Especially F1 SoundCo has a clear vision of employees' own realm of action:

“Micromanagement is the killer. You also have to say to people when they arrive asking, ‘Hey, I want your advice’, then you really have to say: ‘Do you want my advice or should I make the decision?’ If it is the latter, then get lost, I am not in the mood for it.” (Transcript SoundCo GER 4.1, points [704–707])

Overall, most employees are not involved in developing the business or building products, except the sales team, which consists of three people, as they are the point of contact to customers. They are bringing back first-hand feedback, which is employed in the products, and are teaching doctors how to use SoundCo's products. Additionally, the SoundCo sales team shows doctors other programs that are helpful for their everyday work, which enables a recursive relationship.⁴³³ So, they are playing a central role in the customer relationship.

End. Over time, SoundCo was able to build a highly complex business model and established processes, certifications and contracts, which all act as protection mechanisms.⁴³⁴ Additionally, SoundCo does have contracts with partners securing a long-term partnership and forbids their partner to cooperate with others.⁴³⁵ So SoundCo's key IP can be described as the entire package and processes.⁴³⁶ With their entire business model they are able to protect and differentiate themselves from competitors.⁴³⁷ Despite all mechanisms towards external

⁴²⁶ See Transcript SoundCo GER 4.2, points [937–953].

⁴²⁷ See Transcript SoundCo GER 4.2, point [110f.].

⁴²⁸ See Transcript SoundCo GER 4.1, point [692f.].

⁴²⁹ See Transcript SoundCo GER 4.1, points [986–988].

⁴³⁰ See Transcript SoundCo GER 4.1, point [692f.].

⁴³¹ See Transcript SoundCo GER 4.1, points [633–637, 642f., 722f.].

⁴³² See Transcript SoundCo GER 4.1, points [652–657].

⁴³³ See Transcript SoundCo GER 4.2, points [99–108, 846–852, 1072–1074, 1094–1099].

⁴³⁴ See Transcript SoundCo GER 4.2, points [1036–1038].

⁴³⁵ See Transcript SoundCo GER 4.1, point [804].

⁴³⁶ See Transcript SoundCo GER 4.2, points [234f., 1040–1044].

⁴³⁷ See Transcript SoundCo GER 4.1, points [792–794, 797f.].

stakeholders, SoundCo did not establish any internal control mechanisms. They do, however, work with confidentiality agreements to diminish the chances of knowledge drain.⁴³⁸

As mentioned above, SoundCo was able to establish itself as the expert in the hearing segment.⁴³⁹ Having this standing, SoundCo also experienced a lot of backlash and envious competitors, who did even approach insurances as well trying to convince them not to work with SoundCo.⁴⁴⁰ But that did not hold back SoundCo. The team became very engaging with the ENT association and built a very good relationship with trust on both sides. They are helping each other out and SoundCo receives good feedback from the ENT association.⁴⁴¹ Also, SoundCo became member in an entrepreneurial association and engages in a lot of exchange with other start-ups.⁴⁴² Through the associations, SoundCo gained contact to the medical technology lobby and even though SoundCo is not as engaging, F2 SoundCo states they do have some direct and indirect political influence and stand in contact with authorities when it comes to lobby workshops.⁴⁴³ E.g. through SoundCo's engagement in associations, they were able to politically impact lobby work and norms were changed.⁴⁴⁴

After establishing their product, SoundCo describes that they are not changing much about the products but are continuously improving their processes, e.g. building better processes to smooth insurance cooperation and reimbursement process.⁴⁴⁵ Additionally, any consumer feedback is taken into account and small things may be adapted.⁴⁴⁶ There are also further ideas to grow in the future with new ideas in pipeline⁴⁴⁷ and really become an expert in in the realm of anything with hearing,⁴⁴⁸ but for now SoundCo is focusing on reaching higher scalability and try to internationalize.⁴⁴⁹ F2 SoundCo describes:

*“Yes, so that's our goal, that we're going to expand the field of hearing, where we have the expertise can continue to build as much as possible. There are still a few good ideas, but they are not yet being developed, they are only in the planning stage.”
(Transcript SoundCo GER 4.2, points [182–184])*

The following figures presents the developed data structure and an overall visualization of the entire entrepreneurial process.

⁴³⁸ See Transcript SoundCo GER 4.2, points [1038–1040].

⁴³⁹ See Transcript SoundCo GER 4.2, points [161–164].

⁴⁴⁰ See Transcript SoundCo GER 4.1, points [151–154, 794–796].

⁴⁴¹ See Transcript SoundCo GER 4.2, points [197–200, 220–222].

⁴⁴² See Transcript SoundCo GER 4.1, points [585–587].

⁴⁴³ See Transcript SoundCo GER 4.2, points [611–619].

⁴⁴⁴ See Transcript SoundCo GER 4.2, point [602f.].

⁴⁴⁵ See Transcript SoundCo GER 4.2, points [159f., 492–496, 517–519].

⁴⁴⁶ See Transcript SoundCo GER 4.1, points [867–871], SoundCo GER 4.2, points [484–489].

⁴⁴⁷ See Transcript SoundCo GER 4.1, point [187f.], SoundCo GER 4.2, points [182–184].

⁴⁴⁸ See Transcript SoundCo GER 4.2, points [159–163].

⁴⁴⁹ See Transcript SoundCo GER 4.1, points [236–238].

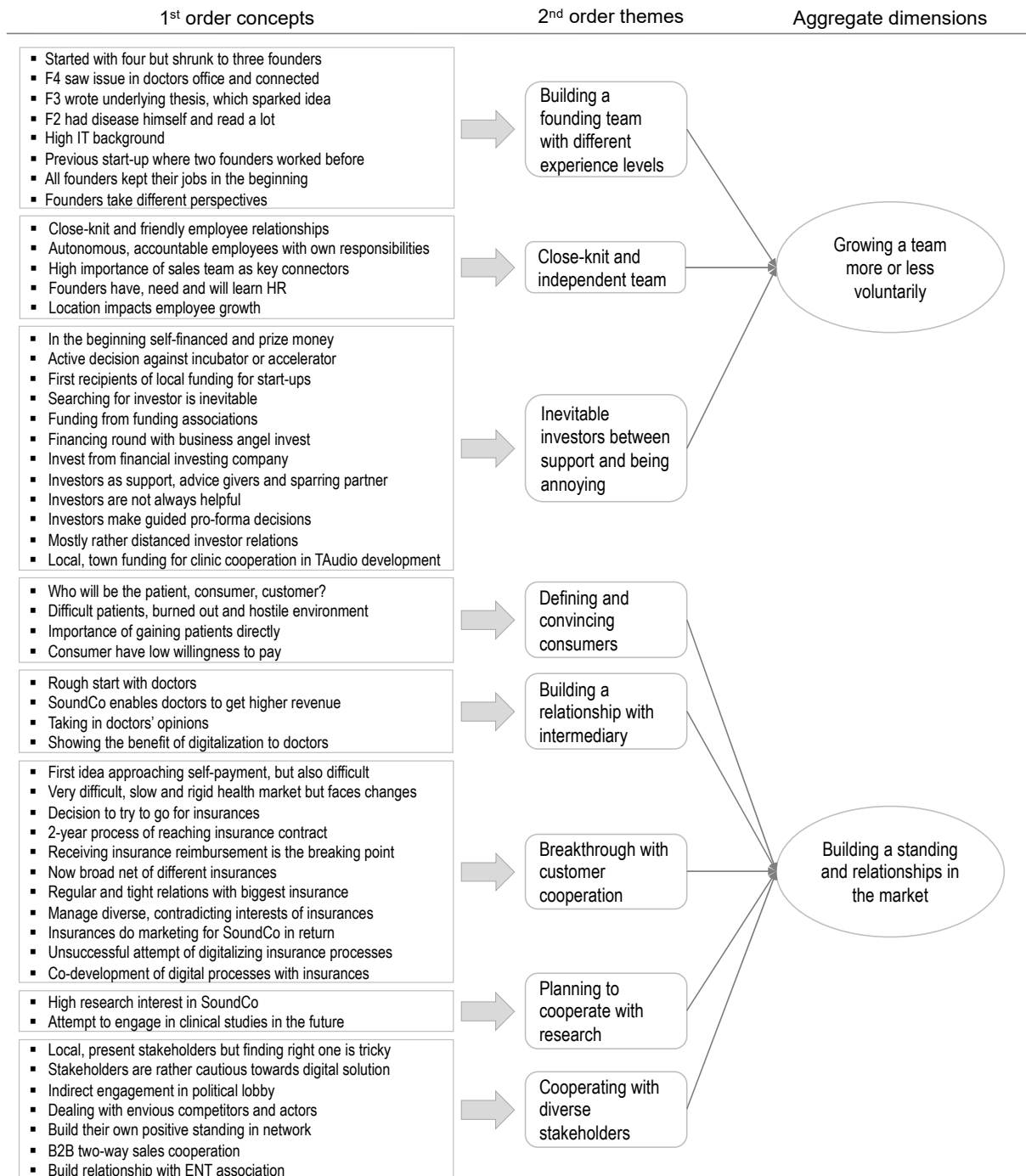


Figure 33: SoundCo Data and Concept Structure
Source: Own illustration of findings.

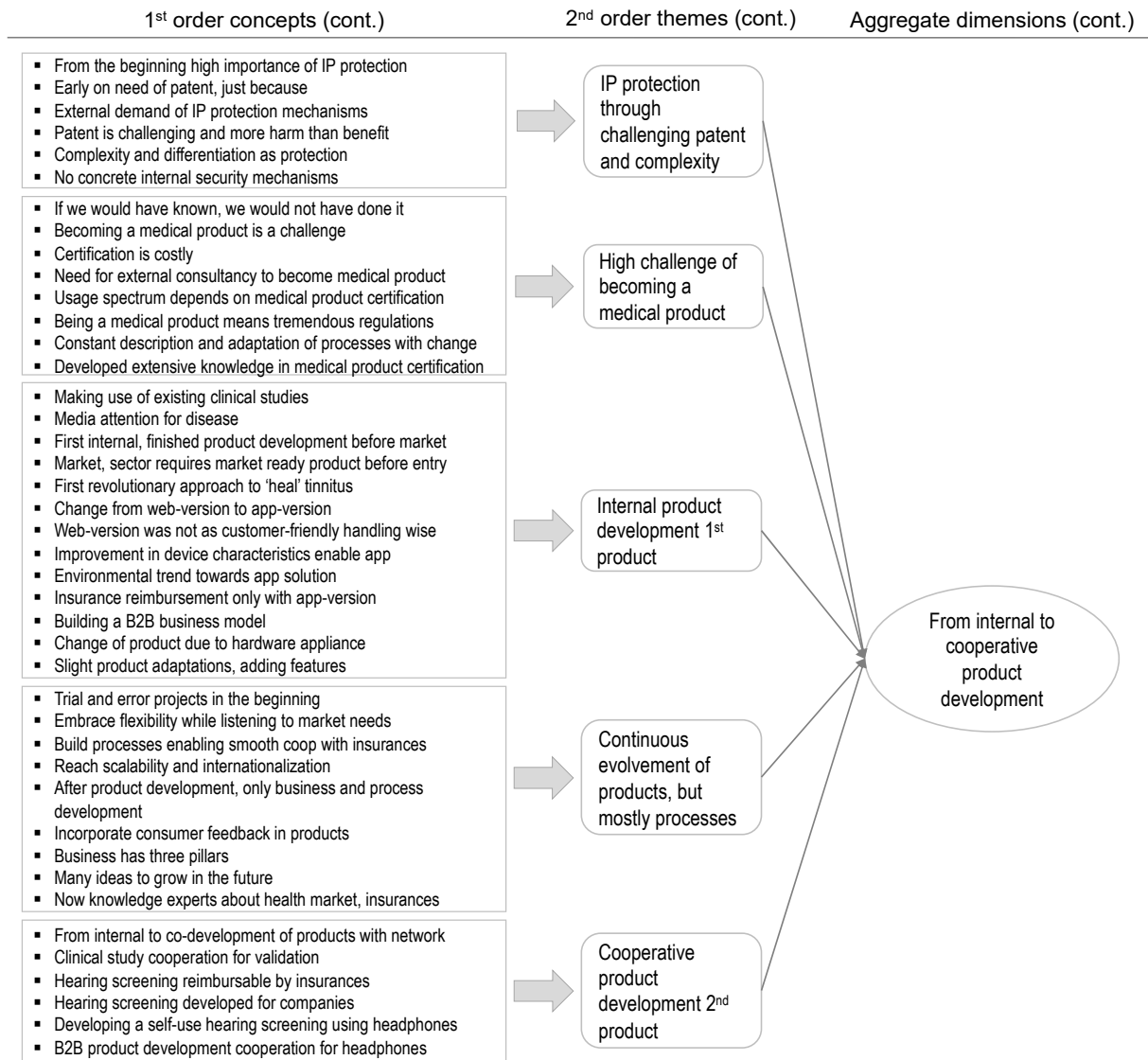


Figure 34: SoundCo Data and Concept Structure (cont.)
Source: Own illustration of findings.

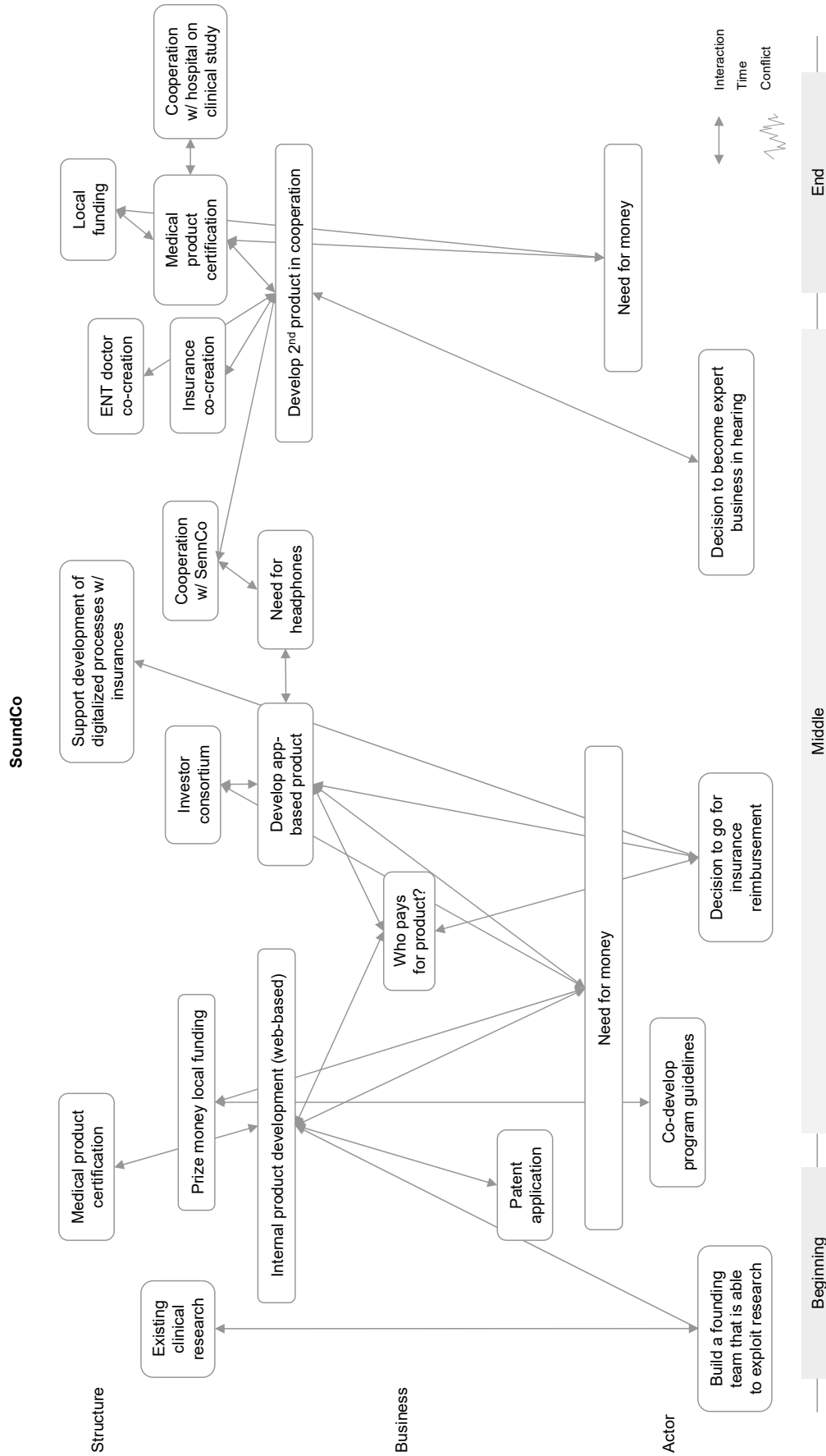


Figure 35: SoundCo Visualization of Entrepreneurial Process
Source: Own illustration of findings.

4.1.5 Case 5 JAP: BrainCo

“The strength of Japan’s approach to dementia, based on the pillars of co-existence and prevention, comes through creative use of resources and public-private-academic collaborations. When done well, the latter can lead to technological breakthroughs, business success, and better care. Among the standout cases is a cognitive function training software [...]. developed by local firm BrainCo.” (News article about BrainCo)

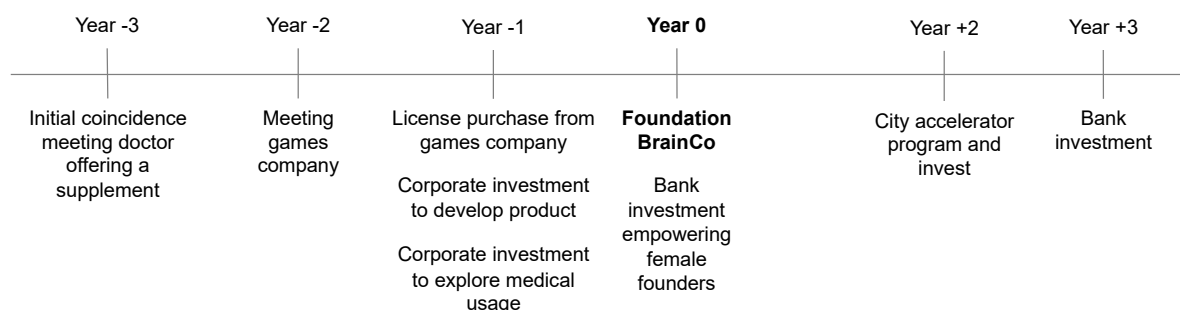


Figure 36: BrainCo Timeline of Events
Source: Own illustration of findings.

The case BrainCo describes the entrepreneurial process of the digital health start-up BrainCo, which was founded in 2015 as a company with limited liabilities. BrainCo’s offering is twofold, the business started to sell nutrition supplements that help to increase cognitive abilities.⁴⁵⁰ Then, BrainCo started to offer a digital game, also increasing cognitive abilities particularly elongating the dementia disease process, which soon became BrainCo’s main business.⁴⁵¹ Today, the game is offered as a cloud-based solution.⁴⁵² Figure 36 shows a timeline of events and Table 16 summarizes business characteristics.

Table 16: Overview Business Characteristics BrainCo

Characteristic	BrainCo
Number of founders	<ul style="list-style-type: none"> One founder
Team size	<ul style="list-style-type: none"> Six employees One business partner/mentor/investor
Investors	<ul style="list-style-type: none"> Bank investment Accelerator program
Years active & foundation	<ul style="list-style-type: none"> BrainCo has been actively following the entrepreneurial path since 2012 BrainCo was founded in 2015

Source: Own illustration of findings.

⁴⁵⁰ See Transcript BrainCo JAP 1, points [43–46, 90f.].

⁴⁵¹ See Transcript BrainCo JAP 1, points [55–58].

⁴⁵² See Transcript BrainCo JAP 1, point [73f.].

F BrainCo took two coincidental chances and built a business on them. Being an entrepreneur with an entrepreneurial mind, F BrainCo was able to see the chances and take them, such as when he recognized the potential of the game to be applied by a broader audience, F BrainCo saw an opportunity to expand its use to people with (beginning) dementia. With trust in people, F BrainCo pursued the entrepreneurial process. Based on two products, F BrainCo built a business and re-employed his former team. Along the way, F BrainCo was able to benefit from guidance and financial investments that pushed him towards new directions and successful changes. He now hits a certain boundary where growth means more changes, which will become a certain challenge.

Entrepreneurial Process of BrainCo. Beginning. BrainCo's begins with two coincidences. Around 2012, F BrainCo's wife talked to her friend, who told her that her husband, who is a doctor at the medical school of their hometown, developed a supplement that fights dementia through increasing cognitive abilities.⁴⁵³ But, he was not able to market and sell the supplement properly. So, F BrainCo's wife told her husband about their friend who was having a hard time selling his developed dementia supplement as "doctors are knowing to not know how to make business".⁴⁵⁴ F BrainCo came up with a strategy and market plan to sell the supplement.⁴⁵⁵ F BrainCo is described as a very good salesman as he "do[es] not hesitate anything, he is very soft personality, he does not fight", which results in a higher success rate.⁴⁵⁶

The second coincidence was at a special conference for dementia and cognition, which F BrainCo attended, selling the dementia supplement.⁴⁵⁷ Being there, F BrainCo met a team that offers a game for disabled children to increase their cognitive abilities.⁴⁵⁸ F BrainCo suddenly had the idea that this game "can be a licensed for all adults" willing to train their cognition.⁴⁵⁹ So he first started to sell the game for disabled children as a salesman, continuously increasing market and sales until⁴⁶⁰:

*"He felt like 'oh I can do that myself'. So, he came up with his own company. He decided to buy their license and that is how he started to do his own business."
(Transcript BrainCo JAP 1, points [201f.]*

Middle. The initial problem of F BrainCo was that even though he had an idea how to use the game in a different way, "he did not have enough explanation and understanding for these

⁴⁵³ See Transcript BrainCo JAP 1, points [43, 89–92, 154, 158f.].

⁴⁵⁴ Transcript BrainCo JAP 1, point [44f.].

⁴⁵⁵ See Transcript BrainCo JAP 1, points [45–48, 159f.].

⁴⁵⁶ Transcript BrainCo JAP 1, point [161f.].

⁴⁵⁷ See Transcript BrainCo JAP 1, point [172f.].

⁴⁵⁸ See Transcript BrainCo JAP 1, points [50–53, 176–178].

⁴⁵⁹ See Transcript BrainCo JAP 1, points [56f., 178–180].

⁴⁶⁰ See Transcript BrainCo JAP 1, point [200f.].

games” nor any “scientific knowledge”.⁴⁶¹ Therefore, F BrainCo needed the original developer from the games team to support him. So, the games team and F BrainCo made a gentlemen’s agreement that they will support each other and not copy each other’s business case.⁴⁶² F BrainCo is responsible for market development, whereas the developer focuses on information and communication to customers.⁴⁶³

Then, another friend mentioned that there is a governmental program focusing on technological development in Japan and F BrainCo applied and got into the program, which provided a huge visibility.⁴⁶⁴ However, the game was offered on a CD-ROM, which is outdated and BrainCo needed a “crowd cloud assistance” product, which means a high need for money.⁴⁶⁵ Eventually, Mitsubishi saw BrainCo through the governmental program and decided to pay for the development.⁴⁶⁶ Mitsubishi is interested in cognition training for itself and other corporations, but they knew that a cloud approach is necessary.⁴⁶⁷ Thus, “it was a good match”.⁴⁶⁸ Simultaneously, through its visibility, a big player in the medical business area noticed BrainCo and made an investment to investigate the game’s medical usage.⁴⁶⁹ Therefore, F BrainCo engaged in and built a strong cooperative relationship with numerous research institutes.⁴⁷⁰ F BrainCo exchanges thoughts and ideas with researchers on dementia and learns from them, and discusses new findings.⁴⁷¹ F BrainCo also actively cooperates with research institutes on studies.⁴⁷² Most research partners came out of F BrainCo’s personal network he built over time. “So, everything is by people”.⁴⁷³

F BrainCo also built his team through “people networking”. He only employed those people he used to know before, eager to strengthen his family-like team.⁴⁷⁴ His approach is to build his team based on human relationships rather than on talent.⁴⁷⁵ “It is a family, still.”⁴⁷⁶ He wants to create the best and safest environment for his employees.⁴⁷⁷ F BrainCo is very content about keeping his organization small and running. Thus, BrainCo has no real IP protection as F

⁴⁶¹ Transcript BrainCo JAP 1, point [209f.].

⁴⁶² See Transcript BrainCo JAP 1, points [219–226].

⁴⁶³ See Transcript BrainCo JAP 1, points [208–2013].

⁴⁶⁴ See Transcript BrainCo JAP 1, points [60–63, 273–275].

⁴⁶⁵ See Transcript BrainCo JAP 1, point [272f.].

⁴⁶⁶ See Transcript BrainCo JAP 1, points [275f., 285–288].

⁴⁶⁷ See Transcript BrainCo JAP 1, points [292–295].

⁴⁶⁸ Transcript BrainCo JAP 1, point [300f.].

⁴⁶⁹ See Transcript BrainCo JAP 1, points [60–65].

⁴⁷⁰ See Transcript BrainCo JAP 1, points [173–175].

⁴⁷¹ See Transcript BrainCo JAP 1, points [49f., 367–369].

⁴⁷² See Transcript BrainCo JAP 1, points [382–384].

⁴⁷³ Transcript BrainCo JAP 1, points [385–387].

⁴⁷⁴ See Transcript BrainCo JAP 1, point [583f.].

⁴⁷⁵ See Transcript BrainCo JAP 1, point [640f.].

⁴⁷⁶ Transcript BrainCo JAP 1, point [599].

⁴⁷⁷ See Transcript BrainCo JAP 1, points [604–610].

BrainCo bases his business on gentlemen's agreements. B BrainCo mentions that he was kind of hesitant, but F BrainCo reassured his trust in their very personal relationship and B BrainCo accepted F BrainCo's decision⁴⁷⁸:

"I do not think it is not acceptable in the big business area, but in small business, some things it happens. Trust did matter." (Transcript BrainCo JAP 1, point [237f.]

However, if F BrainCo eventually decides to cooperate with big players, like big corporations, he will enter a very dangerous situation, in which new terms might need to be negotiated. Particularly big corporations like Toyota are known to become more ruthless over time.⁴⁷⁹ B BrainCo is also concerned about BrainCo's future as with an ever-growing organization, the organization will also need more employees:

"But in the future, he has to decide how he want to create his own company of team. How he wants to develop his team. How he wants to play with his games with people with others, type of things. You have to come up with some kind of a picture, want he wants to play." (Transcript BrainCo JAP 1, points [642–644])

Particularly, talking to bigger corporations and developing into a "professional public corporation", growth is unavoidable and thus also more professional structures.⁴⁸⁰ Therefore, BrainCo considers outsourcing as a potential route to still keep the core team small and control mechanisms low, but grow the team.⁴⁸¹ Nevertheless, B BrainCo's challenge is to "change his [F BrainCo's] attitude, his thinking of developing a team in the future".⁴⁸² B BrainCo can be seen as a mentor and advisor, and also invested private money.⁴⁸³ He wants to make BrainCo an interesting, growing and successful organization.⁴⁸⁴

To grow further, F BrainCo is aware of the importance of creating visibility for his business. Thus, he is participating in start-up programs, like hub and accelerator programs, as well as government programs or local programs.⁴⁸⁵ BrainCo is also focusing on governmental relations overall and even cooperates with a consultant as a middleman between BrainCo and the government and other corporations.⁴⁸⁶ BrainCo is benefitting from the overall Japanese momentum to fight against demographic change, shortage of skilled workers through elongating cognitive abilities. Therefore, also the government is in interested in BrainCo.⁴⁸⁷

⁴⁷⁸ See Transcript BrainCo JAP 1, points [230–232, 236f.].

⁴⁷⁹ See Transcript BrainCo JAP 1, points [245–251].

⁴⁸⁰ See Transcript BrainCo JAP 1, point [629f.].

⁴⁸¹ See Transcript BrainCo JAP 1, points [619–623].

⁴⁸² Transcript BrainCo JAP 1, point [779f.].

⁴⁸³ See Transcript BrainCo JAP 1, points [763, 767].

⁴⁸⁴ See Transcript BrainCo JAP 1, points [771–774].

⁴⁸⁵ See Transcript BrainCo JAP 1, points [273–275].

⁴⁸⁶ See Transcript BrainCo JAP 1, points [76–79].

⁴⁸⁷ See Transcript BrainCo JAP 1, points [570–572].

Additionally, F BrainCo continues to build his network through going to and organizing events, where F BrainCo likes to let people play his game, creating a lot of interest.⁴⁸⁸ In turn, those people provide BrainCo with the necessary “voice” and positive outreach.⁴⁸⁹ F BrainCo also organizes dementia conferences for different interest groups, always eager to build trustful network relationships, which are key success factors.⁴⁹⁰ F BrainCo shows his products and the different usage potentials, his network partners in turn support his business through positive public feedback and eventually selling or recommending it to others.⁴⁹¹

End. With the cloud-based approach and investigation of medical usage, BrainCo was able to pursue three customer directions: Offering the product to the public for people who are eager to train their cognitive abilities (usually middle-aged people); offering their game to nursing homes; and lastly using the game for medical reasons.⁴⁹² Nursing homes are BrainCo’s main target, resulting in a B2B business case.⁴⁹³ To interest nursing homes, F BrainCo was eager to “create a story”, with which he is able to explain the benefits for the elderly and show how the financial payment stream would work.⁴⁹⁴ In the future, BrainCo also considers insurances as a potential customer group, as well as corporations.⁴⁹⁵ Corporations are eager to check their employees’ health and to keep the cognitive abilities of their customers.⁴⁹⁶

But, for BrainCo creating shared value with societal benefits is the main goal.⁴⁹⁷ BrainCo is eager to change societies mindset towards a healthier lifestyle through education and accountability management.⁴⁹⁸ Moreover, BrainCo wants to share (business) opportunities with others and make them available.⁴⁹⁹ On a B2B level, BrainCo cooperates with wholesale, mainly drugstores, to establish playing areas, where the elderly are able to play BrainCo’s game and thereby increase availability of the game and thus societal benefit. The wholesale partner itself is also eager to give back and create societal benefits and offers BrainCo a sales partnership for free.⁵⁰⁰ The following figures show the developed data structure and a visualization of BrainCo’s entrepreneurial process.

⁴⁸⁸ See Transcript BrainCo JAP 1, points [349–352, 361–364].

⁴⁸⁹ Transcript BrainCo JAP 1, point [366f.].

⁴⁹⁰ See Transcript BrainCo JAP 1, points [365–367, 396–398].

⁴⁹¹ See Transcript BrainCo JAP 1, points [364f., 366f., 370f.].

⁴⁹² See Transcript BrainCo JAP 1, points [58f., 69–72, 342f.].

⁴⁹³ See Transcript BrainCo JAP 1, points [59, 354–356].

⁴⁹⁴ Transcript BrainCo JAP 1, points [346–349].

⁴⁹⁵ See Transcript BrainCo JAP 1, points [458–463].

⁴⁹⁶ See Transcript BrainCo JAP 1, points [445–449, 457, 474–476].

⁴⁹⁷ See Transcript BrainCo JAP 1, points [320–323].

⁴⁹⁸ See Transcript BrainCo JAP 1, points [565–568].

⁴⁹⁹ See Transcript BrainCo JAP 1, points [622–624].

⁵⁰⁰ See Transcript BrainCo JAP 1, points [438–445].

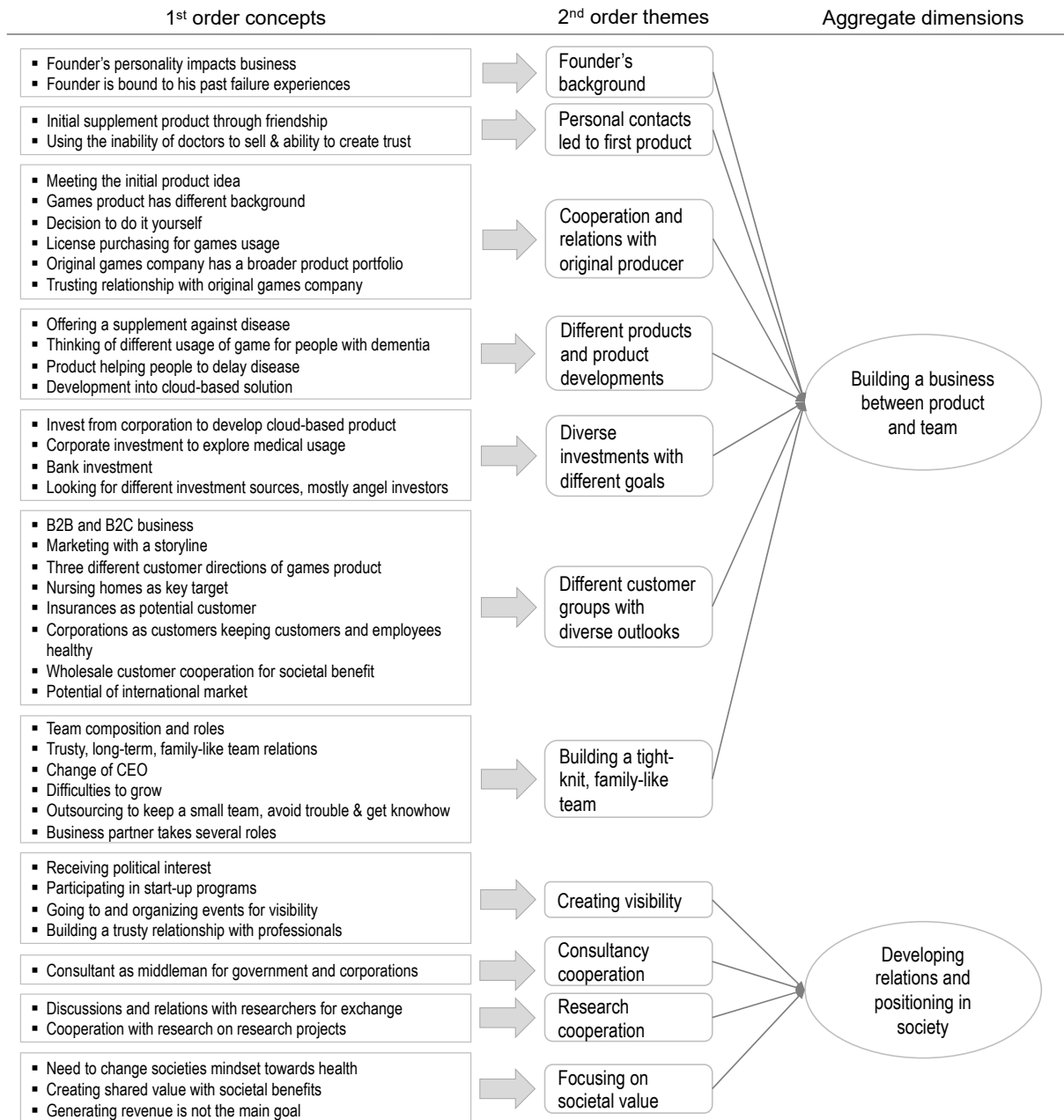


Figure 37: BrainCo Data and Concept Structure
Source: Own illustration of findings.

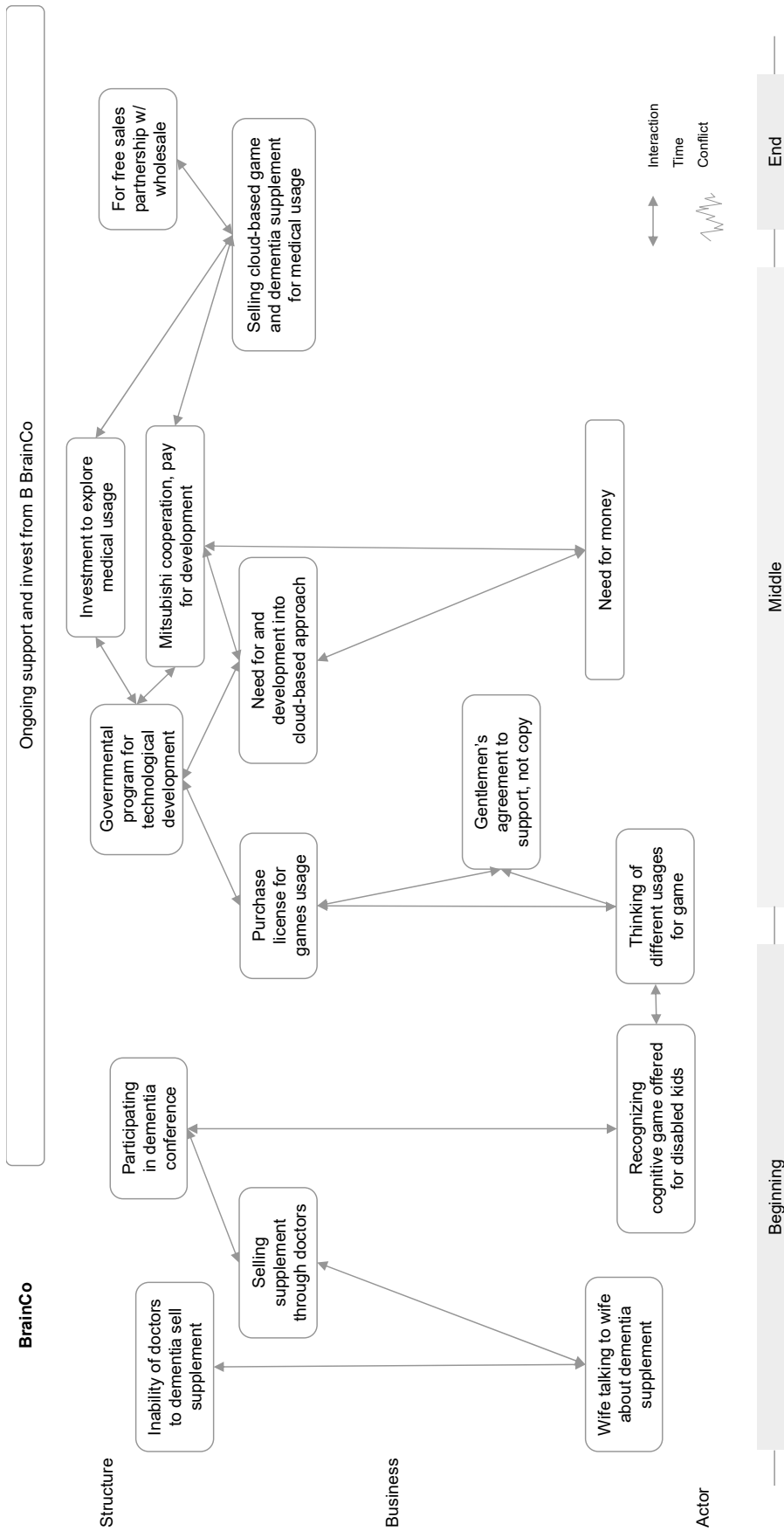


Figure 38: BrainCo Visualization of Entrepreneurial Process
 Source: Own illustration of findings.

4.1.6 Case 6 JAP: FilmCo

The case FilmCo describes the entrepreneurial process of the intercultural start-up FilmCo, which was founded in 2017 as a company with limited liabilities.⁵⁰¹ FilmCo specializes in customized, interactive digital media, mostly films and enables customers, mainly insurances, to collect data and receive insights. The films are based on a specialized algorithm that is adapted to customers' needs and represents the key IP within the company.⁵⁰² The ownership of FilmCo is shared between F1 FilmCo and F2 FilmCo 50:50, and F2 FilmCo is the CEO.⁵⁰³ Figure 39 provides a detailed timeline of events.

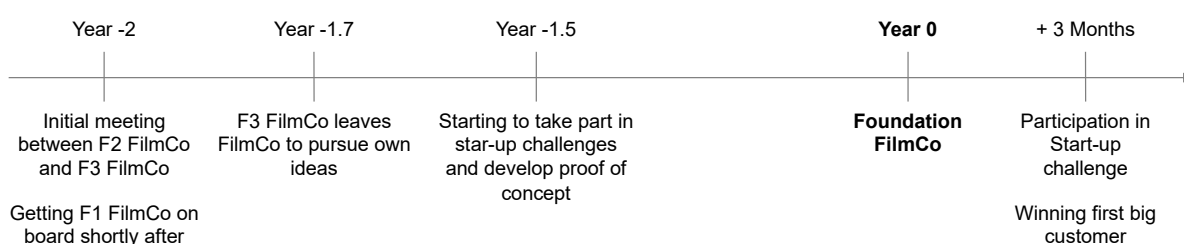


Figure 39: FilmCo Timeline of Events
Source: Own illustration of findings.

FilmCo is highly prone to cultural differences as F1 FilmCo is from Germany and lives in Japan and F2 FilmCo is Australian and lives in Hongkong.⁵⁰⁴ The team met in Japan and was eager to found their business in Japan.⁵⁰⁵ However, Japan, next to basic barriers such as language and culture, has high institutional barriers for foreigners to found a business.⁵⁰⁶ Therefore, the founders decided to found their business in Hong Kong, as F2 FilmCo also has an ID from Hong Kong.⁵⁰⁷ In Hong Kong the prerequisites are very low and easy to reach.⁵⁰⁸ However, F1 FilmCo is still based in Japan as is F2 FilmCo most of the time and they are focusing on Japanese businesses or businesses having an office in Japan. Also, during start-up challenges FilmCo always presents itself as a Japanese start-up.⁵⁰⁹ Therefore, FilmCo is still considered within this thesis as a Japanese start-up and shows that varying the institutional background without changing cultural background shows similar processes as in Germany. Table 17 provides an overview of FilmCo's business characteristics.

⁵⁰¹ See Transcript FilmCo JAP 2, point [85].

⁵⁰² See Transcript FilmCo JAP 2, points [187–193].

⁵⁰³ See Transcript FilmCo JAP 2, points [88–90].

⁵⁰⁴ See Transcript FilmCo JAP 2, point [877].

⁵⁰⁵ See Transcript FilmCo JAP 2, points [45f., 1061–1064].

⁵⁰⁶ See e.g. Transcript FilmCo JAP 2, points [14f., 17f., 20f., 51–53].

⁵⁰⁷ See Transcript FilmCo JAP 2, points [8f., 53f.].

⁵⁰⁸ See e.g. Transcript FilmCo JAP 2, points [9–11, 18–20, 54–59].

⁵⁰⁹ See Transcript FilmCo JAP 2, points [873–876].

Table 17: Overview Business Characteristics FilmCo

Characteristic	FilmCo
Number of founders	<ul style="list-style-type: none"> ▪ Two founders
Team size	<ul style="list-style-type: none"> ▪ No team yet, relying on network for support
Investors	<ul style="list-style-type: none"> ▪ No funding programs ▪ No investor
Years active & foundation	<ul style="list-style-type: none"> ▪ FilmCo has been actively following the entrepreneurial path since 2015 ▪ FilmCo was founded in 2017

Source: Own illustration of findings.

FilmCo is a start-up that was founded by a diverse founding team that brings in qualities, knowledge and skills that perfectly complement each other. With the diverse skill set, FilmCo entered a more internal product development phase, in which the founders developed their product behind closed doors. At some point they decided it is enough and face the real world to proof their concept in pitching contests and challenges. Also, first projects started to gain first insights. In their entire entrepreneurial process, the founders are highly independent and autonomous. As they build a customized product, naturally they started to cooperate with customers not to develop their product but to customize it to the customer needs. Overall, the high chosen independence is remarkable.

Entrepreneurial Process of FilmCo. Beginning. FilmCo's story starts at a TEDx event. F2 FilmCo meets F3 FilmCo and both decide "cool, we should do something together".⁵¹⁰ F2 FilmCo reached a point where she wanted to create and steer something on her own.⁵¹¹ F2 FilmCo suggested that, from her industry perspective, they would need someone who can handle new media. F3 FilmCo mentioned her roommate, who is also a videographer and PhD student, and suggested to get him on board.⁵¹² However, F1 FilmCo never thought or considered starting up. He wanted to stay in academia long-term. But "then this new impulse came and that changed everything".⁵¹³ F1 FilmCo joined the endeavor in Summer 2015.⁵¹⁴ In the beginning, F2 FilmCo did not like F1 FilmCo and the other way around. They were both very cautious with each other. Shortly after the first meeting and building a team, F3 FilmCo

⁵¹⁰ Transcript FilmCo JAP 2, points [1061–1064].

⁵¹¹ See Transcript FilmCo JAP 2, point [126f.].

⁵¹² See Transcript FilmCo JAP 2, points [1064–1067].

⁵¹³ See Transcript FilmCo JAP 2, points [1160–1165].

⁵¹⁴ See Transcript FilmCo JAP 2, point [1078f.].

decided to leave the endeavor as it was not what she wanted to do. But F1 Film Co and F2 FilmCo kept on working, building trust and started FilmCo together.⁵¹⁵

“We then founded last year and then decided, for example, that we were not looking for investors. We will bootstrap.” (Transcript FilmCo JAP 2, point [85f.]

Middle. Both founders actively decided against an investment, even though they had contact to (VC) investors.⁵¹⁶ Especially, F1 FilmCo was strictly against any form of investment, whereas F2 FilmCo was a little bit more open. Personally, F1 FilmCo heard too many bad stories about investors and is in general no fan of big capital.⁵¹⁷ F1 FilmCo even specified that they were highly against an investor from Japan as they want way too much return and are too conservative.⁵¹⁸ Overall, having an investor would also mean too many disadvantages: first, FilmCo would need to share their visions and particularly their insights into future developments through F1 FilmCo’s research job.⁵¹⁹ Second, they would skip experiences with an investor as you already have money to do certain things, you are prone to laziness, as you do not have to work as hard, and thus you never finish.⁵²⁰ Third and most importantly, you lose your freedom. Without an investor, both founders have a 100% decision-making power.⁵²¹ They do also not depend on anyone and are able to make it on their own.⁵²² As only F2 FilmCo actually has savings, they also decided to not invest any private money, keep costs low, pay no salary and live off what they earn.⁵²³ Not generating much revenue, the founders feel more comfortable to not earn an income, not owing anyone the salary.⁵²⁴ Also, the risk is too high to getting used to an income and establishing too high private fixed costs.⁵²⁵ Therefore, F1 FilmCo has a day-job as well and F2 FilmCo lives off her savings.⁵²⁶ However, due to the lack of investment, FilmCo acts rather risk averse.⁵²⁷

To collect first experience and get a foot into the door, FilmCo decided to do three projects for free pre-foundation. These projects were a huge learning curve because the companies were purely exploiting FilmCo’s service and never came back. The founders learned that never to offer something for free as it will not help you in any way and got a lot more confident.⁵²⁸

⁵¹⁵ See Transcript FilmCo JAP 2, points [1068–1073].

⁵¹⁶ See Transcript FilmCo JAP 2, point [149f.].

⁵¹⁷ See Transcript FilmCo JAP 2, points [116–118, 1043–1047].

⁵¹⁸ See Transcript FilmCo JAP 2, points [184–186].

⁵¹⁹ See Transcript FilmCo JAP 2, points [106–109].

⁵²⁰ See Transcript FilmCo JAP 2, points [689–694, 699–702, 706–709].

⁵²¹ See Transcript FilmCo JAP 2, points [106, 112f., 366–368].

⁵²² See Transcript FilmCo JAP 2, points [158f., 703–705,].

⁵²³ See Transcript FilmCo JAP 2, points [813–818, 824f.].

⁵²⁴ See Transcript FilmCo JAP 2, points [997–999].

⁵²⁵ See Transcript FilmCo JAP 2, points [1023–1028].

⁵²⁶ See Transcript FilmCo JAP 2, point [980f.].

⁵²⁷ See Transcript FilmCo JAP 2, points [368–372].

⁵²⁸ See Transcript FilmCo JAP 2, points [1079–1091].

Additionally, FilmCo decided to also do some regular film productions, commercials that bring in some money.⁵²⁹ They did such projects around and after their foundation over a time period of three to four months to cover costs and survive.⁵³⁰

Product-wise, first, the founders actively decided against an App-solution as it is too common.⁵³¹ In the beginning the idea was not “sparkling”.⁵³² They started with a relatively simple video explaining a product.⁵³³ But, F2 FilmCo, as a very curious person, kept on asking questions about potential developments, ideas and thoughts over a time frame of two months. F2 FilmCo, being on the production side, was able to tell her if he was able to incorporate the idea or if he can perform the development. And through the interaction between F2 FilmCo asking questions and F1 FilmCo incorporating new thoughts, the idea evolved.⁵³⁴ After two months, the founders decided to stop and take their thoughts to the real world:

“Then the idea kept evolving, it kept getting bigger. Then we said, ‘That is enough for now, otherwise it is going to be crazy’.” (Transcript FilmCo JAP 2, points [644–648])

For FilmCo going out to the real world with a raw and still shapable product, talking to customers was the key and a next step into their development.⁵³⁵ But, they also felt forced to go out as generating some revenue quickly became very important.⁵³⁶ The founders were able to show a prototype and particularly the development potential they have and thereby they were able to explain what they are capable of rather than explaining the business model.⁵³⁷ Most potential customers and investors were not that interested in the product itself but in the diverse founding team.⁵³⁸ The founders decided to keep on developing as going to a potential customer with a proposal was just not enough and they needed more precise ideas⁵³⁹:

“And then we started, ‘OK, what can we do?’ And I have to admit, that was critical in the beginning. Because we really hung ourselves out the window, but we made it. And that was quite a wrenching and twisting, but we got it done. And of course, we have also developed our skills extremely, which was good. But at some points it was like ‘Urghh!’. There are also moments when we yell at each other on the phone. The good thing is that we do not blame ourselves. That is really good! In the beginning I had jitters. But the beauty of HState women, apparently, is that they can handle it.” (Transcript FilmCo JAP 2, points [1105–1113])

⁵²⁹ See Transcript FilmCo JAP 2, points [374–376, 825–833].

⁵³⁰ See Transcript FilmCo JAP 2, points [833–835].

⁵³¹ See Transcript FilmCo JAP 2, point [134f.].

⁵³² Transcript FilmCo JAP 2, point [644f.].

⁵³³ See Transcript FilmCo JAP 2, point [1074].

⁵³⁴ See Transcript FilmCo JAP 2, points [1074–1077].

⁵³⁵ See Transcript FilmCo JAP 2, points [643f., 658–661].

⁵³⁶ See Transcript FilmCo JAP 2, point [643f.].

⁵³⁷ See Transcript FilmCo JAP 2, points [235–239, 869–871].

⁵³⁸ See Transcript FilmCo JAP 2, points [249–255].

⁵³⁹ See Transcript FilmCo JAP 2, points [1103–1105].

With some more precise but still rough ideas, FilmCo decided to get feedback from the market and, after a start-up challenge presenting their ideas, potential customers were eager to develop a proof of concept together.⁵⁴⁰ For FilmCo it was rather easy to get to start-up challenges to meet potential customers but also investors.⁵⁴¹ And with these challenges, the proof of concept, and particularly communicating with clients and the market, their product took more and more shape, getting rid of the unnecessary parts.⁵⁴²

Eventually, FilmCo developed an algorithm that is and shall be customizable and allows FilmCo to offer interactive media for other businesses to use instead of paperwork and forms and are e.g. able to investigate risk profiles and not letting their customers do a self-classification.⁵⁴³ The algorithm is tested and proofed⁵⁴⁴ and FilmCo engages mainly in film productions for businesses in the insurance and finance sector, even though the media outlet and the market is interchangeable.⁵⁴⁵ Particularly at start-up challenges, mostly banks and insurances showed interest in FilmCo's ideas, which led to the decision to focus on those two industries. Additionally, F2 FilmCo worked in the insurance and finance sector before, which helped to understand those industries.⁵⁴⁶

One start-up challenge stood out as only three months after its existence, FilmCo won the start-up challenge in Summer 2017.⁵⁴⁷ The challenge was politically heated and FilmCo was able to win as the first Japanese team ever (without having any Japanese person on the team)⁵⁴⁸ with presenting only understandable and digestible information⁵⁴⁹ and its unique team set-up. In comparison to others, FilmCo does not "lack the face"⁵⁵⁰ and has someone from the business world "to kick butt"⁵⁵¹:

"And I think that is the great opportunity we have. Our greatest potential, the mix of the two of us. That I do not want anything to do with her world and she does not want anything to do with mine. But we still found a common point, we found this point of attack where we pull together." (Transcript FilmCo JAP 2, points [165–168])

At the challenge itself, FilmCo generated a lot of interest on the executive level and received many inquiries afterwards.⁵⁵² Basically, FilmCo boomed and everything happened very quickly

⁵⁴⁰ See Transcript FilmCo JAP 2, points [266f., 648–650].

⁵⁴¹ See Transcript FilmCo JAP 2, points [227–229].

⁵⁴² See Transcript FilmCo JAP 2, points [661–663].

⁵⁴³ See Transcript FilmCo JAP 2, points [187–193, 199–204].

⁵⁴⁴ See Transcript FilmCo JAP 2, point [811f.].

⁵⁴⁵ See Transcript FilmCo JAP 2, points [188, 193–195, 299f.].

⁵⁴⁶ See Transcript FilmCo JAP 2, points [286–290, 299f.].

⁵⁴⁷ See Transcript FilmCo JAP 2, point [138f.].

⁵⁴⁸ See Transcript FilmCo JAP 2, points [871–877].

⁵⁴⁹ See Transcript FilmCo JAP 2, points [345–350].

⁵⁵⁰ Transcript FilmCo JAP 2, point [258].

⁵⁵¹ Transcript FilmCo JAP 2, point [164f.].

⁵⁵² See Transcript FilmCo JAP 2, points [262–264, 837–839].

and unexpected.⁵⁵³ FilmCo was able to win a big customer from the French insurance sector, with which they are planning to work with long-term.⁵⁵⁴ Particularly winning this customer confirms FilmCo in its ideas and motivates to go on with the business endeavor.⁵⁵⁵

For FilmCo it is of high importance to build a trusting relationship on both sides with their customer⁵⁵⁶ pursuing a long-term relationship,⁵⁵⁷ building their customized solution through going back and forth in co-development.⁵⁵⁸ FilmCo expects some knowledge on customer side to actually work together and not wasting time explaining every single detail.⁵⁵⁹ However, due to bureaucratic steps on the customer side, the project takes much longer than FilmCo anticipated, whereas they are able to finish their part early.⁵⁶⁰ Additionally, FilmCo is eager to push internal innovation within customers business, even though many businesses are not that open for innovation.⁵⁶¹ Usually, just some information sticks and after a couple of months and thinking through on the customer side, they are coming back⁵⁶²:

“And that is of course, when you hear that - you do not even have to be told that - it feels like ‘Hey, the two of us alone, with this two-man business, [...] From our coffee shop tables, we had this impact on a multi-billion global corporation or something.’ Of course, that is cool. That also confirms you.” (Transcript FilmCo JAP 2, points [453–458])

End. Despite the high interest of the insurance and finance sector, both sectors are lacking knowledge.⁵⁶³ Often, FilmCo faces the problem that potential customers are interested but are afraid due to the lack of understanding and it is helpful to have at least one person in the customer’s team, who understands and FilmCo can work with.⁵⁶⁴ Or FilmCo faces the problem that customers are interested in the beginning, do not understand the idea and do not go through with a project.⁵⁶⁵ In this case, FilmCo does also take back offers, if customers are not getting back to them soon to not block capacities.⁵⁶⁶ Therefore, FilmCo is eager to not stick to one country market but is open to internationalize and offer their ideas worldwide, depending on where customer cooperation is easier.⁵⁶⁷

⁵⁵³ See Transcript FilmCo JAP 2, points [835–837].

⁵⁵⁴ See Transcript FilmCo JAP 2, points [138–142, 332–334].

⁵⁵⁵ See Transcript FilmCo JAP 2, points [470–473, 809–811].

⁵⁵⁶ See Transcript FilmCo JAP 2, point [334f.].

⁵⁵⁷ See Transcript FilmCo JAP 2, points [145–147].

⁵⁵⁸ See Transcript FilmCo JAP 2, points [268f., 273–277].

⁵⁵⁹ See Transcript FilmCo JAP 2, points [338–343, 385–389].

⁵⁶⁰ See Transcript FilmCo JAP 2, points [430–433].

⁵⁶¹ See Transcript FilmCo JAP 2, points [380–382].

⁵⁶² See Transcript FilmCo JAP 2, points [395–399].

⁵⁶³ See Transcript FilmCo JAP 2, points [296–299].

⁵⁶⁴ See Transcript FilmCo JAP 2, points [338–343].

⁵⁶⁵ See Transcript FilmCo JAP 2, points [468–472].

⁵⁶⁶ See Transcript FilmCo JAP 2, points [381–384].

⁵⁶⁷ See Transcript FilmCo JAP 2, points [214–216, 517f.].

Being in the market, FilmCo is very aware of the risk of IP drainage and its non-existent protection mechanisms. They are particularly afraid of middle sized and bigger corporations, who would be able to offer the same product using an algorithm. FilmCo would be forced to lower prices and then would not be able to keep up their business.⁵⁶⁸ Even during the interview, F1 FilmCo was concerned about what information to share:

“That is why I always have to think about how much I can tell you, because I am not allowed to talk about our algorithm, for example. That would almost be an economic suicide.” (Transcript FilmCo JAP 2, points [631–633])

However, the founders are content about their skill set and team configuration.⁵⁶⁹ Also, F1 FilmCo as a researcher has primary knowledge about future developments.⁵⁷⁰ Nevertheless, F1 FilmCo searches for competitors on a monthly basis.⁵⁷¹ Also, customers want to see FilmCo’s algorithm protected as they are paying a lot of money for the product.⁵⁷² Therefore, FilmCo decided to work with Non-Disclosure-Agreements (NDA). Even friends and family have to sign an NDA.⁵⁷³ Especially as FilmCo does not have a team (yet), they need to rely on their huge network in the creative scene when pursuing projects.⁵⁷⁴ With those network relations it is of highest importance to build a recursive, long-term and trustful relationship, always helping each, mostly for free.⁵⁷⁵ In the beginning of January 2018, they started to investigate the option of a patent. But it was difficult, and the patent stayed an open topic.⁵⁷⁶

Overall, FilmCo’s vision is to build and fight for a business long-term that is able to generate something good while also generating a full income for both founders and a potential team.⁵⁷⁷ Especially for F1 FilmCo those values are of high importance and they impact every decision of the business, even though F2 FilmCo only accepted them eventually.⁵⁷⁸ For F1 FilmCo it is important to keep the decision power and make ideological decisions on who to work with. He is eager to stick to his ideas and not bend for any wish.⁵⁷⁹ The following figures present the developed data structure and a visualization of FilmCo’s entrepreneurial process.

⁵⁶⁸ See Transcript FilmCo JAP 2, points [621–625].

⁵⁶⁹ See Transcript FilmCo JAP 2, points [797–801].

⁵⁷⁰ See Transcript FilmCo JAP 2, points [106–109].

⁵⁷¹ See Transcript FilmCo JAP 2, points [843–847].

⁵⁷² See Transcript FilmCo JAP 2, points [636–638].

⁵⁷³ See Transcript FilmCo JAP 2, points [625–627, 633–636].

⁵⁷⁴ See Transcript FilmCo JAP 2, points [584–589, 594–596].

⁵⁷⁵ See Transcript FilmCo JAP 2, points [601–604, 611–616, 856f.].

⁵⁷⁶ See Transcript FilmCo JAP 2, points [782–788].

⁵⁷⁷ See Transcript FilmCo JAP 2, points [118–121, 1142–1145, 1150–1153].

⁵⁷⁸ See Transcript FilmCo JAP 2, points [114–118, 122f.].

⁵⁷⁹ See Transcript FilmCo JAP 2, points [307–309].

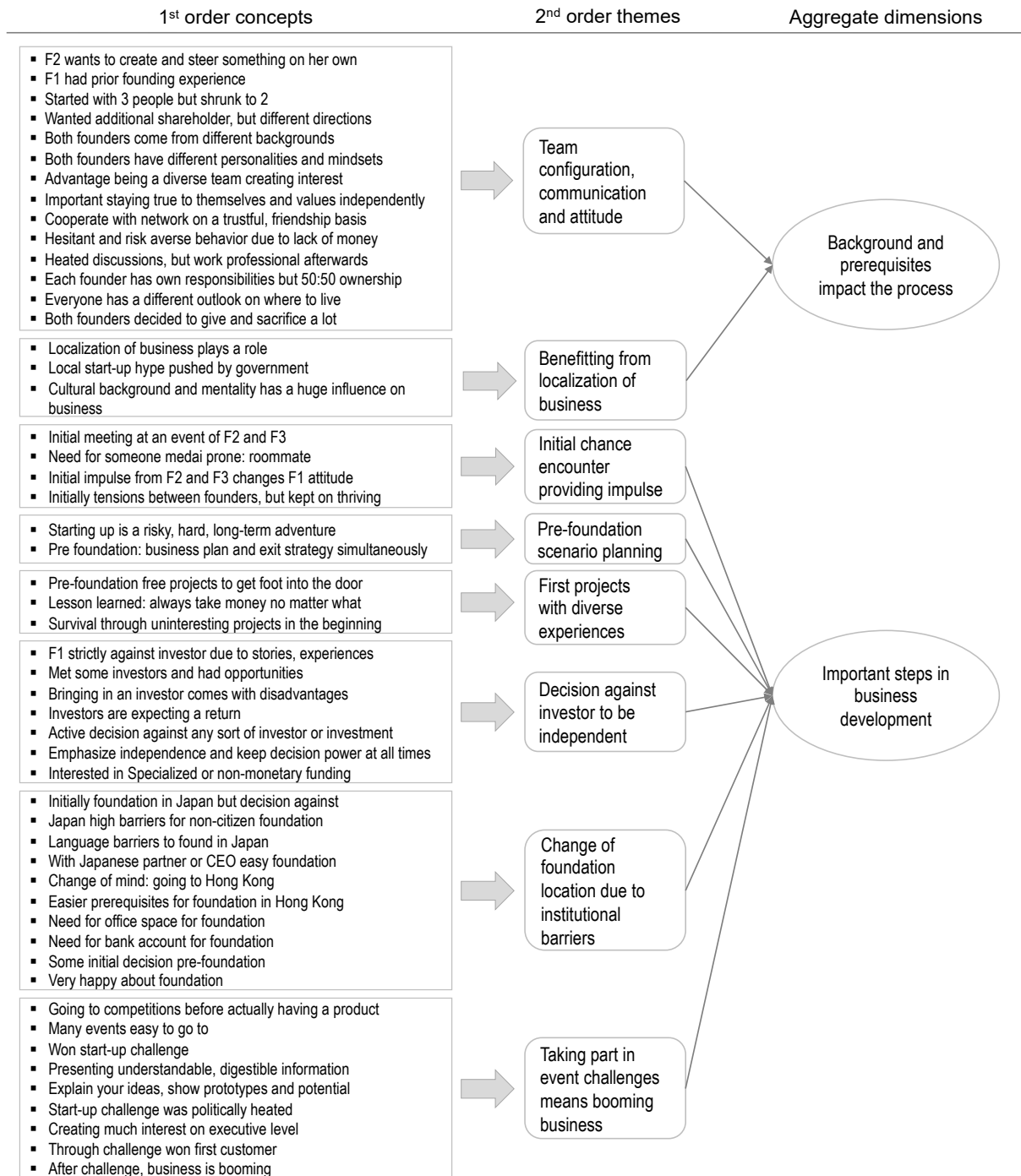


Figure 40: FilmCo Data and Concept Structure
Source: Own illustration of findings.

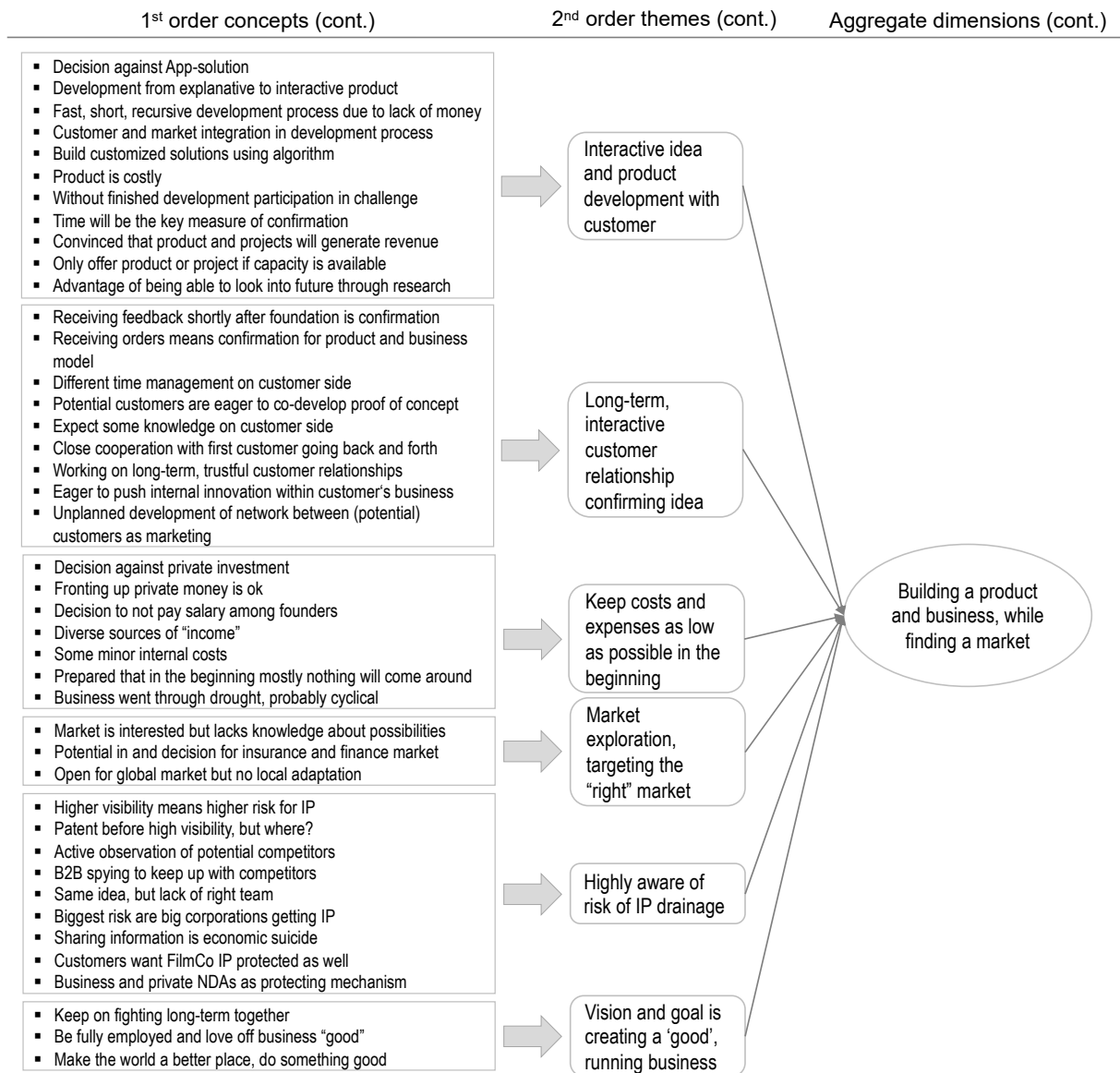


Figure 41: FilmCo Data and Concept Structure (cont.)
Source: Own illustration of findings.

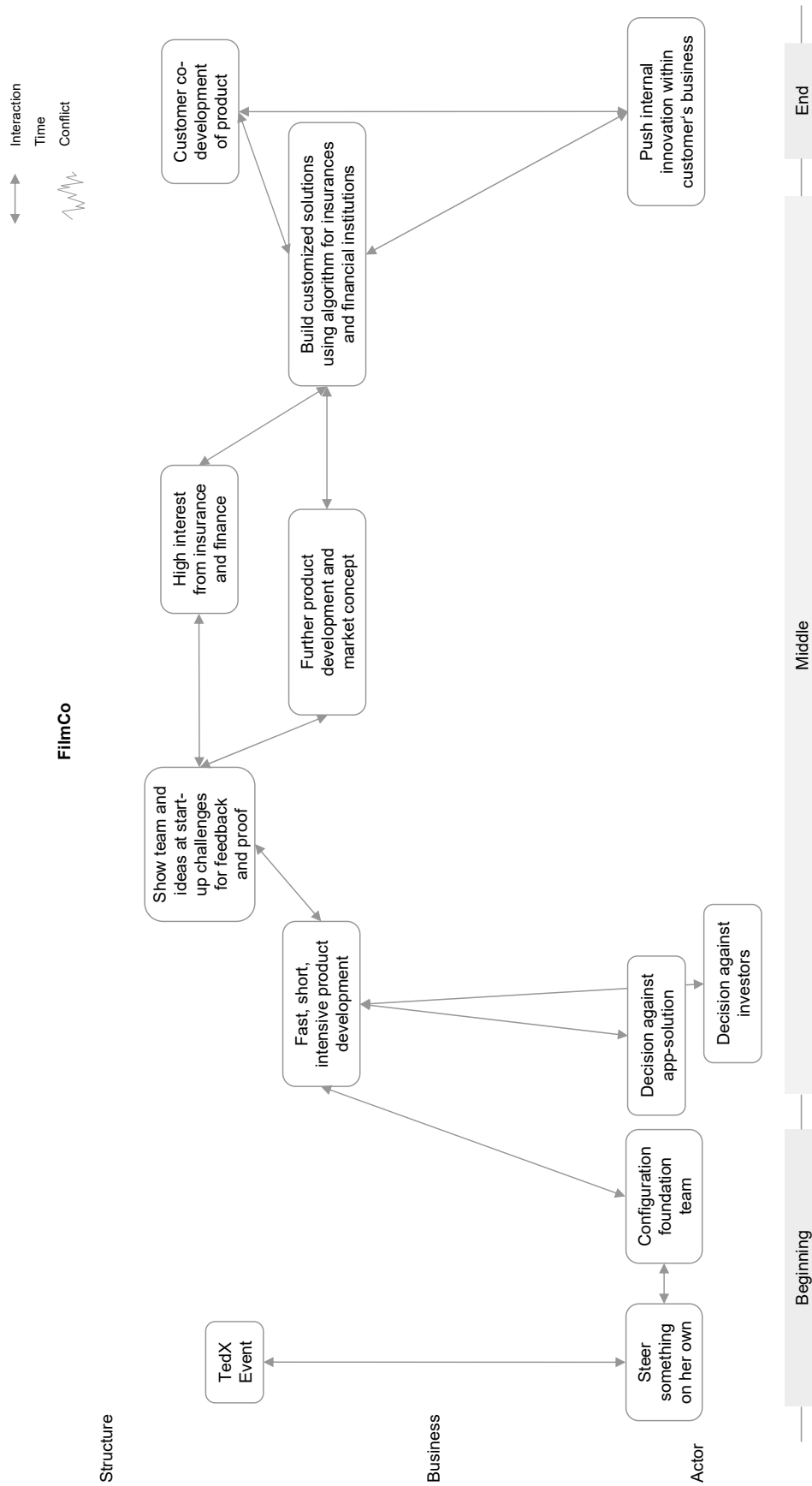


Figure 42: FilmCo Visualization of Entrepreneurial Process
 Source: Own illustration based on findings.

4.1.7 Case 7 JAP: PetCo

“How F PetCo, CEO of PetCo created the best-selling product among the cat litter category on amazon Japan using IoT/AI?” (News article about PetCo)

The case PetCo considers the IoT start-up PetCo, which was founded in 2015 as a company with limited liabilities. F PetCo established his fourth business combining his interests and skills in the field of IoT and pets. However, he was not successful from the beginning on. After an internal crisis, together with his team, F PetCo was able to find new directions and work on an IoT cat toilet, a “multi machine for pet health”, called PetWC.⁵⁸⁰ With the PetWC, PetCo is able to provide a functioning cat toilet to pet owners, while and most importantly being a “collecting data machine” as “it is all about information”.⁵⁸¹ A detailed timeline of events can be seen in Figure 43, and Table 18 summarizes the key characteristics of PetCo.

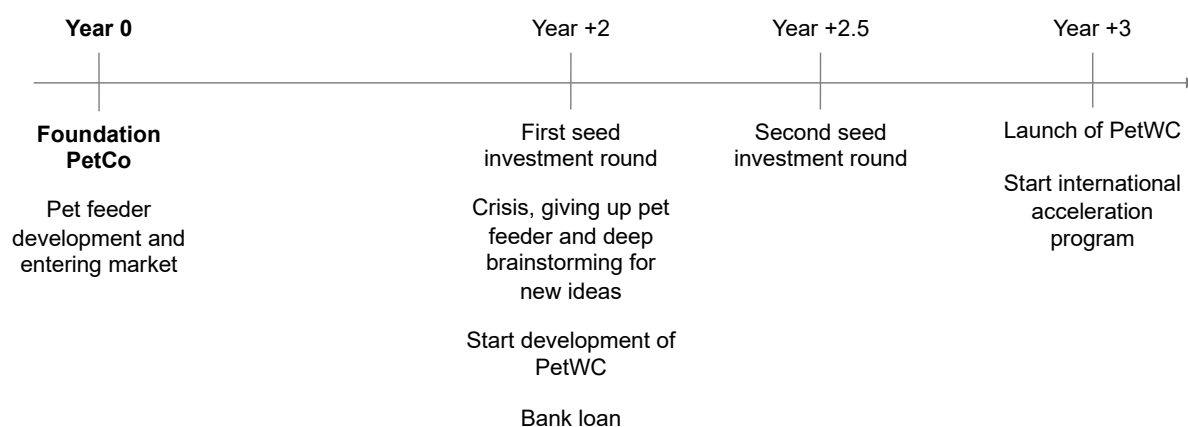


Figure 43: PetCo Timeline of Events
Source: Own illustration of findings.

Table 18: Overview Business Characteristics PetCo

Characteristic	PetCo
Number of founders	<ul style="list-style-type: none"> ▪ One founder
Team size	<ul style="list-style-type: none"> ▪ Around six employees
Investors	<ul style="list-style-type: none"> ▪ One bank loan ▪ Ten investors, five private investors, five business investors
Years active & foundation	<ul style="list-style-type: none"> ▪ PetCo has been actively following the entrepreneurial path since 2015 ▪ PetCo was founded in 2015

Source: Own illustration of findings

⁵⁸⁰ Transcript PetCo JAP 3, points [24–36, 43–49, 258f.]

⁵⁸¹ Transcript PetCo JAP 3, points [258, 273].

The case outlines the journey of F PetCo's business ventures, the challenges he faced, and the strategic decisions he and his team made to turn things around and find success in the pet tech industry. It becomes obvious that the key to the case PetCo is the shift from a top-down, founder led start-up, to a communicative employee-focused start-up. PetCo's success mainly depends on its employees, the employees had the idea for their product, employees represent PetCo at e.g. competitions, pitches and events. And only with the success of his employees, also PetCo will be successful. As a serial entrepreneur, F PetCo had to learn a lot during his last venture and change his view on businesses completely. Interestingly, the learning journey takes place along employees and other stakeholders such as investors and customers only play minor roles. Especially with investors, advice is usually not taken but F PetCo is eager to build investor relationships based on transparency and trust, even though investors might not fully understand the pet industry specifics.

Entrepreneurial Process of PetCo. Beginning. In March 2011, Japan experienced a tremendous earthquake, which led to a tsunami and a terrible catastrophe for Japan.⁵⁸² F PetCo was of course following all the media, and he was shaken up:

"I break off every day. When I watched the TV about the tragedy of earthquake especially pet is separated from owners. So I decided to dedicate to pet, I want to know more about pet and human relations." (Transcript PetCo JAP 3, points [75–77])

As F PetCo really liked pets, especially dogs, he founded his first pet business PetWorldCo in 2012, two pet shops in different areas. However, F PetCo knew nothing about pets. The pet shops did not go so well and eventually F PetCo changed the focus and kept running his business PetWorldCo. However, he missed the IT world and knew that he had deep IT knowledge and saw the potential of data bases. So, he decided to found his fourth business, PetCo, in 2015 combining his love and passion for pets with his IT knowledge.⁵⁸³

Middle. F PetCo's first idea was to create an automatic pet feeder, collecting data on pet feeding behavior.⁵⁸⁴ To do so, F PetCo conducted a first seed investment round in 2017 worth 40,000 USD.⁵⁸⁵ PetCo was able to gain ten investors, who became shareholders.⁵⁸⁶ All investors were interested if F PetCo is a good person and thus a good invest.⁵⁸⁷ Additionally, investors were looking at the engineering skills PetCo was able to gain through its employees, which seemed promising.⁵⁸⁸ Fortunately, F PetCo had no difficulties to find 'good' staff, as

⁵⁸² See Transcript PetCo JAP 3, point [74f.].

⁵⁸³ See Transcript PetCo JAP 3, points [24f., 27–30, 76–84].

⁵⁸⁴ See Transcript PetCo JAP 3, points [30–34].

⁵⁸⁵ See Transcript PetCo JAP 3, points [195, 199f.].

⁵⁸⁶ See Transcript PetCo JAP 3, points [165, 225f.].

⁵⁸⁷ See Transcript PetCo JAP 3, point [179f.].

⁵⁸⁸ See Transcript PetCo JAP 3, point [160f.].

many people are eager to work for a pet company.⁵⁸⁹ Also, the location of PetCo has many benefits for employees (relaxation areas, less traffic).⁵⁹⁰ F PetCo was able to build a highly motivated team.⁵⁹¹ Choosing the right people is essential, otherwise the “start-up is crushed”.⁵⁹²

Also, investors saw the overall market potential in the growing pet market, but were questioning the competitive advantage.⁵⁹³ However, F PetCo describes that no investor ever cared much about the actual product, nor did they understand it.⁵⁹⁴ F PetCo was able to convince the investors with his “strong points”: him being a serial entrepreneur, who already learned a lot by making mistakes; everyone within the business is highly passionate.⁵⁹⁵ F PetCo is eager to build a trustful relationship with his investors. Therefore, he reports once or every two months to his investor in one-on-one calls.⁵⁹⁶ Despite the information flow, the investors are only there for the investment.⁵⁹⁷ They do, however, give advice from time to time and introduce points of contact, which F PetCo has mixed feelings about:

“Sometimes they have an advice for me. But always advice is junk, not good for me because they are not professionals in pet business. They introduce some companies for us to connect business for example two good animal hospitals. They introduce me. This is good for us.” (Transcript PetCo JAP 3, points [235–237])

As said, with the invest PetCo was eager to build an automatic pet feeder. Even though the pet feeder could be used universal for any pet, PetCo was focusing on dogs. However, PetCo’s pet feeder did not really have a competitive advantage over other existing pet feeders.⁵⁹⁸ Soon after launching, F PetCo noticed that the “pet feeder is not good at business” and he decided to let go of his idea after just one year.⁵⁹⁹ PetCo hit rock-bottom:

“Last year was worst, terrible! Because old pay days fault, fault, no money, no ideas for business. We had nothing last year.” (Transcript PetCo JAP 3, points [421f.])

However, the pet tech market is growing all over the world and F PetCo assumes that the pet tech market in Japan will also grow further, and he is eager to conquer markets abroad,⁶⁰⁰ which means that “the opportunity to win is high”.⁶⁰¹ In a next step, F PetCo decided to change

⁵⁸⁹ See Transcript PetCo JAP 3, point [341f.].

⁵⁹⁰ See Transcript PetCo JAP 3, points [351–354].

⁵⁹¹ See Transcript PetCo JAP 3, points [176f., 339f.].

⁵⁹² Transcript PetCo JAP 3, point [340f.].

⁵⁹³ See Transcript PetCo JAP 3, points [174–176].

⁵⁹⁴ See Transcript PetCo JAP 3, points [224–227, 236].

⁵⁹⁵ Transcript PetCo JAP 3, points [176–179].

⁵⁹⁶ See Transcript PetCo JAP 3, point [228f.].

⁵⁹⁷ See Transcript PetCo JAP 3, point [169].

⁵⁹⁸ See Transcript PetCo JAP 3, points [35–39].

⁵⁹⁹ See Transcript PetCo JAP 3, points [34–37].

⁶⁰⁰ See Transcript PetCo JAP 3, points [153–155, 359f.].

⁶⁰¹ Transcript PetCo JAP 3, point [156f.].

the target group from dogs to cats in 2017 as cats would be a more promising consumer group and there are more cat owners.⁶⁰² However, F PetCo has no knowledge about cats.⁶⁰³

As the opportunity and market potential is there, PetCo needed a turn of events and F PetCo eventually learned about how important his team and good communication is.⁶⁰⁴ Only with trust on both sides, a successful business can evolve.⁶⁰⁵ With his highly skilled and qualified team, which consists of six employees, he conducted a brainstorming session.⁶⁰⁶ F PetCo encouraged each employee to really think about PetCo's future and innovative ideas:

*"I want to hear new and innovative ideas from them and pushed it. Think, think, think about it! More thinking and push out. They came out with new idea, IoT toilet."
(Transcript PetCo JAP 3, point [48f.]*

Two employees were able to think of an IoT toilet for pets, especially cats, and together the team decided to go for it – PetWC. With this brainstorming session, PetCo reached a turning point in its business activities and structures. The decision-making system changed. Employees are now involved and part of decisions.⁶⁰⁷ Also, F PetCo is more honest and open to employees⁶⁰⁸ and "found trust" and describes that "each member understands business and direction, which is very important".⁶⁰⁹ The entire team has now regular, weekly meetings.⁶¹⁰ Additionally, F PetCo now feels highly responsible for the career paths of his employees, gets involved and gives directions. PetCo's path is intertwined with the path of its employees.⁶¹¹

So, the team internally developed PetWC for one year and wants to launch their product by August 2018.⁶¹² To pursue the development, F PetCo was able to get a bank loan over 20,000 USD from a governmental bank, without spreading shares and any guarantee or collateral. Also the bank was not interested in the product, but only in F PetCo as a person.⁶¹³ F PetCo conducted a second financing round with his investors in March 2018 for 60,000 USD.⁶¹⁴

*"Our investment raising fund, we had a fund raising of 100.000 \$. This number is the highest number in the Japanese pet market, pet company. Many investors looking forward to the possibilities and our engineering skill and looking forward to us."
(Transcript PetCo JAP 3, points [159–161])*

⁶⁰² See Transcript PetCo JAP 3, points [38–40, 96–98, 102–105].

⁶⁰³ Transcript PetCo JAP 3, points [40f., 413].

⁶⁰⁴ See Transcript PetCo JAP 3, points [417–419].

⁶⁰⁵ See Transcript PetCo JAP 3, point [182f.].

⁶⁰⁶ See Transcript PetCo JAP 3, points [158, 333, 339].

⁶⁰⁷ See Transcript PetCo JAP 3, points [412–415].

⁶⁰⁸ See Transcript PetCo JAP 3, points [181–183].

⁶⁰⁹ Transcript PetCo JAP 3, points [415–417].

⁶¹⁰ See Transcript PetCo JAP 3, point [469f.].

⁶¹¹ See Transcript PetCo JAP 3, points [419f., 497–500, 509–514].

⁶¹² See Transcript PetCo JAP 3, points [45–48, 58].

⁶¹³ See Transcript PetCo JAP 3, points [212–216, 224].

⁶¹⁴ See Transcript PetCo JAP 3, points [191, 195, 199f.].

With the money, PetCo developed a multi-facet product for pet health, which consists of hardware technology collecting data for PetCo.⁶¹⁵ Producing the hardware components is not as easy, takes time and money.⁶¹⁶ Cheap production is essential, which would direct towards China. China is, however, a very dangerous market, especially as F PetCo is not sure that his protection mechanisms are enough. PetCo applied for two patents that are pending. F PetCo patented two key technologies in the US, China and considers expanding it to the EU.⁶¹⁷

End. Nevertheless, the key of PetWC is data collection and PetCo is creating its own data base. With the data, e.g. diseases can be detected and monitored. The collected data is the key to business, as many companies, but also veterinarians and hospitals are interested. One of the biggest potential customers are pet insurances, as they have a big market potential and need data to calculate the risks. 5% of pet owners already have pet insurance, which is a market volume of 400,000 USD.⁶¹⁸ Some companies are also considering a collaboration, as do some research institutes. Particularly research is interested in data collection, when they are researching e.g. cat diseases.⁶¹⁹ To have a successful business-customer relationship, F PetCo emphasizes that it is important to always be honest and create trust.⁶²⁰

Overall, after making the decision in favor of cats and developing PetWC, changed PetCo's path for the better: "Now is a very good situation for us".⁶²¹ PetCo in fact, is eager to participate in an international acceleration program and started the process in March 2018. The acceleration program would allow PetCo to find partners much earlier than anticipated, but PetCo itself is also an enrichment to the program. However, as it is an international program from the US, F PetCo is intimidated due to language barriers and he has little experience in doing business in the US.⁶²² To become part of the acceleration program and reach higher visibility, PetCo participated in (m)any start-up competitions. Convincing with the pitch, is highly essential to get more visibility and be recognized by investors and customers. F PetCo decided that usually his employees shall pitch to get the experience. The team supports each other tremendously, and if they win, everyone celebrates together.⁶²³ In their local area, PetCo then gets "very good press, we are so strong".⁶²⁴ The following figures show the developed data structure and present a visualization of PetCo's entrepreneurial process.

⁶¹⁵ See Transcript PetCo JAP 3, points [257, 293f.].

⁶¹⁶ See Transcript PetCo JAP 3, point [298].

⁶¹⁷ See Transcript PetCo JAP 3, points [316–318, 323].

⁶¹⁸ See Transcript PetCo JAP 3, points [242–252, 258–261].

⁶¹⁹ See Transcript PetCo JAP 3, points [282–288].

⁶²⁰ See Transcript PetCo JAP 3, points [181–183].

⁶²¹ Transcript PetCo JAP 3, point [420].

⁶²² See Transcript PetCo JAP 3, points [363–370].

⁶²³ See Transcript PetCo JAP 3, points [484–491, 497–499, 505–507].

⁶²⁴ Transcript PetCo JAP 3, point [354].

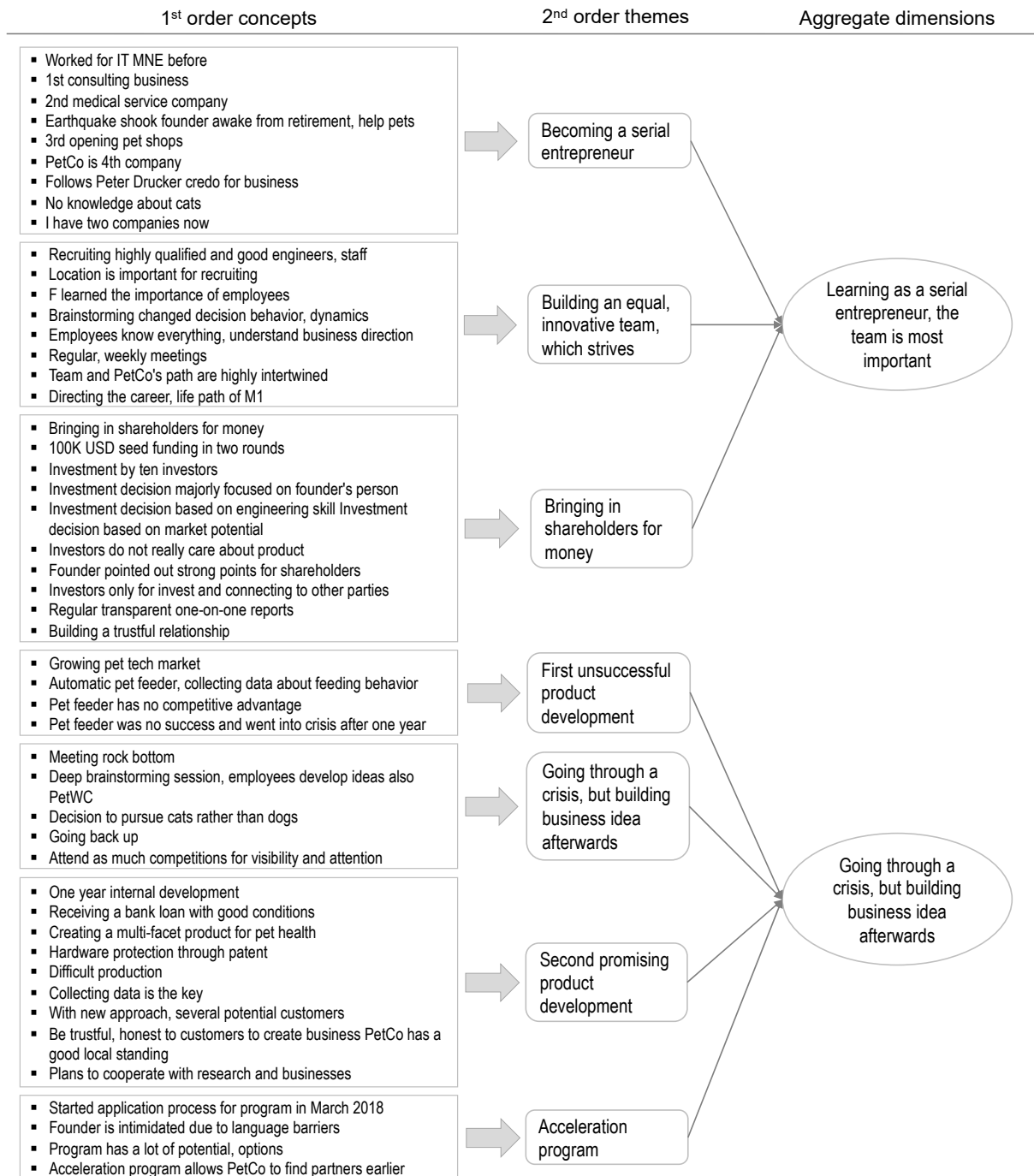


Figure 44: PetCo Data and Concept Structure
Source: Own illustration of findings.

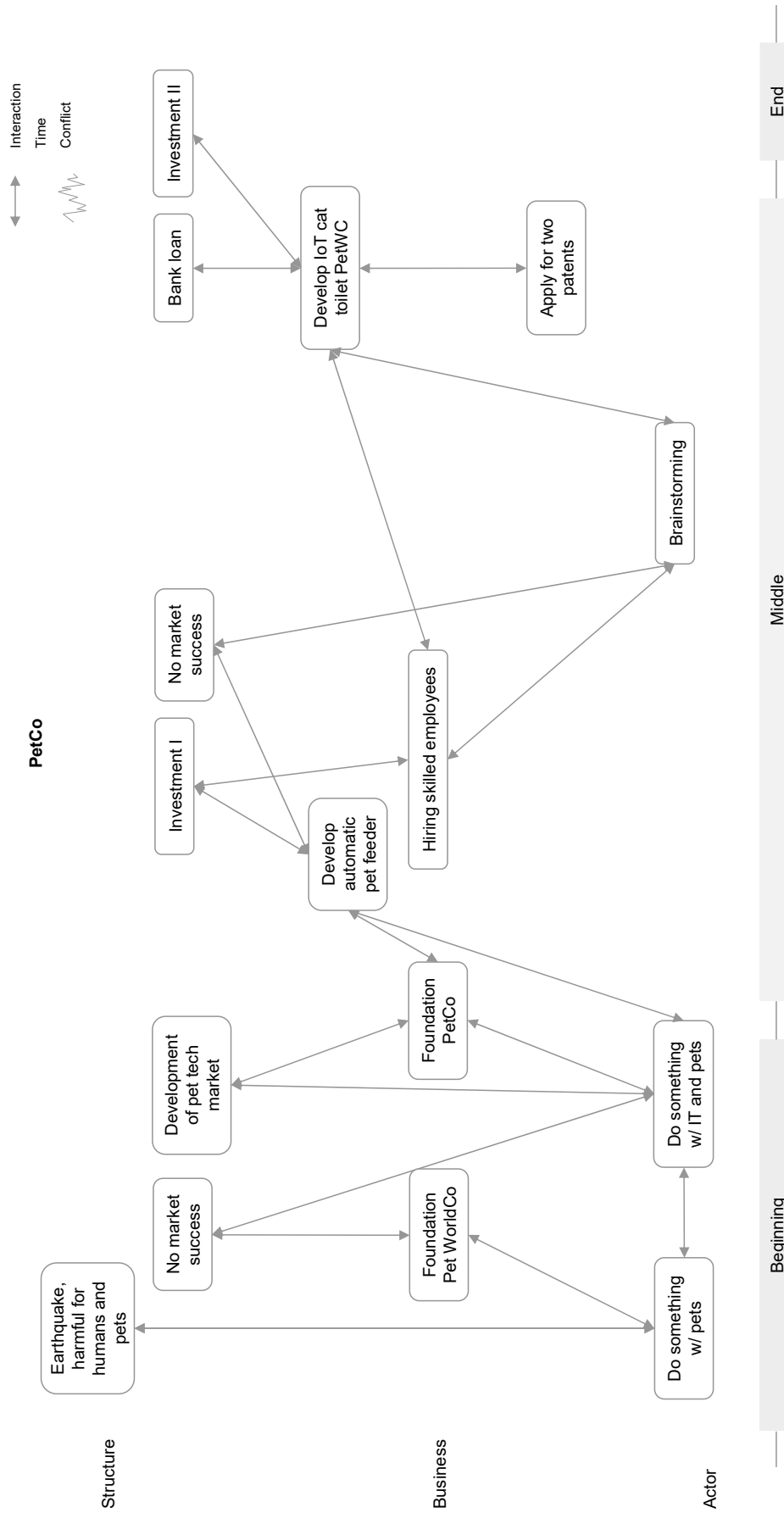


Figure 45: PetCo Visualization Entrepreneurial Process
Source: Own illustration of findings.

4.1.8 Case 8 JAP: MedCo

“MedCo is a venture business originating from a medical school. It is partnered with numerous hospitals and other medical institutions in offering the smartphone app “MedCo” which allows patients to centrally manage their medical and health information including the results of medical tests.” (News article about MedCo)

The case MedCo considers the medical health start-up MedCo, which is eager to revolutionize the digital health market by providing a medical data card and platform.⁶²⁵ MedCo developed a two-sided cloud application, one app for patients and one for doctors,⁶²⁶ in which both sides can easily communicate, share, connect and store medical data.⁶²⁷ F MedCo founded MedCo, his second start-up in the medical field, in October 2014 as a company with limited liabilities out of a research project, which he joined in 2013.⁶²⁸ A detailed timeline of events can be seen in Figure 46 and Table 19 summarizes MedCo’s business characteristics.

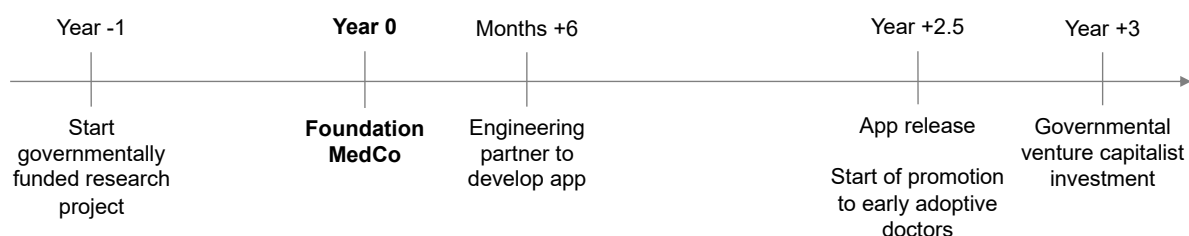


Figure 46: MedCo Timeline of Events
Source: Own illustration of findings.

Table 19: Overview Business Characteristics MedCo

Characteristic	MedCo
Number of founders	<ul style="list-style-type: none"> One founder
Team size	<ul style="list-style-type: none"> Four employees Two board members
Investors	<ul style="list-style-type: none"> Governmental Venture Capitalist
Years active & foundation	<ul style="list-style-type: none"> MedCo has been actively following the entrepreneurial path since 2013 MedCo was founded in 2014

Source: Own illustration of findings.

The case MedCo presents a Japanese University or research program spin-off and shows how start-ups evolve from research into business. Interestingly, the Japanese government sets start-ups as KPIs for research projects. Overall, the case shows an entrepreneur who is willing

⁶²⁵ See Transcript MedCo JAP 4, points [43f., 138f.].

⁶²⁶ See Transcript MedCo JAP 4, points [45–47, 71f.].

⁶²⁷ See Transcript MedCo JAP 4, points [65f., 310–314].

⁶²⁸ See Transcript MedCo JAP 4, points [50f., 100–106, 268, 420f.].

to build a business and tackle an issue through a bottom-up approach. To pursue the bottom-up approach, F MedCo decided to stay as independent as possible and finance the early product development himself and outsource the actual execution of the app development under his direction. Only after the rather internal product development, MedCo started to enter a "social trials" phase involving partnerships with smaller clinics and cooperative doctors. Feedback from these early adopters played a crucial role in refining the app's functionalities. During this time F MedCo also started to cooperate much more with diverse stakeholders to reach his aim of medical data transparency. Throughout this process no stakeholder stood out, but F MedCo interacts with his network. Despite starting to bring in investors, the investors are rather not hands-on and do not play a certain role. To strengthen MedCo's market presence and protect against potential competitors, F MedCo aims to establish entry barriers. Yet, MedCo still lacks significant accomplishments which represents the next steps.

Entrepreneurial Process of MedCo. Beginning. Being a researcher and assistant professor before entering the start-up world,⁶²⁹ F MedCo noticed that he was not able to make a bigger societal impact with his research and felt limited in implementing his developed technologies and getting funding,⁶³⁰ which made him found his first business in 2011. He is still CEO and splits his time between both start-ups.⁶³¹ When he received the opportunity to join a governmentally funded, two-year research project with 20 academic as well as industrial partners with the goal to develop a form of electronic medical record in 2013,⁶³² F MedCo saw his chances and joined the research project.⁶³³ A KPI of the funding program was that products, start-ups or businesses need to be created.⁶³⁴ Consequently, F MedCo promoted start-ups to develop out of the project, which he did when he founded MedCo in October 2014.⁶³⁵

Within the research project, F MedCo was able to apply for a patent around 2014 that (at least to some extent) is able to protect MedCo from competitors.⁶³⁶ But, there is currently no competitor anyway and entry barriers to the medical field are high.⁶³⁷ Nevertheless, F MedCo is concerned over big companies entering the market. Therefore, he is eager to reach for higher achievements to create a bigger market standing and his own entry barriers.⁶³⁸

⁶²⁹ See Transcript MedCo JAP 4, points [100–104].

⁶³⁰ See Transcript MedCo JAP 4, points [129–137].

⁶³¹ See Transcript MedCo JAP 4, points [447–449].

⁶³² See Transcript MedCo JAP 4, points [48–51, 108–114, 117].

⁶³³ See Transcript MedCo JAP 4, point [137].

⁶³⁴ See Transcript MedCo JAP 4, points [120–122].

⁶³⁵ See Transcript MedCo JAP 4, points [118f., 268].

⁶³⁶ See Transcript MedCo JAP 4, point [541].

⁶³⁷ See Transcript MedCo JAP 4, points [513–518].

⁶³⁸ See Transcript MedCo JAP 4, points [338f., 536–539].

At first, the research consortium was considering VR games for hospitals, but soon dropped the idea,⁶³⁹ but was convinced that within five to ten years it will be common to check your health or medical data on your smartphone via an app.⁶⁴⁰ F MedCo was eager to develop an app, with which several issues in patient, doctor and hospital communication can be tackled. In the beginning, F MedCo did some thinking, brainstorming, and made a business plan for about half a year. Then F MedCo entered a two-year development phase,⁶⁴¹ which F MedCo decided to self-finance with private money.⁶⁴² It was important to him to use but also make his own money and to first “ensure or explain our concept” before using someone else’s money.⁶⁴³

Middle. The basic idea is to connect diagnoses between different hospitals. However, hospitals are eager to keep their information, sticking to security guidelines concerning patient information.⁶⁴⁴ Therefore, politically, legally and socially it is a challenge to connect. Technologically it is not such a big challenge.⁶⁴⁵ But, the medical world is rather outdated technologically and most hospitals’ managements are not in favor of a top-down approach and were lobbying against it.⁶⁴⁶ Also, there are political and legal restrictions that hinder the top-down approach of connecting hospitals.⁶⁴⁷ “That is why we started this company to approach by the bottom-up.”⁶⁴⁸ The idea is making the electronic data platform patient-based.⁶⁴⁹ Patients share their data with different hospitals,⁶⁵⁰ creating a patient based “bridge platform”.⁶⁵¹

F MedCo identified three main challenges he wanted to address: First, the app shall manage waiting times and schedules, allowing patients to get notified when to come to the room or enable online appointment scheduling. Second, the app shall provide patients the possibility to upload their medical record and information to have it ready at hand when asked. The uploaded material is managed within the app and patients can monitor all their health data easily.⁶⁵² Third, after the appointment, doctors shall be able to upload all information, diagnoses, and results to the app, which makes it a very quick possibility to send patients their results, which then can be managed by the patients themselves.⁶⁵³ Additionally, doctors are

⁶³⁹ See Transcript MedCo JAP 4, points [55–58].

⁶⁴⁰ See Transcript MedCo JAP 4, points [137–139].

⁶⁴¹ See Transcript MedCo JAP 4, points [359–361].

⁶⁴² See Transcript MedCo JAP 4, points [160–162].

⁶⁴³ See Transcript MedCo JAP 4, points [669–674].

⁶⁴⁴ See Transcript MedCo JAP 4, points [54f., 482–484].

⁶⁴⁵ See Transcript MedCo JAP 4, points [52–54, 289].

⁶⁴⁶ See Transcript MedCo JAP 4, points [225f., 311–313, 476f., 491–493, 499].

⁶⁴⁷ See Transcript MedCo JAP 4, point [221].

⁶⁴⁸ Transcript MedCo JAP 4, point [238].

⁶⁴⁹ See Transcript MedCo JAP 4, points [58–62, 115f.].

⁶⁵⁰ See Transcript MedCo JAP 4, points [59–62].

⁶⁵¹ See Transcript MedCo JAP 4, point [64f.].

⁶⁵² See Transcript MedCo JAP 4, points [47, 65–70, 80–86].

⁶⁵³ See Transcript MedCo JAP 4, points [70f., 86–88, 297f.].

legally bound to store medical data for five years, which they can do through the app.⁶⁵⁴ Consequently, it is very useful for doctors⁶⁵⁵ and may even represent a competitive advantage as “it is very convenient; it is a better service as a clinic.”⁶⁵⁶ Moreover, MedCo is cooperating with another company, which specialized in chronologic diseases and cancer, and with their support the app is able to recommend the right tests or medication to patients based on their genetic information. This is an add-on service MedCo will be providing.⁶⁵⁷

To be able to provide the services explained, MedCo needed to develop two apps. One app for doctors and hospitals and one for patients. To share the information from both sides, MedCo decided to integrate a mechanism that both sides would need to accept the sharing first, which was needed to meet legal guidelines.⁶⁵⁸ F MedCo decided to outsource the app development.⁶⁵⁹ He employed an engineering company for three months, which was then renewed regularly and they “had a very good situation from the tap”. F MedCo points out that an outsourced development is very convenient as he was able to increase or decrease the amount of needed engineers short notice. They started with one engineer and then fluctuated between three and five engineers.⁶⁶⁰

F MedCo deemed it necessary to convince all engineers of the importance of health and his idea so they would show more commitment.⁶⁶¹ It seemed to work, as the development process was very smooth and the partner soon “felt like internal company”.⁶⁶² On the plus side, communication was very regular, easy and quick using modern technology, but the engineering company is also just 2km away from MedCo, which made face-to-face communication easy. Thereby, it was possible to implement changes, feedback, etc. very quick. However, the engineering company was mostly implementing F MedCo’s ideas and approaches.⁶⁶³ Having an engineering background, F MedCo felt totally capable of telling them what to do.⁶⁶⁴ He also evaluated any steps, tasks, suggestions internally first, categorizing them according to difficulty to implement, before going to the engineering company and telling them his solutions to implement.⁶⁶⁵ In March 2017, MedCo was able to present its app.⁶⁶⁶

⁶⁵⁴ See Transcript MedCo JAP 4, points [309–311].

⁶⁵⁵ See Transcript MedCo JAP 4, point [303f.].

⁶⁵⁶ Transcript MedCo JAP 4, points [313–317].

⁶⁵⁷ See Transcript MedCo JAP 4, points [90–96].

⁶⁵⁸ See Transcript MedCo JAP 4, points [71–73, 77–80].

⁶⁵⁹ See Transcript MedCo JAP 4, points [367–369, 384f.].

⁶⁶⁰ Transcript MedCo JAP 4, points [379, 389–392, 396].

⁶⁶¹ See Transcript MedCo JAP 4, points [402–404].

⁶⁶² Transcript MedCo JAP 4, point [374].

⁶⁶³ See Transcript MedCo JAP 4, points [370–373].

⁶⁶⁴ See Transcript MedCo JAP 4, point [401f.].

⁶⁶⁵ See Transcript MedCo JAP 4, points [410–413].

⁶⁶⁶ See Transcript MedCo JAP 4, points [359, 475].

After those first two years, F MedCo employed his first employee. He built up the team step by step up to four employees in 2018. For the first one and a half years, F MedCo was not able to hand over anything. But then he was able to integrate his employees more and give them operative tasks.⁶⁶⁷ F MedCo describes the team as being open and independent, especially as he cannot be there most of the time due to his other start-up. They can communicate through modern communication technology quick and easy.⁶⁶⁸ Overall, the employees are integrated in most aspects and are actively participating in product development and business model building. They can now be seen as co-developers.

With the app, MedCo entered so-called “social trials”, in which MedCo is trying the app with implementation tests.⁶⁶⁹ MedCo started to connect smaller clinics and cooperates with early adopting doctors, who are providing them user feedback from the doctoral as well as patient perspective, and show MedCo potential for improvement.⁶⁷⁰ However, building such a network was not easy. MedCo started to cooperate with a businessperson for promotion and getting doctors on board. F MedCo also did lectures for hundreds of doctors from different institutions in the metropolitan area in TTown.⁶⁷¹ Out of this promotion, MedCo was able to interest some doctors, who then “introduced to their clinic and then they tried our application and then we got the feedback”, which is a very important step in MedCo’s app development⁶⁷² But, doctors are also the perfect recruiters for clinics and patients and facilitators⁶⁷³:

“One clinic as an example, some medical doctors collaborated with us very much. They recruited more than 100 patients at the clinics. They send us the data to the patients. They use this application in their diagnosis. They got feedback for us to develop our application and services.” (Transcript MedCo JAP 4, points [296–299])

To increase the number of participating clinics and hospitals, MedCo aims to use its network and hopes for a snowball effect among hospitals.⁶⁷⁴ Also, F MedCo can use cross-networks as his other start-up is also located in the medical field and he meets a lot of doctors. So networking is certainly the key to growth and F MedCo is always searching, finding and constructing networks.⁶⁷⁵ On the plus side, MedCo is also located close to several big hospitals, which makes it easy to find personal contact.⁶⁷⁶

⁶⁶⁷ See Transcript MedCo JAP 4, points [429–431, 435, 439].

⁶⁶⁸ See Transcript MedCo JAP 4, points [420–424].

⁶⁶⁹ See Transcript MedCo JAP 4, points [337–341].

⁶⁷⁰ See Transcript MedCo JAP 4, points [165f., 260, 297–299].

⁶⁷¹ See Transcript MedCo JAP 4, points [159–165].

⁶⁷² Transcript MedCo JAP 4, point [165f.].

⁶⁷³ See Transcript MedCo JAP 4, points [165f., 317f., 323, 423f.].

⁶⁷⁴ See Transcript MedCo JAP 4, points [347–349, 353f.].

⁶⁷⁵ See Transcript MedCo JAP 4, points [445–449].

⁶⁷⁶ See Transcript MedCo JAP 4, points [556–560].

During social trials, F MedCo started to talk to venture capitalists as he was able to show potential investors the prototype and tell them that he “started collaborating with medical doctors or clinics”. During this process, “credibility, trust is very important”.⁶⁷⁷ After some talks, F MedCo decided in favor of a venture capitalist fund by the Japanese government. Governmentally funded VC programs are very rare in Japan, but F MedCo was able to convince and received funding in July 2017 and April 2018.⁶⁷⁸ The VC required financial information and specifically sales information before investing in MedCo to have some idea about financial prospects and requests MedCo “to do the IPO, initial public offering, or sale in five or ten years.”⁶⁷⁹ Despite the clear goal for MedCo’s future and being a shareholder within the board,⁶⁸⁰ the VC is not so involved except providing money:

“They are not so much hands-on venture capitalists. Some venture capitalists like a hands-on to send for the member or help the management but in this case they are not so much hands-on. They wanted us to send some report to the management situation.” (Transcript MedCo JAP 4, points [187–190])

Coincidentally, the VC is only five minutes away from MedCo, which allows MedCo to have face-to-face negotiations when there are tricky situations to be discussed with shareholders, which is important and makes things easier.⁶⁸¹

Overall, MedCo’s location is highly beneficial. As MedCo grew out of the research project, F MedCo located the start-up next to the university, which makes it easy to cooperate with the research project and his board member and former research colleague Dr. K.⁶⁸² Mostly everything is in walking distance, which makes it “easy to convince people to set at this location.”⁶⁸³ Also, the local government is close by⁶⁸⁴. MedCo communicated with the health ministry to check for restrictions and guidelines, and they showed insights to receive approval from the ministry. Particularly, as MedCo is working with private, personal data in the medical field, they have to act within the realm of existing rules.⁶⁸⁵

End. After about one year in entering social trials, F MedCo states that they “are almost finished” with the trial phase and ready to sell their services.⁶⁸⁶ The app shall be for free for patients, whereas clinics will pay a prescription fee for using the app.⁶⁸⁷ Thus, clinics and

⁶⁷⁷ Transcript MedCo JAP 4, points [166–169].

⁶⁷⁸ See Transcript MedCo JAP 4, points [169–174, 674].

⁶⁷⁹ Transcript MedCo JAP 4, points [186–187].

⁶⁸⁰ See Transcript MedCo JAP 4, point [184].

⁶⁸¹ See Transcript MedCo JAP 4, points [579f., 584–586].

⁶⁸² See Transcript MedCo JAP 4, points [49f., 435, 568, 572f.].

⁶⁸³ Transcript MedCo JAP 4, points [560f., 572f.].

⁶⁸⁴ See Transcript MedCo JAP 4, points [557, 591–594].

⁶⁸⁵ See Transcript MedCo JAP 4, points [599–603].

⁶⁸⁶ See Transcript MedCo JAP 4, point [174].

⁶⁸⁷ See Transcript MedCo JAP 4, point [89f.].

hospitals will be the paying customers of MedCo. But until April 2018, clinics are more like partners to make some achievements and show the potential of MedCo's app.⁶⁸⁸ Only in a next step, MedCo will enter the phase of convincing bigger hospitals in 2018 and 2019.⁶⁸⁹

MedCo's app can bring more convenience and may even be a competitive advantage for the specific clinic or hospital.⁶⁹⁰ However, MedCo still needs to work on their (financial) benefits for customers. Most hospitals and clinics totally agree with MedCo's approach, but the financial benefit is missing as medical expenses will only be decreased overall as tests may not be done twice, which is not a specific benefit for one hospital.⁶⁹¹ Also, hospitals have high barriers and F MedCo finds it very difficult and takes a long time to negotiate with hospitals.⁶⁹² Nevertheless, MedCo is eager to convince hospitals and is proud that their vision, idea and approach never really changed since the beginning in 2014.⁶⁹³ In a next step, MedCo is eager to cooperate with the Japanese government and prepared everything within their app to be easily transferred to a potential governmental approach.⁶⁹⁴ The following figures display the developed data structure and presents a visualization of MedCo's entrepreneurial process.

⁶⁸⁸ See Transcript MedCo JAP 4, points [335–337, 339–341].

⁶⁸⁹ See Transcript MedCo JAP 4, point [470].

⁶⁹⁰ See Transcript MedCo JAP 4, point [316f.]

⁶⁹¹ See Transcript MedCo JAP 4, points [211–215, 453–455, 459f.]

⁶⁹² See Transcript MedCo JAP 4, points [460–464, 466].

⁶⁹³ See Transcript MedCo JAP 4, points [284, 610f.].

⁶⁹⁴ See Transcript MedCo JAP 4, points [244–248, 253].

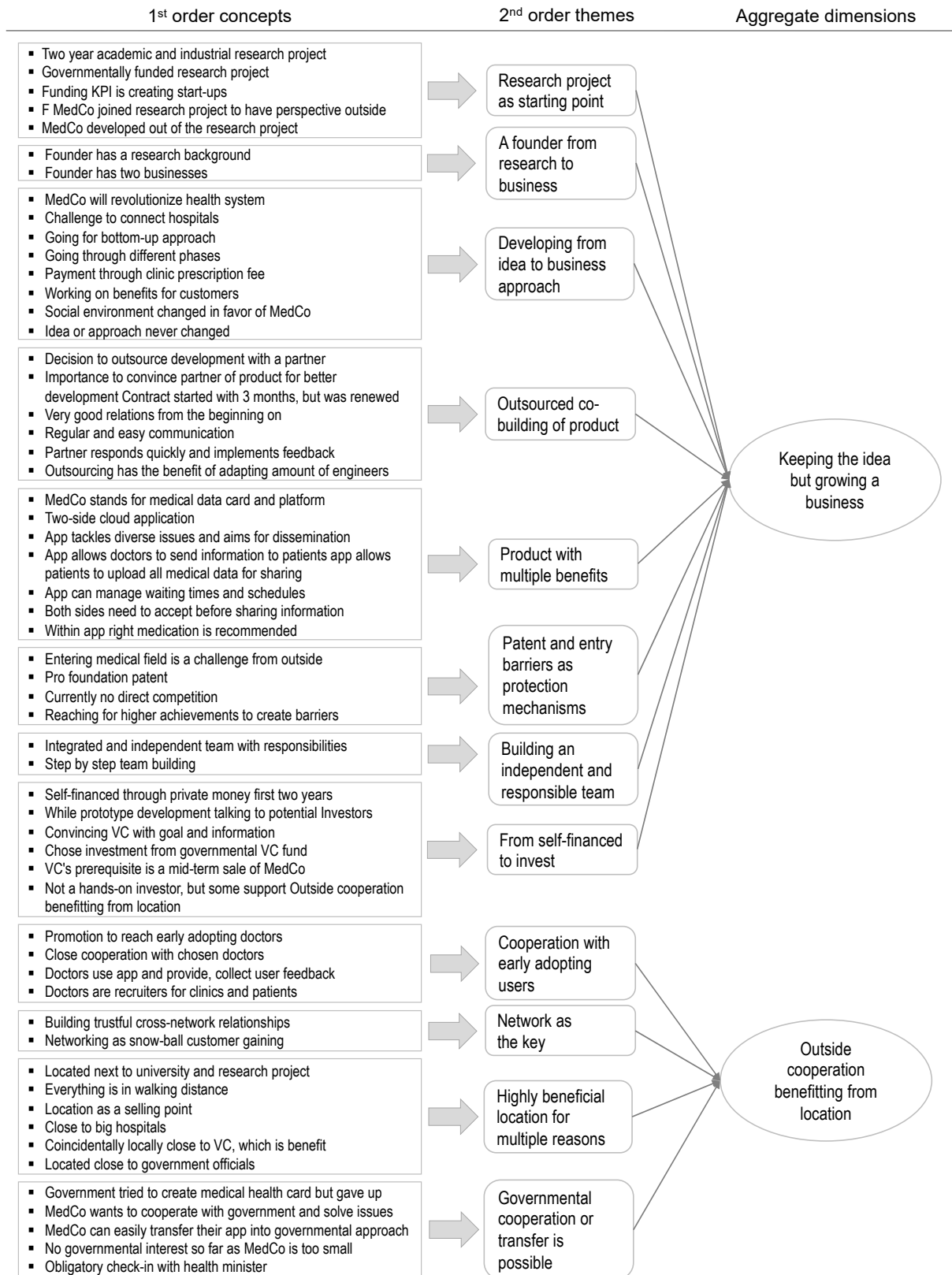


Figure 47: MedCo Data and Concept Structure
Source: Own illustration of findings.

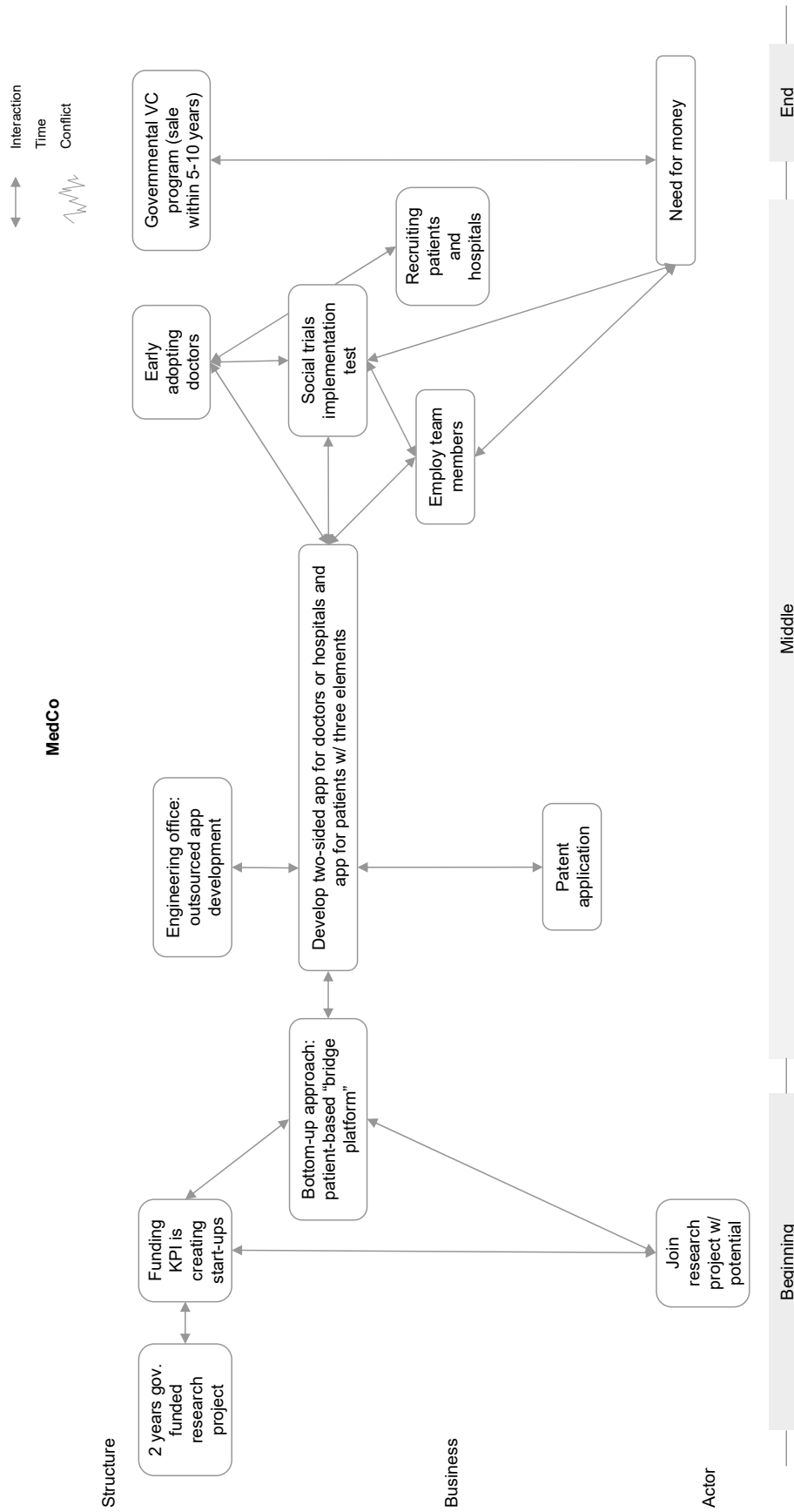


Figure 48: MedCo Visualization of Entrepreneurial Process
 Source: Own illustration of findings.

4.2 Cross-Case Analysis

The following chapter presents the cross-case analysis. Each of the eight cases collected will be compared and a search for patterns is conducted. As described in chapter 3.2.4.2, cases are screened for patterns along pattern matching techniques by Eisenhardt (1989). After the pattern matching step, this chapter aims for developing a typology of archetypical entrepreneurial processes, which will be presented and described. Here, again narration and visualization strategy according to Langley (1999) are taken into consideration to create a thorough theoretical framework that contributes to (strategic) entrepreneurship research and has practical implications.

4.2.1 Pattern Matching

Within this chapter the proposed pattern matching techniques are applied. The following paragraphs will present insights and outcomes of the pattern matching. The presentation of results is aligned with Eisenhardt (1989) and inspired by Hannah and Eisenhardt (2018, p. 3179) and McDonald and Eisenhardt (2020, p. 494).⁶⁹⁵ As pointed out in chapter 3.2.4.2, pattern matching techniques by Eisenhardt (1989) are considered to conduct the cross-case analysis and let new theory emerge from data. Eisenhardt's first pattern matching technique, when considering theoretical categories that are used for comparison aligns with a theory-integrated qualitative case study approach.

Overall, pattern matching is conducted along the theoretical as well as conceptual categories that are identified as potentially important. Additionally, during the within-case analysis some further categories emerged, that were then subjectively chosen by the author for pattern matching (also suggested by Eisenhardt). Four pattern matching steps are applied. In the *first* step, the static facts about the eight cases are summarized, which helps to get an overview over the cases. *Second*, the different levels of the environment that were developed in chapter 2.2.2 are considered. *Third*, the traits and characteristics of an entrepreneur are considered. *Fourth*, categories emerged from the within-case analysis. Specifically, investors, further stakeholders and network, customers and consumers, as well as employees and the team are looked at. Even though different categories were considered, sometimes categories are similar or even intersect each other. The found patterns help to look for similarities and differences and thus can be considered as preparation for the pairwise pattern matching technique and developing a typology that shows certain patterns within each archetype.

⁶⁹⁵ For each category an assessment is conducted, and a representative quote is provided. For each quote the points in the respective transcript are included in brackets.

4.2.1.1 Pattern Matching According to Business Characteristics

In a first step, and to reintroduce the eight cases, Table 20 presents the business characteristics of the eight cases that were individually described in the within-case analyses. Thereby the aim of this table is to provide an overview and gather information in one place, which will be helpful to find patterns and prepare pairwise comparisons. Within the table, information on the number of founders, team size, investment situation, active years and foundation, product and experience level are provided.

First, an interesting observation is that the number of founders differs between the two institutional contexts. In Germany, all businesses were founded by founding teams. Three cases even by founding teams of four people, whereas SoundCo “lost” one founder after some time. Only DiagCo was founded by two founders, who are a married couple, and it may have been difficult to let someone else in. The founders of DiagCo are, however, letting in a very powerful investor. In Japan, it is the opposite situation, three businesses were founded by one founder. Only FilmCo was founded by two founders and is the only case, in which the founders have different national backgrounds. So, we see a pattern in terms of **size of founding team**: in Germany most businesses are founded by a founding team of more than two people, whereas in Japan most businesses are founded by solo founders.

Interestingly, team sizes do not differ as much among Japanese or German cases. Team sizes are between two and ten employees. Also team size and founding team size do not necessarily correlate. Of course, an assumption could be, if you are on your own you employ more people, but no pattern can be seen. Only FilmCo plays a special role. It is the only business that does not have any employees and relies on its network for support. Later, it will become more obvious that FilmCo certainly plays a different role and emphasizes its independence. Additionally, FilmCo is the only business that has no investments and thus can probably not afford any employees. It is also the youngest one.

Looking at the investment situation, all businesses received an investment except FilmCo. Again, for the founders of FilmCo independence plays an important role and they actively decided against an investment. All other businesses did, however, receive investments from multiple sources. Only MedCo received one investment, but F MedCo emphasized that he was eager to start on his own first and paid with his own money. Consequently, he also has two different sources of money, whereas one is private, and one is an investment. So, a first pattern can be identified, that new ventures do **not rely on only one source of investment/money**. A second pattern concerning investments or sources of money can be seen in the institutional context. The German ventures are receiving more money from established organizations, diverse sources and have overall more choice. Whereas the scale of investment source in Japan is comparably smaller. Japanese start-ups do participate in accelerator programs or

governmental programs, but during interviews it became obvious that there are **no established investment organizations or paths to follow**. In Japan, there are however also venture capitalists and business angels, but organizations like EXIST, the High-Tech Gründerfonds or local development banks are missing. This might be due to different reasons, but one reason could be that the Japanese start-up ecosystem is smaller. Additionally, **in Japan founders do not refrain from spending their private money**, whereas in Germany most founders would not consider spending personal money.

The table shows that all entrepreneurial paths started between 2012 and 2015, which means that all entrepreneurs were actively engaged in entrepreneurship at least for three to six years when conducting the interviews. Even though there are some differences in terms of starting time, the example of TrainCo and FilmCo, which both started simultaneously and could not be more different, shows that the actual time of doing business does not necessarily define the business status. Despite the rather close starting points of the entrepreneurial paths, the actual foundations differ in terms of distance between start and foundation. SoundCo and PetCo for example both started and founded the same year. DiagCo and MedCo each founded a business within one year. TrainCo and FilmCo both founded within a time frame of two years. And SipCo and BrainCo were founded within a time frame of three years. Even though no clear pattern can be seen, except that there is certainly no difference depending on the institutional context, four pairs can be formed, which will help when it comes to pairwise comparisons. Additionally, pairs can be formed along the different experience levels and the product categorization along the continuum of hardware and software products. In these cases, differences can be seen concerning the product and level of experience, which were, however, planned according to the purposeful sampling plan with maximum variation.

Overall, some first patterns along the business characteristics could be found, which specifically allow insights into the 'real' start-up ecosystem in Germany and Japan. There are differences between start-ups in both countries. The sizes of founding teams differ among countries. In Germany, usually founding teams are build, which also has an impact on funding and investors. In Germany, usually investors are very keen on seeing a diverse founding team with different strengths and qualities. In Japan it is common that there is only one founder. In Germany, the investment organization landscape is much bigger than in Japan and more professionalized. Therefore, many German start-ups benefit from different sources of money, whereas in Japan, most start-ups only have one or a smaller amount of investing parties. In turn, this also means that Japanese founders do not refrain from spending their own private money on their business endeavors, which in Germany most founders are trying to avoid.

Table 20: Pattern Matching Business Characteristics

Case	Number of founders	Team size	Investors	Years active & Foundation	Product	Experience level
DiagCo	Two founders	Two employees Fluctuating students writing theses or working as student assistants	Micro mezzanine funding Further small, local task specific fundings FondInc funding program Private investor	DiagCo has been actively following the entrepreneurial path since 2013 Diag was founded in 2014, went insolvent in September 2017 DiagCo was founded in September 2017	Diagnostic technology that is under development into a disposable diagnostic tool	High working experience, low start-up experience
SipCo	Four founders	One half-time employee One master thesis student Advisory board	EXIST funding program EIT funding program One investor	SipCo has been actively following the entrepreneurial path since 2014 SipCo was founded in 2017	Specialized cup with membrane to keep liquid level up	Minor working experience, no start-up experience
TrainCo	Four founders	Ten to eleven employees Outsourced IT team of four people	Two business angels Research transfer program EXIST funding program FondInc funding program	TrainCo has been actively following the entrepreneurial path since 2015 TrainCo was founded in 2017	App-based diagnostic, recognition and prevention tool	Some working and start-up experience
SoundCo	Four founders, but shrunk to three	Ten employees	Local funding program FondInc funding Local development bank funding program Two Business Angels Financial investing company	SoundCo has been actively following the entrepreneurial path since 2012 SoundCo was founded in 2012	App-based 'medication' through music using headphones At home hearing screening using special headphones	Start-up experience
BrainCo	One founder	Six employees One business partner/mentor/investor	Bank investment Accelerator program	BrainCo has been actively following the entrepreneurial path since 2012 BrainCo was founded in 2015	Cloud-based dementia diagnostic, recognition and prevention tool Nutrition supplement	Self-employment experience, no start-up experience
FilmCo	Two founders	No team yet, relying on network for support	No funding programs No investor	FilmCo has been actively following the entrepreneurial path since 2015 FilmCo was founded in 2017	Customized, interactive media production, mostly film creation	Some working experience, no start-up experience
PetCo	One founder	Around six employees	One bank loan Ten investors, five private, five business investors	PetCo has been actively following the entrepreneurial path since 2015 PetCo was founded in 2015	IoT cat toilet, collecting data	Serial entrepreneur
MedCo	One founder	Four employees Two board members	Governmental Venture Capitalist	MedCo has been actively following the entrepreneurial path since 2013 MedCo was founded in 2014	Two-side cloud application as digital medical data card and platform	Start-up experience

Source: Own illustration of findings.

4.2.1.2 Pattern Matching According to the Environment

As described in the theoretical foundation, entrepreneurship research particularly moves towards exploring “environmental influences on the emergence and development of new opportunities” (Busenitz et al. 2014, p. 14), investigating the “reciprocal nature of the relationship between starting up a new venture and the external environment” (Shepherd et al. 2021, p. 33). Specifically, future research can probe interactions along identified “external environment and entrepreneurial agency” (Shepherd et al. 2021, p. 33). Therefore, the eight theoretically identified dimensions of a business’s external environment are considered for cross-case pattern matching. To break up the visualization, first the micro environmental levels are looked at, before diving into macro environmental dimensions. The following tables present the points of interaction of all eight cases with their respective environmental dimensions.

Table 21: Pattern Matching Micro Environment

Case	Organizational environment	Market environment
DiagCo	Setting up work mode in accordance with regulations <i>“On the one hand, because you work on an investor-based basis, there are already appropriate regulations that prevent things from getting completely out of line. To a certain extent it is also self-discipline and I think scientists in particular have learned a certain amount of self-discipline at some point. Otherwise you wouldn't have lasted so long. The laboratory books that we have created here are better managed than in academic research.” [1480–1487]</i>	Search for customers, the market First talks <i>“In other words, at first we thought it was competition and we should be afraid of that, but in fact these companies apparently do it at cost price simply because they urgently need the diagnostics in order to bring their drugs onto the market at some point. But they have no interest in doing this diagnosis if there is something better because they don't make any money with what is currently possible. And once you learned that, it was clear that pharmaceutical companies would make very attractive first customers. Many seed investors thought it was a dead-end argument along the lines of how do you want to compete with Eli Lilly and other pharmaceutical companies that are developing these radiopharmaceuticals for these diagnostics? And then I asked someone from Eli Lilly, say, you're not making any profit at all with this stuff, right?” [1176–1188]</i>
SipCo	Difficulties setting up production Growing internal rules <i>“Yes, we actually wanted to get involved directly as a cooperation partner, but in principle this is contract manufacturing. So they produce for us what we tell them to do. Unfortunately, they also only slightly think left and right when it comes to components.” [2.1, 228–231]</i> <i>“He basically worked out why the trouble occurred and what countermeasures can be taken. It was just that we all work very differently in terms of working type, let me put it that way, for example we set up small rules on how to be in the office, how do we go about vacations. If you have a normal job, that is actually common practice. But with a start-up like this, that is something that might be neglected.” [2.2, 221–225]</i>	Co-development with users <i>“Right from the start, basically. [...] so at the very beginning we always presented this model or this thing that was stretched over and everything was prototype-like. And so I just really took a look, researched it on the internet and went to one or another doctor and just saw who was interested in taking a look at it. And then ran over and cheekily asked.” [2.1, 426–431]</i>
TrainCo	Staying flexible through outsourcing <i>“We then decided that we would not bring in any more programmers for now. Because the problem is always when you bring them in one after the other, they first have to form a team so that they can work on the app at the same time. This is super challenging. This is also a lesson learned for me. We have now decided to write to a few companies that</i>	Co-development with entire market network <i>“And what we are currently doing is working out with two large health insurance companies and the BFAM, the educational institute for medicines, to find a way to get us into standard care. In other words, in the end standard care</i>

Case	Organizational environment	Market environment
	<p><i>will do such orders for us. [...] And then we decided on the one in McTown and drew up a work contract with them, quite simply, with the option that we could buy out the entire department. So that would be the idea at some point that, as I said, it's nothing official, but that we'll just bring them over. So that you then have a ready-made team that works immediately, even at the push of a button.</i> [728–738]</p>	<p><i>is such that any doctor can simply prescribe it for you.</i> [267–270]</p> <p><i>“You go to a dementia consultation, you're only allowed to talk to the person you think has something and a relative, and that's why you always have both views there and the first interview, they immediately burst into tears. That wasn't great for us. [...] But it's just lessons learned. We apologized ten times and it wasn't meant that way. We are still in contact with them today. Then we just approached it differently and had to approach it a little more sensitively. [...] We have adapted this again and do it all the time.”</i> [880–889]</p>
SoundCo	<p>Cooperation with headphone producer Organizational task separation</p>	Co-development with users and customers
	<p><i>“We have also validated this together with the university clinic, they have tested it, we achieve this by having the device calibrated, so that it is not just any iPad and any headphones, but it is a precisely defined pair of headphones from SennCo that is manufactured specifically for this purpose and it is specially adapted to the iPad once a year because they always differ slightly due to production.”</i> [4.2, 117–122]</p> <p><i>“Micromanagement is the killer. You also have to say to people when they arrive asking, ‘Hey, I want your advice’, then you really have to say: ‘Do you want my advice or should I make the decision?’ If it is the latter, then get lost, I am not in the mood for it. Because then you're in there, in this thing, and then you can't get to the bigger picture anymore. And I don't mean to sound cliché, I'd much rather work on the products, but you can't do your own stuff anymore if you're hanging around downstairs doing Micro Management.”</i> [4.1, 704–710]</p>	<p><i>“Also [customer] feedback, back then you had to filter it in the web browser, then you have it on the computer, then you have to play it over to the device, and the frequency scanners, then you have to do it all again, etc. The whole handling was just difficult. In addition, it was also clear to us that health insurance reimbursement would only be available with the app. Because health insurance is “in”. They want an app and they don't want a website where you can always load like that.”</i> [4.2, 906–911]</p>
BrainCo	<p>Outsourcing cloud-based development Employees have assigned responsibilities, family</p>	Exploring different market options, convincing customers taking in their needs (to some extent)
	<p><i>“Then he has got some cash from the big player, then we invested to make it as an online network.”</i> [72f.]</p> <p><i>“Very small! It's a family, still. [...] Well, since he had a bad experience losing his company, he had bad experience created a lot of trouble for the employees. So, he feels very bad about those experiences. He does not want to create such an organization. [...] So, he is trying to minimize his team, a small company.”</i> [599–610]</p>	<p><i>“So, he is dividing his business at three functions: one is for nursing home, elder people. One is medical usage in public.”</i> [70f.]</p> <p><i>“And also, this is not actually a real hospital, but they decided to go for the market like drugstore type of networking. Here is Japan, lots of elder people are visiting the drugstore to get their medicine after they had treatment by the doctor. The doctors don't give this medicine, the people need to go to the drugstore to get it. So, a lot of Japanese elder people, they love to go to the drugstore every day. And while they come to visit the drugstore, drugstore is a good place to play this game. and one of the big wholesales of medicine they agreed to us and they want to sell this to drugstores.”</i> [437–443]</p>
FilmCo	No significant organizational environment	Co-development with users, but also placing innovativeness in market
		<p><i>“And we work with a global insurance company. On an innovative - well, the word ‘innovative’ - but on a future-proof product. Exactly. Yes, and we thought about doing it that way.”</i> [139–142]</p> <p><i>“And that's why it's always different and the algorithm is adaptable, but the medium in which we incorporate it is always different.”</i> [203f.]</p> <p><i>“In any case, something always gets stuck. So when they have really listened to the presentations and processed our information, something usually sticks that a short time later, 1-2 months later, you are asked again that they now have an</i></p>

Case	Organizational environment	Market environment
		<i>idea as to whether this is possible. There is always one or two people who think ahead.” [395–399]</i>
PetCo	Growing internal structures, communication mechanisms <i>“Maybe this decision-making system is good for us, for me. Of course, many people decide cost and time. Every each member understands business and direction, which is very important especially with prestige in business. I found last year importance of team members and communication.” [414–417]</i>	Business directly impacted by market development <i>“Everyone loves cat, especially cat not dogs.” [41] “Yes, the dog market in Japan is decreasing. It is decreasing for 5 years, because dog is not easy for apartment. They are always barking you need to train for toilet in their home. But a cat is not so difficult. No training, not barking. There is a boom on cats in Japan.” [96–98] “Cat market is growing, dog market is decreased.” [151]</i>
MedCo	Outsourcing app development <i>“We have a business partner, another company. We told with the CEO of the company, engineering company, every week or so. We told to him about our concept or idea or future vision. Then he gets us very good response for our visions, he visualized our visions. He decided to develop with us.” [367–370]</i>	Co-development with users Users as snowball market seeking force <i>“After the prototype we start a promotion with Mr. Peter T. to early adopters all the medical doctors and clinics. [...] So, I had a lecture for hundreds of medical doctors from different organizations. Some medical doctors were interested in our application and they introduced to their clinic and then they tried our application and then we got the feedback [...] and we started collaborating with medical doctors or clinic.” [162–168] “A network effect. More users, then more people want to join our services. Now we are beginning of this cup.” [353f.]</i>

Source: Own illustration of findings.

Considering the **market environment**, similar patterns can be seen as in comparing customer and consumer involvement. However, here the case PetCo introduces a new pattern, which can be seen more or less in all other cases as well. PetCo was initially focusing on the dog market, but the Japanese dog market is decreasing. Therefore, PetCo entered a crisis. This crisis description is a good example of how dependent and interactive businesses need to be with the market. Even when there are brilliant business ideas or technological advancements, eventually **any business needs to have a market for the products offered**. Therefore, as can be seen for most of the other cases, businesses **cooperate and co-develop together with customers and consumers to create interest and a market, meet the market needs and make themselves attractive to customers**. Also, through customer cooperation, most businesses are aiming to lock in customers long-term, which is a promising approach. Lastly, there are businesses such as BrainCo and MedCo, who use their customer network specifically to bring their applications to patients and vice versa. So, **customer cooperation aims to gain more customers and is therefore used as a marketing tool**.

Interaction along the **organizational environment** shows interesting observations. First, **organizational growth seems to be quite tricky**. For example, BrainCo’s team still feels like a family and F BrainCo is still able to do most things on his own, but eventually there will be a breaking point where he is not able to do everything on his own. So, growth means also more shared responsibilities, more managerial work from founders and more structures (they can be flat or hierarchical). F PetCo for example already learned to share responsibilities with his

employees and meet at a co-creation level. Also, MedCo had similar experiences: in the beginning it was just F MedCo, but at some point, he needed to employ people and hand over responsibilities, which was not as easy for him. But there is also the case of SipCo, where no one new joined the team, but with more growth, the internal team needed more structures and was at the edge of falling, before a mentor helped them to establish some ground rules. Coming back to MedCo, interestingly, F MedCo initially decided to outsource App development, as did TrainCo, BrainCo and to some extent also SoundCo, who decided to build their own headphones but enter strategic partnership with a headphone producer. **Outsourcing** is obviously a **suitable approach, to not share responsibilities, keep everything together, but grow the team** and reach potential development steps externally. At the same time outsourcing enables founders to make short-term decisions on team size and does **not bind financial means** to employees. However, outsourcing may also come with difficulties. SipCo for example was eager to cooperate with the manufacturer and was looking for a strategic partner. The cooperation was, however, non-existent. The manufacturer just executed SipCo's demands and orders.

Diving into the macro environment of businesses, first one can consider the **local environment**. Interestingly, for all eight businesses, the local environment and location of the business played a significant role. Zooming out, FilmCo has the least touch points with the local environment but were 'forced' to change their foundation location due to institutional barriers. Overall, the **choice over location** was for the businesses an **intentional** or at least **not random** one. Zooming in, first the chosen location may have **benefits in recruiting**. TrainCo and PetCo both describe that the chosen location(s) play a positive role for employees to join the business. PetCo advertises its recreational spirit, whereas TrainCo actively decided to offer employees co-working spaces in attractive cities, while also promoting their business as an opportunity to 'stay here'. SoundCo, however, had contrasting experiences, as one employee left the business, and one decided against settling for SoundCo due to the high rents and life standards in the city. Moreover, the choice over **location actively decides over available local funding programs**. Interestingly, all German businesses made use of local funding programs, and did even **impact the overall set-up of the funding program** for the future. SoundCo and TrainCo both described that they were the first ones in the funding program and proposed changes, aimed for improvement of processes and engaged in close exchange with funding institutions. Also, DiagCo is **actively engaging and exchanging viewpoints with local funding programs** and from time to time, can mend guidelines in favor of their business. Additionally, the location is a specific factor when it comes to a **business's local network** and several businesses, such as SipCo, SoundCo and MedCo, emphasize the benefit of **short ways**. All three businesses were able to create and build local networks as it

is easy to 'just go over' and talk to people on a regular basis. In this case, the start-ups were building multiple networks (customer, research, consumer networks).

The ***cultural and normative environment*** did not play a significant role for most start-ups. A reason for that might be that most of the cases were in one country and were not engaged in any cross-country activities so far. Only F1 TrainCo had a start-up in the US before and was therefore able to see some differences between a German and US American mindset when it comes to founding businesses. Also, the founders from FilmCo, who both are not Japanese, saw a certain cultural difference but were more concerned about institutional difficulties.

Coming to the ***institutional environment***, experiences are quite diverse in the eight cases. This is only natural, considering there are eight different start-ups with different products, which need to meet different institutional regulations, who joined different or no institutions along the way. There is one group of start-ups which need to **follow along institutional regulations and paths**, such as DiagCo, TrainCo and SoundCo. Specifically, SoundCo had severe starting difficulties cooperating with insurances and their entire institutional regulations. TrainCo had the same difficulties but was able to learn from SoundCo and follow their path. SipCo is considering insurance reimbursement but are not there yet. Then there are start-ups that seem to **draw benefits from being part of certain institutions**. Typically, being part of an incubator or accelerator program has its benefits, as can be seen in the case of SipCo, who were drawing many benefits and network relations from the incubator. Also, TrainCo joined an incubator and created connections out of this incubator. Additionally, being part of certain institutions, such as funding programs, always creates a room for network and exchange. MedCo on the other hand, did not join an institutional setting after its beginning, but was founded out of such a scenario. F MedCo joined a research consortium that was funded by a governmental program and evolving start-up were one of the KPIs. But even after its foundation, MedCo still benefits from being an associated entity.

Looking at the ***legal environment***, most businesses are interacting, but mostly impacted by the legal environment as they are bound to apply legal rules. Specifically, most **products need to meet legal regulations**. Especially in the German cases SipCo, SoundCo and TrainCo, products need to be certified as a medical product, which is a difficult and enduring barrier to overcome. There are cases in which the business is held back by legal rules, such as in the case BrainCo and DiagCo. F BrainCo was legally restricted from becoming CEO of his own company. DiagCo has severe difficulties getting out of contracts and saw insolvency as the only way out. Overall, the legal environment is mostly **restrictive to businesses**, and hurtful if they are unaware of applicable legal rules. Even though DiagCo tried to cooperate with the FondInc to amend contracts, usually legal structures are more or less recreated.

Table 22: Pattern Matching Macro Environment

Case	Local environment	Cultural/normative environment	Institutional environment	Legal environment	Social environment	Political environment
DiagCo	Benefit of address for funding, easier access to local funding "A not insignificant factor that should be briefly mentioned is the choice of location. We have found that if you somehow have a home-office company with the opportunity to do something at the university, you don't have the same credibility as if you have an address at a medical park and say here we are and we are good connected or in a good environment. Even if you don't actually use it that much, just the fact that you're on or close to a life sciences campus, I think, creates trust for others." [1271-1277]	None	Bound to institutional regulations and paths "Of course there are various hurdles behind it. Development stages, approval procedures, regulations that the devices have to comply with and so on." [323-325]	Stuck in contracts, insolvency seems only way out "But to be honest, I would strongly advise any founder not to sign these standard contracts from FondInc, and if so only with very good legal advice. Because in the end they are gag contracts. If everything goes well, it's fine, if it doesn't go so well [...] then it's pretty annoying. In principle, they took the train: we wrote these contracts like this and this is how they are implemented, period. No matter what the new investor wants now." [131-138]	Social environment sees risk of entrepreneurship "It was clear from the start that we have a long way to go where we can only finance ourselves with financial injections until we are actually self-sustaining. That's a huge lead time. That was clear to us from the start. That was clear to everyone. My parents, as civil servants and offspring of the trades, were terribly frightened at how one could do something like that without making solid profits right from the start." [2021-2026]	Local political interest "This also means that if things are difficult here and they find out about it, then the Ministry of Economic Affairs will call and ask what's going on? What can we do? Then I say, I don't know either, but we're working hard on it. I would be grateful if we could extend the deadlines a bit. I mean the landlord here, the supervisory board, the Medical Park, the local Ministry of Economic Affairs is in there. But these are the same people who I gave this lecture to at the Biotechnology Days in 2015, where they said we understood the lecture. These events at the networking events are also political. This is not party-political in that sense." [1625-1632]
SipCo	Benefit of location to open doors to e.g. user networks "You have to say, as I said, the TU McTown does a lot. You really get pushed there. They really try to help you get on your feet. The TU McTown is a good example, the TU McTown with a clinic and this incubator. You automatically have a little more open doors." [2.1, 576-579]	None	Benefits of being part of an incubator "Entrepreneurship incubator, for example, is essentially a partner [...], which was part of this Exist program. We were a large team and then we got a business psychologist who moderated it excellently. That's the professional help you can get there." [2.2, 212-215] "You get a consultant and he actually looks at what might be	Challenge of medical product certification, legally bound to regulations "But it's not hygienically clean. That's the problem as a medical product. Legally speaking, we as manufacturers cannot be responsible for it. That means we have to offer a processing option." [2.1, 317-318]	Support from private network, social contacts "And we also have a relatively large number of contacts with nursing homes. So, for example, I basically met a big one here in QuarterB through a friend and he has various nursing homes, including outpatient care services, for example, who are very interested in it." [2.1, 376-378]	Some contacts to government representatives, but not essential "I've already had conversations here with the health senator, my roommate's father, who is the health senator from HaTown and I also had conversations with him." [2.1, 584-586]

Case	Local environment	Cultural/ normative environment	Institutional environment	Legal environment	Social environment	Political environment
			<p>right for you. Then we first were given a list of manufacturers. [...] And of course they already have a pretty good pool for looking for investors, [...] This was particularly important for the supply chain and for the investors and customers. [2.1, 556-571]</p>			
TrainCo	<p>Benefit of location for employees Benefit locally first ones</p>	<p>Direct comparison to US start-up scene</p> <p>"Because here it's a - how should I put it - a giver and envy thing, which for me is associated with a lot of envy and in the USA it's just take it first, make something sensible out of it and if we are nice to each other all the time, then we can get closer again." [627-630]</p> <p>"Well, we try to be an attractive start-up and have also rented offices in Be Town, McTown" [672-674]</p> <p>"We are aware that the topic of dementia is being raised in SSstate. [...] But what I wanted to say is simply that the contact [with the ministry] has always been there and we've always been lucky, you really have to say that, always being among the first with any new programs. You're a guinea pig there, but getting in and closing all the funding gaps went very well. So that's what I meant by state politics." [746-765]</p> <p>"We were at the Stay Here trade fair, simply because we also want to give something back to the city and the state. They also invested a lot in us. [...] at the events, we actually received two very good applications." [856-859]</p>	<p>Lower challenge of insurance reimbursement Learning from others' 'mistakes'</p> <p>"The point is, if you look at the more experienced start-ups, [...] SoundCo for example, [...] they have done a lot of selective contracts. [...] so you have to go to every single branch, then to make selective contracts. We just wanted to get around that. And what we are currently doing is working something out with two large health insurance companies and the BFAM, the educational institute for medicines, to find a way to get us into standard care." [261-269]</p>	<p>Challenge of medical product certification</p> <p>"If angels, it's that they don't just bring in money, well it really wasn't about the money. One is an expert who has brought medical devices onto the market. Above all, it will help to get all these medical devices approved and received; hopefully we will have the app ready in April. There has now been a change in that a new law came out from the EU and that is extremely difficult to do correctly if you haven't done it yet. He brings in expertise." [513-519]</p>	<p>Social network also important for employees Support from private network, social contacts</p> <p>". . . they like to see in their circle of friends at home that you're working on such a topic, I think it's a fact that shouldn't be underestimated. With employees, who are proud of what they do. So that's why I hope people don't leave so quickly." [682-686]</p> <p>"The mix is interesting from the team, so it's always praised because that's, I think, that's what comes from the social environment. We just hear a lot. That's what you're actually getting pats on the back all the time. You have to keep reminding yourself that you can feel good and put yourself in the limelight" [830-835]</p>	<p>Cooperating with state and country politics to increase visibility, build network and benefit</p> <p>"For example, we had a slot where we and two other startups were allowed to pitch exclusively to the Federal Minister of Health. Then I gave a pitch and again, as I always mean by politics, it made such a big impact that he liked us so much that he took us along on his federal health trip. We basically drove with the minister through Germany to various locations and then eventually arrived at that level. So [...] you have to see, but you can then make direct contacts again." [775-781]</p>

Case	Local environment	Cultural/ normative environment	Institutional environment	Legal environment	Social environment	Political environment
SoundCo	Easy access to local funding Benefit of short ways But also disadvantages	None	Challenge of insurance reimbursement	Challenge of medical product certification and patent	None	Local political interest and support
	"Yes and no, so HaTown is already... so it's interesting for health insurance companies and co. [...] So that's a few things close by. [...] we were funded back then, and we are still grateful for that, especially at the beginning of the HaTown development bank's innovation program, we also received funding for TAudio from the health authority and of course, all the partners we have. [...] we always try to have HaTownner partners, [...] HaTown is really having a problem with housing costs. I have an employee who didn't come and another who left because HaTown no longer offers enough in relation to what it costs." [4.1, 966-988]	None	"And then we started health insurance reimbursement at the end of 2015. That means it was a long process in which we gave up at times, so it really took 2 years or so - from the first contact to the health insurance contract. Of course not as intensively as the last few months, when we were already in contract negotiations, but it was a long way. And of course that changed the whole company and the whole product. [4.2, 65-71]	"This plan was then interrupted in many, many places because we were then confronted with things that we did not expect. That was mainly a medical product. Patent. Yes, those were the two big things in the early days that, yes, you can't say setbacks, but they simply required a lot of additional effort and also caused costs that were simply not planned for in the initial phase." [4.2, 35-40]	None	"Of course, at the beginning there is contact with the authorities. These are calls to the health authorities before you get any kind of answer. But it was all very nice and very accommodating. But they actually referred us straight away to an external consultant, ProConsultant, and they said, "Well, if you let them advise you, then we'll actually leave you alone," so to put it bluntly, right?" [4.2, 577-582]
BrainCo	Distance made him build relationship with B BrainCo	None	None	Founder is legally restricted to become CEO	Use existing relations for employments	Political program enhances visibility
	"He is originally from KTown, it's west side of Japan. And every time he comes to TTown, he needs some... you know, it costs a lot for staying here and travelling around. And I just let him use my space for a while. That's how I got to know him." [39-41]	None	None	"And his wife actually used to be president, since he lost his business and he has got bad charge, so he didn't play as a president because of the bank, he's not allowed to do that. But his wife has been playing the CEO but just recently he became actually, this January, became the CEO." [585-587]	"Currently he has been managing the people, only the people he used to know, it's all people networking." [583f.]	"Then he mentioned about this project that may be very interesting for applying one of the governments, asking the public to get some new Japanese technology ideas. So, he applied for those programs and they took it. And one of the peak players here, [...] came out with the proposal to investing for medical usage at this game." [61-65]

Case	Local environment	Cultural/ normative environment	Institutional environment	Legal environment	Social environment	Political environment
FilmCo	Difficult cultural environment; Legal restrictions apply; Change of foundation location				Support from private network, social contacts <p>“Relatively surprisingly large, yes. You only notice it when you’re on the job. Then you realize ‘oh, we still need someone’. And then ‘Oh yes, there was this one person’: And then you write him. I have to honestly say what I think is great. [...] all the non-Japanese people living here, they are extremely helpful to each other.” [594–597]</p>	Politically heated challenges <p>So this start-up challenge was about 5 Asian countries [...]. This is always a politically critical matter. But there were regional eliminations from these countries and that was the first time that Japan won. And the first comment was: ‘It’s great that a start-up from Japan is finally winning, but there are no Japanese on board.’” [871–876]</p>
PetCo	Benefit of location for employees	None	None	None	Social environment impacts recruiting and market <p>“Pet company is popular for recruiting because many people like pet. Pet company are not so many. I can recruit good engineer and good staff.” [341f.]</p>	None
	<p>“One point is recruiting. Next point is: relaxing for staff. There are two cats in our whole office. Can work with pet. There is no space to raise pet. That office can work with pet. Sometimes I scream from home to office, very good exercise, if I have to go to TTown by bus. No, many cars, traffic is always full. But around here, very good press, we are so strong.” [351–354]</p>					

Case	Local environment	Cultural/ normative environment	Institutional environment	Legal environment	Social environment	Political environment
MedCo	<p>Benefit of short ways</p> <p>"The engineering company is different company, but two kilometers away from here [...] it was easy to chat direct to the engineers and then get feedback" [370-372]</p> <p>"I think our company is maybe close to the TTown university hospital because we cooperate with this hospitals research, it is hard to say. So, it is easy to convince people to set at this location." [559-561]</p> <p>"Sometimes we go to the minister of health in TTown governmental area, it is easy to go there, we can use direct into the station in 10 min or so. So, it is easy to go to the government." [591-593]</p>	None	<p>Institutional KPI enabled the MedCo as a spin-off</p> <p>"This company is also the output of this project. Japanese government wanted to promote making start-up company or venture companies. As a KPI, key performance indicator for the research fund. Basically, this KPI is a number of paper or patents but recently they sometimes ask number of companies or products." [119-122]</p>	None	None	<p>Political difficult topic to connect hospitals top-down</p> <p>"For 20 or 30 years the government plan to connect every person [...] medical data based on the governmental site." [231f.]</p> <p>"We have a methodology to connect this government, political site to our service." [244f.]</p> <p>"This vision is interested in but at the same time the government itself is not so much interested because we did not have so much achievement" [258f.]</p>

Source: Own illustration of findings.

For many cases, the **social environment** and specifically private networks played an important role. In the beginning, many founders **use their private network** to build their business. SipCo, TrainCo and FilmCo used their private networks for multiple reasons all aiming for benefitting the development of the start-up. Also, those three businesses received much **support from their social environment**. SipCo and FilmCo benefitted from support in activities or contacts, whereas TrainCo from the overall support in creating a business, while also family members have first-hand experiences in the field. DiagCo, in contrast, had different experiences, as the family was specifically not as supportive and sees a lot of risk in starting a business. BrainCo also used the private network for finding employees from his social circle. TrainCo and PetCo see an impact of **how their employees' social networks see the work** and describe that they specifically have a **benefit in hiring people** because the topic is 'in', 'cool', or seems to be socially important.

Taking a closer look at the **political environment**, politics may play some role, and founders are eager to cooperate with politics to turn things into their favor. A first pattern that can be seen is that for some businesses it is beneficial that there does exist some **political interest in the topic or the business, sometimes even just in the pure existence of start-ups**. DiagCo, TrainCo and SoundCo experienced local political interest, as politics are interested in a local start-up scene. Thereby, all three start-ups received local political support if needed. The businesses are also cooperating with local politics and see politicians and governmental authorities as partners. TrainCo as being particularly interested in cooperation is even cooperating with country-wide politicians to benefit, increase visibility, and create a broader network. But TrainCo is also eager to give back and engages locally. MedCo is also engaging in a politically interesting field, as they are trying to revolutionize medical information transparency, something the Japanese government tried for years, but did not manage. However, MedCo is not as big so the Japanese government would be interested in cooperation. Coming back to visibility, **political engagement may increase visibility**, as described in the case TrainCo. But also, for BrainCo participating in a political program provided the business with much visibility, which then led to strategic business partnerships and investments. Also, SipCo uses existing political contacts to reach more visibility, but political interest is not a core item (yet). Lastly, FilmCo had some slight interactions with a political environment, just as they are participating in challenges, where politically heated discussions are taking place.

Overall, the micro and macro environment of a business do play an important role, specifically as entrepreneurs are actively engaging and interacting with their respective environments. In the following, the main observed patterns are summarized:

- The **market environment** plays a specifically big role, as any business needs to have a market for the products offered. To be able to create interest and a market, meet the market needs and make themselves attractive to customers, businesses cooperate and co-develop together with customers and consumers. Additionally, customer cooperation aims to gain more customers and is therefore used as a marketing tool.
- Creating an **organizational environment** can be quite tricky especially when the organization is growing. To grow the team without sharing responsibilities, keeping everything together, and not binding financial means to employees, outsourcing is a suitable and preferable approach.
- The choice over **the local environment** and location is intentional or at least not random. The location may have benefits when it comes to recruiting and decides over available local funding programs. Businesses interact with those funding programs and can impact the overall set-up of the funding program through actively engaging and exchanging viewpoints. Additionally, business's local networks are an important point of interaction, whereas short ways are preferable to easily get in touch.
- The **cultural and normative environment** did not play a significant role.
- Businesses need to comply with institutional regulations and paths when it comes to the **institutional environment**. However, being part of certain institutions comes with high benefits for the respective start-ups.
- In most cases, **legal** rules and regulations apply to the business, but also to the product. Even though businesses sometimes try to change legal regulations into a certain direction, legal structures are mostly recreated.
- Founders are usually trying to use private networks from their **social environment**. Many founders experience support from their social environment in different ways: support in carrying out tasks, support in connections, overall support in pursuing the entrepreneurial path. However, the family is not always supportive. Additionally, start-ups have a benefit in recruiting if they are active in a field that seems socially aspiring.
- The **political environment** of businesses is important in two ways. Political interest enhances the status of start-ups or businesses in general in a specific local area, creating benefits. In turn, businesses are eager to cooperate with (local) politics to receive more benefits. Additionally, political engagement may increase visibility for the businesses.

4.2.1.3 Pattern Matching According to Entrepreneurial Traits

As described in the theoretical foundation, Entrepreneurship research dealt with entrepreneur characteristics and traits for years. Even though the research field may be saturated, traits and characteristics still play an important role when it comes to entrepreneurship. Therefore, one of the theoretical constructs that is taken into account for cross-case pattern matching is an entrepreneur's traits and characteristics. To be able to search for patterns, in a first step, the described characteristics of an entrepreneur (based on Table 5, 6 and Figure 13) were condensed into eight constructs:

- **Risk:** Riskbearing (Mill 1848); Risk taking (Sutton 1954), (McClelland 1961), (Baum et al. 2007); goal oriented moderated risk taker (Timmons 1978); moderate risk taker, challenge taker (Welsh & White 1981).
- **Need for Achievement:** (Baum et al. 2007; Hornaday & Aboud 1971; Liles 1974a; McClelland 1961; Sutton 1954).
- **Knowledge, Skills, Abilities:** (Baum et al. 2007); communication ability, technical knowledge, human relations (Pickle 1964)
- **Autonomy:** Desire for independence (Davids 1963b); Independent, autonomy (Baum et al. 2007; Hornaday & Aboud 1971); independence oriented (Dunkelberg & Cooper 1982).
- **Confidence, Drive, Ambition:** Self-efficacy, extraversion, growth oriented (Baum et al. 2007; Dunkelberg & Cooper 1982); Ambition, self-confidence (Davids 1963b; Welsh & White 1981); Initiative (Schumpeter 1934), Drive/mental (Pickle 1964); Drive/ self-confidence (Timmons 1978); Energetic/ ambitious, positive reaction to setbacks (Sexton 1980); Aggression, recognition (Hornaday & Aboud 1971); Personal value orientation (Gasse 1977).
- **Innovation:** (Schumpeter 1934); Innovative (Hornaday & Aboud 1971); Creativity/innovation (Timmons 1978); Craftsman oriented (Dunkelberg & Cooper 1982).
- **Control and Power:** Source of formal authority (Hartman 1959; Weber 1917); power (Hornaday & Aboud 1971); Need for power (Winter 1973); Internal locus of control (Borland 1974; Timmons 1978); Need to control (Welsh & White 1981); Locus of control (Baum et al. 2007).
- **Responsibility:** (Davids 1963b); Responsibility seeker (Welsh & White 1981).

The following Table 23 summarizes the investigated entrepreneurs' characteristics and traits along those eight categories.

Considering the entrepreneurial trait of *risk*, one can see that all entrepreneurs took some risk, risky steps along the way. Looking at the first steps into the entrepreneurial path, differences

especially along the institutional context can be observed. Within the German cases, especially in the cases SipCo, TrainCo and SoundCo, all founders did not start to work for the new venture 100% from the beginning on. Only after some time (round about one year) they joined full-time and for example in the case of TrainCo, some founders keep their previous position. The founders of DiagCo did not give up everything straight away, but quit their jobs in academia to pursue their entrepreneurial path shortly after. The Japanese founders in contrast show different behaviors. Even though the founders of BrainCo, PetCo and MedCo had no real outside options or were not employed, they pursued their entrepreneurial paths 100% from the beginning on. The differences from an institutional context can best be displayed in the case FilmCo. F2 FilmCo, who is Asian, gave up her entire career, her salary and everything to be an entrepreneur (even though risks are high as she provides for her family). F1 FilmCo, who is German, still receives his salary from university where he works and is not eager to end his working contract there. To find middle ground, both founders try to keep (financial) risks low by spending as little money as possible, having plan b and being aware of risks and when to pull the trigger. Also, both founders decided not to go in with private money. So overall, **German entrepreneurs seem to be more risk avoiding than Japanese entrepreneurs in pursuing the entrepreneurial path.**

Looking at the parameter *need for achievement*; three categories can be identified. There is one group of entrepreneurs, which does not feel any pressure or need to achieve anything. The founders of DiagCo see the entire **new venture creation as an interesting step and adventure** but are not necessarily aiming to achieve much except using the knowledge they have and market it. They are not even necessarily interested in helping people who have the respective disease. Also, F PetCo is not so eager to achieve something. He already achieved a lot and likes the entrepreneurial adventure. For him it was initially important to do something for pets and improve their lives. F MedCo is kind of in-between groups as he does not need any achievements but has decided to be an entrepreneur. As he does, however, have another start-up he does not necessarily rely on MedCo. Then there is the group of entrepreneurs, who are **willing and trying to be self-employed**. They want to build their own business, being their own boss. Two of the four founders of SipCo are eager to build a business long-term and be self-employed within their business. Also, F BrainCo is highly eager to go back to self-employment after he became insolvent with his family business. Additionally, F2 FilmCo shows the same behavior. She really wants to stir something up herself and be self-employed, which is why she quit her job and successful career. Lastly, there is a third group, which does show differences within itself. There are the founders of TrainCo, who are eager to market their product, help people, improve people's lives and build a business successfully with all it takes. Their big idol is SoundCo, which has a founding team that shows similar aspirations. The founding team of SoundCo is eager to bring people improvements, 'heal' diseases and

revolutionize a market. The founding team wants to build a successful business and establish itself long-term. Also, the team is **eager to win**. So, the last group is **fighting to achieve their goals not only for themselves but with a more overarching objective**.

Considering the founder's **knowledge, skills and abilities**, one can see a rather diverse picture going into different directions. There are founders and founding teams, who have a high level of knowledge, such as the founders of DiagCo, TrainCo and FilmCo. All three founding teams do, however, have highly technological products, where specific, advanced knowledge based on new ideas is needed. It can be assumed that also the founding team of SoundCo would have advanced knowledge as they do offer an advanced technological product. But the team built its product based on existing research. Nevertheless, they did have the right skill set to build a product and business out of the research results. Also, SipCo presents a founding team that has different skill sets and abilities to build a hardware product. Here it is interesting to see that the founding team has nearly the same background and only the mix of interests distinguishes three out of four founders among each other. Then there are founders such as F BrainCo and F PetCo, who actually (nearly) do not have any knowledge around their products but are good in what they are doing, being a salesman and a serial entrepreneur, which covers the lack of knowledgeability, and they are able and willing to build their business on (other) teams. Even though interesting insights are observed, no clear pattern can be identified. It is nevertheless interesting to see that entrepreneurs can either rely on knowledge, skills or abilities to bring topics together.

When it comes to the trait **autonomy**, interesting insights are revealed. Specifically, three different groups of entrepreneurs or entrepreneurial processes can be identified. There are those founders, who are **highly dependent; aiming for high embeddedness in ecosystems**, cooperating with numerous stakeholders; and there are founders, who are eager to be **as independent as possible**. Going into detail, one can observe that particularly the founders of DiagCo were and are highly dependent on their investor(s), not only for money but for overall support. They are also dependent on additional consulting services. One could argue that especially with the expensiveness of DiagCo's development process the dependency on an investor is natural, but the founders did not even try to find any other sources of money nor start marketing their product. SipCo shows similar behaviors but does not depend on one investor but on a mentor. The team is relying on one mentor, who they also included in their advisory board. The other advisors do play a role, but not such a big role as their mentor. Also, BrainCo is highly dependent on one source, namely the knowledge, skills and good will of the product owners. The entire business idea builds on something someone else developed and he has no rights and protects himself only with a gentlemen's agreement. Additionally, F PetCo developed a high dependency on his team, as the team is the main

source of value, and he only orchestrates the team's activities to some extent. Then we have founding teams such as the founders of TrainCo, who are aiming for a high embeddedness in any relevant ecosystem, striving for cooperation with anyone with relevance (now or in the future). They are creating value for themselves through having highly intertwined relations and building their standing on different levels. Of course, cooperation does also mean dependency, but the distinguishing point is that they are not relying on one stakeholder, but on multiple and diverse stakeholders. Similar patterns can be seen in MedCo to some extent. The Founder of MedCo is also striving for cooperation and the business is embedded in the research ecosystem. But MedCo strives for further cooperation with consumers, customers, politics, etc. to create more value for them. At the same time, F MedCo tried to stay financially independent as long as possible to be able to build a product not for an investor but according to him and his ecosystems values, standards and ideas. Then there is the group of founders, who try to be independent entirely. FilmCo is the most extreme example of a founding team, who are aiming for independence whatever the costs might be. Also, SoundCo was particularly interested in staying independent in the beginning and started to finance their ideas with prize money. Also, during the interview, they never really mentioned any advisors, business angels or investors. They are only dependent on the market and their customers, as is FilmCo. Consequently, one can assume that there are independent founders, but in the end, they must listen to their customers, even more than someone who is highly dependent on one investor.

When we look at an entrepreneur's characteristics of **confidence, drive and ambition** all founders in alignment with existing literature are confident in what they are doing and believe in their product, their skills and a successful future. All founders have the drive to continue and do not hesitate to pursue the entrepreneurial path after negative experiences such as the insolvency of Diag, the hitting rock bottom of PetCo before rising with a new business idea, and the rocky path SoundCo took to fight for insurance reimbursement, even though they admit they would not do it again. Despite any holdbacks, all entrepreneurs are ambitious in building a business, improving people's lives or being successfully self-employed. Thus, it can be observed that all founders are indeed confident and ambitious and have the drive but have slightly different motives, without changing the overall attitude. Consequently, no clear patterns can be found, but the cases confirm entrepreneurial traits research.

Table 23: Pattern Matching Entrepreneurial Characteristics

Case	Risk	Need for Achievement	Knowledge, Skills, Abilities	Autonomy	Confidence, Drive, Ambition	Innovation	Control and Power	Responsibility
DiagCo	Quit save jobs within research Went through insolvency	No need for achievement New venture creation as adventure	Highly knowledgeable in the field	Highly dependent on investors for money and support Dependent on consulting services	High confidence in their product and eventual success High confidence in doing everything the right way	Highly innovative in product and market approach	Control over employees	No responsibility for status of business No responsibility for insolvency
	"But that is also such a totally redundant adventure, where you say equity that you put into the first GmbH is of course completely written off. But it is just better than saying we're not making any progress here." [115–117]	"So I didn't just sit there on glowing coals and say where is my chance to found a company now. It was more like that, yes, it's super exciting." [1918–1920]	"F1 DiagCo was a professor at the University in BTown and we both had our junior research groups at ResearchInc in BTown." [1519f.]	"Now, of course, we work very closely with our current investor." [1342] "So solid advice where there is a relationship of trust is always essential." [933f.]	"The real hammer is that we are now implementing it exactly as we originally said in 2014 how we want to do it." [165–167]	"If you think about it, what can you do with it and that's just differential diagnosis of regenerative diseases." [20f.]	"Well, first of all, you have to look at each and every thing yourself" [1458f.]	"...who then somehow block it because it doesn't fit into their scheme. That you then have to talk to an insolvency administrator at the end." [124–126]
SipCo	Start of business with save jobs	Eager to achieve self-employment, independence	Founding team with diverse interests, skills, but nearly the same background	Relying on mentor Advisory board as support	Confident in product as a helpful tool Drive in making it work	Highly innovative in product approach	From no control, to more controlling mechanisms	Different responsibilities among team
	"Of course, they also worked a bit during Exist and did all sorts of things, but since we had the investor, all four of us have been working full-time." [2.1, 65–67]	"Really build a business. Nothing to do with selling or anything else, but really somehow realize ourselves with the company. Pursue our own visions." [2.1, 968–970]	"I studied medical technology, he did mechanical engineering and F2 SipCo also mechanical engineering and we had partly networked lectures because they also had medical technology as a specialization." [2.1, 42–44]	"Very important for us was a mentor, Mr. H." [2.2, 202] "We also had the advisory board there and said do you have any ideas about what could be done better or where we could find each other." [2.1, 512–514]	"And so we really just looked, researched on the Internet and went to one or the other doctor and just looked who was interested in looking at it. And then ran over there and boldly asked." [2.1, 428–431]	"Then they just said it can't be, it can't be that difficult. And he thought, you just have to develop a cup that's always full." [2.1, 22–24]	"It was just that we all work differently type-wise, I would say, for example we have set up small rules on how to be in the office, how do we do with vacation. If you have a normal job, it is actually common practice." [2.2, 222–225]	"The F3 SipCo makes the technology. [...] The F1 SipCo [...] does sales. [...] [...] do finance and intellectual property. [...] Then we have the F4 SipCo. [...] He is our clinical expert." [2.2, 275–281]

Case	Risk	Need for Achievement	Knowledge, Skills, Abilities	Autonomy	Confidence, Drive, Ambition	Innovation	Control and Power	Responsibility
TrainCo	Following SoundCo's path as an ideal Mostly founders took low risk to start	Need to achieve research transfer to business world	Highly diverse founding team with different skill sets	Embedded in ecosystem Strive to cooperation	Drive to improve lives Ambition to create something new	Highly innovative in product approach	Communicative Shared control over different aspects of business	Different responsibilities among team
	"The point is, if you look at the more experienced start-ups, also in HaTown, SoundCo for example, they just have everything - I know the F1 SoundCo very well." [261-263]	"...that you are rather measured on transfer. [...] you have to be allowed to make mistakes, but the pressure comes from the country and from the EU, also with regard to transfer." [1236-1239]	"What I mean to say is that he has two huge institutes behind him that only deal with neuroscience." [25f.] "He's just a medical technician and designer." [40f.] "I did this science spin-off once at Stanford." [579f.]	"F2 TrainCo then just through this research network, you always had the opportunity to access the latest science nationally and internationally." [82-84f.] "So of course we continued to work on the ergometer during the EgoHub Transfer Program phase, looked for and found collaboration partners." [67f.] [67f.]	"We just have the goal; we know how we want to earn money [...] it's sometimes difficult, [...] like, the hardest experience is, these are really health insurance companies. [...] You have to struggle, then somehow develop a [...] tactic of how we react to such comments." [844-847]	"And that's the whole point behind TrainCo, i.e. we know exactly about these tests because we correlate with the biomarkers, [...] without sticking a giant needle in your back [...]. That means we know how your neuropsychology reacts and the beauty of it is that you can repeat the tests, so there are no tests on the market that are repeatable." [143-149]	"So that's one of our values again, being super transparent. [...] From the control room we are super transparent. [...] Well, we always have a meeting every Tuesday where everyone comes together [...]. Then there is an update and then everyone is actually set again for a week." [692-696]	"F2 TrainCo is, so to speak, the source of ideas for us, F3 TrainCo sets all the memory tests that were still being considered for the ergometer at the time. I just do these business stories and F4 TrainCo is the visionary who also translates this into products himself." [44-46]
SoundCo	Risk taking in term of being first movers with an app in insurance reimbursement	High need for achievement Eager to win	Previous founding knowledge Skills, abilities to build products	Trying to be as independent as possible Listening to customer's needs	Highly confident Drive to achieve something great Ambition to win	Highly innovative in product approach First-mover in business approach	Employees have a lot of responsibilities Control over product development	No separated responsibilities among founders, different responsibilities among team
	"We then tried out various things, always with our heads through the wall. They always failed across the board and were more or less on the verge of giving up." [4.1, 140-142]	"Exactly, so we're always looking for further fields, on the one hand to improve the existing products, but we're just trying, or what does trying mean, we're successful at it, that we're looking at	"Yes, I have founded a company before. [...] F1 SoundCo and I - have of course, both of us have long experience in the expert team field that we work in, so I'm an IT person [...] F1 SoundCo too, he	"Yes, no, we did quite a lot of funding, we always won thousands of prizes and for a while we financed ourselves mainly through prize money." [4.2, 731f.]	"And then we came to InsuranceT. By the way, also the second time, the first time they said 'no'. And then they said, 'Oh come on, you know what, let's make a pilot'. I'm like 'okay cool'. Better to try	"That's mainly TAudio, that's our medical Hearing test, our audio screening, [...] where the user can test their hearing themselves without anyone else having to operate it. [...] We optimized everything	"So now I have next year [...] every employee will get a budget for themselves with which they can do whatever they want... as long as it pays in	"Since 2015, it simultaneously has become a large area, here in the company, the first sales department. There are three of them too. They just take care of

Case	Risk	Need for Achievement	Knowledge, Skills, Abilities	Autonomy	Confidence, Drive, Ambition	Innovation	Control and Power	Responsibility
	"OK, let's just get this out there and solve it technically and see how it goes. Without saying right away, we have to make a huge company out of it." [4.2, 33f.]	where we have the expertise and the market standing in the area of hearing and still can develop further." [4.2, 159-163]	also had many stations before." [4.2, 1143-1148]	"Financing and sales, of course. But otherwise not in terms of content." [4.2, 748]	than not to try, [...] and that went through the roof. [...] 'App on prescription, boom.'" [4.1, 144-149]	out, which means we now have a kind of iPad app that does this by itself, but also has the same quality of results." [4.2, 111-117]	for the job." [4.1, 764-766] "This isn't the case in the product area at all, but just as much as I said, in the organizational area." [4.2, 1194f.]	the doctors." [4.2, 99f.]
BrainCo	Has nothing to lose	Need to achieve self-employment again Restore name	Good salesman, no knowledge otherwise	Dependent on product owners Dependent on knowledge and skills form others	Drive to be self-employed Confident in selling skills	Innovative in rethinking product approach customer-wise	Eager to control everything Power of communication and gentlemen's agreements	Highly responsible for family-knit team
	"And then he's 32, and does some sales with this guy who does missile design from marine. He continued to do that for a year or so. Then he was also struggling." [37f.]	"He lost his company by Lehmann, the finance region, problem there in 2008 or 2009. He was the 5th generation of his own family business, it's more a house development for business." [35-37]	"He's a very good salesman actually. He doesn't hesitate anything, he's very soft personality, he doesn't fight. If someone argues to him, he just leaves from there, quietly. No argument." [160-162]	"Because they see that's a crowd cloud assistance - it should be for cloud business. And they need to have money for that, for investment for development. [...] And Mitsubishi actually found his idea so they've paid for it for development." [272-276].	"He organized this conference for dementia professionals, he made people understand about what is this all about. And they get some voice from professionals. We visited the research center, he exchanged the idea with the professors, he also met one of the leaders of dementia study." [365-368]	"He met this chief, who actually was selling his products to disabled kids' community and it's just one idea, that came out for him: to think this can be a licensed for all adults. Not only for the kids, but for adults, who have dementia problem." [55-57]	"I think it was some gentlemen agreement between him and him. [...] So, this is kind of trust between him and the original team." [226-231] "He does everything by himself." [589]	"Very small! It's a family, still." [599] "But in the future, he has to decide how he wants to create his own company of team. How he wants to develop his team." [642f.]
FilmCo	Founders keep risk as low as possible Have a plan B Awareness of risks	High need for achieving self-employment	Good combination of technological knowledge and market knowledge between founders	Highly independent Only dependent on customers for money	Diverse confidence among team, but both have drive	Highly innovative in product approach	Want to keep control and power (no investor, no employees, no information)	Different responsibilities among team

Case	Risk	Need for Achievement	Knowledge, Skills, Abilities	Autonomy	Confidence, Drive, Ambition	Innovation	Control and Power	Responsibility
	<p>"We wouldn't bring anything private [money] into it." [82ff.]</p> <p>"So I can live from my day job. F2 FilmCo probably lives from her savings." [980f.]</p> <p>"As a first attempt, that was too hot for me. I don't know - F2 FilmCo might have sensitivity to risk, but it was just too hot for me." [1043-1045]</p>	<p>"Yes, and she gave that up and said she wanted to manage and create something herself. Yes, and now we both sit together and fight." [126-128]</p>	<p>"One advantage is that my research is compatible with our business and that gives me a little glimpse into the future." [106-108]</p>	<p>"Because we want to determine 100% ourselves what happens." [106]</p> <p>"We don't want to give up our entire concept in order to survive, and therefore no investors either." [308f.]</p> <p>"Then stand there at the end and say: 'We really managed that'." [704f.]</p>	<p>"We're so confident that our product will make the money [...] I don't know if that's naive or a good thing, but I kind of feel like it's probably because I'm involved, but I feel like it's good because we really believe that we're doing the right thing or doing something right." [946-950]</p>	<p>"But we just built and developed this algorithm, from your reaction to the medium, to the story, we can create a risk profile." [195-197]</p>	<p>"That's why I always have to think about how much I can tell you, because I'm not allowed to talk about our algorithm, for example. That would almost be an economic suicide." [631-633]</p>	<p>"And everyone thought the product is really cool and said: 'None of you can present, [...] you lack the face.' With us, it's exactly the opposite: they always say, 'Great presentation! But I'd like to talk to the quiet one over there.'" [256-260]</p>
PetCo	<p>Risk taker</p> <p>Making a lot of mistakes as serial entrepreneur</p>	<p>No need for achievement</p>	<p>IT skills, but pet knowledge based on employees</p>	<p>F PetCo was highly independent, but changed behavior towards employee integration</p>	<p>Ambition and drive to improve pets' lives</p>	<p>Innovation only within team</p>	<p>Control over business, but shared power</p>	<p>Shared business responsibility</p> <p>Highly responsible for team, teams' lives</p>
	<p>"But why did you quit your job at NetCo? Stable management, most famous company in Japan, I don't have a special reason." [120-122]</p> <p>"I made a lot of mistakes but mistakes are good for future. These are our strong points I think." [178f.]</p>	<p>"Next is a company medical architects. This company only started. [...] This system is very successful. 2011 I retired." [70-73]</p>	<p>"I had been to work to IT business, IT market. Do you know NetCo data? NetCo is the biggest IT company. I work at the NetCo data for ten years." [25f.]</p> <p>"I am a serial entrepreneur and I have experience." [177f.]</p> <p>"Because I don't know cat." [413]</p>	<p>"I found last year importance of team members and communication. I found trust. I'm 48 and have experience in 20 years but I found out last year about importance of team members. I'm thankful for team members and the opportunities to find this. Very good point." [417-419]</p>	<p>"So I decided to dedicate to pet, I want to know more about pet and human relations. [...] But of course I don't have experience in the pet industry [...] and I don't know how to create and how to develop pet business, I don't know how to grow pet business." [76-80]</p>	<p>"The cat business and IoT business came from other staff. M3 PetCo and M2 PetCo and some cat lovers came the ideas. I can't decide it." [413f.]</p>	<p>"Before brainstorming, I decided everything. After brainstorming, each member decides everything, not me." [411-413]</p>	<p>"Of course, many people decide cost and time. Every each member understands business and direction, which is very important especially with prestige in business." [415-417]</p> <p>"I know which is good for M1 PetCo. Study or work? Work for PetCo. I think in debrief it is good for M1 PetCo." [510f.]</p>

Case	Risk	Need for Achievement	Knowledge, Skills, Abilities	Autonomy	Confidence, Drive, Ambition	Innovation	Control and Power	Responsibility
MedCo	No opportunities in research Low risk to lose 'good' job Ability to combine everything	Low need for achievement Has another start-up as well	High	Striving for financial independence (as much as possible) Independence in product development Embedded in research ecosystem	Confident in approach and abilities	Innovative in product approach Innovative in bottom-up approach	Control everything within business Slowly handing over control over some steps	Responsible for every business step Slow integration of small number of employees
	"I did a lot of things in universities. I feared of the limitations because for universities it is very hard to get money in Japan but there are some customers." [130f.]	"I own another company. I am not always working here, most time I was out from this place." [420f.]	"At first around 2006 I got a PhD, then after that I did a postdoc and assistant professor. I was researcher before 2011. Especially as I did computer science and biology or economics. I measured both sides. This information science and technology school and engineering school I am doing the computer science background and engineering background. Then I started the first company." [100-104]	"So, we want to make our money and use our money for the prototype to ensure or explain our concept. That is why we used our money at first. Then get money from venture capital." [673-675]	"We think we sold in five years or ten years, we should hub to see our medical data in your application or at smart phone. It should be common. It will be common situation." [235-237]	"It is hard to connect each EMR electronic medical record. It means among hospitals. That's why we make application based on patients or persons. It is kind of photomap approach. Connecting EMR is top-down approach. But we are doing bottom-up." [57-59]	"In this company there are some ideas coming up from other mental, I can note this implementation is hard or not. Then I can show you some solutions based on the engineering visions. For the prepare to engineering company I can show or some people can tell based on my engineering vision. So that is why we do not tell to the company difficult or challenging things." [410-413]	"First two years no employees, I have to run all operations. Past one and a half year they joined; I asked them to do other operations. First one year I have to go to every meeting and do ask everything and do the paperwork." [429-431]

Source: Own illustration of findings.

Taking **control and power** into account, it can be observed that most founders want to keep everything under control and are reluctant to give up control. The extreme can be seen in the case FilmCo. The founders are eager to “determine 100% ourselves what happens”⁶⁹⁶ and want to keep their product under disclosure. To diminish any loss of power and control, the founders are doing everything by themselves and only rely on their network occasionally. The founders did however split responsibilities among themselves concerning different topics. The founders of DiagCo are also trying “to look at each and everything yourself”⁶⁹⁷ and do not give up control, even though they have employees who are capable and responsible. Also, F MedCo had difficulties giving up control and kept everything to himself for the first two years except for outsourcing the execution of app development. Only after two years and introducing employees to the business for a year, F MedCo slowly hands over control stepwise. F BrainCo shows similarities to F MedCo. He is eager to keep control but has more experience in handing over responsibilities to employees he knew for years prior to BrainCo’s story. F BrainCo, however, experiences boundaries and if he wants to grow, he will probably hand over more power eventually. The founders of SoundCo already are at this point and hand over entire responsibilities to their team to avoid micromanagement. The founders do keep control over anything product development related. They receive feedback from their team and decide themselves what to do with it. SipCo in contrast does not even have a team yet and therefore does not deal with any control issues per se. The team, however, had internal issues among themselves and introduced more controlling mechanisms to hold up the teamwork and establish some work rules. F PetCo, as a real experienced serial entrepreneur, was initially eager to keep control and decide everything. However, his ideas were not successful, and he opened up to his team. He learned to use his team in favor of his business and be open and listen to what they have to say. Now he is dependent on his team, as he lacks knowledge about PetCo’s product and market. TrainCo can be seen as the other extreme. Responsibilities are shared among everyone, especially among the founding team. TrainCo was also eager to hire highly valuable, knowledgeable and experienced employees, who can take over control and responsibility. Overall, a pattern can be seen in terms of a certain **learning curve**. Of course it is easy to keep control, if you are alone or only two people are involved. However, even then responsibilities are separated. But if the business is growing, at some point it will not be possible to keep control over everything and responsibilities have to be handed over. TrainCo has a big goal and already established grounds for this way and PetCo learned enough to know that it will be difficult to keep everything together in one person. BrainCo seems to be at a braking point illustrating the **struggle between keeping control and growing a business**.

⁶⁹⁶ Transcript FilmCo JAP 2, point [106].

⁶⁹⁷ Transcript DiagCo GER 1, point [1458f.].

When it comes to **responsibility**, the different founders show different behaviors. A first observation is that especially in **founding teams, the founders or the teams have different responsibilities and separate tasks**. For example, the founding team of SipCo, TrainCo and FilmCo assigned a specific responsibility and task to each founder. The founders are responsible for certain business areas and are not cooperating on every single task. Even though one might think that the separation of responsibilities is based on background, SipCo shows that this does not need to be the case. Three out of four founders have the same background and do pursue totally different tasks and responsibilities according to their personalities and interests. Then there are cases like SoundCo and PetCo, where the responsibilities are not necessarily shared among founders, but among the entire team. So, responsibility sharing is not limited to the founding team. Also, TrainCo aims to develop in this direction and starts to share responsibilities with the team. Naturally, if there is only one founder, responsibilities cannot be shared among a founding team, which is the case in most Japanese start-ups and which leads to the fact that they are sharing responsibilities with their team. Interestingly, especially **Japanese founders do feel highly responsible for their team and even feel personally responsible for the personal success of their employees**. The founders of BrainCo and PetCo have a high interest in the well-being and personal growth of their employees and are aiming for long-term relationships. Then there are those founders, **who do not share any responsibilities, and thus also keep control**, which can be seen in the cases of DiagCo and MedCo. However, MedCo is developing towards integrating employees and giving them responsibilities. DiagCo is especially interesting as the founders are mainly operating on their own control-wise and presumably also responsibility-wise, but at the same time **do not feel responsible for anything**. They do not feel responsible for the status of the business nor are they taking responsibility for the speed of development. Additionally, the founders do not feel any responsibility for the insolvency but put all responsibility on the respective investor. An assumption might be that as they are so dependent on their investor, they also see responsibilities lying within the investor.

Summarizing, this chapter looked for patterns among the eight cases based on entrepreneurial characteristics and traits research that has been conducted for years. Even though current research streams are moving away and forward, traits are still a suitable theoretical framework that was used to find patterns and prepare pairwise comparisons along found patterns. Throughout the cases, several patterns were detected:

- German entrepreneurs seem to be more **risk** avoiding than Japanese entrepreneurs in pursuing the entrepreneurial path.
- There are three different groups of entrepreneurs that are diverse in terms of their **need for achievement**. One group sees new venture creation as an interesting step and

adventure. The second group is willing and trying to be self-employed. And the third group is eager to win and is fighting to achieve their goals not only for themselves but with a more overarching objective.

- Entrepreneurs and businesses differ in terms of **autonomy**. There are those founders who are highly dependent on one stakeholder (e.g. an investor or mentor). There are also founders, who aim for high embeddedness in ecosystems, cooperating with numerous stakeholders. Lastly, there are founders who are eager to be as independent as possible. The last group is, however, highly dependent on their customers.
- A pattern can be seen in terms of a certain learning curve when it comes to **control and power** illustrating the struggle between keeping control and growing a business.
- Concerning **responsibility**, several patterns were observed: First, on the one side there are founding teams that share and have different responsibilities and separate tasks. On the other side, there are founders or founding teams, who do not share any responsibilities, and thus keep control. Also, Japanese founders do feel highly responsible for their team and even feel personally responsible for the personal success of their employees. Then there are those founders, who do not feel responsible for anything that happens or how things are going, assuming that particularly those founders are also very dependent on one stakeholder.

4.2.1.4 Pattern Matching According to Concepts of the Business Model Elements

During the within-case analysis, it became obvious that the structure element of the business model tends to consist of interactions with investors, further stakeholders and network, customers and consumers, and employees and the team. Following Eisenhardt's first pattern matching technique allowing for a subjective choice over characteristics that can be compared, the four parts of the structure element were considered. Table 24 provides an overview over each cases' respective information concerning the role of investors, further stakeholders and network, customers and consumers, as well as employees and the team.

Considering the first category, **investors**, here the eight cases show three different patterns. There are those cases, DiagCo and SipCo in which the investors do play a **significant role and are seen as part of the network or even organization**. Those businesses work very closely with their investors, use their knowledge and rely on their advice. Interestingly in both cases, the overall number of investors is as low as possible. Also, BrainCo shows similar patterns. The business received investments twice, each time with a specific outcome: first exploring the medical usage of the product, second amending product from a CD-ROM to a cloud-based solution. Also, here the overall number of investors is low, they do have a significant impact and are hands-on. Then there are the cases TrainCo and SipCo, in which

investors play a rather minor role. Investors are appreciated to some extent and bring in qualities such as money speeding up the development process, and they can function as **sparring partners** from time to time. Also, investors are usually included in major strategic decisions, following the founders' ideas. But they are not playing a significant role in the entire business construct. Lastly, there are those **investors who are just not hands-on** and are only there for providing money. They do receive reports but are not actively involved, as can be seen in the cases PetCo and MedCo. Those investors just aim for, **getting a return on their investment.** Interestingly, that is one of the reasons why F1 FilmCo is against investors as they are influencing the business and want a return. Overall, a pattern that slightly comes to the surface is that **German investors are a little bit more hands-on than Japanese ones.**

Looking at other **stakeholders and the network**, only one pattern can be found. All founders describe their **network as essential and give networking high importance.** The network encompasses any sort of stakeholder (governmental, political, social, etc.) that may benefit the growth of the business. Entrepreneurs specifically try to engage with stakeholders to change the environment in favor of the business. SoundCo is for example explicitly connected to the state funding program to continuously improve the program for the future. TrainCo is cooperating with a wide variety of different networks and does not only want benefits for themselves but raises awareness for their topics they are wanting to change, and they deem important for society. Also, F BrainCo actively engages in raising awareness through organizing dementia specific conferences – of course also to create visibility and build his network. Only PetCo is not actively engaged in network building. An assumption is that it is too “early” for them as they are so focused on product building and are going for an internal development only. Thus, a network may become more important later, or not.

Also, most cases show interaction with their respective **customers and consumers** (to some extent) for different reasons. Only PetCo does not engage in customer and consumer interaction as it focuses on **internal product development.** They are, however, exploring the market a little bit. DiagCo shows similar behavior. They are not cooperating as much, as they are developing their product internally and started to ask the question who the actual customer will be. Interestingly a question that was raised in most cases at one point in time and an answer that was not clear and obvious from the beginning. Especially in most cases it is **difficult for businesses to define who is the customer and who is the consumer.** As soon as this question is answered, most businesses start to cooperate with customers and consumer to **improve their product**, as did SipCo, TrainCo, SoundCo, and FilmCo to some extent. FilmCo shows a slightly different behaviors as their product is conceptualized as a customized product and customer cooperation is thus integrated as a standard step. They are aiming for value co-creation with their customers and are also eager to bring innovation into

customers' minds and organizations. Lastly, there are businesses such as BrainCo and MedCo, which use their customer network specifically to bring their applications to patients and vice versa. So, **customer cooperation takes place on a marketing level.**

Looking at the **team and employee's** component in each case, some patterns can be observed. Naturally there are also start-ups who **do not have a team yet**, such as SipCo and FilmCo. In the case of SipCo, however, the advisory board is playing a significant role as sparring partner and support system. Then there seem to be start-ups, such as DiagCo, who have a team, but the team does not play a significant role except for operating tasks. MedCo shows some similarities but develops more in the direction that employees are taking over specific responsibilities. **Taking over responsibilities**, while not playing an overall major role, is another pattern that can be observed, such as in the cases SoundCo and BrainCo. The employees do have specific tasks which they are responsible for and can even bring in feedback and improve their responsible tasks. But they are not considered equally on a managerial level, but usually they are more on the friend side. In contrast, in the case of TrainCo the team also has different responsibilities and is considered the expert on the specific topic, but even goes further. **Employees are much more considered equal** and sometimes take over equal parts or roles as the management team. Also, within PetCo, employees took over. They are considered equal, are always in the loop about everything and make their own strategic decisions. Thus, hierarchies are nearly non-existent.

Summarizing, this chapter looked for patterns among the eight cases based on subjectively chosen sub elements of the business model design, namely of investors, further stakeholders and network, customers and consumers, as well as employees and the team. These sub-categories showed specific significance during the within-case analysis. Throughout the cases, several patterns were detected:

Table 24: Pattern Matching Business Model Elements

Case	Investor	Stakeholders/ Network	Customer/ Consumer	Team/ Employees
DiagCo	Highly dependent on investors "Now, of course, we work very closely with our current investor." [1342]	Importance of local interconnections "Apparently it's not that simple after all, but in the end the network is crucial to getting it placed right." [747f.] "That definitely takes a while. You also need a few reliable key partners who can help you open further doors. Essential, the opinion makers. The opinion makers are the big, global ones. But you also need the local network. For example now LocalBankInc." [755-760]	Investigating who the customer could be "Because in fact, to get back to your question, we always discuss or define who the customer actually is. Depending on what you think about, you have to answer it differently. It's not like you simply offer a care service and know exactly whether the patient is satisfied with the care or not, but as I said, we have these barriers from regulations, from health insurance, from health systems that are in between. At certain points in time you have to think about: Do I talk to the health insurance companies; do I talk to the doctors? Am I concerned about patient well-being? So ultimately you have to have very different aspects or at different times there are different interest groups in our focus as quasi-customers." [600-609]	Team is not as involved in big decisions "So you just have to see what you can score with. With flat hierarchies and that you don't work according to a time clock, but also try to take the needs of your employees into account wherever possible." [1440-1442] "Well, first of all, you have to look at each and every thing yourself" [1458f.]
SipCo	Important role of investors as advisors "And other networks... as I said, the investor is great. He actually counts as part of the network." [2.2, 210f.] "Good, high-quality investors who bring you added value and then as little of them as possible. That you have as few people as possible who have a say in things." [2.2, 587f.] "Smart money. Money Knowledge." [2.2, 608]	Building an important network and using it "In terms of network, the customer network is actually almost as important. So we have really good contacts with the clinic in McTown and also various, I would say, Society for Swallowing Disorders in Germany, where we actually know almost the entire board team now. We are very well connected there." [2.1, 529-533]	Customer and consumer cooperation to improve product "But we have now incorporated a lot of feedback, both from the production side, but of course also mainly from the customer side, that a lot of speech therapists have looked at it, how does it fit with the approach, how can it be assembled, I don't know, spill protection and so on." [2.1, 184-187]	No team yet, but advisory board "Very important for us was Mr. H., our mentor. He is basically a multiple founder and worked at Siemens HealthCare Consulting for a long time. He's very knowledgeable about the medical technology sector and we got him as a mentor. Relatively early. At first we thought that we might have to pay him a little something, but then it somehow continued on a friendly basis. Having him on the advisory board was very important. So he did... that was again when things got tight and that's exactly what I would say is essential, that you get people on board who have done everything before, because you can save a lot of work and also proceed efficiently if you get the right tips." [2.2, 202-210]

Case	Investor	Stakeholders/ Network	Customer/ Consumer	Team/ Employees
TrainCo	<p>No major role of investors</p> <p>Cooperative support from investors</p> <p>"...that we are already valid. That is the investors' main argument as to why they were interested in us. That's why we decided during EXIST [...] we founded it straight away. You're not actually allowed to, but submitted a request to see if we can. We then quickly did the capital increase, so we were also able to upgrade the team and have done an incredible amount in product development." [191–197]</p>	<p>High importance of being interconnected on all thinkable levels</p> <p>"And that's why we said, we have to accelerate the whole thing, because acceleration is always about money, and then we didn't do the typical pitch things, which I'm not a big fan of, but we did it directly through contacts and networks that we had, pitched to the right people and, frankly, pitched for the right reasons. And then they invested straight away." [175–179]</p>	<p>Consumer cooperation to improve product</p> <p>Customer cooperation to make product available</p> <p>"When the first prototype was ready, we went to the clinics, put the thing there and sat people on it. [...] So we really optimized the whole thing lean, adjusted it and with little money. And similarly with the apps, we always go to the memory consultation whenever there was a new version of the study app. You have around 40 to 50 people we can talk to every day. We also did our lessons-learned there." [873–879]</p>	<p>Team is important</p> <p>"We don't have any app expertise, we just brought in Ms. S. very early on as product owner. [...] We met her through university and, funnily enough, it somehow started as freelancer. She came in like that and she brought the expertise with her. She's been there from the beginning." [723–728]</p>
SoundCo	<p>Minor role of investors</p> <p>"We did quite a lot of funding, we always won thousands of prizes and for a while we financed ourselves mainly through prize money. Then we did business angel rounds. [...] Of course, it's typical that with business angels you actually first see whether something will actually work out. Whether it even works technically, whether you even find the market or whether the next lawyer will come along at some point and say 'That doesn't work at all' or something like that." [4.2, 731 – 739]</p> <p>"Financing and sales, of course. But otherwise not in terms of content. It's more about strategic decisions [...] "Are we giving up normal end customer business or not? Or do we just concentrate on the health insurance companies?" [...] But in many cases they actually always follow the</p>	<p>Importance of local interconnections</p> <p>"Oh, they [the investors] support us here and there, and also a little through networking, but I think since we were on the market so early, we built up a pretty good network ourselves and of course they support us as sparring partners [...]. There are many investors on the market who say I give you so much know-how and so much network, that's why I need the shares for free. So far I haven't seen anyone who has delivered their shares there, who has told me, 'Oh, I would do that again.' Because it usually doesn't work out. It's not like someone has super contacts, calls an InsuranceD and says, 'You have to sign a contract with them now.' They also say, yes, sorry, I'll show you three times here." [4.1, 568–577]</p>	<p>Consumer cooperation to improve product and handling</p> <p>Customer cooperation to improve organizational interfaces</p> <p>"This has now developed as we have more contact so that we can incorporate more of this feedback into future products. Which is a bit astonishing for the doctors: 'Is that possible? Can you do that?' Yes, come on, let's do it. No problem. This has worked out a bit so that we can also take things like this into account and incorporate product wishes." [4.2, 458–456]</p>	<p>Team has its own responsibilities and some bring in ideas</p> <p>"So of course that depends on the role. A few employees don't have as much influence as salespeople do now. Of course, they bring the feedback with them from the doctor's offices, so of course they have a big influence, of course." [4.2, 1073-1075]</p>

Case	Investor	Stakeholders/ Network	Customer/ Consumer	Team/ Employees
<p>BrainCo</p>	<p>management's suggestions because we are the ones who are close." [4.2, 748–756]</p> <p>Important role of investments, change in product</p>	<p>Building a network</p>	<p>Some cooperation on winning over consumers/ customers</p>	<p>Team has its own responsibilities</p>
	<p>"And one of the peak players here, who is focusing on medical business area, they thought this idea is quite interesting and the came out with the proposal to investing for medical usage at this game." [63–65]</p> <p>"When he decided to do this business, the day was not aligned yet. It was like selling a CD-ROM like type of things. Then he has got some cash from the big player, then we invested to make it as an online network. So now it's cloud-based available, everyone will be able to use those." [71–75]</p>	<p>"And we let them to play those at the conference events, that people start to learning how this is value to the clients. So, I think they had this continuation of events, people started to understand what it's all about. Some people said I'm interested in and I'm interested in. And also, as I said, he organized this conference for dementia professionals, he made people understand about what is this all about. And they get some voice from professionals. We visited the research center, he exchanged the idea with the professors, he also met one of the leaders of dementia study. And I think he met many specialists in dementia. And he was focusing on developing good relationships with those professionals because they're kind of top people in research in dementia here in Japan. That was quite successful to get trust in his name and his name to go around from people to people." [362–371]</p>	<p>"Well first of all they have this games product and they create a story of this program in potential. It's a marketing tool, as everyone does. Then decided to visit a nursing home, communicating to them what is this all about. How does this good for their clients? How this can be paid by the collaboration between his business and the nursing home organization? They've been travelling around Japan and also providing those events explaining what their products are." [346–350]</p>	<p>"And they normally do sales and well as events. there is the one guy, who used to work for one of the event companies, nowadays he does do also communication and events operating, some sort of application for the government program, to get some cash. One staff is actually doing developing relationships with professionals in research in universities, the professionals in dementia studies, basically. And one gentleman, no, two young staff are supporting the administration." [590–595]</p>
<p>FilmCo</p>	<p>No investors</p>	<p>Use private and professional network to outsource tasks</p>	<p>Trying to push innovation within customer's minds while co-creating value</p>	<p>No team yet</p>
	<p>"Relatively surprisingly large, yes. You only notice it when you're on the job. Then you realize 'oh, we still need someone'. And then 'Oh yes, there was this one person'. And then you write him. I have to honestly say what I think is great, [...] all the non-Japanese people living here, they are extremely helpful to each other." [594–597]</p>	<p>"We only have feedback on the product itself after we showed them the first demo. And then we showed it to them. And then the company assigned three young employees and they worked very closely with us. Ultimately, they are now responsible for ensuring that we don't screw this up." [268–271]</p> <p>"An influence we had that I would never have imagined: We made a little explanatory video for them. Then there was a discussion about</p>		

Case	Investor	Stakeholders/ Network	Customer/ Consumer	Team/ Employees
			<p>characters and how they should be designed. And in any case, the project was at a standstill for almost 4 months, 5 months. And now we had a meeting with them this week and they have now developed global design criteria for the entire company. For animations. [...] And that would of course be an influence. [...] we don't get the credit for it, [...] but we had the feeling afterwards, Hey, [...] that was exactly because of this endless discussion about the characters." [444–453]</p>	
PetCo	<p>Investors play no role</p> <p>"No only investment." [169]</p>	<p>No specific role</p> <p>"Yes, some companies want to collaborate with us. [...] We will collaborate with university or some academic institute about cat health and cat health data." [287f.]</p>	<p>No consumer, customer interaction yet</p>	<p>High dependency on team</p> <p>"I found last year importance of team members and communication. I found trust. I'm 48 and have experience in 20 years but I found out last year about importance of team members. I'm thankful for team members and the opportunities to find this. Very good point. Maybe PetWC will success and our members will success and we will grow." [417–420]</p>
MedCo	<p>Minor role of investors</p> <p>"They request their final goal is IPO based on their venture capital or fund. So, they wanted us to sell our company at equity in several years. [...] They are not so much hands-on venture capitalists. Some venture capitalists like a hands-on to send for the member or help the management but in this case they are not so much hands-on. They wanted us to send some report to the management situation." [184–190]</p>	<p>Importance of local interconnections</p> <p>"I think it was very important, because there are two big hospitals here. This area in Shinjuku is a daycare local government. On the three big hospitals only them very small ideas, including a TTown university hospital. It is competing hospital it is very conflicting place. There are a lot of neighbors between the hospitals. I think our company is maybe close to the TTown university hospital because we cooperate with this hospitals research, it is hard to say." [556–560]</p>	<p>Use customer network to spread application among users</p> <p>"One clinic as an example, some medical doctors collaborated with us very much. They recruited more then 100 patients at the clinics. They send us the data to the patients. They use this application in their diagnosis. They got feedback for us to develop our application and services." [296–299]</p>	<p>More minor role of employees as operators</p> <p>"In this company more open teams [...] They making some team and think about my ideas and then gets feed about collaborating with clinics and patients and then think about some ideas to improvements for the application and services." [420–424]</p> <p>"First two years no employees, I have to run all operations. Past one and a half year they joined; I asked them to do other operations. First one year I have to go to every meeting to ask everything and do the paperwork." [429–431]</p>

Source: Own illustration of findings.

- **German investors** seem to be a little bit **more hands-on** than Japanese ones.
- There are **three groups of investors**: there are investors who play a significant and major role in the business and are highly involved, but the overall number of investors is kept as low as possible. There are investors who play a rather minor role and are considered sparring partners but follow the management team. Lastly, there are investors, who are not hands-on and are just there for return on their investment.
- It seems that all entrepreneurial ventures put **high emphasis on network building** and networks are seen as essential to improve situation, create benefits, grow and increase visibility, and spread awareness.
- Some businesses focus on internal product development and are therefore not engaging with customers or consumers. Other businesses are **cooperating with customers for product improvement**, whereas others use **customer cooperation on a marketing level**, to spread their product use.
- It seems that all entrepreneurial processes come to the point where they must ask the question, **who is my customer and who is my consumer?** This is a rather difficult question to answer.
- Within businesses **employees or the team can take different roles**. Either employees have some responsibility and play a crucial role within this specific responsibility and may even change or shape this area but are not considered on an equal level. Or employees are seen equal, included and involved on all decision levels and are seen as equally important shaping more than their field of expertise.

4.2.1.5 Pairwise comparison

After searching for patterns along different theoretical and empirical categories, in a next step this thesis looks for patterns along pairs of cases. To allow for a structured pairwise comparison, the presented business characteristics are considered, specifically, the level of experience, hardware or software product and time span between start and foundation. The first two business characteristics stem from the purposeful sampling plan, whereas the last characteristics were not planned, but are the result of the data collection process. Moreover, founding team size is an interesting point to look at, but as has been analyzed before, there is an obvious pattern for German start-ups being founded by founding teams, whereas Japanese start-ups tend to be founded by a solo entrepreneur. An additional interesting characteristic might be team size, but there is no clear difference. Obviously, as solo entrepreneurs need more capacities soon, all solo entrepreneurs have a team. However, e.g. in the case of SipCo, when there is already a founding team of four, the business has more time to start hiring

employees. Also, the relationship between team and founders has already been analyzed. Overall, the following Table 25 indicates which cases form pairs along the characteristics.

Table 25: Formed Pairs for Pairwise Pattern Matching

Case	Prior experience	No or low prior experience	Software product	Hardware product	Start & foundation same year	Start & foundation within one year	Start & foundation within two years	Start & foundation within three years
DiagCo		x		x		x		
SipCo		x		x				x
TrainCo	x		x				x	
SoundCo	x		x		x			
BrainCo		x	x	x				x
FilmCo		x	x				x	
PetCo	x			x	x			
MedCo	x		x			x		

Source: Own illustration of findings.

Taking a closer look at **prior experience**, there seems to be no clear pattern concerning network building. An assumption was that experienced entrepreneurs have easier access to networks as they are already part of those. This might be the case for TrainCo, as at least one founder was already active in the start-up scene but not specifically as a founder. However, F PetCo, who is a serial entrepreneur, does not specifically engage in much networking. Then again, SoundCo has two founders with prior experience, and they had to start from scratch and maybe they were a little bit more confident, but not much. Concerning confidence, Also SipCo, which's founders do not have any prior experiences, are confident and not shy. However, the founders of SipCo as well as DiagCo are relying much more on external advice, but FilmCo and BrainCo do not.

Looking at the distinguishing characteristics of **hardware and software product**, the four businesses going for a software product are nearly entering the market and are selling the product. Only TrainCo is on the verge of launching the product. On the hardware product side, DiagCo is miles away from having a product, whereas all others are (nearly) on the market. Consequently, one can assume that DiagCo needs as long because it is a very special product. One could also assume that hardware products need much more funding than software products, which probably holds true for most of the cases, especially as hardware products need to be produced in advance, which means that there needs to be in-advance capital for production. But there seem to be no other patterns. For example, there is not even a clear line of argumentation that only hardware products use outsourcing. But MedCo, TrainCo and SoundCo all outsourced parts of development, whereas SipCo outsourced production.

Looking at **the time span** between start and foundation; it is also hard to see patterns. For example considering TrainCo and FilmCo, both businesses started and were founded within the time span of two years. Both businesses produce software products. However, besides that similarity, the processes do not show any more similarities. TrainCo is highly cooperative, whereas FilmCo is the most closed off. Both aim for visibility by going to events, but FilmCo does this by taking part in challenges, whereas TrainCo visits events intentionally. Also, SoundCo is going to events regularly. Also, DiagCo and MedCo could not be more different. Both start-ups are university spin-offs and were founded the same year they started. That might be a reason why there is a certain research network, but otherwise the processes show differences. DiagCo is highly dependent on the investor and used opportunities for consulting, whereas F MedCo tried to do everything on his own most of the time. However, both companies put a lot of effort into product development. Looking at SipCo and BrainCo, again both start-up processes could not be more different. Obviously, the starting points are very different as well, which might be the main reason why the processes are so different in the first place. While SipCo took a long time for product development and first steps, F BrainCo took the time to promote his first product a dementia 'pill' and then fast forward investigated the use of a game for dementia patients. Here, product development took some time, but while F BrainCo puts a lot of work into building networks, SipCo is overall much more product focused.

Summarizing, looking at different pairs of cases is a good approach. However, within this thesis pairs based on characteristics do not show many similarities. Nevertheless, there are cross-case patterns where you can see pairs of processes, particularly, taking a closer look at process descriptions as well as process visualizations, including temporal sequences of events (as also considered by McMullen, Fitzsimmons, Shetty, & Ramoglou 2024). Additionally, patterns from pattern matching along theoretical and empirical constructs bring those pairs to the surface and slowly let certain typical process characteristics emerge. Specifically, similarities of entrepreneurial processes can be detected with the help of the found patterns.

First, one major pattern that can be seen quickly is that **all entrepreneurial processes started with a coincidental event that shows “strangely seemingly independent but converging factors that then have an effect”**.⁶⁹⁸ There was not a moment where anyone decided actively to search, create or discover an opportunity, but coincidences, external events and chances were recognized and picked up by the founders. Sometimes, such as in the case DiagCo, the founders did not even see the external factor until later, when they discovered that an interview request considering university spin-offs slightly pushed them to accept the offer to take over patents and start a business based on them. Or in the case BrainCo, when F BrainCo

⁶⁹⁸ Transcript DiagCo GER 1, point [1911f.].

recognized an opportunity coming up in his social environment. And then again in pursuing the business opportunity, recognizing a potential opportunity at a conference. Or in the cases TrainCo and FilmCo, when founders accidentally meet, and one side has an idea, and the other side is interested in business. So, it becomes obvious that these events are certainly coincidental and are not happening intentionally.

There is a pattern that was to some extent already described and can be seen in the cases DiagCo most prominently, but also in the cases SipCo, SoundCo and PetCo. Those processes all show that there is **one big, (external) player the business is majorly cooperating with**. DiagCo's entire process heavily relies on business and investor cooperation – first a rather unsuccessful cooperation, then a more promising one. Most of DiagCo's decisions are made after discussion and only in accordance with the investor. SipCo also has an important figure in its process, namely the mentor and later the mentor in the form of the advisory board. SipCo relies on the mentor and asks for support and advice. Even though SipCo is cooperating with other stakeholders as well, the mentor takes a special place. SoundCo also relies on one source of cooperation, namely insurances. The cooperation with insurances and being added to standard care for insurance reimbursement is one of the key steps in SoundCo's journey. Naturally, a start-up would heavily try to work with customers, but in the case of SoundCo it is kind of interesting to see that the founders are very confident and independent in their doing, except for insurances. They describe that insurance cooperation is very difficult and hard, and these are not the nicest people, but they are still doing everything to make it work and improve the interface with insurances. So even though SoundCo is more independent and cautious in most of its steps, insurance cooperation was there from the beginning. Looking at PetCo, the major dependence on employees is standing out. F PetCo went through a major shift from being the independent, serial entrepreneur, to a highly communicative, open and transparent nearly employee steered start-up. It is the only business that is so involved with employees. So, PetCo shows an example where there is one big, internal player.

Cooperation in general is certainly a pattern and as described above, in all cases except DiagCo and PetCo, businesses are engaged in customer cooperation (for different reasons). If we take an even closer look, one might see that TrainCo and MedCo go even a bit further. Both businesses are not only cooperating with customers and maybe investors, but both see the world as a more **complex web of different networks**. Particularly TrainCo, aims to cooperate with anyone important (not randomly) but tries to create and capture value using network effects. Also, MedCo, in a slightly smaller scale, is trying to cooperate with many different stakeholders at the same time. Maybe to some extent BrainCo is also eager to cooperate with different stakeholders, such as hospitals, customers, patients, but also strategic business partners and governmental programs.

In contrast to those highly cooperative businesses, there are **businesses which try to be as independent as possible**. FilmCo presents the extreme form. FilmCo is trying to be highly financially independent and does not even enter any major exchange with advisors, incubators, accelerators, etc. FilmCo only cooperates with customers, but as they are offering a customizable product, it seems natural that there is some sort of cooperation. However, they are not taking in any feedback but are trying to make an impact on customers minds and adapt the product to customer needs. Also, SoundCo has or had those aspirations. As described, SoundCo cooperates with and depends on customers to improve the product. Nevertheless, the founders also emphasized their initial (financial) independence and as mentioned before, during the interviews, the founders never really referred to business angels or investors as advisors. They bring something to the table, but they are not fully considered for decisions. To some extent also SipCo has similar aspirations when it comes to investors.

Consequently, these patterns show that entrepreneurial processes differ according to intensity of interaction in terms of different points of interaction. In general, one would assume that interacting or networking with the external environment is beneficial for any start-up. However, as already pointed out by the entrepreneurship experts, founders face the tradeoff between “investing your time in networking and external contacts versus developing products or business models.”⁶⁹⁹ The empirical insights show that there are certainly entrepreneurs that are eager to intensively interact, whereas other founders are rather hesitant to interact with the external environment out of different reasons. The case TrainCo (but also MedCo and BrainCo to some extent) shows an entrepreneurial process, which majorly builds on interactions with diverse external stakeholders. The case FilmCo shows a different extreme, where the founders try to minimize interaction to stay independent. Also the first part of SoundCo’s entrepreneurial process as shows similar patterns. Both processes are rather closed. The cases DiagCo, SipCo and PetCo, however, do show interactions but their entrepreneurial process is majorly characterized by interactions with one important (external) stakeholder, e.g. and investor, a mentor or the team. Therefore, this thesis draws the conclusion that **entrepreneurial processes differ in terms of intensity of interaction**.

Diving deeper into the main reason for interaction a further pattern can be observed. Looking at SipCo in particular, the **process majorly builds on the strong focus of developing a product**. As they have a complex hardware product, where some technological advancement is necessary, this might be understandable. But there are other cases, such as DiagCo or PetCo, which also build complex hardware products and did not focus their story so much on product development. In fact, F PetCo never even mentioned product development except for

⁶⁹⁹ Transcript A, points [353–360].

the time span it took. DiagCo mentioned product development but only as a big topic with their investor. Nevertheless, DiagCo shows that the overall process and particular actions all surround product development. The founders also consider the business case, but mostly focus on product development, when they are not dealing with investor issues. However, product development is an essential characteristic of this process also. Consequently, the overall **intention of interaction** is rather focused, in this case on product development.

Coming back to the case FilmCo, this case shows a rather focused intention of interaction as well. As described above, the founders of FilmCo aim for independence. However, at some point they do engage in interaction with (potential) customers to proof their product and convince (potential) customers of the benefits of their product. Thus, one can observe a dual interaction that pursues a single intention, namely to sell the developed product. Also SoundCo's entrepreneurial process shows similar patterns, especially within their first product development cycle. After initial product development that is rather closed-off, the founders 'go out' with the intention to convince customers (insurances) of their product. Thus, the intention of interaction is again focused on one major goal. Moreover, MedCo has also a very focused intention when engaging in interaction. F MedCo engages in interaction within and beyond the boundaries of his business to bring his product to the market through 'social trials' with potential customers and users. TrainCo, DiagCo, BrainCo and PetCo, in contrast, do engage in focused or broad interactions (intensity of interaction), but their intention of the actual interaction is rather broad. All founders do engage in interactions for multiple reasons and are thus pursuing a plurality of goals with their interaction. Taking TrainCo as an example, the founders show a high intensity of interaction, whereas the intention behind each interaction differs: they develop their product, engage in political developments, aim for business model development and even look for employees through networking and interactions.

Summarizing, even though no clear patterns could be found looking at pairs along business characteristics, having the pattern matching along theoretical and empirical constructs in mind and looking at the processes and process visualizations, similarities are slowly but surely evolving. Eventually patterns emerge along the visualization and description of entrepreneurial processes, specifically e.g. main topics, points of interaction, intensity of interaction within the process and in which temporal sequence interactions take place emerge. These patterns lead to the conclusion that **entrepreneurial processes do differ along two dimensions: intention of interaction and intensity of interaction**. In the next step those patterns, and also all other emerging patterns are considered to draw a picture of typical entrepreneurial processes that may occur in start-ups but also in (larger) businesses.

4.2.2 Typology

“Compelling stories are built around main characters who engage in a struggle with a powerful entity (narrative conflict) within a narrative setting. The story is held together by the sequence of events and made comprehensible by the plot. The narrative arc concludes with a resolution of the problem of the story and/or the problem faced by the main character(s) of the story.” (Shepherd & Suddaby 2017, p. 60)

Based on the previously observed and found patterns, contexts emerge and similar processes can be understood and explained (Kelle & Kluge 2010, pp. 101–104). Specifically, four archetypical entrepreneurial processes emerged from data based on pattern matching, pairwise comparison along the visualizations of the within-case analysis, integrating theory along the way. Following Langley et al. (2013, p. 9) and Kelle and Kluge (2010, p. 91ff.), the following chapter introduces the narrated “process story” of four identified archetypical entrepreneurial processes. The archetypes are named the cooperative one, the self-sufficient one, the product maker and the married one.

Going into detail and based on emerging patterns, it can be presumed that the four archetypical processes differ along two main dimensions. The **first dimension is intention of interaction**. As observed, within some entrepreneurial processes, founders engage in interactions with the external and internal environment due to a very focused intention they pursue. The actual intention might be different but may encompass the intention to advance product development, convince potential customers of benefits or simply sell the product. From empirical data, one entrepreneurial process stands out, namely the product maker. The product maker describes an entrepreneurial process within (most) interaction takes place to advance product development. Thus, the entrepreneurial process has a very focused intention of interaction on product development. In contrast to a very focused intention of interaction, there are other entrepreneurial processes that show the pattern that there is a plurality of intentions behind interaction. Within those entrepreneurial processes, founders engage in interactions for multiple reasons, on different levels. Thus, within those entrepreneurial processes, one can observe that the external, but also internal environment is consulted to advance different areas within the business (e.g. business model, financial situation, organizational structures).

The **second dimension is named intensity of interaction**. As described in the previous chapter, from the within-case analysis (and specifically visualizations of entrepreneurial processes), it becomes obvious that there are entrepreneurial processes that have a rather low intensity of interaction, whereas other entrepreneurial processes show a high intensity of interactions. In this sense high intensity of interaction corresponds to multiple, diverse points of interaction and low intensity of interaction corresponds to processes, where there is e.g. overall a low engagement in interactions or interactions are focused to a minimum number of different points of interaction. Thus, there are entrepreneurs, which are pursuing many different interactions with the external and internal environment, whereas other entrepreneurs are

keeping interactions to a minimum. The intensity of interaction differs depending on the archetypical entrepreneurial process. The cooperative one, as the name already tells, engages in a high intensity of interactions and thus cooperates with many different stakeholders and other external environmental forces. The product maker shows similar intense interactions with diverse external enablers. The married one, in contrast focuses interactions to one specific point of interaction, usually one special stakeholder, like an investor or mentor, but also the team, whereas the self-sufficient one is keeping external but also internal interactions to a minimum. Figure 49 presents all four archetypical entrepreneurial processes along the two dimensions intention of interaction and intensity of interaction.

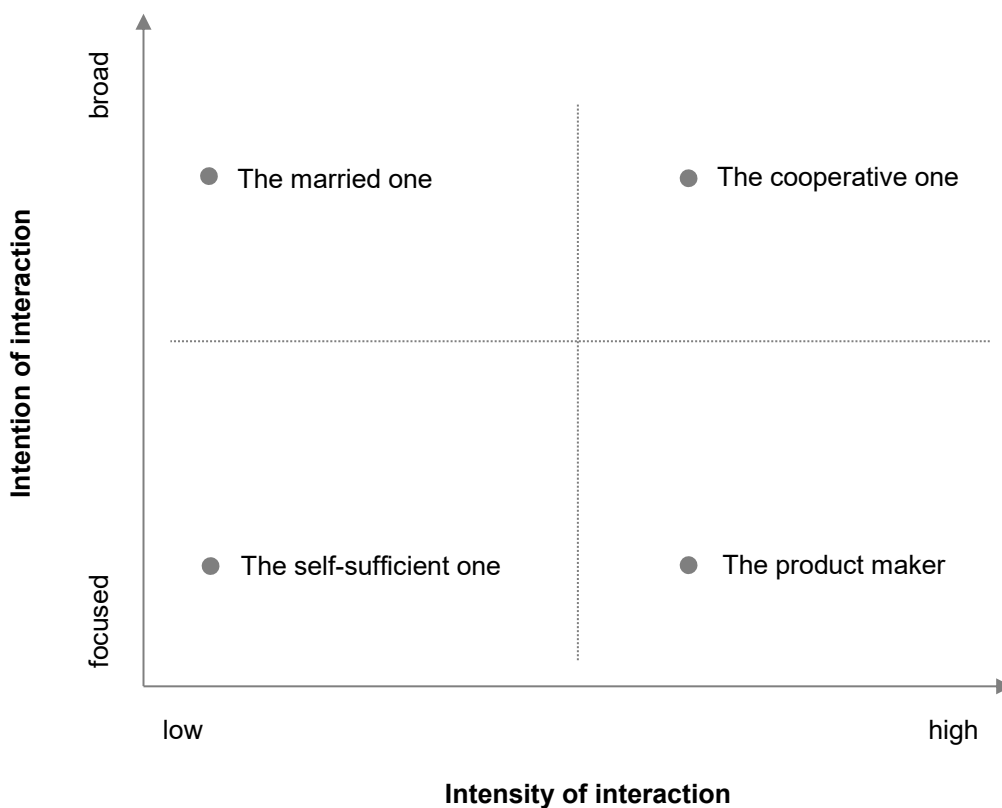


Figure 49: Entrepreneurial Processes between Intention and Intensity of Interaction
Source: Own illustration of findings.

Even though clear antecedents do not emerge from data, the entrepreneurial mindset seems to have an impact on the overall direction over intention and intensity of interaction. Among found archetypical entrepreneurial processes, differences were identified along motives of the entrepreneur(s) and typical characteristics of the respective entrepreneur(s). Those motives and characteristics describe the mindset of the entrepreneur to some extent and function as presumed antecedents towards intention and intensity of interaction. Depending on the goal and mindset of the entrepreneur, typical behaviors within entrepreneurial processes differ. Table 26 summarizes the characteristics and motives according to archetype.

Table 26: Entrepreneurial Characteristics and Motives according to Archetype

Archetype	Characteristics	Motives
The cooperative one	<ul style="list-style-type: none"> ▪ Highly knowledgeable and skilled person ▪ Low need for personal achievement ▪ Highly innovative ▪ Not most risk taking 	<ul style="list-style-type: none"> ▪ Ambition to create something ▪ Serving a higher cause ▪ Achieve a general improvement for peoples' lives ▪ Low motivation for entrepreneurial career or self-employment
The self-sufficient one	<ul style="list-style-type: none"> ▪ Knowledgeable and skilled person ▪ Ability to build a diverse founding team with variety of a skill set ▪ Eager to keep control ▪ Confident, believing in abilities, but realistic ▪ More risk prone, but back-up plan ▪ High ambition ▪ High need for achievement, personal drive to 'make it' 	<ul style="list-style-type: none"> ▪ Build on innovative ideas that allow for confident standpoint to not need much support
The product maker	<ul style="list-style-type: none"> ▪ Identifies with the underlying problem of the perceived and recognized opportunity ▪ Highly ambitious ▪ Low need for (personal) achievement ▪ Open to advice ▪ Medium risk-taking behavior 	<ul style="list-style-type: none"> ▪ Drive to solve the issue, help someone or serve the market ▪ Striving for new and innovative product, which entails no known or immediate market need ▪ Building innovative product as main goal, but not running a business long-term
The married one	<ul style="list-style-type: none"> ▪ Highly knowledgeable person ▪ Highly innovative and able to create an advanced product ▪ Medium drive for autonomy ▪ Open to advice 	<ul style="list-style-type: none"> ▪ Building a team that has similar background and knowledge ▪ High confidence in the actual product

Source: Own illustration of findings.

Coming back to the four archetypes, each archetypical entrepreneurial process is assumed to follow a typical process with a specific 'sequence' of events and focused or broad intention of interaction, as well as low or high intensity of interaction. In the following, each process is presented through "a thick yet more idealized narrative" (Habersang, Küberling-Jost, Reihlen, & Seckler 2019, p. 37). Each narrative describes how and in which way an entrepreneur is interacting with his/her environment in the process of developing a business, identifying "the plot or generative mechanism at work" (Langley et al. 2013, p. 9) and main events. Building and describing archetypes of entrepreneurial processes also follows Pentland (1999, p. 712f.) five features of narrations:

- Description of "sequence in time", including "beginning, middle, and end" if possible, as an entrepreneurial process can hardly ever be described as being finished;

- Pointing out the “focal actor or actors” and telling the story of protagonists and maybe antagonists who are the main actors within the story;
- Identifying, who is telling the story and presenting the “narrative voice”;
- Including an “evaluative frame of reference”;
- And showing “other indicators of content and context”.

The following chapters will describe the archetypical entrepreneurial processes of the cooperative one, the self-sufficient one, the product maker and the married one. First, “the core idea of each archetype” is described, also taking into account the found motives of the respective entrepreneur(s). Typical characteristics of the respective entrepreneur(s) are additionally described later on. As pointed out, the motives and typical characteristics can be understood as antecedents towards the specific type of entrepreneurial process. Then, the overall process of the dual interaction between an entrepreneur and his/her environment is presented in detail, whereas the narration of the ideal typical processes is structured along beginning, middle and end. Within this process key interactive mechanisms are pointed out. Eventually, also the archetypical entrepreneurial processes are visualized, which are considered as one of the main outcomes of this thesis.

4.2.2.1 The Cooperative One

The cooperative one considers an entrepreneurial process archetype that shows high integration and embeddedness of a new venture within its ecosystem. Within the team, responsibilities and control are shared. Founders are eager to cooperate with multiple, relevant stakeholders, organizations or structural elements to improve, learn and move forward. They are eager to build a widespread network in any direction and do not see any threat of losing autonomy, but only benefits from network effects. The cooperative one listens to external advice and tries to give something back. Therefore, the entire process is described by multiple interactive actions between an entrepreneur and his/her environment. Interestingly, due to the highly interactive character of this entrepreneurial process, exact phases or drawing a clear line between beginning, middle and end of the story are mostly indistinct and blurry. Nevertheless, the story is structured in three parts. The following paragraphs will go into more detail on the archetypical entrepreneurial process of the 'the cooperative one'.

Beginning. The cooperative one starts like all other entrepreneurial processes with an unexpected coincidence, where an opportunity is perceived and recognized. An event or coincidence takes place, in which converging factors lead the entrepreneur to start thinking and an ideation process is unlocked.

The typical entrepreneur of a cooperative entrepreneurial process can be described as a highly knowledgeable and skilled person, who is ambitious to create something new that also serves a higher cause. Thus, also the need for achievement is not as high, especially when it comes to personal achievements. The entrepreneur is not eager to become this 'big boss' but has more idealistic visions of a potential entrepreneurial process. There might be also external reasons why the entrepreneur thinks about creating a new venture, but the main aim is to achieve a general improvement for peoples' lives. Thus, the entrepreneur is usually highly innovative in new approaches, new products and novel business models. Additionally, the entrepreneur might not be the most risk taking, s/he is eager to improve peoples' lives, but does not necessarily aim for an entrepreneurial career or self-employment. Therefore, the cooperative entrepreneur tends to have outside options available.

Despite outside options, the founder dives into the development of a business straight away and depending on the actual idea, engages with multiple stakeholders to advance ideas into a product or offering and eventually into a business model. So, the early phase of the cooperative one, already starts with a lot of interaction. As described, the cooperative one usually offers a highly innovative product, and thus the idea usually also stems from a highly innovative environment. E.g. the idea stems from a research environment and therefore, the entrepreneur immediately starts to interact with stakeholders from his/her research network to evaluate ideas from the beginning on. Additionally, identified consumers, who are benefitting from the

novel idea, are usually immediately integrated in development. Thereby, the business is able to incorporate consumers' needs and builds a product that meets all the needs from the beginning on. Even though the entrepreneur sometimes might not prefer a certain direction, consumers' and customers' needs take a high priority.

To be able to engage in product development and have lower risks, the cooperative one strives for outside financing early on. Funding programs tend to be the preferred path in the beginning. E.g. again, developing as research spin-offs, there are multiple programs that may support a spin-off financially and the cooperative one is eager to take the chance. So, the beginning can be particularly characterized by high interactions with consumers and customers, while being part of e.g. funding programs, accelerators, or incubators and using existing networks.

Even though the cooperative one brings in external money, the entrepreneur is not eager to immediately build a team. Being adaptable to and interactive with the environment, flexibility is a key item to look out for. Therefore, the cooperative one tends to outsource product development. The entrepreneur sees that some skills are missing, but building an entire team seems to be too early. What needs to be noted is that the actual 'building' of the product is outsourced but not the innovative development. Thus, the outsourced task is mostly at the executing end, whereas actual approach developments are taking place within the boundaries of the new venture in cooperation with customers and consumers.

Throughout the beginning, but also later, the cooperative one receives support from its social environment and cooperates with the entrepreneur's private network to advance the product, get feedback or support. As the name tells, the cooperative one cooperates with any stakeholder, if the stakeholder can bring the business forward and help the entrepreneur achieve the higher cause. As private and family ties are the easiest to ask for first advice, the cooperative one starts interacting with its social environment in the early phase, but never really stops and is always eager to come back to its roots.

Middle. Despite outsourcing the product building, at some point also the cooperative one is eager to grow and build a bigger team. Therefore, hiring employees who are able to take over a lot of responsibility and control over aspects of the business is a core task in the middle of the story. The cooperative one employs highly skilled people, who fill gaps of knowledge that the founder or founding team do not have. The employees receive high responsibilities in their field of expertise and are highly valued and seen as equals in the business. Eventually, employees may even become part of the management team.

Also, as more financial means are needed, the team of investors may grow within this phase. As just described, in the beginning the cooperative one makes use out of available funding

programs. Only in as a second step, the cooperative one considers bringing in investors, such as business angels and venture capitalists. In the process, the cooperative entrepreneur naturally collaborates with investors, makes use out of potential connections, but the investors do not become the main sparring partners or take a special role. If they have some advice, it is taken and if wanted, they are integrated in the process, but they play a more unspecific role. Of course, the money is needed to grow the team and therefore, investors are brought in.

With a growing team and a product under development, the cooperative one spreads its wings and engages in much more interactions, cooperation and exchanges. Putting it into an extreme: basically, the cooperative one is cooperating with everyone under the sun (that supports or also follows achieving the higher cause). First, the entrepreneur strives to cooperate and interact with local stakeholders. Especially if there are short ways, cooperation is even easier, and while the cooperative one is taking in different viewpoints, always being open to other alternatives, it also strives for bringing its innovative thoughts to the world, to eventually improve peoples' lives. Thus, the cooperative one is usually trying to be politically active in its own realm of action and improve the political or governmental situation in favor of its more convenient product. Also creating visibility through the local and political environment is an important step. Only through higher visibility, the cooperative one can serve its higher cause. Giving back to other networks and stakeholders tends to be an additional key activity. Therefore, the cooperative one also intensifies interactions with other networks and tries to cooperate with them e.g. on a research project or any other project that might help the network.

During this time, also the cooperation with customers and consumers might change. Of course, the new venture is still interactively engaged in improvements along customer and consumer desires but may also integrate consumers and customers into their path towards increasing visibility. Thus, events are created, or the cooperative one goes to events for potential customers to advertise its ideas and create a snowball-effect. Therefore, customers are actively involved not only in product development but also in marketing.

End. Overall, after the initial start and co-developing a product with consumers and customers, while also engaging in active exchange with existing and new networks to receive feedback and advance even further, the cooperative entrepreneurial process follows its past path and keeps on building a good position in the middle of the created network. Being an important partner to multiple stakeholders, bringing advancement forward in multiple areas, improving peoples' lives and advanced growth are key factors for the further development. Interestingly, the cooperative entrepreneurial process does not change as much over time, just the networks and involved stakeholders become much bigger. Figure 49 presents a visualization of the archetypical cooperative entrepreneurial process.

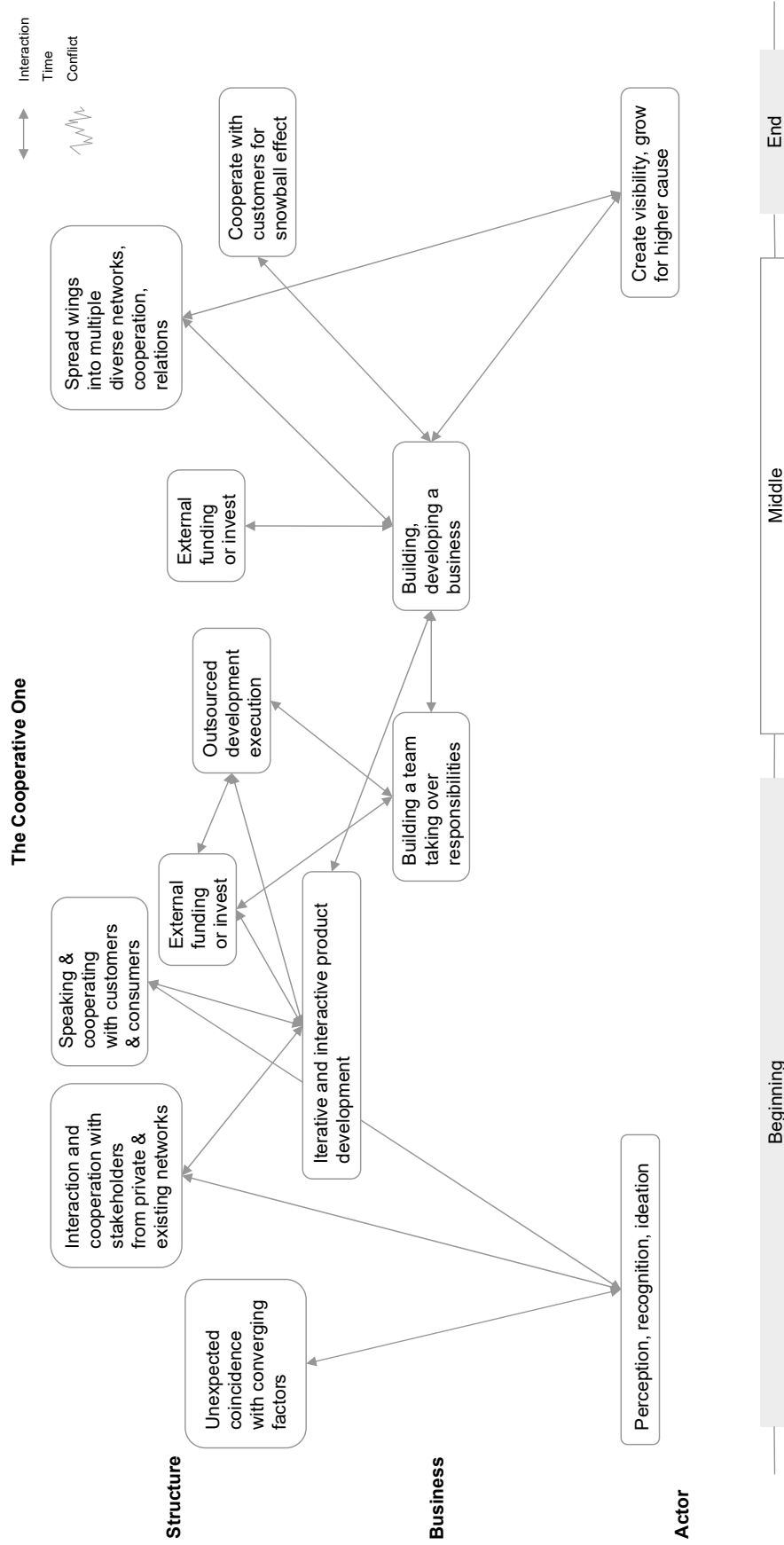


Figure 50: The Cooperative One
Source: Own illustration of findings.

4.2.2.2 The Self-Sufficient One

There is also an ideal typical entrepreneurial process that seems highly independent, which is called the self-sufficient one within this thesis. The self-sufficient one can be seen in contrast to the cooperative one in terms of intensity of interaction, but also intention of interaction. However, also the self-sufficient one is cooperating to some extent but aims to keep autonomy and decision power internally. Consequently, cooperation is limited and only pursued if necessarily needed, e.g. if certain regulations demand authority interaction or the venture offers more customized products. The self-sufficient one is aiming for independence and therefore takes necessary steps to stay independent as long as possible. However, at some point there may be investors. In this case, investors also do not play a big role in the entrepreneurial process of the self-sufficient one. Therefore, the entire entrepreneurial process is described by a minimum of interactions between an entrepreneur and his/her environment. The following paragraphs will go into more detail on the archetypical entrepreneurial process 'the self-sufficient one'.

Beginning. The self-sufficient one starts like all other entrepreneurial processes with an unexpected coincidence, where an opportunity is perceived and recognized. An event or coincidence takes place, in which converging factors lead the entrepreneur to start thinking and an ideation process is unlocked.

The typical entrepreneur of a self-sufficient entrepreneurial process can be described as a knowledgeable and skilled person, who is able to build a founding team that brings in the needed variety of a skill set to start a new venture. Even though it is proposed that the self-sufficient one is started by a founding team, there might be cases in which one entrepreneur combines a variety of skills within him/herself. With a skilled and knowledgeable team, the self-sufficient one builds upon innovative ideas that allow for a certain standpoint of being confident enough to not need much support. Overall, the self-sufficient entrepreneur is eager to keep control and not share power over business related decisions. S/he is confident in going his/her own way. And as can be presumed, the self-sufficient entrepreneur, being confident, believes in his/her abilities. The entrepreneur is, however, not blindly confident but realistic about new venture creation. The entrepreneur takes risks, e.g. market risks, but at the same time has a back-up plan in the back of his/her mind. The self-sufficient entrepreneur is highly ambitious in terms of building a business and eventually winning and shows a high need for achieving entrepreneurial success. Achieving entrepreneurial success also goes hand in hand with the personal drive in 'making it'.

Consequently, the first step of the entrepreneurial process, and usually what starts it, is looking and building a founding team with a diverse skill set. So, after the initial coincidence, which may also comprise the coincidental meeting of at least two founders, the entrepreneurial

process starts with a founding team coming together. Then the initial step of the founding team is to start with product development. Product development takes place within the boundaries of the new venture and among the team. Before talking to anyone outside of the boundaries of the (potential) new venture, a product, patent or technology is built behind closed doors. The time span of product development is comparably more on the shorter side and after finding out about technology, products and patent, creating a 'first' product, the next phase starts.

Middle. After initially developing the grounds for a marketable product or even the product itself, the self-sufficient one comes out of its shell and enters a more open phase towards the 'outside' world. First, there is usually a need for money. The self-sufficient one is trying to hold the number of investing parties as low, and as far away from control, as possible. Therefore, typically the self-sufficient one starts making money by participating in any challenges, competitions or events. Also, smaller funding programs are possible. Even for the self-sufficient one, feasibility and market evaluation play a role. Therefore, the self-sufficient one is not only taking part in pitching events to gain money, but to evaluate and proof the concept. Especially, as the self-sufficient one engages in a closed-off product development, 'testing' the product in the form of pitching contests is a viable and expedient approach, without losing control or worst-case giving up shares.

After the first phase of testing the concept and staying afloat financially, the self-sufficient one enters a next phase of engaging with potential customers and consumers to evaluate the market potential. During this phase, the self-sufficient one is cooperating with customers but starts with a more or less 'finished' product and aims for product improvements, searching for potentially needed features and considers improvements in handling. Additionally, having an innovative product approach, the self-sufficient one is eager to build a market position for itself, in which customers are also becoming more innovative to be more open to the innovative ideas provided. Thus, an interactive relationship that aims for innovation on the customer side, and improvements on the venture side, is established. Overall, the self-sufficient one keeps up the relations with customers to keep an open ear and listen to the newest developments in needs and continuously improve its products and offerings. Mostly around this time, the actual foundation takes place.

During and after the phase of testing marketability, the self-sufficient one eventually needs more financial means to actually bring their product or offering to the market. Therefore, around this point in time, the self-sufficient one considers bringing in business angels or investors. Sometimes there is a decision against investors, but at other times there is no way around it. Thus, through an investment, the new venture can keep up the good work. Those investing stakeholders usually only take a minor role, but they bring in extra knowledge that the self-sufficient one uses for its benefit. The potential support or skill set is, however, not a key

decision driver for the investment. But if there are new skills, the self-sufficient one is not ashamed of taking advantage of that. In a context, when the investors get shares for their investment, to some extent they have to be involved and informed in the context of board meetings but are pushed to always follow the founders.

Overall, the self-sufficient one is mostly eager to take any advantage it might get and make use of beneficial situations. So, depending on the actual process, some interaction with local politics may take place to improve the standpoint for the new venture and create more beneficial contexts. Also using private networks to easily and quickly pursue tasks and act upon requests is thinkable. However, engagements with external stakeholders usually only enhance the situation for the business in a more positive way. Consequently, in the case of the self-sufficient process, the new venture mostly tries to interact with its environment for positive impact and changing structures in its favor. Of course, also the self-sufficient one is restricted by legal rules and regulations.

With growth eventually comes the need for a growing team, and the self-sufficient one tends to employ people cautious and reluctantly. However, the employees are not as involved in the actual business and usually take the role of executers. Executing their tasks might also entail bringing back feedback from customers (e.g. the sales team), but the founders are taking responsibility and incorporate feedback in accordance with their own opinions. This does, however, not mean that employees are controlled all the time, they are to some extent also self-sufficient and responsible for their tasks.

End. Eventually, the self-sufficient one can build a business and an environment that is in favor of its own actions. Interactions take place with the main goal to improve the situation for the new venture or improving the product and offering that was initially build within the boundaries of the new venture. Thereby, the self-sufficient one is eager to impact external stakeholders, so they amend in favor of the self-sufficient one. Thus, interactions take place but more in the direction from the new venture towards the environment. Overall, through this approach, the self-sufficient one builds a product and offering that considers customers' needs, but also tries to convince customers of the need for those innovative approaches. However, there is never an end to developing a business and the self-sufficient one will always continue to improve its product and offering, interact with customers and bring them more innovative minds, while working in a more advantageous environment. Figure 50 visualizes the archetypical entrepreneurial process of the self-sufficient one.

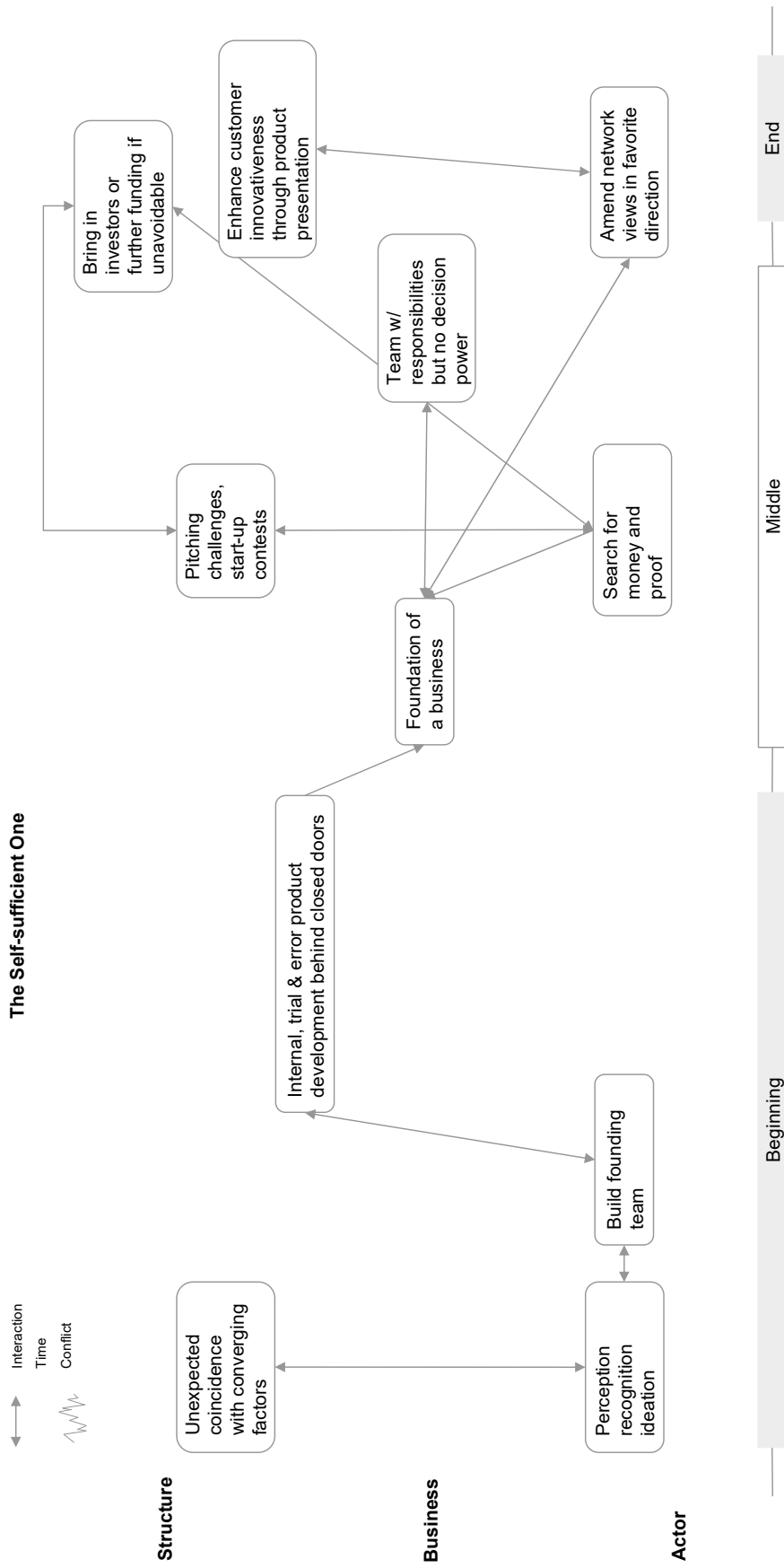


Figure 51: The Self-sufficient One
 Source: Own illustration of findings.

4.2.2.3 The Product Maker

The product maker describes an entrepreneurial process archetype that is majorly occupied with building a product. The key to any interaction is mostly developing and improving the product, whereas other aspects are falling behind. Consequently, the product maker is interactively engaged with its environment but mostly with the core intention to work on the product, not the business model. Most efforts and actions are going in the direction of building, revising and improving the product. Therefore, the entire entrepreneurial process is described by several interactions between an entrepreneur and his/her environment always focusing on product development. Thus, the intensity of interaction is high, whereas intention of interaction is highly focused on product development. The following paragraphs will go into more detail on the archetypical entrepreneurial process 'the product maker'.

Beginning. The product maker starts like all other entrepreneurial processes with an unexpected coincidence, where an opportunity is perceived and recognized. An event or coincidence takes place, in which converging factors lead the entrepreneur to start thinking and an ideation process is unlocked.

The typical entrepreneur of a product maker entrepreneurial process can be described as a person, who really identifies with the underlying problem of the perceived and recognized opportunity and is highly ambitious and has much drive to solve the issue, help someone or serve the market. To do so, the entrepreneur is open and strives for innovation, which is usually bound to product innovation. Thus, the product maker tends to introduce an entirely new and innovative product, which entails that also the market might not know they need the product. The product maker entrepreneur does not necessarily have the need to achieve much, achieving to build a product is a key goal, and probably also building a business on it, but running a business in the long run is not the focus, but might be welcomed if possible. The product maker entrepreneur is certainly taking some risks, having such a new product, but at the same time is not the first one to jump.

So, the product maker entrepreneurial process starts with an entrepreneur, who perceives and recognizes an issue and then starts to think about a product that can tackle the issue. S/he starts to think more deeply, collect ideas and develop first prototypes. Essentially, this first product development process seems to be some trial-and-error phase, but most interestingly this very early product development phase is kept internal. As soon as there is a more developed prototype, the product maker is open to get first feedback and starts building some contacts with consumers and customers or overall get some first market feedback. Also, feedback from other sources, especially the social environment, may play an important role, as the private network is the first network to ask for trying the product. Despite first interactions

with diverse spheres of the environment, the focus lies on getting feedback on the product, further developing and improving the product with the given feedback.

Middle. In the process of the product maker, continuous product improvements are the key actions taken by the entrepreneur. The entrepreneur is eager to build an interesting, innovative, advanced product that tackles a specific issue. On his/her path, the product maker uses advice and feedback to build a better product. Therefore, the product maker is eager to cooperate with anyone who could bring in the needed advice. For some cases there might be a valuable advisory board, or the built team is the key to product advancements, also a team of investors may shape the product in a certain way. However, the actual choice over who to cooperate with is not important as long as this someone helps to build the product.

Interestingly, the product maker entrepreneurial process is not only characterized by product development in the beginning, but also in the middle. Consequently, the product maker takes a long time to build the product and overcome any obstacles that might occur along the way. The product maker might also employ people, take in investors but never moves away from a strong product focus. The high product focus does, however, not mean that the product maker is not investigating market options. Having a market is interesting and of course also interactions with market players are part of the activities, but the focus lies on creating a great product and not necessarily market it in the first place.

During this middle phase, the product maker also starts to produce the product. Production may entail obstacles and issues. During the process of production, again the product maker learns and builds in any feedback it gets to improve the product. Essentially, the product maker expects and aims to get further advice from a producing partner to even further improve the product (for production). However, a producer might not always bring in the advice wanted. In some cases, the producer does not even provide any support, which is seen critical by the product maker entrepreneur.

At some point in the middle, the product maker enters a phase where the product focus shows its difficulties. The product maker only focused on product development and not on business or organizational development, which usually leads to organizational issues that emerge. Organizational issues are specifically evolving, because structures and organizational mechanisms were never established as all activities went into the product. However, with a growing team or a founding team, first problems among the team occur. Only with a (guided) change process in communication, responsibilities and governance structures, the product maker moves forward.

End. Eventually, the product maker can make a more or less great product that then needs to enter the market which is a specific obstacle. Even though customers or consumers were considered for product improvements and testing prototypes, a real market search was never the focus. Also, the product maker never really thought about creating and building a business model but only builds the business on the one product. Depending on the product and its actual marketability, the product maker can create a running business or will look for alternative products instead (or worst-case scenario leaves the new venture). Figure 51 displays the archetypical product maker entrepreneurial process.

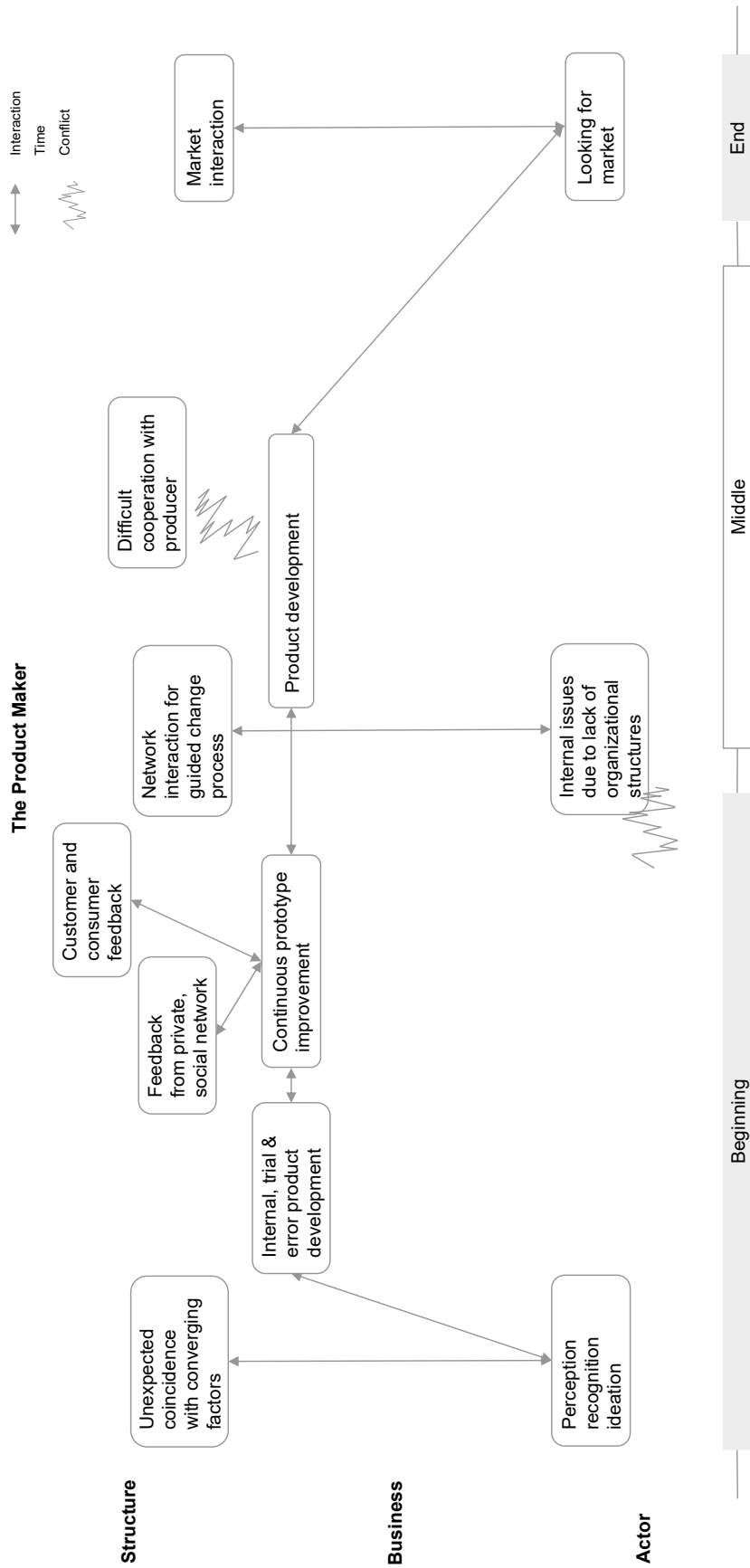


Figure 52: The Product Maker
Source: Own illustration of findings.

4.2.2.4 The Married One

The entrepreneurial process archetype called the married one, majorly relies on one source or stakeholder to cooperate with. As the chosen name tells, the business is 'married' to one stakeholder. So overall, this type of process shows similarities with the cooperative one but does not cooperate with anyone important but majorly focuses on one partner (e.g. major focus on one investor or group of investors, customers, mentor or advisor). Consequently, the one special partner becomes highly involved in the venture and is the key for any evolvments. Therefore, the entire process is described by interaction between an entrepreneur and one or two major stakeholders within the environment. Thus, intensity of interaction is low and intention of interaction is broad. The following paragraphs will go into more detail on the archetypical entrepreneurial process 'the married one'.

Beginning. The married one starts like all other entrepreneurial processes with an unexpected coincidence, where an opportunity is perceived and recognized. An event or coincidence takes place, in which converging factors lead the entrepreneur to start thinking and an ideation process is unlocked.

The typical entrepreneur of a married entrepreneurial process can be described as a highly knowledgeable agent, but in the case of a founding team, the married one tends to build a team that has similar background and knowledge. Having a concentration of knowledge, the married entrepreneur or entrepreneurial team is highly innovative and able to create an advanced product. The entrepreneur also has a lot of confidence in the actual product. Even though the entrepreneur is to some extent confident, the striving for autonomy is not specifically high. The married one is open to advice and seems reasonable that external resources might enhance the overall entrepreneurial process.

In the beginning, the married entrepreneur starts the product development process internally. Creating an innovative and advanced product also entails a rather difficult product development process that can also go on beyond this first phase of internal development. After the internal product development phase, the married one can present a first approach or prototype. When presenting a first approach, this early phase has the aim of developing some first business ideas that might also be cumulated in a business plan.

With first ideas, the married one tends to either integrate some minor support in developing a business idea and searches for e.g. consultants, incubators or accelerators to get some ground information and build a support system. Especially as the married entrepreneur builds a more homogenous founding team, additional resources are needed. However, cooperation is not essential in building the product or business and rather gets the entrepreneur in line or slightly pushes the entrepreneur in a certain direction. Usually, cooperation in this earlier phase takes

place on a local level. Thereby the married one builds local relations and also tends to support the local network, creating a co-relationship. Also, the married one tends to build local political relations. Overall, for the married one location plays an important role in diverse directions, e.g. having advantages of a certain location to attract funding, employees or having access to specific local stakeholders.

However, at a certain moment the married entrepreneur meets a breaking point, where s/he sees that on his/her own it is not possible to continue the entrepreneurial path any further. Depending on the issue the entrepreneur has, s/he engages in a search for the 'right' partner. The breaking point or issue can be diverse, typically there is a high need for (further) money, severe need of advice or the overall market approach is in question. This breaking point is, however, not a real crisis, just a point where the entrepreneur meets his/her boundaries. The search leads the married one to finding a specific stakeholder that develops into the main partner for the entire entrepreneurial process. Thus, the entrepreneur is getting 'married'.

Middle. With the new partner, the entrepreneurial process gains speed and the married entrepreneur is able and eager to build the business much quicker now. So, the new partner also enhances motivation and energy within the business. The partner is a hands-on partner and immediately starts work. Specifically, the partner is not only an above advisor but becomes a hands-on co-developer. Depending on the business structure the partner may even take a specific position within the business such as becoming part of an advisory board or taking the role of Chief Financial Officer. The partner actively engages in decisions and shapes the product development and process development.

With speeding up product development, the married one also starts to cooperate with customers and consumers to build an even stronger product. The partner also emphasizes the importance of creating a relationship with the market to build a product for customers' needs. Customer cooperation also entails searching for the right market strategy and exploring options for a market entry.

At some point along the way, the married one starts to employ people, building a bigger team. With a bigger team comes the need for creating organizational structures that allow for a smooth co-working relationship. The married one initially has some issues with developing structures, e.g. having no rules at all or slipping into micromanagement. But eventually, the married one sets some guiding rules and provides employees with some freedom within those boundaries to really make use of employees and distribute responsibilities. The team takes a certain importance in the entrepreneur's daily life, and they build a good relationship, but employees do not take a specific major role. Employees are carrying out important tasks and have their responsibilities, but they are not integrated in any bigger, strategic decisions. Only

the partner is heavily involved in decision making. The only exception would be, if the main partner is one or more employees.

There are entrepreneurial processes that can also be classified as a married one, but the entrepreneur is 'married' with his/her employees. Consequently, in this case value creation and capture takes a major place on the level of employees and without the employees the entrepreneur would not be able to continue the entrepreneurial process. This special case of the married one usually occurs when the entrepreneur has an idea, but no skill set to pursue the idea and thus immediately starts building a team that can. In turn, also the team and employees take a special role for the entrepreneur. The entrepreneur would be highly interested in developing the employees, also developing their personal skill set and career, keep them long-term and is involved in their lives overall. In this scenario, the entrepreneur is still the founder but takes a step back from the actual development of the business towards a much higher level – s/he steps on the balcony and steers from above, pushing, supporting and developing employees to be as innovative and productive as possible. Thus, the focus of the entrepreneur shifts from the business towards his/her employees.

End. Throughout the entire process of creating a product, developing a functional business approach, finding customers and starting co-development with them and eventually entering the market, the main partner stays and keeps being the most important stakeholder and advisor for the entrepreneur. Especially the continuity of the partner-entrepreneur long-term relationship is a key specific characteristic of this archetypical entrepreneurial process. As described, there are other, especially local stakeholders that are involved and with which the entrepreneur seeks contact with, but the main point of interaction stays the partner.

Eventually, the married one can develop a product and build a business in cooperation with its partner. The married one enters the market with the support and advice from the partner and keeps on the work always discussing the next steps with the partner. Both sides are interested in building a long-term business and may even be interested in new products and paths to let the business grow. Thus, they engage in further developments together. However, as in any marriage, there are hick-ups and issues that need to be overcome. Sometimes issues cannot be overcome, and a divorce may follow. In this case the interesting question is, who leaves and who stays? And is the business able to carry on without one partner? These questions can hardly be answered, but there are certainly cases in which either the partner or the entrepreneur leave (interestingly mostly the entrepreneur) and the business continues to be carried out by just one of them (mostly the partner taking over interim, looking for a new CEO). Figure 52 displays the archetypical married entrepreneurial process.

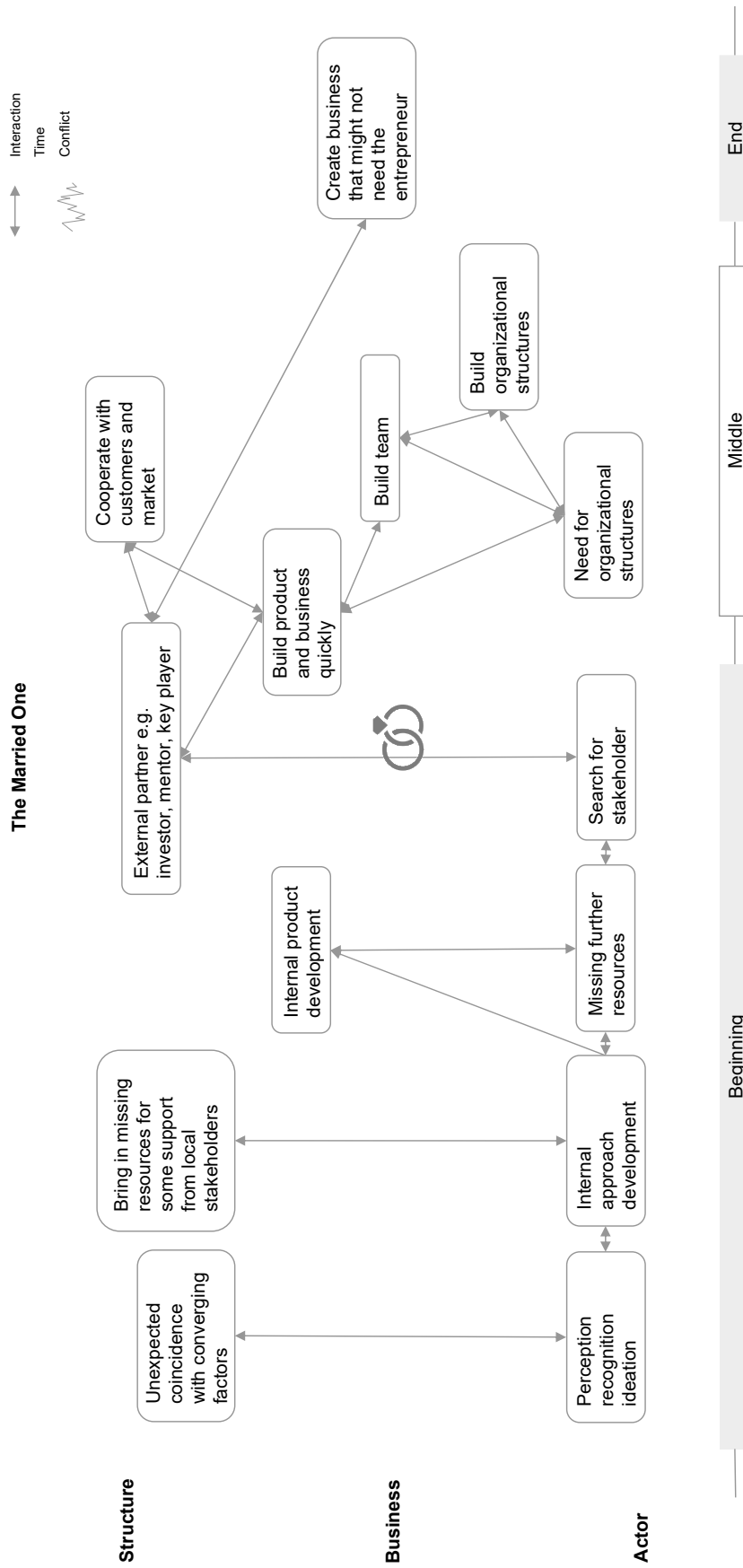


Figure 53: The Married One
 Source: Own illustration of findings.

4.3 Critical Reflection

As described by Eisenhardt, a necessary step is to discuss the results reflecting on existing theoretical knowledge. The critical reflection points out which topics were addressed within this thesis and shows where minor implications can be seen. First of all, the main question one can raise after reading the within-case analysis and cross-case analysis, specifically about the archetypical entrepreneurial processes, is “so what?” (Lee 2001, p. 215) Why should readers find the dissertation interesting? Even though the interest lies in the eye of the beholder, the outcome of the empirical exploration of the entrepreneurial process, does provide some interesting and novel insights. Specific contributions are presented in the following chapter. However, this thesis creates interest first of all by telling a “good story [with] conflict, character, setting, sequence, and plot and arc” (Shepherd & Suddaby 2017, p. 59). Specifically, the deep and rich empirical insights are needed in the entrepreneurship field.

As pointed out in the introduction to the status of entrepreneurship research, Davidsson (2016, p. 23) criticizes that most entrepreneurship research forces theoretical contributions without having much evidence rather than emphasizing interesting and “important empirical observations”. Even though the presented typology of typical entrepreneurial processes does offer some ground for a mid-range theoretical concept, the main benefit and contribution of this thesis can be seen in the thorough and deep exploration of entrepreneurial processes in Germany and Japan. Particularly, the closeness to real-life entrepreneurship can be seen as adding to entrepreneurship research and the entrepreneurial world. Additionally, the exploration of entrepreneurial processes beyond the actual foundation and looking at start-ups that are already active for some time, allows for interesting insights.

The archetypical entrepreneurial processes reveal that depending on the type of entrepreneurial process, interaction with the environment takes place sooner or later, more willingly or unwillingly, differing along intention and intensity of interaction. However, what is certainly obvious from the archetypes but more deeply from the within-case analyses, entrepreneurs do learn a lot along the way. Whether it is just learning how to develop the product, produce it or handle any negativity such as in the insolvency case of DiagCo. Especially in the case of DiagCo, learning from business failure takes place particularly in the context of restart entrepreneurship (Bauer 2016). But also organizational learning takes place as suggested by Dutta and Crossan (2005, p. 445). In their article the authors aimed for understanding “how entrepreneurial opportunities evolve as a complex process of learning having multiple stages and involving other stakeholders beyond the entrepreneur”. Thereby, the authors strive for a middle course between opportunity discovery and creation by adding the organizational learning framework in-between. They found out that “entrepreneurs are essentially involved in a process of learning when they engage with entrepreneurial

opportunities; as the entrepreneurial venture evolves through its life cycle, learning transfers across levels – from the individual entrepreneur to external/internal partners and the entire firm”. This thesis can be aligned with the outcome of Dutta and Crossan (2005, p. 445) and, it can be seen that all entrepreneurs do engage in learning and grow along the way. Such as F PetCo who developed from a hierarchical, self-decision maker to an organizational network perspective, involving all employees in strategic decisions. Only through organizational learning all eight cases developed in the way they did.

This thesis also aligns with Davidsson (2016, p. 20) arguing that the entrepreneurial process is not a process of a ‘lone wolf’ but can be much more described as a “social game” of interactive processes between and entrepreneur or entrepreneurial team and the environment allowing empirically deep insights tracing a journey from start to finish (Dimov 2011, p. 1507). The “system” is integrated and the entrepreneurial process is explored as an ongoing, dual and interactive process rather than a one-dimensional linear path (Dimov 2011, p. 1508).

Throughout literature there is an ongoing discussion on empirical studies and future research has the potential to use more selected and homogeneous samples of emerging new businesses removing “noise” and allowing for a more accurate answer to the core research question (Davidsson 2016, p. 22; Davidsson & Gruenhagen 2021, p. 1103). This dissertation follows these calls and makes a highly intentional and purposeful sampling decision also applying a replication logic within the sample itself. All businesses do profit from demographic change, so assumingly they built their business on the same exogenous shift-based opportunity. Moreover, all start-ups started (more or less) around the same time. Thus, this thesis also follows the call for more temporal homogeneity across cases through organizing cases along temporal information and timelines (Davidsson & Gruenhagen 2021, p. 1103f.; Delmar & Shane 2004, p. 392, 394). Variation was conducted along three dimensions: prior experience, software or hardware product, and institutional setting. Specifically varying the institutional setting allows for the by researchers required replication logic to some extent and for investigating “relevant cases from other contexts” (Davidsson & Gruenhagen 2021, p. 1103). Overall, striving for abstract and generalizable results, this dissertation is able to provide specific insights into the German and Japanese start-up ecosystem, while also results may be applicable for other industrialized or even emerging economy countries.

Summarizing, there are diverse implications within this thesis that align with existing research and shed further light on several discussions. Within the next chapter more specific contributions are presented. Overall, the two next chapter will go much deeper and thereby answer the question “so what” in more detail (Lee 2001, p. 215).

5 Discussion and Contribution

5.1 Major Contributions

As described in the theoretical foundation, specifically chapter 2.1.1, entrepreneurship research is currently in a critical situation. For many years there was an ongoing discussion whether opportunities are created or discovered. Today, entrepreneurship research sees this discussion critically and some authors even suggest to abandon it altogether (Davidsson 2023; Foss & Klein 2020). The goal of this dissertation was never to join this discussion, but look forward (Ramoglou & Gartner 2023) and specifically focus on new venture creation and its processes in a more holistic perspective exploring recursive relations (Davidsson & Gruenhagen 2021; Kimjeon & Davidsson 2022; Shepherd & Suddaby 2017) and interactions along identified “external environment and entrepreneurial agency” (Shepherd et al. 2021, p. 33). With this focus, this dissertation addresses the gap of missing empirical deep insights on the entrepreneurial process “from start to finish” (Dimov 2011, p. 1507; McMullen & Dimov 2013, p. 1481), telling a “good story [with] conflict, character, setting, sequence, and plot and arc” (Shepherd & Suddaby 2017, p. 59).

This thesis thus contributes to the strategic entrepreneurship field in general and specifically to discussions surrounding the entrepreneurship/ individual-opportunity nexus, venture creation as a process, as well as external environment and entrepreneurial agency. Despite some distinctions, all three fields are intertwined as they all move away from emphasizing opportunities (specifically opportunity creation and discovery) and focus on entrepreneurship as a process integrating the external environment. Therefore, also made contributions resemble each other, but support or extend the existing literature stream. Additionally, focusing on entrepreneurial processes, this thesis aims for finding middle ground between opportunity creation and discovery by focusing on the interaction between an entrepreneur and his/her environment along the entire entrepreneurial process from opportunity, over idea, up to a running business. The empirical insights show that opportunities develop out of an interaction and the focus lies on the processual character of building a business and recursive relations rather than on discovery or creation. The suggestion is that opportunities are neither discovered nor created, but both are taking place along the entrepreneurial process.

The following paragraphs will go into detail on the specific contribution to the three streams of entrepreneurship literature, entrepreneurship/ individual-opportunity nexus, venture creation as a process, as well as external environment and entrepreneurial agency, before adding further contributions in the following chapter. This thesis additionally contributes to the

discussion on grand challenges, societies are facing and shows how demographic change can be interpreted as an opportunity by entrepreneurs, thus also answering the call from entrepreneurship research to consider the aging of societies (Kimjeon & Davidsson 2022, p. 651). This thesis also presents a more elaborate and tangible definition of ‘the’ environment of entrepreneurs, which was rather vague in the past. Moreover, this thesis is able to show insights to rather underrepresented institutional contexts by extracting differences and similarities of entrepreneurship in Germany and Japan and thereby provides practical implications as well. Table 27 summarizes the status of existing literature and respective contributions made.

Table 27: Major and Additional Contributions Summary

Field of contribution	Existing literature	Contribution
Entrepreneurship/ individual- opportunity nexus	<p>Looks at one-dimensional relations in early-stage entrepreneurship between:</p> <ul style="list-style-type: none"> ▪ External enablers influencing entrepreneurs (Davidsson 2015, p. 675, 686; 2016, p. 20) ▪ Entrepreneur influencing the environment (e.g. York & Venkataraman 2010, p. 453) <p>One-dimensional explanation lacks a deeper understanding and investigation of the presumed ongoing, recursive entrepreneurial process</p>	<ul style="list-style-type: none"> ▪ Deep dive into entrepreneurial processes, exploring interactive and recursive relations between external enablers (the environment), entrepreneur and new venture ideas ▪ Existing contributions supported with empirical data: there is an entrepreneur-environment-opportunity nexus, but rather resembles ongoing, dual relationship ▪ Theoretical extension through typology that shows four differing, archetypical entrepreneurial processes, consequently different levels, intentions, directions and intensity of the entrepreneur-environment-opportunity nexus presumably encouraged by entrepreneur characteristics and motives
New venture creation processes	<ul style="list-style-type: none"> ▪ Missing focus on entrepreneurial processes (Davidsson 2016, 2023; Davidsson & Gruenhagen 2021; Dimov 2011, 2020; Kimjeon & Davidsson 2022; Ramoglou & Gartner 2023; Ramoglou & McMullen 2024; Shepherd et al. 2021; Shepherd & Suddaby 2017) ▪ Missing deep empirical insights of the circular entrepreneurial processes, drawing a holistic picture “from start to finish” (Dimov 2011, p. 1507) and across “different levels” 	<ul style="list-style-type: none"> ▪ “Fulfills the process promise” (Davidsson 2023; Davidsson & Gruenhagen 2021, p. 1083; Ramoglou & Gartner 2023; Shepherd et al. 2021) ▪ First step forward for (strategic) entrepreneurship research, moving away from the creation-discovery discussion towards new venture creation processes (Davidsson 2023, p. 606), bringing in more diversity (Ramoglou & Gartner 2023, p. 1527) ▪ Deep empirical insights from eight different case studies of

Field of contribution	Existing literature	Contribution
	<p>(Davidsson 2023, p. 599) , such as looking at “external enablers, ideas, or beliefs” Ramoglou and Gartner (2023, p. 1527)</p> <ul style="list-style-type: none"> ▪ “A more realistic understanding of entrepreneurship” is needed, to demystify the opportunity concept ▪ Focus on opportunities trapped entrepreneurship research in developing “the wrong mode of theory” (Ramoglou & McMullen 2024, p. 277) and there is “both room and need for new theory” without starting from scratch (Davidsson & Gruenhagen 2021, p. 1099). 	<p>German and Japanese start-ups showing how venture creation processes evolve over time (Davidsson & Gruenhagen 2021, p. 1103f.).</p> <ul style="list-style-type: none"> ▪ Integrates the call for looking at “external enablers, ideas, or beliefs” (Ramoglou & Gartner 2023, p. 1527). ▪ Shows that the entrepreneurial process is an ongoing, dual and recursive relationship between the business and the environment as presumed (Davidsson & Gruenhagen 2021; Kimjeon & Davidsson 2022; Shepherd et al. 2021; Shepherd & Suddaby 2017). ▪ Advances understanding of entrepreneurial processes through suggesting that entrepreneurial processes differ along intention and intensity of interaction encouraged by an entrepreneur’s characteristics and motives ▪ Archetypical entrepreneurial processes present mid-range theoretical concept and generalizations from differing institutional contexts (Davidsson & Gruenhagen 2021, p. 1097)
External environment and entrepreneurial agency	<ul style="list-style-type: none"> ▪ With focus on new venture creation processes, “external environment and entrepreneurial agency” identified as future research field as “there is more to learn about how the players in the process of starting up a new venture can both adapt to changes to the environment and, by their actions, change the environment” (Shepherd et al. 2021, p. 33) 	<ul style="list-style-type: none"> ▪ Provides empirical insights that support the assumption of a reciprocal relationship and shows along case examples how an entrepreneur and his/her environment interact, influence and change each other recursively ▪ Presentation of archetypical processes that show different patterns of external environment and entrepreneurial agency interaction along intention and intensity of interaction
Addressing a grand challenge as an enabling influence of environmental changes	<ul style="list-style-type: none"> ▪ Demographic change is currently one challenging mega trend and “management scholars have an incredible opportunity to participate in and shape the discussion on the aging population, and to contribute research that helps 	<ul style="list-style-type: none"> ▪ Shows how entrepreneurial processes unfold on the basis of an aging society and displays how shifts in the business landscape provide valuable ‘building blocks’ for entrepreneurs to leverage (Davidsson 2015; Drucker

Field of contribution	Existing literature	Contribution
	<p>policymakers, managers, and individual workers to make better, more informed decisions” (Kulik et al. 2014, p. 934)</p> <ul style="list-style-type: none"> ▪ But, “complete absence of studies of entrepreneurship in response to demographic change.” (Kimjeon & Davidsson 2022, p. 651) 	<p>1999; Kimjeon & Davidsson 2022; Shane 2003, 2012)</p>
Understanding of the entrepreneurial environment	<ul style="list-style-type: none"> ▪ Only broad thoughts on what the entrepreneurial environment might comprise (e.g. Gartner 1985, p. 698, 702) 	<ul style="list-style-type: none"> ▪ Investigating ‘the’ entrepreneurial environment from theoretical and real-life perspective, revealing eight different dimensions of ‘the’ environment, offering a more tangible and holistic understanding ▪ Environment understanding can be used for further research and real-life entrepreneurial processes in smaller or bigger companies
Practical implications and insights into Germany and Japan	<ul style="list-style-type: none"> ▪ Research landscape mainly focuses on insights from North America, Western Europe and China ▪ Lack of more geographically diverse insights, with differing institutional contexts (Davidsson & Gruenhagen 2021, p. 1097) 	<ul style="list-style-type: none"> ▪ Rich insights into Japanese start-up ecosystem pointing out differences between a Western European and Japanese institutional context, but also extracts similarities among entrepreneurial processes independent of institutional contexts ▪ Offers new founders and managers information on how to deal with environmental shifts from a real-life and who and what to address during the entrepreneurial process ▪ Use for “entrepreneurship educators, accelerator managers, and others who are in positions to advise and guide entrepreneurial processes” (Berglund et al. 2020, p. 839)

Source: Own illustration of findings.

Contribution to the entrepreneurship/ individual-opportunity nexus. In the realm of entrepreneurship research, the so-called “individual-opportunity nexus” (Davidsson 2016, p. 20; Eckhardt & Shane 2010; Shane 2003; Shane & Venkataraman 2000) or “entrepreneurship nexus” emerged (Davidsson 2015, p. 675), investigating early-stage entrepreneurship. However, there was no real breakthrough due to diverse, complex and vague understandings

of opportunities (Davidsson 2015, p. 675; 2016, p. 20). Therefore, Davidsson (2015, p. 675, 686; 2016, p. 20) suggests to explore the one-dimensional relation between external enablers and entrepreneurs, whereas e.g. York and Venkataraman (2010, p. 453) suggest to investigate the entrepreneur influencing the environment. These approaches do, however, fall short. The one-dimensional explanation lacks a deeper understanding and investigation of the presumed ongoing, recursive entrepreneurial process. Especially looking at fundamental theoretical contributions, such as contingency approach or structuration theory, the entrepreneurial process can be presumed as an ongoing and dual relationship between the entrepreneur and the environment, implying that opportunities are both discovered and created.

This thesis dives deeply into the entrepreneurial process, focusing on external enablers (the environment), opportunity confidence (the confidence and actions of the entrepreneur) and new venture ideas (the business that is built) (Davidsson 2015, p. 686). Specifically, through a thorough exploration of entrepreneurial processes in Germany and Japan from first idea up to a running business, this thesis is able to draw a holistic picture, which shows that entrepreneurial processes indeed are interactive and recursive rather than one-dimensional. However, the intention and intensity of interaction differs depending on the archetype of entrepreneurial processes. The self-sufficient entrepreneurial process presents a rather extreme example of low interaction. In the case of the self-sufficient one, entrepreneurs aim for independence as long as possible but engage in customer interaction to build an interactive relation for feedback and improvement purposes, but also for shifting customers mindsets towards the offered product. Here, this thesis is able to show, how an entrepreneur and his/her external environment are engaging in a dual, interactive relationship. The cooperative one, on the other side, is engaging in interactions as much as possible to use any benefit from the external environment but also to improve 'the environment' for others. Again, this thesis is thus able to show that there is an ongoing, dual relationship between the entrepreneur and his/her environment. Especially the interest on a 'cooperative' entrepreneur to shape the environment for the better is interestingly showing how entrepreneurs are not only able, but actively try to impact the environment. The product maker engages in rather directed interactions for specific purposes with the environment or external enablers, whereas the married one engages in interactions with usually one specific 'partner' but pursues multiple intentions.

The archetypes and the actual case studies show that interactive relations take place and the thesis is able to extend existing contributions by adding from an empirical study a two-dimensional relationship. Thereby, the evolved archetypical entrepreneurial processes are able to support Davidsson's (2015, p. 686) proposed model, but provides much more depth and adds recursive relations rather than one-dimensional relations. Also, the different archetypical entrepreneurial processes show that there is no 'one process fits all', but there

are different entrepreneurial processes that presumably exist in start-ups but also in larger corporations when engaging in business builds, differing along intention and intensity of interaction. Additionally, the thesis suggests that there are certain characteristics and motives of an entrepreneur that encourage a specific archetypical entrepreneurial process.

Overall, this thesis is able to contribute to the entrepreneurship nexus and extends existing models by showing recursive interactions between the environment and entrepreneur along the entire entrepreneurial process building a business. First, existing contributions are generally supported by confirming with empirical data that there is an entrepreneur-environment-opportunity nexus. Second, the results extend existing contributions by presenting four archetypical entrepreneurial processes. These processes suggest that there are differing entrepreneurial processes based on intention and intensity of interaction, consequently different amount, levels, intentions and directions of the entrepreneur-environment-opportunity nexus.

Contribution to research on new venture creation processes. Today, researchers emphasize a needed focus on entrepreneurial processes (Davidsson 2016, 2023; Davidsson & Gruenhagen 2021; Dimov 2011, 2020; Kimjeon & Davidsson 2022; Ramoglou & Gartner 2023; Ramoglou & McMullen 2024; Shepherd et al. 2021; Shepherd & Suddaby 2017). Research on nascent entrepreneurship and opportunities already reveals that “new venture creation is an iterative and interactive process, often of high complexity and long duration” (Davidsson 2016, p. 22). However, deep empirical insights of the circular entrepreneurial processes, drawing a holistic picture “from start to finish” (Dimov 2011, p. 1507) are missing. Future research can explore venture creation on and across “different levels” (Davidsson 2023, p. 599), and focus on the processual nature of venture creation (Davidsson & Gruenhagen 2021). Ramoglou and Gartner (2023, p. 1527) suggest to focus much more on actual phenomena and integrating more diversity into research, such as looking at “external enablers, ideas, or beliefs”. Specifically, “a more realistic understanding of entrepreneurship” is needed, that is able to demystify the opportunity concept and exits the trap entrepreneurship research is in, developing “the wrong mode of theory” (Ramoglou & McMullen 2024, p. 277). There is “both room and need for new theory” without starting from scratch (Davidsson & Gruenhagen 2021, p. 1099). Also, existing research on new venture creation processes has “problems of excessive heterogeneity across cases along innumerable dimensions” (Davidsson & Gruenhagen 2021, p. 1103) and “employ[s] linear models that are presumed to occur at a single point in time” (Dimov 2011; McMullen & Dimov 2013, p. 1481), which falls short.

This thesis contributes to literature on new venture creation processes on multiple levels. First, this thesis is able to **provide deep empirical insights into new venture creation processes** pursuing a more homogenous case selection and purposeful sampling (Davidsson &

Gruenhagen 2021, p. 1103) that goes beyond the borders of Western Europe and provides insights from Germany and Japan (Davidsson & Gruenhagen 2021, p. 1097). The within-case analysis shows how venture creation processes evolve over time along eight different case studies of German and Japanese start-ups that benefit from demographic change and happen along similar timelines (Davidsson & Gruenhagen 2021, p. 1103f.). Deep insights are provided through pursuing narration strategy and visual mapping (Langley 1999, p. 695, 700). Specifically narration strategy paired with deep excerpts in the form of vignettes (Jarzabkowski et al. 2014, p. 280), allows researchers to dive deep into entrepreneurial processes from the point of view of the entrepreneur, who was involved in the start-up from day one. The narrated story line, reveals exactly how the process emerges, focusing on the interaction between the entrepreneurs and his/her environment along the elements of a business.

The cases show that development does not necessarily start or finish with the foundation of a business and there is no linear development, but the path takes twists and turns along the way (Dimov 2011; McMullen & Dimov 2013, p. 1481) Thereby, this thesis is also able to draw a holistic picture integrating “different levels” of interaction (Davidsson 2023, p. 599). The “different levels” are represented by the different levels of the environment that were extracted and specifically asked for during interviews. For each case study there are different points of interaction, which were then also used for cross-case comparisons. Especially the holistic approach of the environment is unique. There are studies, which do to a certain extent follow similar ideas as this dissertation, considering the environmental aspects and environmental embeddedness. But those articles do not go as far or are only considering parts of an entrepreneurial environment (Herrmann, Polzin, Held, & Dimov 2024; Jack & Anderson 2002; Scheidgen 2021; Scheidgen & Brattström 2023). Thus, this thesis is also able to show deeper insights into the entire entrepreneurial process, without focusing on pre-chosen and specific aspects of the external environment.

Second, this thesis is able to **demystify the opportunity construct by focusing on the processual nature of new venture creation** (Ramoglou & Gartner 2023, p. 1527; Ramoglou & McMullen 2024, p. 277). Empirical insights reveal that in all cases an event or coincidence takes place, in which converging factors lead the entrepreneur to start thinking and an ideation process is unlocked. Within the cross-case analysis and built typology, the event or coincidence represents the start of the entrepreneurial process. One can now argue that the start is an opportunity that comes up, but with the empirical results, it can be seen that building a business is much more about a process within numerous opportunities are created and discovered. Thus, this thesis is able to show how different opportunities evolve over time. Additionally with the strong focus on the processual nature of new venture creation, this thesis is able to provide “a more realistic understanding of entrepreneurship” (Ramoglou & Gartner

2023, p. 1527). Especially as narrating case studies based on real experiences allows for exploring actual phenomena. The explorative nature of a theory-integrated qualitative case study approach and specifically the open, nearly biographic interviews with entrepreneurs, allow this thesis to be as realistic as possible (without being there in the exact moment).

Also, the approach of this thesis to not only look at the entrepreneur, but focus on entrepreneur and environment interaction, thus, integrating the call for looking at “external enablers, ideas, or beliefs” (Ramoglou & Gartner 2023, p. 1527) is unique. Existing approaches do see the relation between the entrepreneur and the environment as a one-dimensional relationship, which falls short. This thesis shows that the entrepreneurial process is an ongoing, dual and recursive relationship between the entrepreneur/business and the environment as presumed by several authors (Davidsson & Gruenhagen 2021; Kimjeon & Davidsson 2022; Shepherd et al. 2021; Shepherd & Suddaby 2017). Within each case study, key players and stakeholders are playing a role in the evolvement of the business. Through pattern matching and eventually the developed typology, this thesis suggests that there are archetypical entrepreneurial processes that do show a different mode of interaction with e.g. external enablers. Depending on the type of entrepreneurial process more or less intense interaction takes place in different points in time, whereas also intentions of interactions differ among typical entrepreneurial processes ranging from focused to broad intentions. Also, the aim of this dissertation is to explore and understand what is happening within the entrepreneurial process beyond the boundaries of the actual business. Thus, this dissertation can be seen as a first step forward for (strategic) entrepreneurship research, moving away from the creation-discovery discussion towards new venture creation processes (Davidsson 2023, p. 606), bringing in more diversity (Ramoglou & Gartner 2023, p. 1527).

Third, there is “both room and need for new theory” without starting from scratch (Davidsson & Gruenhagen 2021, p. 1099) especially as some authors state that entrepreneurship research developed “the wrong mode of theory” (Ramoglou & McMullen 2024, p. 277). This thesis aims for **building the right mode of theory on entrepreneurial processes integrating existing theoretical concepts and knowledge**. With a theory-integrated qualitative multiple case study design, which includes a cross-case analysis aiming for theoretical development, this thesis is able to develop and eventually present a typology of archetypical entrepreneurial processes. The dissertation offers new theoretical insights and suggests that based on deep empirical insights and despite general anticipation, interaction along entrepreneurial processes differs along two dimensions: intention and intensity of interaction. The development of the typology of entrepreneurial processes builds majorly on existing knowledge (as can be seen in pattern matching), but also offers new theoretical insights and suggests that there are four archetypical entrepreneurial processes, namely: the cooperative one, the self-sufficient one,

the product maker and the married one. These archetypes can be classified as a mid-range theoretical concept. Thereby, this thesis additionally answers the call for generalizations from differing institutional contexts (Davidsson & Gruenhagen 2021, p. 1097).

Going into detail, interaction does look different depending on the type of entrepreneurial process. All archetypical processes show differences along the plurality of intentions of interactions varying between focused and broad. There are entrepreneurial processes that engage in recursive relations pursuing multiple goals (the cooperative one, the married one), whereas others engage in recursive relations out of a very focused cause, e.g. product development (the product maker, the self-sufficient one). Entrepreneurial processes also differ along intensity of interaction, which corresponds to how many points of interaction an entrepreneur pursues. There are entrepreneurial processes that engage in interactions with multiple stakeholders (the product maker, the cooperative one), whereas other entrepreneurial processes keep points of interaction to a minimum (the self-sufficient one, the married one). Depending on the archetypical process, the unfolding of the entrepreneurial process looks different (also time wise), which is presented by the specific visualizations of archetypical entrepreneurial processes. Additionally, this thesis suggests that specific entrepreneurial characteristics and motives encourage one or the other archetypical entrepreneurial process.

Even though the detailed explorations of individual entrepreneurial processes answer the call for deep empirical insights into new venture creation, a more general perspective abstracting from an individual to a more archetypical level is beneficial to learn even more from the empirical study. Each archetype presents a new venture creation process that typically 'happens' or evolves in the real world. Thereby, the typology enhances our insights and understanding for new venture creation and shows how entrepreneurs are recursively interacting with their environment along the way. Overall, even though major theoretical contributions are considered as 'outdated', this thesis offers a theoretical concept while mainly contributing with "a broader set of contributions", presenting deep empirical insights that show patterns "recognizing evidence without theory" (Davidsson 2016, p. 23).

Contribution to research on external environment and entrepreneurial agency. With the interest in new venture creation processes, also "external environment and entrepreneurial agency" was identified as a further research field, as "there is more to learn about how the players in the process of starting up a new venture can both adapt to changes to the environment and, by their actions, change the environment" (Shepherd et al. 2021, p. 33). Special interest lies in "the reciprocal nature of the relationship between starting up a new venture and the external environment" (Shepherd et al. 2021, p. 33). This thesis dives into the call by Shepherd et al. (2021) and aims to explore this reciprocal relationship by asking the

research question, how and in which way is an entrepreneur interacting with his/her environment in the process of developing a business?

To answer the research question, an empirical qualitative study is conducted, which explores entrepreneurial processes, specifically focusing on the interaction between an entrepreneur and the environment. To be able to conduct interviews with entrepreneurs, in a first step, this thesis elaborates on the understanding of 'the' environment. Through an analysis of theoretical contributions but more importantly sensitizing interviews, chapter 2.2.2 presents eight dimensions of the entrepreneurial environment. The different dimensions shows that the environment is not "some static, all-powerful force" (Shepherd et al. 2021, p. 33). The description of each dimension and specifically the excerpts from interviews reveal that the external environment comprises many different individuals that get involved in the business building process. Those individuals are neither static nor do they have all the power. But they are engaging in interactions with entrepreneurs. Also the presumed static dimensions of the external environment such as the legal, institutional, local and political environment can change and adapt to new situations.

Continuing, the within-case analysis provides deeper insights on how and in which way the entrepreneur is interacting the 'the' environment focusing on the "the reciprocal nature of the relationship" (Shepherd et al. 2021, p. 33). Throughout each individual entrepreneurial process, the entrepreneurs develop a reciprocal relationship with their environment in different ways. The case SoundCo for example shows how the entrepreneurs interacted with founders of a funding program, as well as the case TrainCo. In both cases, the businesses are able to benefit from a specific funding program, but are the first ones to participate and are eager and able to improve the funding process. In the case of FilmCo, the entrepreneurs develop a highly recursive relationship with (potential) customers. Their goal is to shift the customers mindset towards their own direction, but are highly dependent on the customer in developing the customizable product. These examples show that entrepreneurs do take agency and adapt to the environment but also change it and that Shepherd et al. (2021, p. 33) are indeed going for a right direction when stating that new ventures "both adapt to changes to the environment and, by their actions, change the environment". Thus, this thesis is able to contribute to the stream of literature, by providing empirical insights that are able to support the assumption of a reciprocal relationship.

With the typology, this thesis looks at entrepreneurial processes in a more abstract way and presents four different archetypical processes that emerged from the within-case analysis. The empirical results show that the reciprocal relationship between the external environment and an entrepreneur looks different depending on the archetypical entrepreneurial process. Consequently, also the level of change on both sides differs. Each archetype shows that the

intention and intensity of interaction depends on the type of entrepreneurial process. Also the dimension of the external environment, the entrepreneur interacts with differs depending on the archetype. Thus, this thesis contributes to the discussion on external environment and entrepreneurial agency by suggesting that there are patterns along their recursive relations which depend on the archetypical process. Thereby, the literature stream is extended with the suggested typology but also adds empirical insights in general. The interconnection is deeply explored and the assumption of interaction is supported.

Summarizing, this thesis theoretical contribution is threefold. This thesis contributes majorly to literature on new venture creation processes, while also contributing to the entrepreneurship/individual-opportunity nexus and research on external environment and entrepreneurial agency. As stated in the beginning of this chapter, all three research streams are intertwined as they all support the move away from discussing opportunity creation and discovery and pursue a focus on interactive processes between entrepreneurs and their external environment. This thesis is able to provide deep empirical insights to all three streams, and support general arguments but also advances the literature streams by adding more dimension to entrepreneurial processes, suggesting that they differ in terms of intention and intensity of interaction along different timelines and indeed show recursive, dual interactions, rather than one-dimensional relations. What is specifically unique is that this thesis aims for drawing a holistic picture of the entrepreneurial process focusing on entrepreneur and environment interaction, over a longer timeframe that starts with the initial first thought over to an idea up to building a running business.

5.2 Additional Contributions

Additionally, to the major contributions, this dissertation is also able to further contribute to research and the economy. Within this chapter additional contributions are considered, that do have a great influence but are addressed more on a side note or have more practical implications. Overall, three main additional contributions can be identified. First, as described in the introduction, this thesis is able to address demographic change as a grand challenge and provide insight into entrepreneurial processes that build on exogeneous shift-based opportunities based on demographic change. Second, this dissertation can shed light on the actual environment of an entrepreneur through illuminating the term environment from a theoretical and real-life perspective. Third, this thesis shows great practical implications that are the core of the additional contributions. The following paragraphs will go into detail on the contributions made.

Addressing a grand challenge as an enabling influence of environmental changes. A contribution can be seen in addressing a ‘grand challenge’ societies are dealing with (Colquitt & George 2011, p. 432). As the study takes demographic change as an exemplary opportunity, the dissertation deals with this tremendously important topic on a side note. Demographic change is seen as one of the challenging mega trends in the current century and “management scholars have an incredible opportunity to participate in and shape the discussion on the aging population, and to contribute research that helps policymakers, managers, and individual workers to make better, more informed decisions.” (Kulik et al. 2014, p. 934). Additionally, entrepreneurship research is focusing on “environmental influences on the emergence and development of new opportunities” (Busenitz et al. 2014, p. 15) particularly looking at the “enabling influence of environmental changes – be they technological, regulatory, demographic, sociocultural, or otherwise – on emerging ventures” (Kimjeon & Davidsson 2022, p. 643). Even though demographic change is seen as a grand challenge and inevitable, Kimjeon and Davidsson (2022, p. 651) identified a “complete absence of studies of entrepreneurship in response to demographic change.” Thus, the dissertation fills this research gap and contributes to the academic discourse illuminating the topic of demographic change as the initiator of an entrepreneurial process, emphasizing the importance of demographic change for entrepreneurs but also in general.

Particularly, this dissertation shows how entrepreneurial processes unfold on the basis of an objectively observable exogeneous shift, an aging society. Thereby, the empirical study is able to display how shifts in the business landscape provide valuable ‘building blocks’ for entrepreneurs to leverage (Davidsson 2015; Drucker 1999; Eckhardt & Shane 2003; Shane 2012). And this dissertation is also growing the diversity of empirical studies by pursuing a

qualitative approach aiming for exploration and understanding, which is underrepresented (Kimjeon & Davidsson 2022, p. 650).

The shift in demographics can be seen as an opportunity but is also perceived as a threat by many companies, especially when it comes to finding skilled employees. Within this thesis, all entrepreneurs eventually benefit from an aging society (in different ways), especially as most businesses aim for an older customer group. With an increase in the 65+ population group, the group of potential customers is growing. However, the cases show that within no process the founders were addressing demographic change as the initial market or product gap, but unexpected coincidences with converging factors led founders to their entrepreneurial process. So, the initial opportunity that the entrepreneurs detected was not the opportunity an aging society offers, but depending on the case, the entrepreneurs saw a chance of building a product or business. Only during the entrepreneurial process, especially when exploring market options, entrepreneurs identified their customer being in the 65+ customer group. For example, for DiagCo, TrainCo, SoundCo and BrainCo the growing market share of people with respective diseases that usually appear with age, enables them to grow their business and convince respective stakeholders of the (profit) potential. Thus, this dissertation shows that even though demographic change is the main underlying opportunity for the start-ups, only when it comes to looking into the market and searching for customers, demographic change is considered as a core argument in favor of the business's future success.

Contribution to the understanding of the entrepreneurial environment. A further contribution can be seen in providing insights and illuminating the environment construct in an entrepreneurial setting. There are some thoughts on what the entrepreneurial environment might comprise (e.g. Gartner 1985, p. 698, 702). Baum et al. (2007, p. 47) for example include the environment as a crucial factor and state that the effect of personality traits is dependent on environmental variables. Naturally, the authors refrain from stating that their model is complete. However, existing contributions stay rather broad and for this empirical study, deeper knowledge of an entrepreneurial environment was needed. Therefore, *chapter 2.2.2 Entrepreneurship Perspective of "the" Environment* aimed for a structured understanding of different environmental dimensions from a theoretical and real-life perspective and thus add to existing thoughts. In line with a theory-integrated qualitative research approach, an analysis of the term environment was conducted logically and systematically along theoretical and empirical contributions. A systematic analysis of 30 different research articles that touch the topic of environment and emerged from a literature review conducted by Busenitz et al. (2014) was executed in order to investigate the common understanding of environment from an entrepreneurship research perspective. Each article was read and the definition and understanding of environment was extracted. The 30 understandings of environment were

coded and categorized in accordance with open coding strategy (Corbin & Strauss 2015). Then, each category was sorted according to micro and macro environment. Resulting, 'the' environment of an entrepreneur can be classified along eight categories, namely organizational, market, local, cultural/ normative, institutional, legal, social, and political environment.

After categorizing eight different environmental categories along theoretical contributions in the entrepreneurship field, four entrepreneurship experts (e.g. business angel, incubator, university entrepreneurship professor) were interviewed to give the theoretical understanding more liveliness and elaborate how the eight environmental dimensions can be understood or identified in the real-world. With the code and category set as well as the presented elaborations on understandings in chapter 2.2.2, this thesis can contribute to entrepreneurship research in particular by making the term environment more tangible. Also, the insights into an entrepreneur's environment can be helpful for future entrepreneurs but also other stakeholders in the entrepreneurial ecosystem. Understanding the points of interaction can be helpful pursuing the entrepreneurial path. Overall, the eight environmental categories are able to draw a more holistic picture of 'the' environment, which can be used for further research and real-life entrepreneurial processes in smaller or bigger companies.

Practical implications and insights into Germany and Japan. The dissertation also shows practical significance, as the outcome strives for an identification of the 'influences' on the entrepreneurial process. Having identified those 'influencers', practitioners, particularly new founders, but also managers can make use of this knowledge. They can seek support by the 'influencers' in the process of making use of an opportunity. And it may be relevant for actors developing ideas into a full business (activity). Additionally, the outcome provides information on how businesses may deal with environmental shifts from a real-life perspective. Consequently, decision makers may be able to see threats as potential opportunities for their business activities. Moreover, as pointed out by Berglund et al. (2020, p. 839), this dissertation is also of use for "entrepreneurship educators, accelerator managers, and others who are in positions to advise and guide entrepreneurial processes" combining theoretical concepts and practical experiences. Those stakeholders are able to use the insights as inspiration but also as potential tools to steer and design entrepreneurial processes. Especially, when it comes to University spin-offs as in cases TrainCo and MedCo, insights are particularly interesting in the field of analyzing science-based firm emergence (Miozzo & DiVito 2020).

This dissertation also follows the call from Davidsson and Gruenhagen (2021, p. 1097) to research beyond the borders of Western Europe and North America, providing insights in more diverse contexts and institutional settings. Particularly, this dissertation gives rich insights into the entrepreneurial paths of Japanese start-ups, which enlightens the entire Japanese start-

up ecosystem. Thereby, this dissertation allows researchers and practitioners a deep and so far, lacking insight into the Japanese entrepreneurial ecosystem and points out several differences between a Western European, in this example German, and Japanese institutional contexts. The pattern matching along business characteristics made four main differences obvious: The sizes of founding teams differ among countries. In Germany, usually founding teams are built, which also has an impact on funding and investors. In Germany, usually investors are very keen on seeing a diverse founding team with different strengths and qualities. In Japan it is common that there is only one founder. In Germany, the investment organization landscape is much bigger than in Japan and more professionalized. Therefore, many German start-ups benefit from different sources of money, whereas in Japan, most start-ups only have one or a smaller amount of investing parties. In turn, this also means that Japanese founders do not refrain from spending their own private money on their business endeavors, which in Germany most founders are trying to avoid. Moreover, Japanese founders are more likely to give up their previous job and safety to pursue their entrepreneurial endeavor, whereas German entrepreneurs prefer to have a fallback position and do start-up work only part-time in the beginning. Despite country-specific differences, the archetypical entrepreneurial processes show that there are typical patterns of entrepreneurial processes independent of the institutional or country context.

Overall, this discussion shows the relevance of this dissertation and how it can make additional contributions to the strategic entrepreneurship field, while also providing insights for practitioners. Specifically, addressing a grand challenge, an aging society, as an opportunity adds to the entrepreneurship research field, by showing how an aging society becomes an opportunity throughout entrepreneurial processes. Also, providing a more tangible 'definition' of an entrepreneurial environment is seen as an additional contribution and adds to a more thorough understanding of the term from a theoretical and real-life perspective. This tangible understanding can both be useful for researchers (and respective empirical studies), and for practitioners. Moreover, this thesis is able to provide practical implications by exploring the under researched Japanese entrepreneurial ecosystem, as well as the underrepresented European entrepreneurial ecosystem. This thesis' insights show, how both ecosystems differ and where they are alike in an entrepreneurial process, which is specifically helpful for stakeholders in the entrepreneurial world and entrepreneurs themselves.

6 Conclusion

6.1 Summary

Dealing with and developing opportunities seems to be of utmost importance not only for entrepreneurs but for all businesses. Even though “hundreds, thousands, or even millions of persons are exposed to the same events, changes or trends in the external world” (Baron 2006, p. 115), there are only a few people who do see and take those chances and build a business (e.g. Baron 2006, p. 115; Davidsson 2015, p. 674). Entrepreneurship research dealt with opportunities for years, discussing whether opportunities are discovered or created (e.g. Alvarez & Barney 2007; Berglund et al. 2020; Busenitz et al. 2014; Eckhardt & Shane 2003; Eckhardt & Shane 2010; Ramoglou & Gartner 2023; Shane 2003; Short et al. 2010). However, opportunities-based research met a breaking point and the question is raised “should we perhaps abandon the opportunity concept altogether?” (Ramoglou & Gartner 2023, p. 1521). Probably not, as it is also clear that “entrepreneurs do not create new ventures out of thin air” (Kimjeon & Davidsson 2022, p. 643) and there are people who either discover the opportunity or create one or do not see an opportunity but a threat (e.g. Davidsson 2015, p. 674). But, future research can enhance entrepreneurship as a field of study by focusing on the process of new venture creation as an “iterative and interactive process, often of high complexity and long duration” (Davidsson 2016, p. 22; 2023, p. 602). However, empirically, deep insights on “entrepreneurship as a process” (Davidsson 2016, p. 23) “along the entire range of structure-venture-agent emphases” (Davidsson 2023, p. 606) are missing (McMullen & Dimov 2013, p. 1481; Ramoglou & Gartner 2023, p. 1527) and future research has the chance to explore the interconnected relationship between start-ups and their surroundings more deeply (Shepherd et al. 2021, p. 33). Therefore, this dissertation asked the question: ***How and in which way is an entrepreneur interacting with his/her environment in the process of developing a business?***

To answer the research, question the entire entrepreneurial process, from first idea up to a running business, along entrepreneur and environment interaction, is empirically illuminated. An entrepreneurial process based on an exogenous shift-based opportunity based on demographic change was chosen to provide a more homogenous frame for the empirical study. To approach the entrepreneurial process, a theory-integrated qualitative multiple case study design was chosen. Specifically, interviews with founders of start-ups that benefit from demographic change were conducted in Germany and Japan, following a purposeful sampling plan with maximum variation along institutional context, prior experience of founders and hardware or software product. To be prepared for the actual case interviews, learn about start-

up ecosystems and gain insights into the environment of start-ups, prior sensitizing interviews with start-up experts were conducted additionally. Especially those interviews were the groundwork for the semi-structured interview guideline for start-up interviews.

Overall, data for eight different cases was collected, four in Germany and four in Japan. In chapter 4.1, a within-case analysis investigated each case individually following narrative, grounded theory and visual mapping strategy (Langley 1999, p. 695, 699–703). The entrepreneurial process along the embedded units of analysis, content, structure and governance element (Amit & Zott 2001; Zott & Amit 2013; Zott et al. 2011) and the cases' timelines were described in detail allowing for thick and deep empirical insights. Based on those insights, chapter 4.2 dived into a cross-case analysis. Pattern matching techniques by Eisenhardt (1989) were considered to conduct the cross-case analysis and let new theory emerge from data. First, pattern matching was conducted along the theoretical as well as conceptual categories that are identified as potentially important. Second, a pairwise comparison, specifically comparing the visual maps, helped to find further patterns among cases. Following Langley et al. (2013, p. 9), chapter 4.2.2 introduced a typology of four archetypical entrepreneurial processes that differ in terms of intention and intensity of interaction. It is also assumed that depending on an entrepreneur's characteristics and motives, a certain archetype is encouraged. The chapter then introduced the "process story" of the four identified archetypes of entrepreneurial processes. In an entrepreneurial process, data shows that typically, entrepreneurs interact with their environment following four different archetypical entrepreneurial processes: the cooperative one, the self-sufficient one, the product maker and the married one. Each archetypical entrepreneurial process describes how and in which way an entrepreneur is interacting with his/her environment in the process of developing a business. Thus, the research question can be answered by stating that there are four archetypical processes of an entrepreneur interacting with his/her environment while developing a business that can be observed in multiple settings across borders.

The outcome of this dissertation allows for multiple contributions to the strategic entrepreneurship field, as well as important insights for practitioners. This thesis "fulfills the process promise" (Davidsson 2023; Davidsson & Gruenhagen 2021, p. 1083; Ramoglou & Gartner 2023; Shepherd et al. 2021). The specific focus lies in exploring recursive relations (Davidsson & Gruenhagen 2021; Kimjeon & Davidsson 2022; Shepherd & Suddaby 2017) and interactions along identified "external environment and entrepreneurial agency" (Shepherd et al. 2021, p. 33) in new venture creation processes from a more holistic perspective. With this focus, this dissertation addresses the gap of missing empirical deep insights on the entrepreneurial process "from start to finish" (Dimov 2011, p. 1507; McMullen & Dimov 2013, p. 1481), telling a "good story [with] conflict, character, setting, sequence, and plot and arc"

(Shepherd & Suddaby 2017, p. 59). The main contribution is threefold: First, this thesis contributes to the entrepreneurship/ individual-opportunity nexus by extending existing models (Davidsson 2015, p. 675, 686; 2016, p. 20; York & Venkataraman 2010, p. 453) with the thick description on an ongoing, dual and recursive relation between external enablers (the environment) and entrepreneurs rather than one-dimensional, directed influences. Second and mainly, this thesis dives deeply into new venture creation processes, provides deep empirical insight from diverse institutional contexts, and eventually presents a mid-range theoretical concept of four archetypical entrepreneurial processes that differ along intention and intensity of interaction, also suggesting that an entrepreneur's characteristics and motives encourage the archetypical behavior to some extent. And third, this thesis adds to discussions on external environment and entrepreneurial agency by exploring their reciprocal interaction in individual cases and abstracts the interaction developing a typology. Overall, this dissertation can be seen as a first step forward for strategic entrepreneurship research, moving away from the creation-discovery discussion towards new venture creation processes (Davidsson 2023, p. 606) that do show different paths, bringing in more diversity (Ramoglou & Gartner 2023, p. 1527). However, any empirical study is limited, therefore the next chapter considers limitations and points out where additional research may benefit the significance of this thesis.

6.2 Limitations

This thesis has several limitations that are addressed along the way. However, within this chapter, three limitations that are essential shall be pointed out leading to the potential for future research. So, the following paragraphs will go into detail on found and observed imitations based on retrospective data collection, data collection time frame and the data collection contexts, which specifically impacts the generalizability of results. But generalizability was not the specific aim of this thesis, and there is no claim that conclusions hold true for any start-up, business or entrepreneurial process. Particularly, the proposed typical entrepreneurial processes need to be investigated further.

A limitation can be seen in the retrospective data collection design. As pointed out by Davidsson and Gruenhagen (2021, p. 1103), choosing between "prospective (contemporaneous) and retrospective data collection" is a real issue. Particularly retrospective data collection is suffering from "severe hindsight and survivorship biases" (Davidsson & Gruenhagen 2021, p. 1103; Golden 1992; Roese & Vohs 2012). Understandably, in this case, interview partners may evaluate the past differently in comparison to what they did during the moment. A good example can be seen in the case SoundCo. F2 SoundCo points out that specifically building a medical product was a challenge and describes "If I had known that, I

would never have done it”.⁷⁰⁰ Consequently (and as could be observed during the interview), the founders do see the process more negatively from a retrospective viewpoint. However, even though collecting prospective data has the goal to be there and observe or ask for events as they are happening, usually they are just “less retrospective” (Davidsson & Gruenhagen 2021, p. 1103). Additionally, as this thesis aimed for illuminating the entire entrepreneurial process, collecting prospective data would have meant to accompany the eight start-ups from the beginning on, which would have meant several big issues. First, most founders never even recognized the initial step in the entrepreneurial process during that moment, but later understood that it was the beginning. For example: only retrospectively, F1 DiagCo noticed that the interview request was indeed a spark to the fire.⁷⁰¹ Second, collecting prospective data would be logistically impossible as the eight cases are scattered across Germany and Japan. Therefore, to be able to collect data from a larger number of cases and illuminate the entire entrepreneurial process, a retrospective design was preferred (as suggested by Davidsson & Gruenhagen 2021, p. 1103).

A further limitation can be seen in the timeframe of data collection as data was collected in 2018, which may seem to be some time ago. But as pointed out before, the time frame of the data collection was optimal. In the beginning of 2020, Covid hit and the pandemic situation troubled humans and businesses up until 2022. Consequently, the years between 2020 and 2022 are not representative for any business (and data collection in Japan would not have been possible at all, whereas interviews at the start-ups sites would also not be possible). After 2022, particularly the start-up scene in Europe entered the next crisis straight away. With the Ukrainian war and high inflation, the start-up scene was shaken up. Venture capitalists, family offices, business angels and any sort of investor are trying to keep their money together and are refraining from investing anything. On October 6th 2023, in an investor meeting the author was able to gain some more insights and a Business Angel stated “currently the market for financing is dead”. An investment manager from a family office and an investment manager from a development bank were nodding and stating the same. The family office is “keeping money together” and not spending anything on new investments and the development bank is highly hesitant to invest. Thus, the situation cannot be considered as ‘normal’, which means that 2018 represents a status of entrepreneurial processes that are free of any external events that may limit the generalizability of events. However, it would be interesting in a next step to reevaluate the current status of each start-up as a follow-up. As a little outlook: All eight start-

⁷⁰⁰ See Transcript SoundCo GER 4.2, point [32].

⁷⁰¹ See Transcript DiagCo GER 1, points [1893–1900].

ups are still existing and running businesses. However, only TrainCo, BrainCo, PetCo and MedCo still have all founders within the business.

Coming to generalizability, this thesis in no way claims to be complete and creates all true results. The aim of this thesis is to draw a holistic picture and illuminate the entire entrepreneurial process from first idea over foundation up to running business. Approaching this aim by conducting in-depth interviews with founders of start-ups is one way to go and allows this thesis to abstractly draw some conclusions. The conclusions but specifically the deep and rich entrepreneurial process descriptions provide insights into the entrepreneurial landscape in Germany and Japan. Presumably, observations may also hold true in other contexts, but this might need to be investigated in the future. As both country-specific institutional contexts are industrialized contexts, in different countries with e.g. emerging economies, entrepreneurial paths might look a bit different. This leaves also room for further investigation.

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Leitfaden Pre Test Experten Interviews mit Entrepreneurship Experten	
<p>INTRO</p> <p>Könnten Sie uns zunächst etwas über Ihren Hintergrund und Expertise im Start-up Bereich erzählen?</p> <ul style="list-style-type: none"> ➤ Welche Position haben Sie aktuell inne? ➤ Wie kommen Sie mit Entrepreneurship in Berührung? ➤ Inwieweit haben Sie selbst bereits Gründungs- bzw. Investorenerfahrung? 	<p>Entwicklung</p> <p>Mit Ihrer Erfahrung im Bereich Start-ups, wie erleben Sie den Entwicklungsprozess von Businesses bzw. von Geschäftsideen?</p> <ul style="list-style-type: none"> ➤ Können Sie mir einmal erläutern wie sich die Geschäftsidee mit der Zeit verändert? ➤ Im Gründungsprozess, wie entwickelt sich aus einer Möglichkeit eine Idee, daraus eine Geschäftsidee und letztendlich ein Geschäft? ➤ Wie gestaltet sich die Entwicklung mit der Zeit? ➤ Aus welchen Gründen verändern sich Start-ups?
	<p>Einflüsse</p> <p>Auf Grund ihrer Erfahrung - welche Umweltfaktoren beeinflussen den Entwicklungsprozess eines Businesses?</p> <ul style="list-style-type: none"> ➤ Lokale Umwelt: soziale und Arbeitsumwelt ➤ Kulturelle/normative Umwelt ➤ Institutionelle Umwelt ➤ Rechtliche Umwelt ➤ Soziale Umwelt ➤ Politische Umwelt ➤ Organisationale Umwelt ➤ Marktumwelt

Figure 1: Sensitizing Interviews: Expert Interview Guideline
Source: Own illustration.



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Opportunities, Environment & Entrepreneur Interaction: Exploring the Entrepreneurial Process through the Structuration Theoretical Lens

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1 Current Literature & Research Gap


"Opportunity recognition is widely viewed as a key step in the entrepreneurial process – one from which, in many cases, all else follows" (Baron 2006, p. 104)

Opportunity creation

Opportunity discovery

Ongoing debate over opportunity creation or discovery

- Past research presented overly person-focused explanations
- Today, demand for research illuminating environmental influences on the entrepreneurial process
- There are some ideas on business development and opportunity recognition (e.g. Ardichvili, Cardozo, & Ray 2003; Baron 2006; Davidsson 2015); **BUT** they only consider a one-dimensional relationship
- The one-dimensional explanation falls short
- Structuration theory and contingency approach show us that there is duality



4 Sensitizing Concepts: Operationalized Terms

Opportunity.

- Exogenous shift-based opportunities "triggered by demographic changes" (Eckhardt & Shane 2003, p. 342)
- Demographic shifts offer and terminate opportunities

Entrepreneur / Start-up.

- Easy to access and to understand
- Easier to display the full scope of influences
- Entrepreneur involved in all decisions from the beginning on
- Directly respond to environmental shifts due to dependency on only one product and not being affected by organizational inertia

Environment.

- No exact and suitable definition of 'the environment'
- Systematic and logical explanation as well as inductive explanation through interviews (see box 5)

2 Objective & Research Question

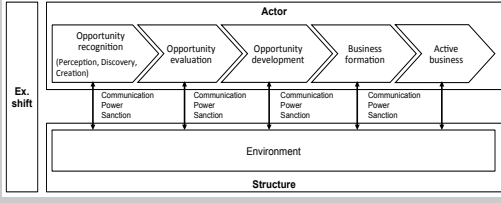
- Understand the entrepreneurial process in depth: how an opportunity becomes an idea and develops into a business
- Realistic depiction of the circular process between environment and entrepreneur along the entire entrepreneurial process
- "Improve our understanding of how the outcome of the entrepreneurial process is generated" (Bouchikhi 1993, p. 550)

➤ **How and in which way is an actor interacting with his/her environment in the process of developing a business?**

5 Approach

Qualitative multiple case study design

Pre-study Triangulation	Semi-structured interviews with entrepreneurship experts (e.g. with business angel, start-up center founder) to inductively define environment and triangulate the following studies
Study 1 Germany	Semi-structured expert interviews with entrepreneurs, who started a business some time ago that benefits from demographic change
Study 2 Japan	Replication study that aims for contrasting or approving previous results in a new institutional setting but similar attitude towards start-ups



3 Sensitizing Concept: Structuration Theory

- "Structure is both medium and outcome of the reproduction of practices" (Giddens 1979, p. 5)
- Giddens claims that structure influences the actor and the actor in turn influences structure (see box 1)
- Structure: knowledge over rules (practical knowledge subjectively seen by the actor) and resources (modes of control over people and material objects)
- Actor: knowledge over structure and capacity to act (but also unintended actions such as unconsciously passing on structure)
- Suitable theoretical framework to **systematically analyze interaction and overcome the discussion of opportunity creation and discovery**

Structure

- Signification
 - Semantic rules
 - E.g. symbols, myths, world view
- Domination
 - Resources
 - E.g. judicial institutions
- Legitimation
 - Moral rules
 - E.g. political and economic institutions

(Modality)

- Interpretative scheme
- Facility
- Norm

Interaction

- Communication
- Power
- Sanction

6 Contribution

- ✓ First entrepreneurship study to empirically use structuration theory
- ✓ Blueprint for future research using structuration theory
- ✓ Identify dual processes that evolve from real-life experiences and mediate between opportunity discovery and creation
- ✓ Practical relevance for founders and managers
- ✓ Addressing demographic change, one of the 'grand challenges'

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Figure 2: Information Flyer for Interviewees
Source: Own illustration.

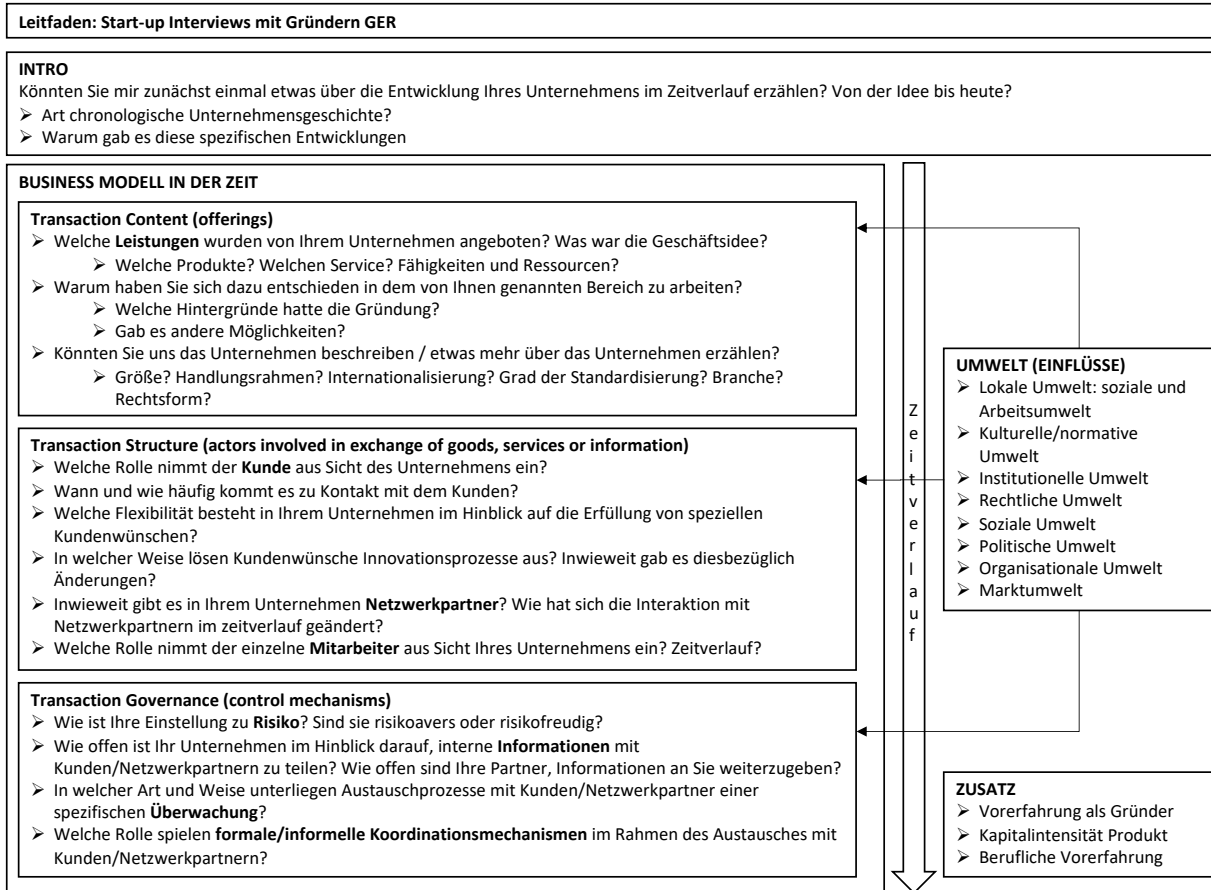


Figure 3: Germany Extended Interview Guideline
 Source: Own illustration.

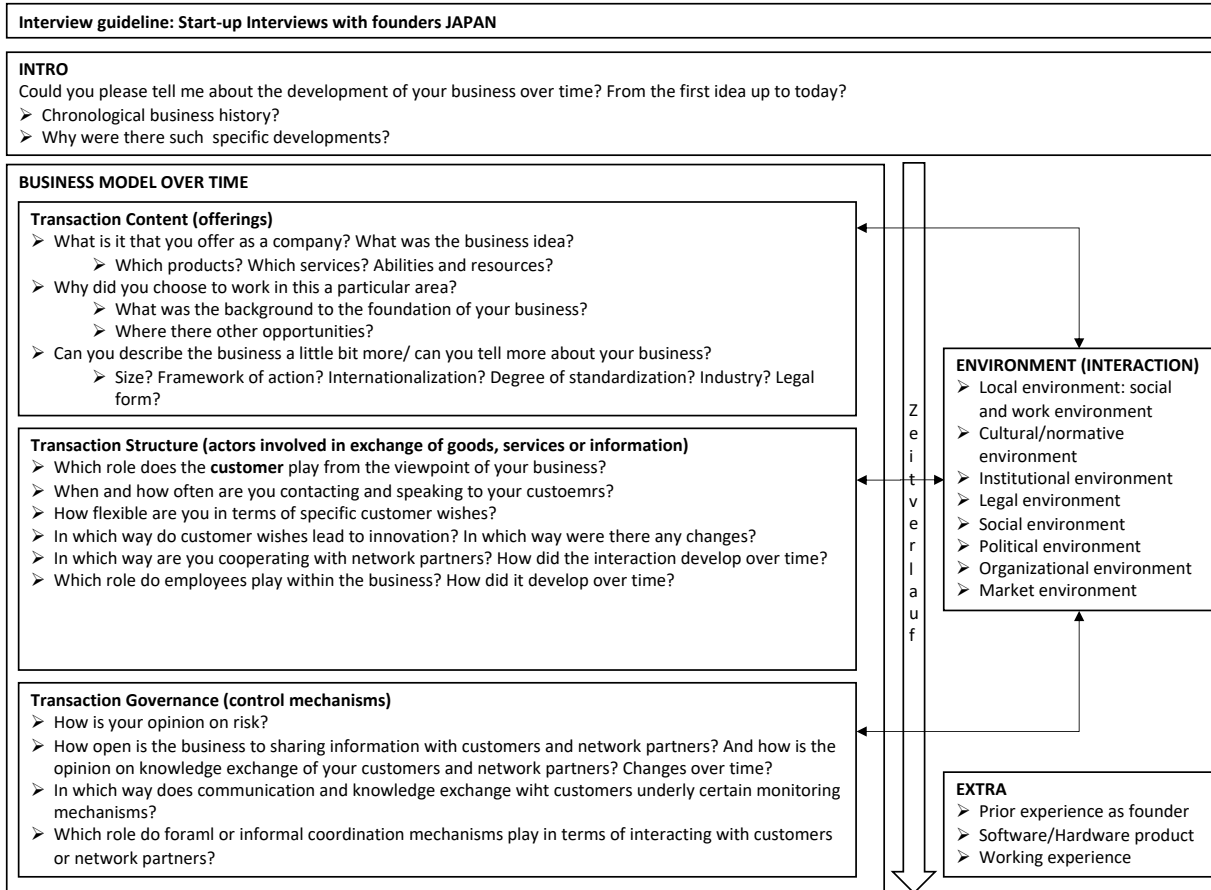


Figure 4: Japan Extended Interview Guideline
Source: Own illustration.

Table 1: Overview of Data Material: Sensitizing Conversations Japan

Role	Interview partner (position)	Material
Expi JAPAN 1	Expi JAPAN 1.1 (Accelerator) Expi JAPAN 1.2 (Founder)	Verbatim + field notes
Expi JAPAN 2	Expi JAPAN 2 (Head of industry and academia cooperation)	60:45 min
Expi JAPAN 3	Expi 3 JAPAN (Fukuoka city government)	Verbatim
Expi JAPAN 4 ²	Expi JAPAN 4 (Government acceleration program)	81:40 min
Expi JAPAN 5 ¹	Expi JAPAN 5 (CEO and business consulting health care)	89:07 min
Expi JAPAN 6 ¹	Expi JAPAN 6 (Founder)	98:06 min
Expi JAPAN 7	Expi JAPAN 7 (Accelerator)	Field notes
7 Interview partners		2x Verbatim 2x Field notes 329:36 min

¹ Was conducted as a case interview but will be considered as triangulating material.

² Interview in Japanese but translation from supervisor + notes and extra material.

Source: Own illustration of findings.

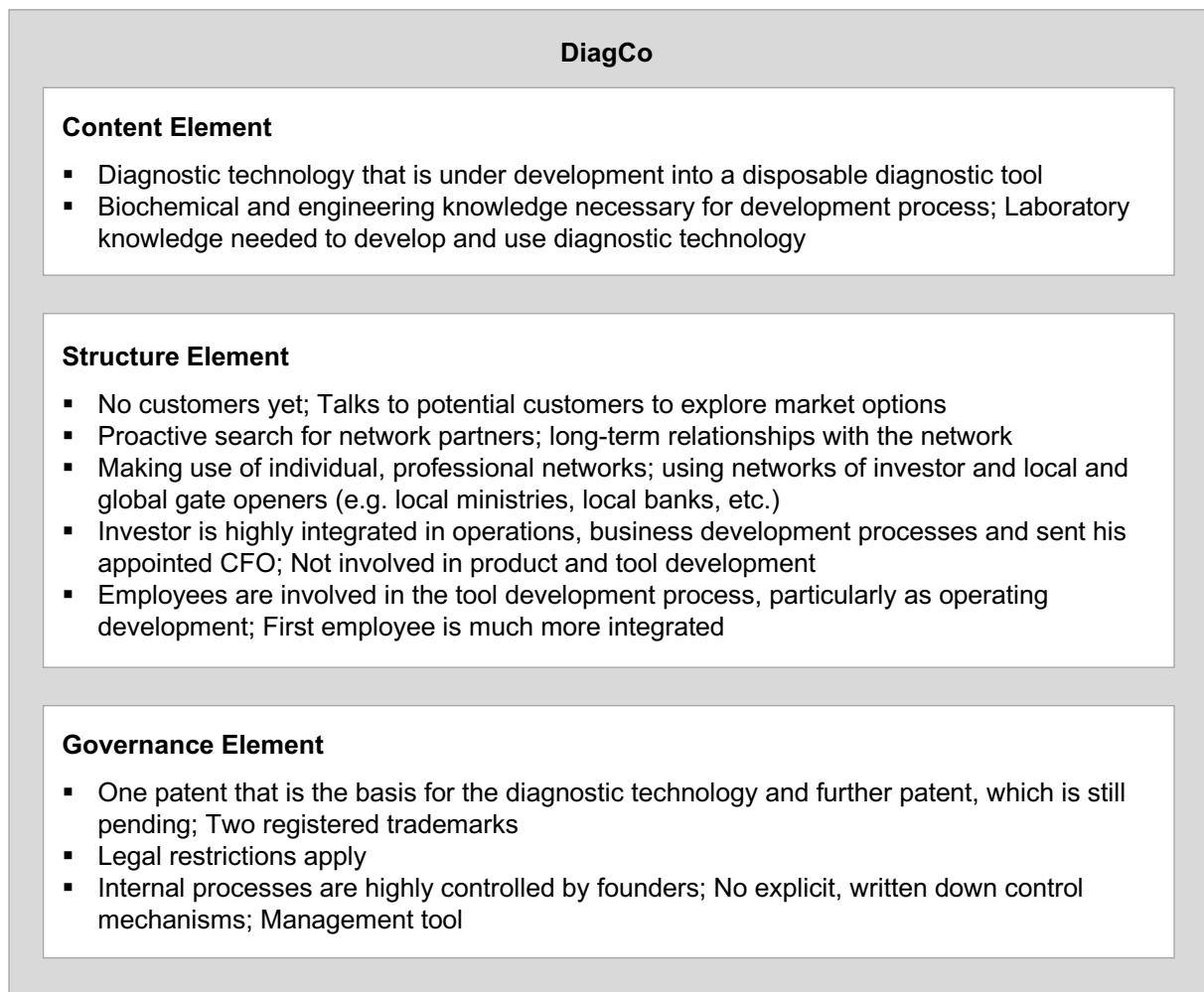


Figure 5: DiagCo Business Model Design
Source: Own illustration of findings.

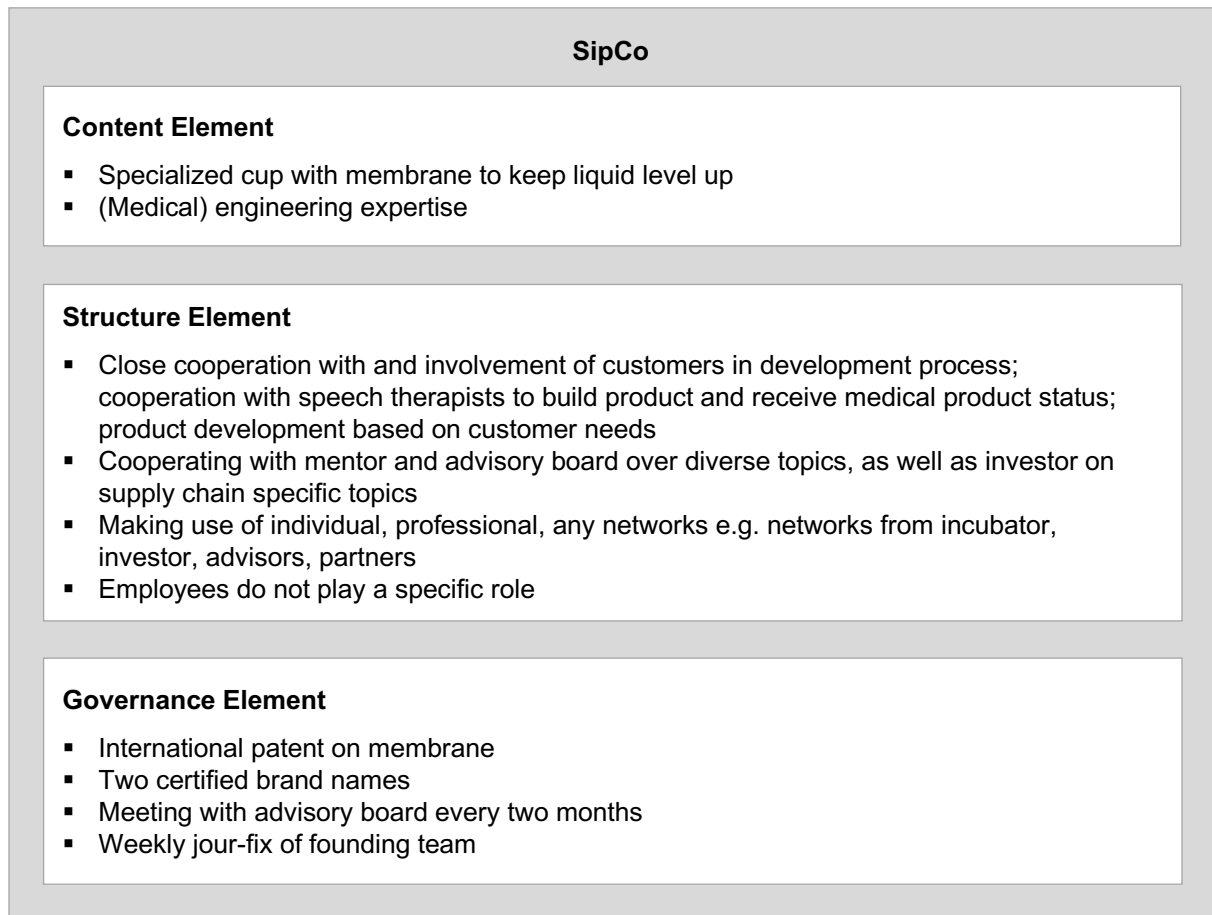


Figure 6: SipCo Business Model Design
Source: Own illustration of findings.

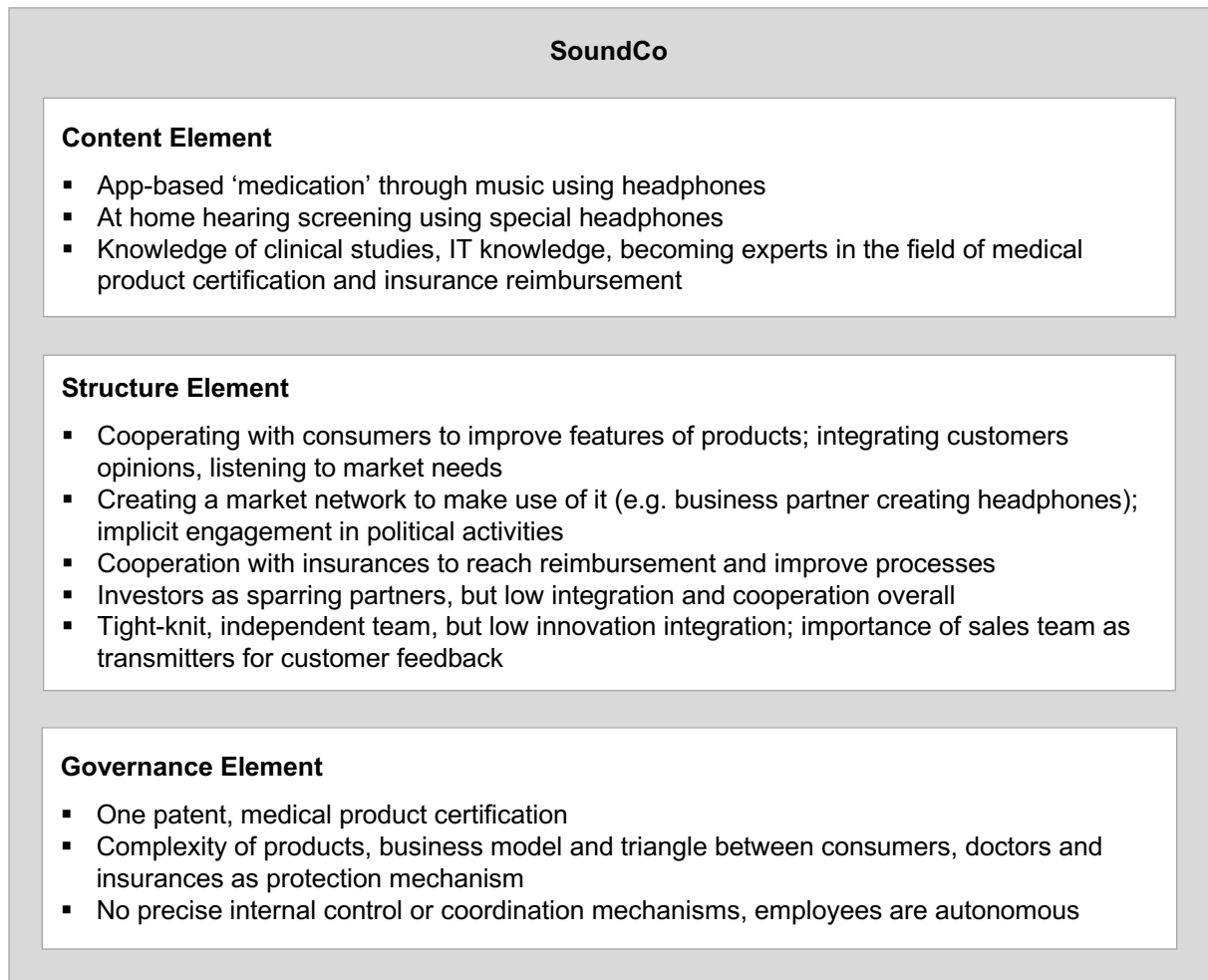


Figure 7: SoundCo Business Model Design
Source: Own illustration of findings.

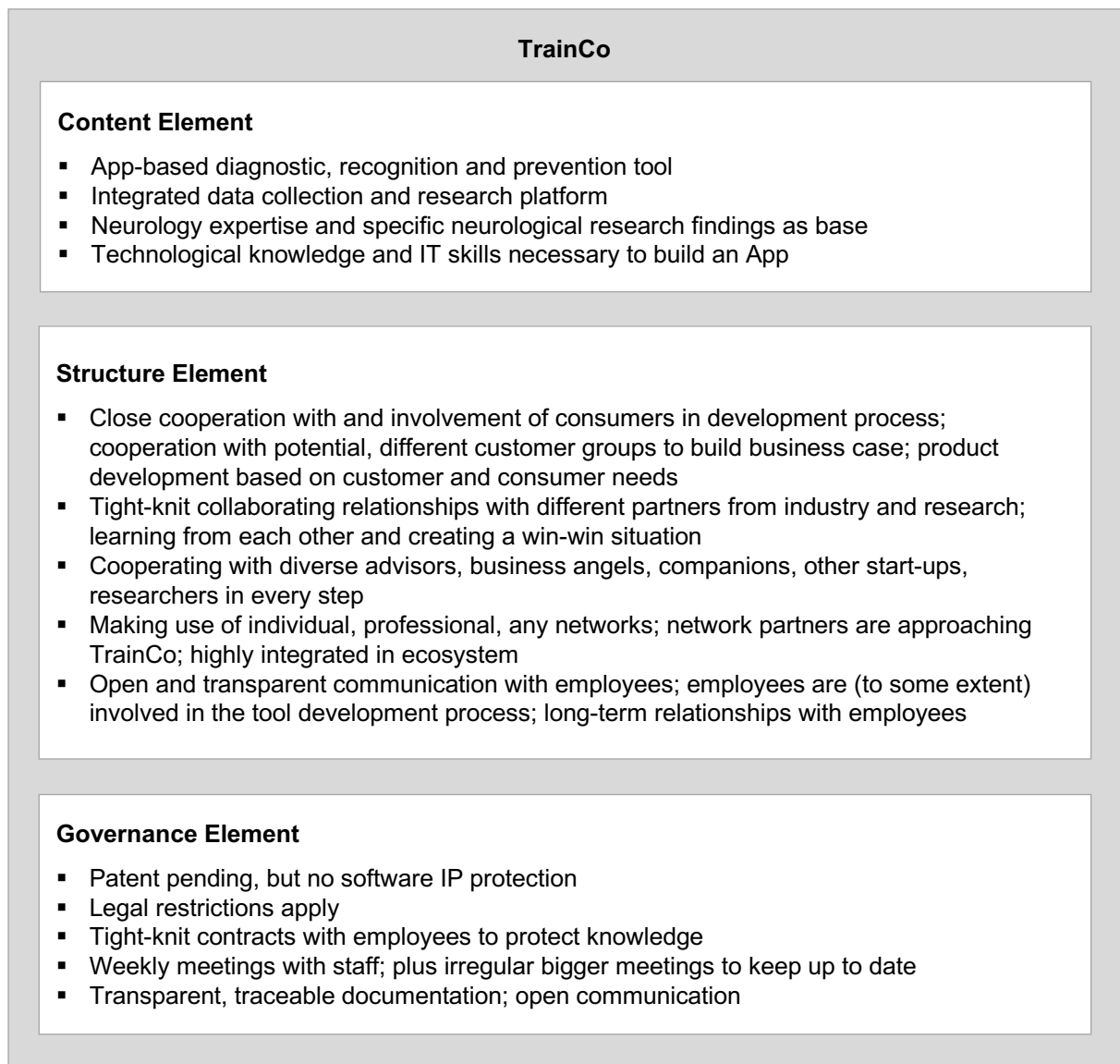


Figure 8: TrainCo Business Model Design
Source: Own illustration of findings.

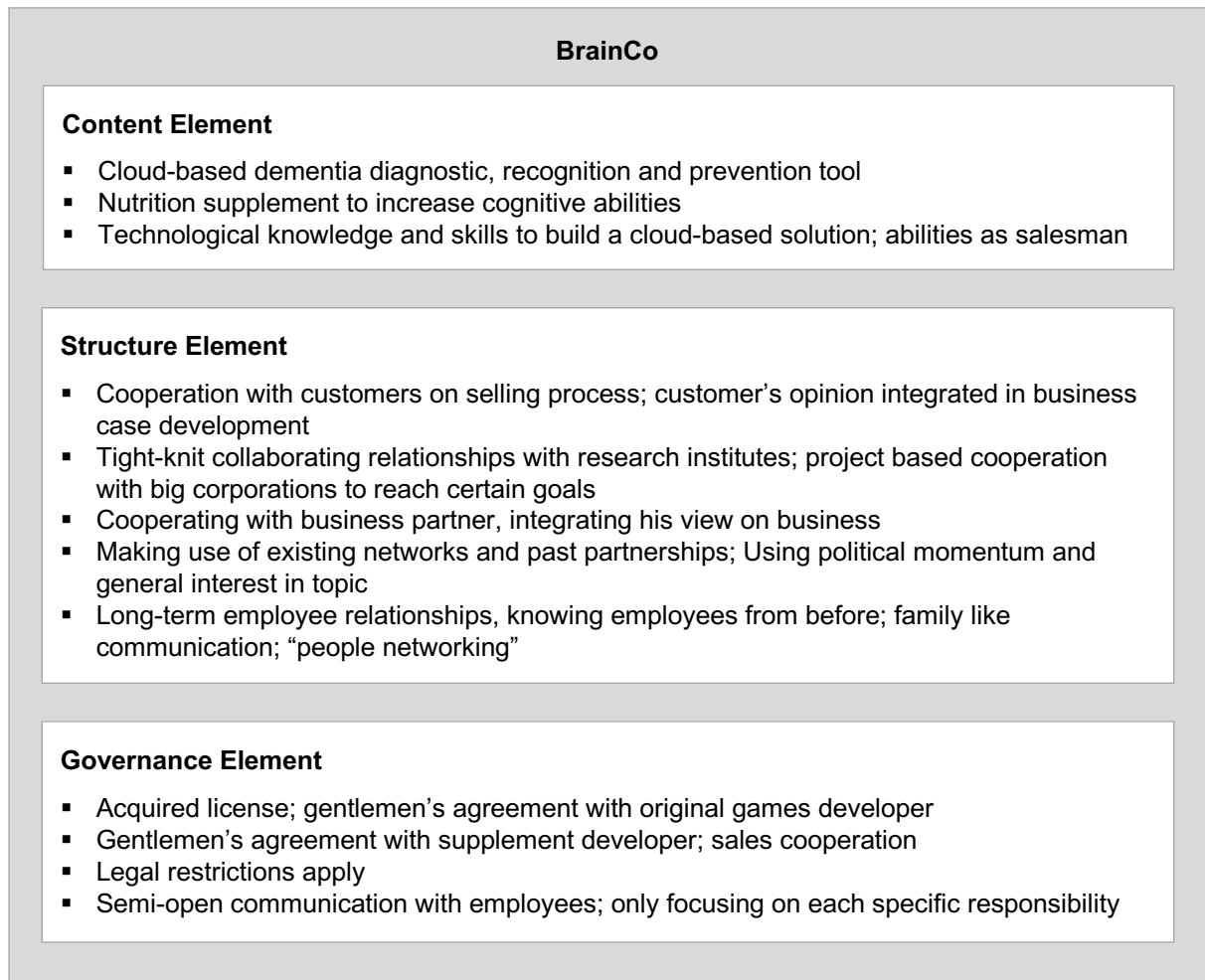


Figure 9: BrainCo Business Model Design
Source: Own illustration of findings.

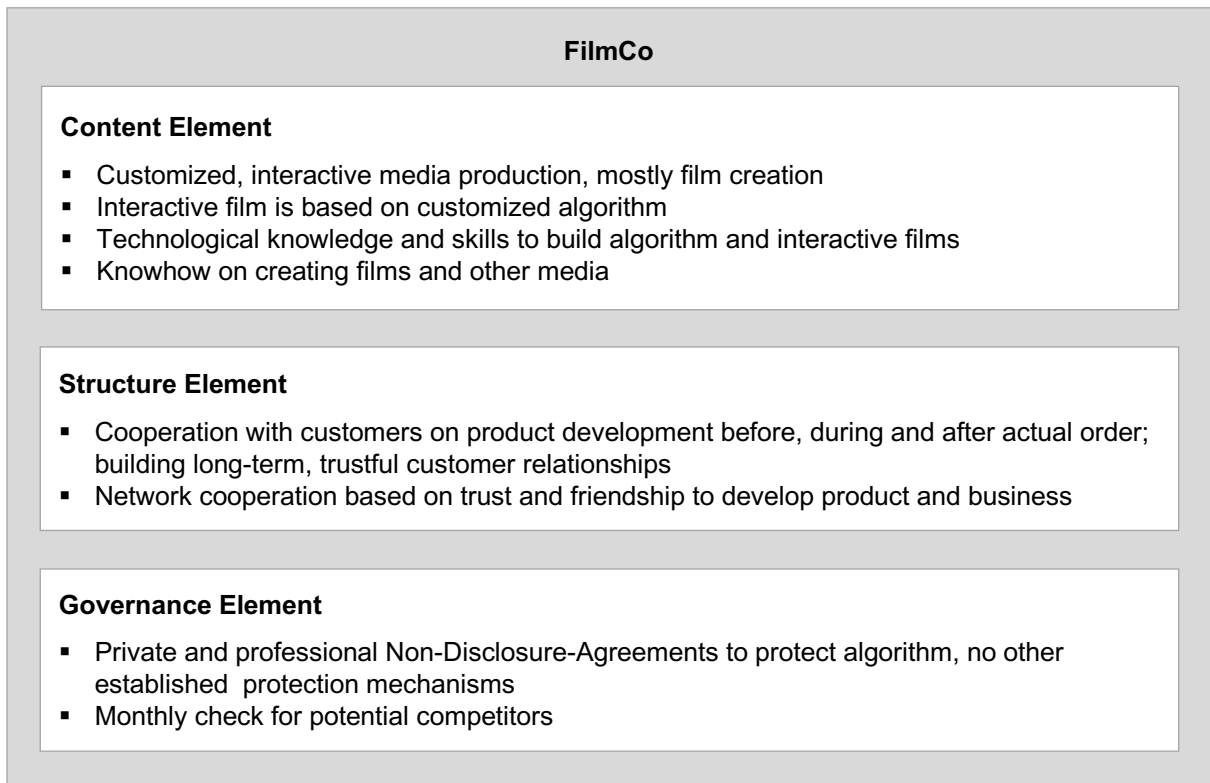


Figure 10: FilmCo Business Model Design
Source: Own illustration of findings.

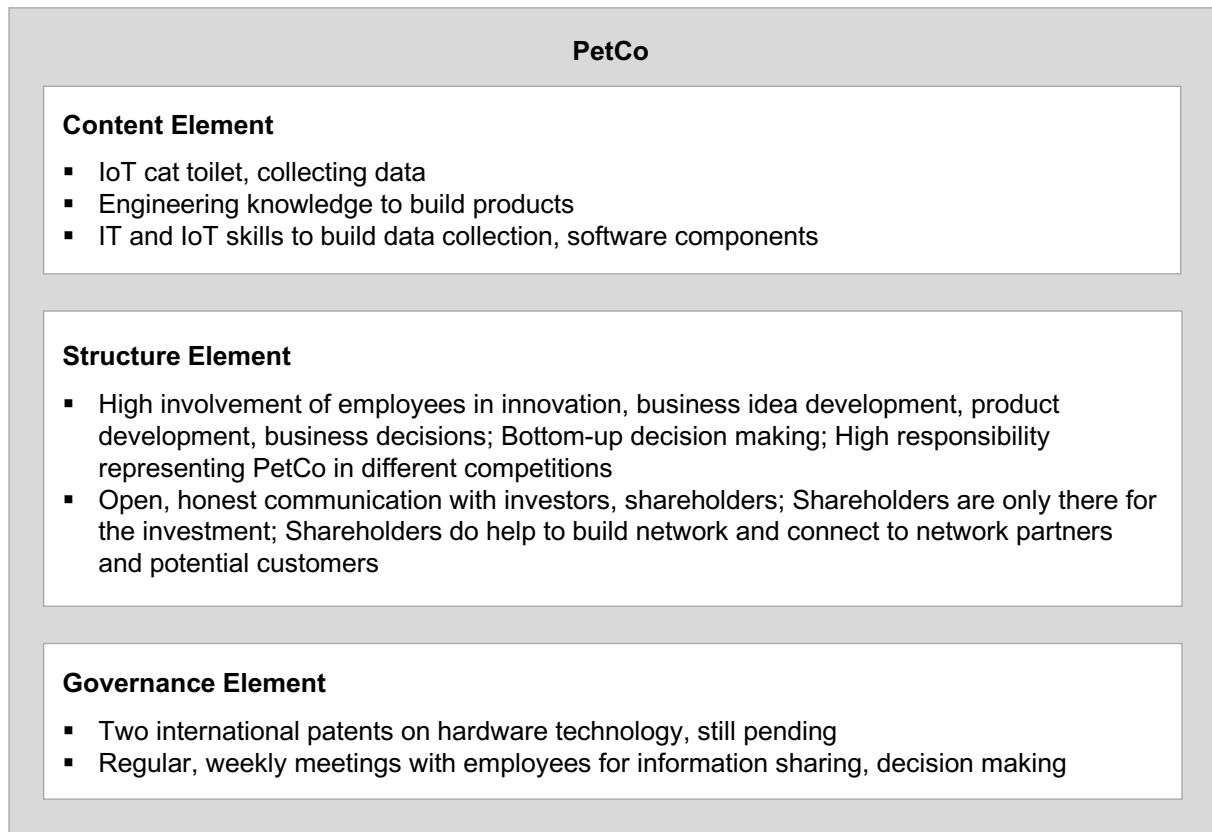


Figure 11: PetCo Business Model Design
Source: Own illustration of findings.

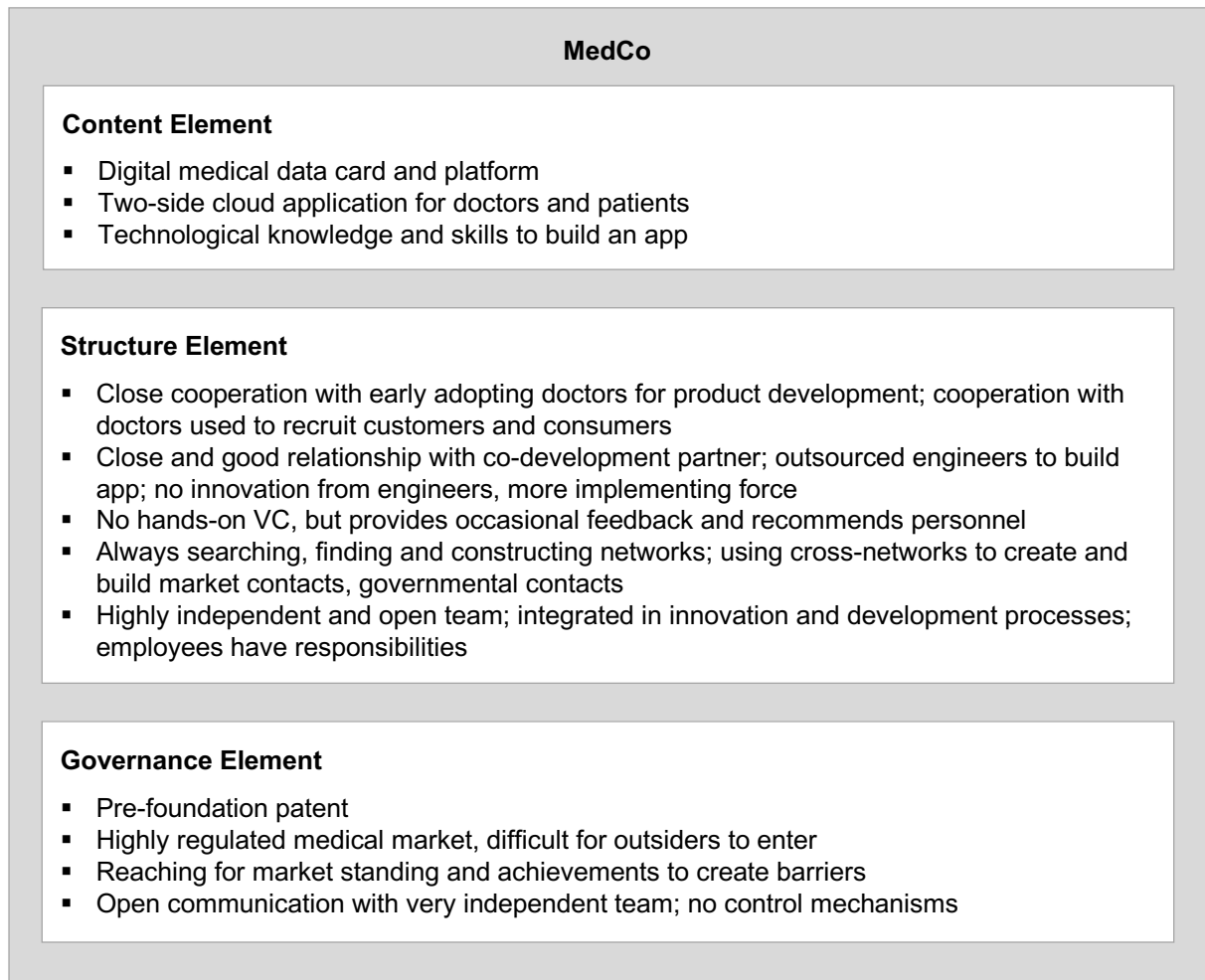


Figure 12: MedCo Business Model Design
Source: Own illustration of findings.