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Fuzzy front-end of Entrepreneurship

Developing a Business Idea Selection Framework

Nicolas Grünling 2875

A Project carried out on the Master in Management Program, under the supervision of:

Professor Miguel Muñoz Duarte

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Disclaimer

Hereby the author, Nicolas Grünling, declares that the presented thesis is composed by his own and only the stated references have been used in order to develop the following work.

Preface

This work completes my Master's Degree in Management the Nova School of Business and Economics. Therefore, I want to acknowledge a number of people without their support and advice this would not have been possible.

First and foremost, I would like to pronounce my gratitude to Miguel Muñoz Duarte for his supervision, valuable advice and remarks which greatly supports me and the outcome of this work.

Additionally, I would like to thank all participants of the conducted fieldwork. Without their participation it would not have been possible to consummate this thesis.

Abstract

With an emerging and steady growing “startup industry” there is also an increasing amount of people collecting several business ideas aiming to become an entrepreneur. As founding can be a big step especially in professional life and is mostly connected with an investment of time and money, an upfront evaluation of one’s business ideas is crucial. Therefore, the purpose of this work is to develop a framework in order to support the evaluation of several business ideas in order to select the one to pursue.

Key words: Entrepreneurship, Startup, Business Idea Evaluation

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1 Introduction and Methodology

In this chapter the subject of the work project will be introduced, the necessity of the purpose explained, and the objectives stated. Moreover, the underlying methodology will be presented, and the applied approach described.

1.1 Background, Problem definition, and Objective

Nowadays, there is a great amount of people thinking about or starting an entrepreneurial career. Founding your own business is a big step regarding the investment of resources - as time and money - and the opportunity costs, rising by turning away from a rather secure employment in a company. Therefore, an upfront evaluation of business ideas to potentially pursue is crucial.

The Global Entrepreneurship Monitor (GEM) survey is tracking entrepreneurs across multiple business phases, assessing characteristics, motivation, and ambition. Their research includes 62 economies worldwide. Results show that on average two-third of the participants think that entrepreneurship is a good career choice. Moreover, 42% of working-age respondents see good opportunities for starting an own business and more than the half believe to have the abilities to start a business. As well interesting is that 21% of the surveyed people want to start a business in the next three years. The GEM survey clearly shows that there is a large number of people who are interested in founding a business, see good opportunities and believe that they have to abilities to do so. But what hinders the people to actually bring their business idea to live. According to the GEM survey, one-third of questioned working-age participant see themselves constraint by the fear of failure. However, there will be several reasons but the growing interest and demand to become an entrepreneur are supposed to be the foundation for this work. (Kelley, Singer, and Herrington 2016, 6–8)

The survey indicates a large number of people seeing business opportunities in their daily life. As an underlying hypothesis, one can assume that people who possess the ability to identify business opportunities have already discovered several throughout their life and most likely also developed more than one theoretical solution. This hypothesis will be the connecting factor

for this work project. There is already a lot of research done on what is important to observe and how to start your own business or how to build a business plan. One additional and definitely not less important factor, which got less attention from entrepreneurship researchers, is how entrepreneurs choose between their several business ideas they have "in stock."

Therefore, the objective of this work is to open up the "fuzzy front-end of entrepreneurship" (named after "fuzzy front-end of innovation" that aims to identify opportunities, transform them into business ideas and finally select and create concept) via building a framework with the main focus on the criteria entrepreneurs are using to select a business idea. Thus, this framework will support the decision-making in order to ease the step towards founding an own business. Nevertheless, there is to say that this framework will not be able to predict the future success of the business idea but it could help to indicate the individual fit and thereby the dedication of the entrepreneur towards its future business.

To summarise, the following research question will be answered within this work:

- How can entrepreneurs or entrepreneurs-in-the-making evaluate and select amongst several business ideas?

1.2 Research Methodology

According to the literature of research methodology, there are basically two styles of reasoning. The styles are inductivism and deductivism (Adams 2007, 29). Inductivism is trying to derive general conclusion via a finite number of observation. Thus, if a certain outcome is generated enough times one can conclude that it is generally valid. Whereas, deductivism investigating "universal" laws, considering them as hypothesis and test them against by the law implied forecasts (Adams 2007, 29). Therefore, the style of reasoning of this work is based on the inductive approach.

Additionally, the overlaps between the research of Innovation and Entrepreneurship will be described. Based on the identified gap - which is namely the business idea selection of an

entrepreneur - there is a framework developed in order to support the decision making of this process. Thus, research is initiated by a review of literature. Beginning with a literature review encourages the identification of relevant previous research (Saunders, Lewis, and Thornhill 2007, 56–57). In this case the research of (the front-end of) Innovation and Entrepreneurship ("early stage of entrepreneurship"). Hence, it is possible to determine the overlaps and more important to define the previously named gap. The goal is to utilise the existing research on the front-end of innovation and use the basic methodology in the discipline of entrepreneurship.

Bearing in mind, that this work is following an inductive approach and thereby more about generating a new theory (framework) rather than testing an existing one, it is reasonable to conduct qualitative data as a source of primary research (Bryman and Bell 2003, 25–26). In addition, Adams (2007) stated that qualitative research is applied to study customs or individuals behaviour, which is the subject of this work and thereby suitable for this study. Therefore, interviews were performed in order to perceive insights from different perspectives heterogeneous peer-groups were created, namely: entrepreneurs (founders / co-founders) as well as consultants and mentors.

The Business Idea Selection Framework concludes the findings of both primary and secondary research, whereas its general structure is derived from the front-end of innovation. Finally, there is a critical evaluation of the business idea selection framework including a conclusion and outlook on how this research is supposed to be continued.

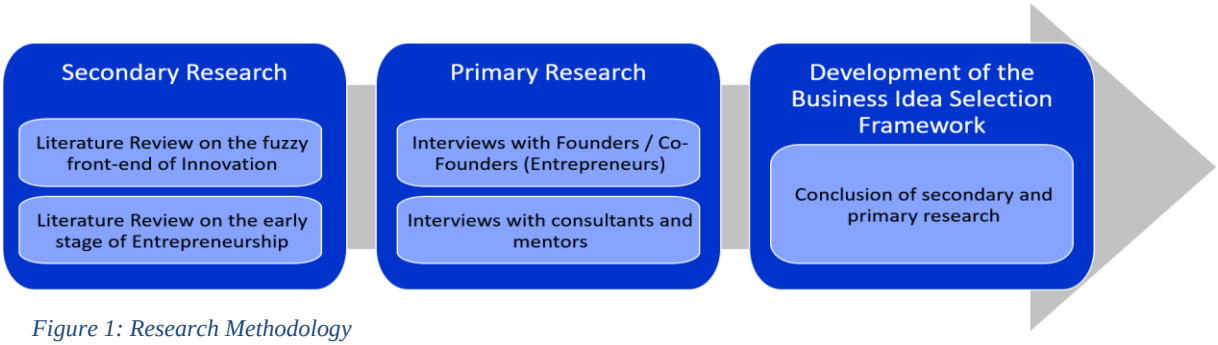

Figure 1: Research Methodology

2 Research

The research is divided into two main parts: literature reviews and fieldwork. On the literature reviews, existing research done on the topics of the front-end of innovation as well as of the early stage of entrepreneurship will be regarded. Whereas, the fieldwork section will describe the findings of conducted interviews with consultants, mentors, and entrepreneurs.

2.1 Literature review on the front end of innovation

The (fuzzy) front-end of innovation gained an increasing amount of interest in research since the end of last century and still is. It is presented in this work in order to make use of the existing similarities of the disciplines of innovation and entrepreneurship. Thereby, the research on the front-end of innovation serves as a template to derive already explored and tested principles or methodologies - especially in the field of idea selection - towards the fuzzy front-end of entrepreneurship.

2.1.1 Definitions

According to Koen et al. (2002), the entire innovation process can be divided into three parts: the front-end of innovation, new product development, and commercialization. The front end of innovation (FEI) as the first stage of the innovation process can be defined as simply all "activities that come before the formal and well-structured New Product and Process Development (NPPD) or Stage Gate process." (Koen et al. 2001). Nevertheless, for Koen et al. (2001) the FEI is distinguished from the NPPD through its intrinsic characteristics. For example, the nature of work in this early stage is still experimental and often chaotic. Moreover, the commercialization date is unpredictable just as the revenue expectations, which are "sometimes done with a great deal of speculation" (Koen et al. 2001, 47).

Other authors support this definition. Thus, Khurana and Rosenthal (1998) defines the front end of the activities before the decision to launch a new product development project. Likewise Kim and Wilemon (2002), who are defining the starting point of the FEI "when an opportunity is first considered worthy of further ideation, exploration, and assessment and ends

when a firm decides to invest in the idea, commit significant resources to its development, and launch the project" (Kim and Wilemon 2002, 269). In other words, they consider the FEI as the period between opportunity identification and the judgement if an idea is ready or worthy for further development with an investment of significant resources.

In order to be clear and have a common language, it is necessary to introduce and distinguish between two components of the FEI: Opportunity and Idea. An **Opportunity** is an identified technology or business gap. Moreover, it can be seen as blank space in between the present situation and envisioned future, aiming at solving a problem or improve difficulties. Whereas, an **Idea** is a very early stage hypothetical prototype of a product or service, that represents the solution for the gap identified by the opportunity. (Koen et al. 2002, 7)

2.1.2 Models and Concept of the front end of innovation.

In addition to the definitions provided, the front end of innovation is described by Gassmann and Schweitzer (2014) "as a continuous conflict between creativity and systematization". Furthermore, they stated that these early stages entail a high amount of uncertainty and risk including unclear result and difficulties of managing expectations and goals to achieve. Based on that, they derive the necessity of organizing the FEI "in order to find the right balance between flexibility and creativity (weak-defined processes and targets) on the one hand and structure and bureaucracy (well-defined processes and targets) on the other hand" (Gassmann and Schweitzer 2014, 15).

As stated by Kahn et al. (2013) there are two common concepts on how to effectively manage the FEI: The Stage-gate model (cf. Cooper (1990); Cooper (2008)) and the New Concept Development (NCD) model (cf. Koen et al. (2001); Koen et al. (2002).

The Stage-Gate Model

The Stage-Gate Model is providing a guiding map from the very beginning of discovering ideas towards launching the product or service (Cooper 2008). As Figure 2 is showing it is splitting the whole innovation process into stages separated by gates which are representing go

or no-go decisions, made on the basis of the information gathered and produced in the previous stage (Gassmann and Schweitzer 2014, 17). Additionally, it is important to know that each Gate consists out of three parts: Deliverables, Criteria, and Output. Deliverables are simple the output in form of information from the previous stage. Whereas, criteria are predefined measurements in order to judge the project. It should be a combination of "must-meet criteria," designed to filter out more improper project immediately, and "should-meet criteria," which are added of on a scorecard for prioritizing the projects. (Cooper 2008)

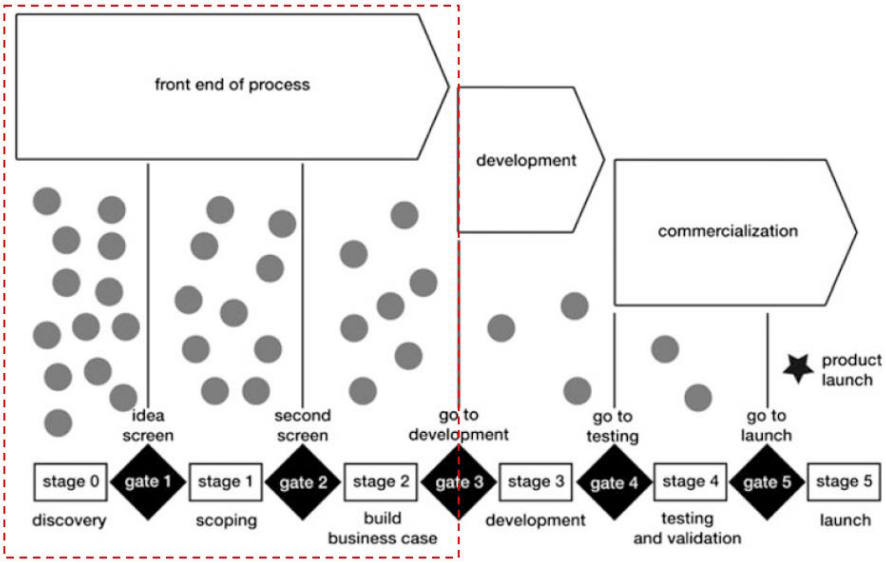

Figure 2: Stage-gate process (second generation)
Source: Gassmann and Schweitzer (2014)

For this work, only the stages referring to the front end will be considered, with a special attention on Gate 3. The first stage is called discovery; it is an upstream stage which is why literature is often referring to it as **Stage 0**. However, in this stage, new ideas shall be collected from internal and external resources (cf. Cooper (1990); Gassmann and Schweitzer (2014)). Collected ideas reach **Gate 1**, the Initial Screen. Cooper (1990) is referring to Gate 1 as a "gentle" screen dealing with criteria like "strategic alignment, project feasibility, magnitude of the opportunity, differential advantage, synergy with the firm's core business and resources, and market attractiveness" (Cooper 1990, 52). Nevertheless, financial criteria not supposed to be part. In the scoping stage (**Stage 1**) market and technical information are collected. Hereby, an inexpensive and fast assessment of the market is done for each project via literature research or

interaction with potential key users. The technical information is covered by an in-house assessment in order to get an impression of feasibility, time and costs (Cooper 1990). The following **Gate 2** (second screen) is basically a repetition of Gate 1, whereas Cooper (1990) is suggesting additional criteria like sales force or customer response. Moreover, basic financial criteria should be considered, as the payback period. **Stage 2** is the final stage of the front end and only separated by Gate 3 towards the product development. In this stage ("build the business case") a deeper and more fundamental market research is conducted to understand the potential customers. Moreover, the competition is analysed as well as technical and economic feasibility. Finally, a comprehensive financial analysis is performed (Cooper 1990). As **Gate 3** is the "go to development"-gate the company has to decide if a project is worth to allocate a significant amount of resources, that is why Gate 3 is also considered as the 'money gate'. For the outcome of this work the criteria used to select the right project are clearly important. Justified by that, Cooper (2008) provided a Best-Practices Gate 3 Scorecard for Project Selection, shown in Table 1.

Factor 1: Strategic Fit & Importance • Alignment of project with our business's strategy • Importance of project to the strategy • Impact on the business	**Factor 4: Core Competencies Leverage** • Project leverages our core competencies & strengths in: – Technology – Production or Operations – Marketing (image, brand, communications) – Distribution & sales-force
Factor 2: Product & Competitive Advantage • Product delivers unique customer (or user) benefits • Product offers customer (or user) excellent value for money (compelling value proposition) • Differentiated product in eyes of customer/user • Positive customer/user feedback on product concept (concept test results)	**Factor 5: Technical Feasibility** • Size of technical gap (straightforward to do) • Technical complexity (few barriers, solution envisioned) • Familiarity of technology to our business • Our technical track record on these types of projects • Technical results to date (proof of concept)
Factor 3: Market Attractiveness • Market size • Market growth & future potential • Margins earned by others in this market • Competitiveness – how intense & tough the • competition is (negative)	**Factor 6: Financial Reward versus Risk** • Size of financial opportunity • Financial return (NPV, ECV, IRR) • Productivity Index (PI) • Certainty of financial estimates • Level of risk & ability to address risks

Table 1: A Best-Practices Gate 3 Scorecard for Project Selection for New Products
Source: Cooper, 2008

The New Concept Development Model

The New Concept Development Model (NCD) is often referred to as a more holistic approach to managing the front-end (Kahn et al. 2013). It mainly divides the FEI into three different parts: the engine, influencing factors and activity elements (Kahn et al. 2013).

The **engine** builds the inner part of the model. According to Koen et al. (2002), this represents the organization itself. Thus, it stands for the firm's leadership, culture and its strategy. It is placed in the centre because those factors are supposed to drive the activity elements and can be controlled by the organization (Koen et al. 2002).

On the contrary, the **influencing factors** are so to say the skin of the model and present the "organizational capabilities, the outside world (distribution channels, law, government policy, customers, competitors, and political and economic climate), and the enabling sciences (internal and external)" (Koen et al. 2002, 8). In other words, those are the external factors which cannot be controlled by the organization but influencing the engine and the activity elements (Kahn et al. 2013).

The last components of the NCD are the **activity elements**, which are opportunity identification, opportunity analysis, idea generation and enrichment, idea selection and concept definition (Koen et al. 2001).

However, before introducing the activity elements in detail, it is reasonable to classify the NCD in the entire innovation process (Figure 3) and point out the notable characteristics. As it can be seen in Figure 3, the NCD is basically replacing all stages and gates including Gate 3 of the Stage-Gate Model. Moreover, Koen et al. (2002) is pointing out that the circular shape of the model should highlight the flow of the ideas and the iteration amongst the activity elements. Furthermore, it is mentioned that looping back is part of the process and even if it leads to delays in the front end it will "typically shorten typically shortens the total cycle time of product development and commercialization" (Koen et al. 2002, 9). Additionally, the influencing

factors, as well as the engine, are showing on purpose interferences with all activities, as this is representing the interaction and interdependency.

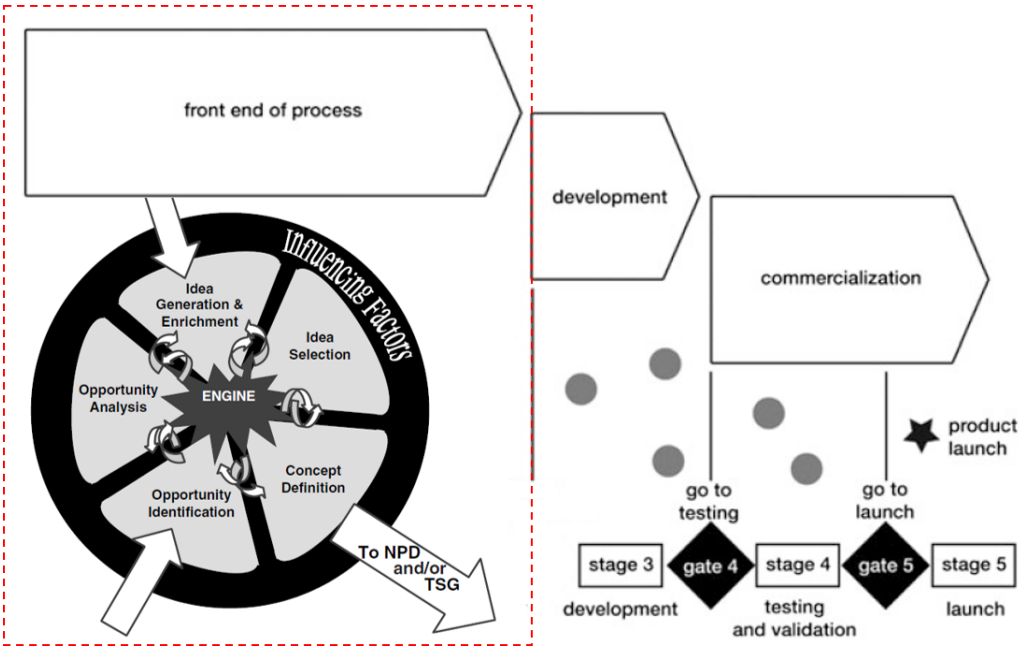

Figure 3: New Concept Development Model placed in the entire New Product Development process
Source: Gassmann and Schweitzer, 2014 & Koen et al., 2002

In the following, the activity elements will be described including suggested methods, tools, and techniques. However, the focus will as before (Gate 3) on the idea selection criteria.

The first activity element is **opportunity identification**. During this activity, there are very few boundaries given. It is suggested to find new business or technical opportunities in order to perceive growth, identify new potential business areas or achieve operating effectiveness and efficiency (Koen et al. 2001). That means the identified opportunities can be something from a rather small improvement up to a complete new direct of the business (Koen et al. 2001). According to Koen et al. (2002), this element defines the area of the market and field of technology for the operations of the company. Nevertheless, the core of this element are the sources and methods used to identify opportunities. Besides the well-known creativity tools or techniques, like brainstorming, mind mapping or lateral thinking (Koen et al. 2001), Koen et al. (2002) is pointing out the need for envisioning an uncertain future. Therefore, he encourages, in particular, the use of the following methods or tools: road mapping, technology trend analysis, customer trend analysis, competitive intelligence analysis and scenario planning.

In the element of **opportunity analysis,** the identified opportunities will be assessed in order to determine if they are worth to pursue (Koen et al. 2002). This implies an often uncertain and very early assessment of the market and/or technology. Therefore, according to Koen et al. (2001) most effort should be committed to "for focus groups, market studies and/or scientific experiments" (Koen et al. 2001, 50). Nevertheless, the effort expended is supposed to be dependent on the overall attractiveness or growth potential but also from the development effort and not at least from the organizational fit, meaning the business strategy and culture (Koen et al. 2002). In this element basically the tools of the opportunity identification can be used as well but in a more detailed way for evaluation. However, Koen et al. (2002) is emphasizing the utilization of for four evaluation criteria. *Strategic framing* meaning the assignment of how the opportunity matches the organization's market and/or technology gaps, strengths and threats (Koen et al. 2002). A *Market segment assessment* is detailed description of the market segment, which is supposed to point out why the opportunity is benefiting. Whereas, the *competitor's analysis* is presenting how the opportunity is creating a competitive advantage in the specific market segment (Koen et al. 2002). The *customer assessment* should demonstrate which customer needs are not covered by current product but would be by the opportunity.

Idea Generation and Enrichment represents the birth of the actual idea evolving out of the identified opportunity. It is developing and evolutionary process "in which ideas are built upon, torn down, combined, reshaped, modified, and upgraded" (Koen et al. 2001, 50). The process has iterative nature where an idea can be combined, studied, discussed and developed over again. Moreover, Koen et al. (2002) is emphasizing interactions, meaning direct contact with customers and users as well as cooperation with external partners (e.g. experts, suppliers, institutions) in order to enhance the process and thereby the output. There are several suggestions for effective methods or tools, like early involvement of customers, web-enabled idea bank (incl. linkages to customers and suppliers) or gathering people with different

cognitive styles (Koen et al. 2002). An interesting method proposed by Koen et al. (2002) is TRIZ (Russian acronym), the Theory of Inventive Problem Solving. Hereby, participants get encouraged to systematically solve a problem by creating several creative but nevertheless right solutions.

The next activity element is the **Idea Selection**. For Koen et al. (2001) in most cases not the creation of new ideas is the problem rather the selection of the suitable ones to pursue. Nevertheless, it is also stated that there is no single process for solving that critical issue. Furthermore, it is stressed that even finding or choosing a method there will be always a lack of information (Kim and Wilemon 2002). However, the process does not have to be as strict as is the downstream new product development phase. According to Koen et al. (2002), some ideas need to grow during the process, even if this means some more iterations or dealing with uncertainties. Still, there is a clear need for a structured and formal process in order to evaluate the idea and receive a contemporary feedback (Koen et al. 2002). Although there will be not only one single solution. It is stated that only traditional financial solutions (e.g. discounted cash-flow calculation) are not suitable due to the fact that they most likely would kill disruptive ideas (Koen et al. 2002). However, Koen et al. (2002) is suggesting to use the portfolio methodology to evaluate the idea based on serval factors, namely: Technical success probability, commercial success probability, reward, strategic fit, strategic leverage. Thereby, the use of an anchored scale is emphasized. This means that the factor should be explained in order to support the correct understanding of the measures and consequently the accuracy of the result (Koen et al. 2002).

The final element of the NCD is the **Concept definition**. This is the last “gate” before entering the new product development process. Therefore, Koen et al. (2001) stresses the necessity of building a complete as possible business case. This business case needs to include both qualitative and quantitative information in order to decide if a project is worth to pursue

(Koen et al. 2002). Even though, the outlook is strongly depending on the requirement of each company and project itself, Koen et al. (2002) is suggesting the following components for a business case concept: objectives, concept fit with corporate / divisional strategies, size of opportunity (e.g. financial impact, market or customer needs and benefits), business plan that specifies a win/win value proposition for value chain partners, technical and commercial risk factors, environmental, "showstoppers" (concerning regulations, health or safety), sponsorships, project plan (incl. resources and timing) (Koen et al. 2002). As mentioned before, projects which are passing this stage are entering the new product development which means for the company a significant investment of resources. Thus, most of the companies are developing a set of evaluation criteria for determining the project attractiveness (Koen et al. 2002). Based on the research done by Koen et al. (2001) and Koen et al. (2002) Table 2 is representing an "example of Evaluation Criteria that Provide Guidance in Concept Selection" (Koen et al. 2002, 28). Still, there is to say that the quantitative definition of attractiveness or unattractiveness is strongly dependent on the size and objectives of the company. Nevertheless, this summary (Table 2) gives a good idea of important criteria, which is also considerable for the outcome of this work.

Factors	Specific Issues	Attractive	Unattractive
Market	Market size	>$100 million	<$10 million
	Market growth	>20%	<5%
	Market drivers	Satisfy all	Meets at least one
	Market access	Existing business	Needed
	Potential market share	>20%	<5%
Competency	Business infrastructure	In place	Needed
	Customer familiarity	Current base	Few
	Core competency	Recognized	None
Competitive Issues	Proprietary position	Yes	No
	Leadership position	#1 by year 5	No lead
	Cost position	Lowest	Highest
	Key competitive advantage	Proprietary	None
	Sustainability of position	High	Low
Time Factors	Time to sales	<2 years	>5 years
	Full commercialization	<5 years	>5 years
	Competitive time advantage	>2 years	<1 year
	Operating at break-even	<3 years	>5 years
Technology	Technology availability	In place	Needed
	Technology readiness	Proven	Discovery still needed
	Technology skill base (people and time)	Available	Needed
Financial	After-tax operating income	>12%	<8%
	Maximum cash hole	<$20 million	>$50 million
	Revenue stream	>1 product line	1 product
	Business potential	>$100 million	<$20 million

Table 2: Example of Evaluation Criteria that Provide Guidance in Concept Selection
Source: Koen et al., 2002

2.2 Literature review on the early stage of Entrepreneurship

Where mature companies trying to structure their innovation process in order to be more efficient and effective, the research of entrepreneurship also have developed techniques helping (future) founders to devise and test their business model. Nowadays one of the most common and discussed approaches is the so-called “Lean Startup” by Eric Ries. Nevertheless, for this work the underlying theory – of the lean startup approach – should be considered. Thus, the Customer Development Model (CD) of Steve Blank will be introduced. Nevertheless, it needs to be mentioned that this concept is only partly helpful for the fuzzy front-end of entrepreneurship. The CD supports testing and shaping the business model, but it is not directly encouraging the selection amongst several business ideas. Additionally, this chapter will deal with general evaluation criteria for a business idea that can be found in entrepreneurship literature.

2.2.1 The Customer Development Model by Steve Blank

As mentioned before the Customer Development Model can be seen as the entrepreneurial approach for an early stage of product development and thereby can be compared the Stage-Gate Model or the NCD (York and Danes 2015). Even though this is a model of entrepreneurial science, it is stated by Blank (2013b) that this approach – respectively the lean startup approach – is also used by large companies, like General Electrics, Qualcomm or Intuit, for making their innovation process more efficient (Blank 2013b). However, the CD is a very customer centric approach for developing a product or service. Classical approaches do their testing before launching the product, whereas the CD is continuously testing the hypothesis by involving customers or experts (York and Danes 2015). Basically, the CD is trying to learn from their customers from the very beginning in order to identify their needs and shape the business model (cf. Blank (2013b); York and Danes (2015)). Figure 4 is showing the entire CD existing out of two main parts: search and execution (each with two steps). For this work, the first part and thereby the first two steps (customer discovery and customer validation) are necessary to

consider, as Blank himself stated that only after completing the first two steps a startup should move towards creating a complete business plan and developing the company (York and Danes 2015).

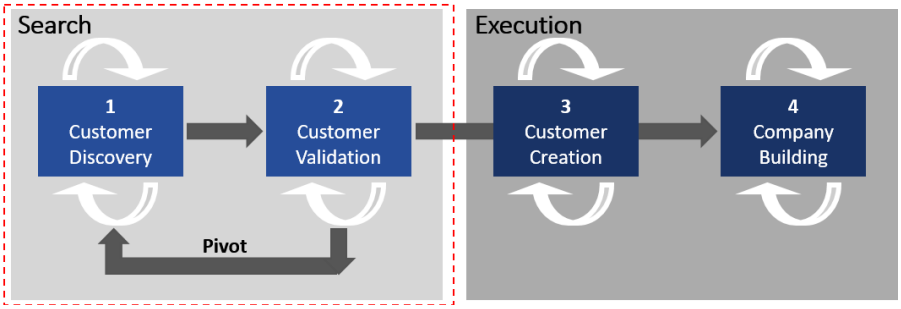

Figure 4: Customer Development Model
Source: Blank, 2013a

Customer Discovery

The first step of the CD is all about what the name already reveals: discovery of your customer. Blank (2013a) stresses the importance of discovering who are the customers for your product and if the problem you are trying to solve is important to them. In other words, it is about the problem-solution fit, which means if your product is the solution for your customers' pain points (Cooper, Vlaskovitz, and Blank 2010). Formally speaking, "this step involves discovering whether the problem, product and customer hypotheses in your business plan are correct" (Blank 2013a, 27). According to Blank (2013a), this will support by defining and shaping of your unique selling point to your potential customers.

Customer Validation

The second step of the CD validates that a set of customers is found and thereby that the market reacts positively to the product or service (Blank 2013a). The overall goal of this step is to build a "repeatable sales roadmap" (Blank 2013a, 29). This means developing a playbook for the sales process. Whereas, in the customer discovery the problem-solution fit is tested, in the customer validation the product-market fit is explored (Cooper, Vlaskovitz, and Blank 2010). Thereby, step one and two from and confirm the business model. Thus, both steps combined verify "your market, locates your customers, tests the perceived value of your

product, identifies the economic buyer, establish your pricing and channel strategy, and checks out your sales cycle and process" (Blank 2013a, 29).

All in all, the CD model is not formed out of gates with strict criteria rather it consists out of a set of hypothesis that will test your business model and thereby verify the existing demand for your product or service (Blank 2013a). Nevertheless, as mentioned before this model can only in part support the evaluation and selection amongst several business ideas, which clearly states the need for and purpose of this work.

2.2.2 Business Idea evaluation criteria

The common entrepreneurial literature is discussing several criteria in order to evaluate a business idea. Most of those criteria are very similar to the classical business assessment criteria, as shown in Table 1 in chapter 2.1.2. Nevertheless, it is also stated that these criteria are complex and difficult to objectively assess, as the evaluation is mostly based on assumptions (cf. (Luecke 2005; Kuratko and Hodgetts 2007; Roberts 2007). Additionally, Kuratko and Hodgetts (2007) provided a "new venture idea checklist" but declared at the same time that such lists are very general and should be customized for each business idea individually. In addition, Luecke (2005) presents five characteristics a serious business opportunity should possess, which represent a meaningful approach for this work. Firstly, the opportunity creates value for customers by providing a problem solution or serving an unmet need for which customers show the willingness to pay. Secondly, the opportunity has a reasonable profit potential for investors and the entrepreneur. Thirdly, the entrepreneurs, respectively the team, have the skill and capabilities needed for realizing the opportunity. Fourthly, the opportunity is "durable", which means that the opportunity generates profits for an appropriate length of time. Lastly, amenability to financing, which is according to Luecke (2005) dependent on the area of operations more difficult to get than expected. (Luecke 2005)

However, most evaluation factors mentioned in literature can be clustered into four categories: the business opportunity itself, the people (entrepreneurs / team) behind the business idea, external context (e.g. market trends or competitors) and lastly financial aspects (Roberts 2007). Therefore, Table 3 provides an overview of summarized evaluation factors derived from common literature and online articles.

Business Opportunity	People	External Context	Financials
Customer (Demand) • Customer awareness of problem or need • Value creation • Willingness to pay for solution • Customer Feedback →Problem-Solution-Fit Competitive advantage Durability Legal Aspects Sales and Marketing • Customer acquisition	Capabilities • Required skill set represented • Need for further team members? Relevant Experience Commitment and Ambition Motivation (Passion)	Market • Potential Market size • Potential market share • Market growth rate • Competitors • Substitutes Social / Economical Environment incl. trend analysis	Investment • Setup costs • Attractiveness (Return on Invest) Customer acquisition Costs Operatizing costs Profit structure • Profit margin • Break-even point Potential Investors

Table 3: Evaluation factors for Business Ideas
Sources: Luecke 2005; Kuratko and Hodgetts 2007; Roberts 2007; Tim Parker 2012; The MOO Crew 2013; Anand Srinivasan 2014; Ariel Rosenthal 2014; Jenna Schnuer 2014; Peter Gasca 2014; Sujan Patel 2014

2.3 Fieldwork

The fieldwork was conducted through qualitative interviews of consultants and mentors as well as of entrepreneurs in order to receive first-hand information on how to evaluate and select amongst several business ideas, respectively which factors and criteria should be considered from a practical perspective. In total, there were twelve interviews conducted. Whereby, five consultants, and mentors, participated, which are commonly working with startups and investors. The remaining seven participants were all entrepreneurs that already had found their business or working towards founding in the near future. The list of participants including their position and company as well as the questions asked can be found in the appendix. This chapter will provide a summary based on the findings of the conducted interviews.

2.3.1 Consultants and Mentors

Questioning mentors and consultant were very valuable, because of their position they are often in between investors and the entrepreneurs. Thereby, they are more distanced to the startup and often can evaluate incidents more objectively. On the other hand, one can assume that they are more driven by economical and financial key performance indicators. However, in order to identify common issues startups generally have, and maybe did not plan before, the consultants were asked for hurdles startups have to overcome. One of the main hurdles named by all interviewees was getting money or respectively investors. Moreover, they stated that first and small investment are relatively easy to get but later on it is strongly dependent on the team, working product or prototype and if there are already any sales. Thereby, they identified the further hurdles: working product or at least a prototype, a strong team covering all skills needed, and generating sales. Having a strong team, with all the skills and experience needed for the business idea would be for 80% of the interviewees also an important criterion they would consider by evaluation a business idea. Another criterion named by all interviewees was the feedback about the business idea. They determined that is it important to talk to about your idea, starting with your family and friends and moving forward to your network, meaning colleagues, experts or mentors. Finally, you could get feedback from the market (from your customers) and thereby evaluate the potential demand for your product. Moreover, the interviewees stressed the analysis of the environment, meaning an estimation of the market potential or a competitor's analysis. It seemed important to them to identify if there is already a similar solution existing and if so to determine what would make the business idea better or unique. Moreover, the interviewees would investigate how scalable the business idea is in order to evaluate if it is worth to pursue. A very controversial criterion was passion. Some interviewees said that is very important that you are following your passion, whereas others said that it is all about the entrepreneur's intrinsic motivation, which not necessarily means to follow your passion. A further interesting suggestion by some interviewees were the degree of flexibility of the idea.

As the business model is, according to the interviewees, during the early stage a work in progress and should be adapted to the customers need, the entrepreneurs should be flexible and open-minded for comments, recommendations and suggestions. Moreover, it can be positive to follow a business idea which offers many alternative solutions. Finally, most of the interviewees were talking about something like gut feeling when evaluating a business idea. It is difficult to judge based on a feeling but one interviewee defined it as the level of self-confidence with regard to the business idea.

2.3.2 Entrepreneurs

Interviewing a set of entrepreneurs about how they decide to pursue their business idea was at first not as clear as expected. You could identify that they mostly were not following a straight and defined process. Nevertheless, they all had one thing in common, in particular, they all try to solve a problem or recreate an experience of their own. Moreover, all of them were pointing out how important the feedback was for their decision to pursue the business idea and still is. As mentioned above, the startups emphasized to talk about your product a lot, get feedback also from unknown people and potential customers. A lot of them did surveys, questionnaires or landing pages before actually starting their business. Additionally, they pointed out how important the team is, in terms of skills required, experience as well as personality. In conjunction with that they also named the importance of passion, motivation, and/or ambition. On the other hand, most of the startups indicated that passion is not all that is important. According to EatAbout a “fundamental business logic” must be given. In other words, the importance of the financial aspect and thereby that the business idea has to generate profit with reasonable costs or respectively investment. This became also clear when one startup mentioned that “earning more money” would be good. They were obviously following their passion but at a certain point of time generating profit is surely also important. Additionally, more than the half of the interviewed founders stated that they considered or retrospectively would consider the scalability of the business idea as a criterion. Moreover, the founders mentioned that they

were scanning the market environment, e.g. for competition, the understanding of the market and the market potential of the business idea, in order to evaluate their business idea. Besides the hereby stated evaluation criteria, there was one factor only one founders mentioned explicitly, but subconsciously most of the startup showed that they were dealing with eat: self-assessment. It seems necessary, to know what the entrepreneurs personally want and expect. For some money is more important than following their real passion or the other way around. Others maybe don't want to scale their business as much as others. Some entrepreneurs just want to be independent and following their own lead. Moreover, it is not just important to identify what you want, it is also about what are your capabilities. Some entrepreneurs pointed out that you need to be objective to yourself, identify what are your strengths and where you defiantly need help or enhance the team.

3 Framework Development

In this part, all the findings of the chapters before are summarized and organized in a framework. The framework gives an easily accessible and understandable guideline for entrepreneurs in order to support the selection of a business idea.

As stated earlier, the findings of the well-explored processes in the front end of innovation, in particular, the New Concept Development (Chapter 2.1.2) is serving as foundation and template for the main framework. Additionally, the collected evaluation criteria of the front end of innovation (Chapter 2.1), the early stage of entrepreneurship (Chapter 2.2) and through the conducted fieldwork (Chapter 2.3) are forming the hereby named Diamond Criteria, which are introduced in the following. Moreover, the definitions of opportunity and idea from Chapter 2.1.1 are applicable and should be considered.

3.1 Framework Overview

The Business Idea Selection Framework (Figure 5) is supposed to support the selection amongst several business ideas by the evaluation of the Diomand Criteria. However, as shown

by the New Concept Development (NCD) model, it is useful to apply several steps. Therefore, this framework is divided into three steps, namely: Business Opportunity Assessment, Business Idea Definition & Research, and Business Idea Evaluation & Selection (as shown in Figure 5).

Similar to the NCD the first step of **Business Opportunity Assessment** should determine if the business opportunity is generally worth to pursue. Furthermore, it is supposed to be a gentle assessment where uncertainty is accepted and expected. Nevertheless, the criteria used for the assessment must be different than in the NCD. Therefore, as presented in Chapter 2.2.2, the five characteristics of a serious business opportunity from Luecke (2005) can be applied - whereas formulated slightly different in order to fit the framework's purpose. Firstly, the business opportunity has to create value for a customer by solving a problem or serving an unmet need. Secondly, it has to generate profit at least as much to cover the living expenses of the entrepreneurs. Thirdly, the entrepreneurs have to possess the skills and capabilities needed or at least have to be confident that they are able to learn or purchase them. Fourthly, the business opportunity has to be durable, meaning that the opportunity is generating profits (at least expense-covering revenues) for a reasonable length of time. And finally, it has to be amenable to financing if it is needed and the realisation is dependent on investment.

Fulfilling the five characteristics, the opportunity enters the **Business Idea Definition & Research** step. At this step, the opportunity must be translated into a business idea, which means that one has to formulate the solution for the problem or unmet need of the business opportunity and thereby a first draft of the business model. Moreover, in this step the entrepreneurs have conduct research on the basis of the six Diamond Criteria in order to gather information for evaluating the business idea in the last step. This again shows the similarity the NCD activity element of Business Idea Generation and Enrichment.

The last step represents the **Business Idea selection**, whereby the entrepreneurs evaluate their business ideas based on the Diamond Criteria. The process of evaluation and selection is explained in detail in chapter 3.1.3.

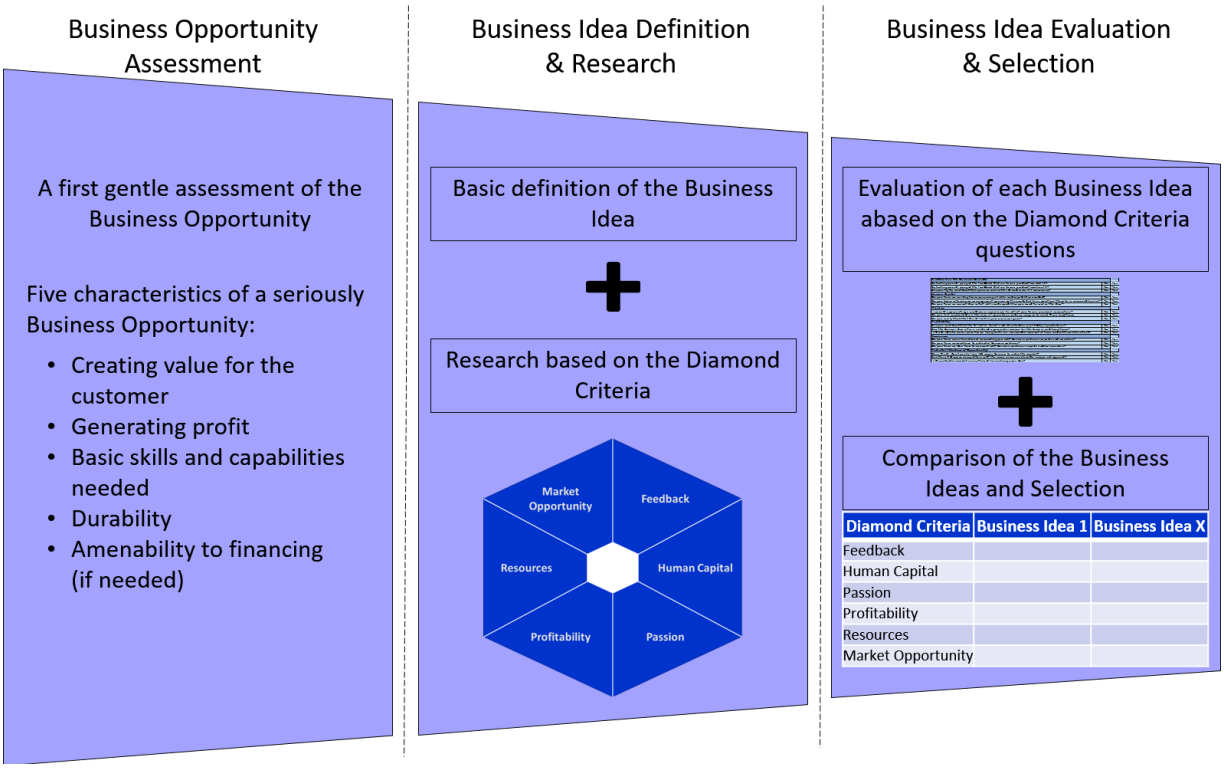

Figure 5: Business Idea Selection Framework
Source: Proprietary Development based on research in Chapter 2

3.2 Diamond Criteria

The criteria presented in the following is the outcome of the literature review (Chapter 2.1 and 2.2) as well as the conducted interviews of the fieldwork (Chapter 2.3). It can be seen that there are several overlaps between the criteria mentioned in innovation and entrepreneurship literature as well in practice (identified by the fieldwork). Furthermore, the findings show that it needs a set of criteria that are necessary to consider. Analysing the overlaps of the findings emerged a classification of six criteria for evaluation and selection amongst several business ideas: Feedback (on the Business Idea), Human Capital, Passion, Profitability, Resources, and Market Opportunity. These six criteria classifications from the Diamond Criteria, as can be seen in Figure 5.

Feedback on the Business Idea has a great importance stated in literature as well as in the fieldwork. It is important to talk about the business idea with family, friend, colleagues and

future customers. Introducing the Customer Development Model by Steve Blank in Chapter 2.2.1, it is recommendable to make use of the basic methodology. Even at this very early stage, it is important that you know your business idea makes sense and could be implemented. Nevertheless, the effort should be appropriate, and the output should give a reasonable impression considering the very early stage of the business idea. Therefore, the amount of test cases should be reduced, which clearly does not mean that entrepreneurs do not have to increase the amount of test cases and repeat the process with their selected idea.

The **Human Capital** criteria is dealing with skills and capabilities needed to realise the business idea. Besides the literature. the findings of the interviews show that both entrepreneurs, as well as consultants and mentors, stress the important of the startup team. Even if entrepreneurs do not have all necessary skills, they need to know if it is possible to acquire them, easily approach new team members possessing those skills, or purchase the service for a reasonable amount of money.

Passion is maybe one of the most discussed topics during the interviews. Nevertheless, it was stated that entrepreneurs should have an intrinsic motivation. They should feel the need to pursue the business idea and drive the solution out of personal reasons, either solving their own problem, having a connection to the area of operations or because seeing a great value of their solution.

The criteria of **Profitability** can also be rated differently from entrepreneurs. There are certainly some entrepreneurs that are not as much as others interested in making big money. However, the solution should at least provide the coverage of their living costs instead it is not useful to pursue the business idea long-term. Therefore, entrepreneurs should estimate the needed sales for generating an amount of profit required for the covering the team's living costs or attract investors, if necessary.

Resources are considering the entrepreneur's network. For most business ideas you need connections to business partners, mentors or investors. Therefore, entrepreneurs should consider if they already have those connections or how to establish necessary connection. This will support the development of the business idea and facilitate all following processes.

Finally, the **Market Opportunity** needs to be regarded. This is basically an analysis of the external context, meaning an examination of the market and its potential, benchmark against competitors or searching for market-entrance barriers.

3.3 Idea evaluation and selection

The last step of the framework is the Business Idea Selection, whereby the entrepreneurs need to evaluate the business ideas based on the research of the Diamond Criteria in the previous step. Thus, an objective assessment is key for the evaluation. Considering the criteria, it seemed difficult to rate them objectively between one and ten. On the other hand, it appears to be useful to evaluate the Diamond Criteria by creating a scorecard, as introduced by the Stage-Gate Model in chapter 2.1.2. Therefore, the Business Idea Selection Framework is providing for each Diamond Criteria three yes-no questions in order to ensure a certain amount of objectivity. The phrasing assures that each question that can be answered with "yes" add one point to the referring criterion. Consequently, each criterion can be rated between zero and three. Whereas, answering no question of a criterion with "yes" indicates that either the research was not sufficient or that this criterion will be a huge challenge if pursuing that business idea. However, Table 4 shows all questions for the Diamond Criteria that should be answered for evaluating each business ideas. Finally, the entrepreneur can sum up the results in the scorecard shown in Figure 5, compare scores of the business ideas and select the best-rated one.

Feedback on the Business Idea (BI)		Score
Do you have the feedback of a product-market fit by testing your BI?	No	Yes
Do you have the feedback of a product-solution fit by testing your BI?	No	Yes
Are you confident that you can realise this BI and scale it if necessary?	No	Yes
Human Capital		Score
Do you have an existing team poseesing all skills and capabilities needed incl. a fitting personality?	No	Yes
Do you know whome you can approach possesing the needed skills or purchase them for a reasonable price?	No	Yes
Do you have an excact idea which skills and capabilities you need to realise the idea?	No	Yes
Passion		Score
Is your BI approaching a problem or experience to whiich you have a personal connection?	No	Yes
Do you enjoy working in the area of operations and could you enjoy to work there long-term?	No	Yes
Do you really think that this BI fullfills your personal goals?	No	Yes
Profitability		Score
Are you confident that the BI fullfills stake- and shareholders profitibilty expectations?	No	Yes
Can the busines idea offer a solid and appropiate income for the team in mid/long-term?	No	Yes
Is the BI able to cover your teams living costs in a reasonable amount of time and with realistic effort?	No	Yes
Resources		Score
Do you have exess to network connecting you with business partners, experts and investors?	No	Yes
Do you have connections to potential business partners?	No	Yes
Do you have an idea how to connect with business partners, experts and/or investors?	No	Yes
Market Opportunity		Score
Does the BI idea have to face NO major barriers to enter the market?	No	Yes
Are there NO major competitors with the same or more valueable unique selling point?	No	Yes
Is the potential market size sufficient for realising your idea?	No	Yes

Table 4: Diamond Criteria Evaluation Questions
Source: Proprietary Development

4 Critical Appraisal

Conducting the research and the fieldwork clearly shows that a set of criteria is needed in order to evaluate and select a business idea. The identified criteria are interdependent, and one can truly argue that they strongly influence each other. However, considering each one by its own is supporting the objectivity of the framework. Whereas, there is to say that the relative importance of each criterion depends on the business idea itself as well as the entrepreneur, in terms of expectation, motivation, and personality. Moreover, a completely objective evaluation is very difficult to achieve, even by asking yes-no questions, it still leaves behind the uncertainty if those are the right questions to ask for the specific business idea. Nevertheless, one should consider that in such an early stage there will always be uncertainties and not only absolute results. Thus, the criteria, as well as the questions, need more research in order to be validated. The qualitative research approach in work just builds the foundation which needs to be verified by a more quantitative approach with a larger sample size.

5 Conclusion and Outlook

This work showed that there are several approaches or framework existing that help entrepreneur to realise their business idea. At the time there are relatively few holistic frameworks that support the idea selection in the here called “front-end entrepreneurship”. The same issue was discovered in the related field of Innovation in the past. That initiated the research of the “fuzzy front-end of innovation” which lead to the development of the presented models in Chapter 2.1. By identifying that gap, this work successfully made use of the research and learning of the fuzzy front-end of innovations and applied it at the field of Entrepreneurship. The Business Idea Selection Framework concludes the findings of both fields Innovation and Entrepreneurship in order to support entrepreneurs that have identified several business opportunities and/or ideas but are indecisive about which of those to pursue first.

The research and fieldwork showed that there is no simple criterion to decide between business ideas. On the contrary, it revealed that a complex set of different criteria has to be considered. By introducing the Diamond Criteria, the findings of the research were concluded and thereby criteria identified that are used in practice and research. Moreover, by developing the evaluation process using the Diamond Criteria Evaluations Questions the framework is adding a necessary objectivity. Consequently, the framework is stepwise evaluation the business ideas in order to support the decision-making via a transparent process.

As mentioned in the previous chapter, there is still more research necessary to validate the framework and its components. Therefore, this work could build the basis for future work projects, that could verify the findings by enlarging the sample size of interview partner and test the framework together with entrepreneurs. Nevertheless, there is to say that this work achieved its objective by developing a framework and identify the criteria needed to support entrepreneurs by deciding which of their business ideas to pursue.

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