M.Sc. Thesis in Business & Management

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Is This Problem Worth Solving?

A Qualitative Study on How Entrepreneurs Identify Problems Worth Solving Amidst an Increasingly Changing World

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Abstract

New ventures are a cornerstone of a growing economy. However, entrepreneurs operate in a complex environment with many alternative paths to take, but limited resources only allow a handful of opportunities to be pursued. Thus, understanding if an opportunity is worth pursuing is critical for new ventures to succeed.

Prior research mainly describes entrepreneurship as an act of two contrasting processes: (1) effectuation, where the entrepreneur starts from their available resources and works forward to possible problems they can solve, and (2) causation, where the entrepreneur starts from a problem and works backward to the resources they have available. Nevertheless, how entrepreneurs utilize these processes together, and the reasons why either approach is chosen in a given situation, is a topic existing research has left unanswered.

To address this research gap, this qualitative study conducted semi-structured interviews with 24 entrepreneurs of early-stage startups. The aim was to explore how they discovered the problem they are solving, and how their problem definition has evolved over time, to understand how and why entrepreneurs utilize effectuation and causation.

This study arrived at three key findings. First, entrepreneurs create an individual frame of problems they are willing to consider, which is based on their reasons for starting the business and their prior experiences. Second, entrepreneurs implicitly conceptualize problems as a hierarchy, where higher-level problems consist of several smaller problems. Broadening the problem scope involves moving up the hierarchy, while narrowing involves moving down to a specific sub-problem. Effectuation was mainly used for broadening, while causation was primarily used when narrowing. Third, entrepreneurs must strike the right *balance* between two opposing forces within the problem hierarchy. In addition, this study identifies eight contextual factors that cause this problem-resource balance point to shift. These findings reveal new insights into how and why entrepreneurs find opportunities worth pursuing, contributing both to research as well as entrepreneurs in practice.

Keywords: entrepreneurship, venture creation, opportunity, problem selection, problem definition, problem reframing, venture scoping

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Definitions

Term	*Definition in this study*
Opportunity	"A momentary, symbolic blueprint for the entrepreneur's actions, interweaving the entrepreneur's resources, aspirations, and business templates. The blueprint pertains to the entrepreneur's immediate action possibilities and, once a particular action is undertaken, evolves iteratively into a new blueprint for further action that incorporates the new knowledge afforded by the previously undertaken action" (Dimov, 2011, p. 67).
Effectuation	"Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means." (Sarasvathy, 2001, p. 245).
Causation	"Causation processes take a particular effect as given and focus on selecting between means to create that effect" (Sarasvathy, 2001, p. 245).
Venture Scoping	"Venture scoping decisions are immediate conditions influencing the use of strategic decision-making logics in venture creation processes" (Reymen et al., 2015, p. 353).
Scope of a Venture	"The set of technologies, product offerings, or markets that the entrepreneurs consider or target at a particular moment in time" (Reymen et al., 2015, p. 353).
Resource	On the individual level, it regards "three categories of "means": they know who they are, what they know, and whom they know – their own traits, tastes, and abilities; the knowledge corridors they are in; and the social networks they are a part of." (Sarasvathy 2001, p. 250).

1. Introduction

1.1. Background

Entrepreneurship and the creation of new successful businesses is a major driver of the economy (Audretsch, 2006), and hence, how more entrepreneurs can succeed is thus a topic of great interest to society.

However, entrepreneurs operate with limited resources in a complex environment, where the demands of customers, and how those demands can be optimally satisfied using one's available resources, are unknown (McMullen & Shepherd, 2006). Thus, understanding what opportunities are worth pursuing is critical to launching a new venture successfully. This, therefore, begs the following question: How do entrepreneurs find an opportunity worth pursuing?

Before we venture into the existing literature, we acknowledge the need to demonstrate what we mean by opportunities. Although an opportunity has been described in various ways over the recent four decades (Acs & Audretsch, 2010; Perry et al., 2012), we have relied on the following definition by Dimov (2011). This definition emphasizes the subjective reality of the entrepreneur, the actions taken in creating the opportunity, and the iterative nature in which the opportunity evolves. Therefore, it represents a constructivist view in describing the process of how entrepreneurs subjectively identify an opportunity as attractive, and hence, worth pursuing:

> *"An **opportunity** can be conceived as a momentary, symbolic blueprint for the entrepreneur's actions, interweaving the entrepreneur's resources, aspirations, and business templates. The blueprint pertains to the entrepreneur's immediate action possibilities and, once a particular action is undertaken, evolves iteratively into a new blueprint for further action that incorporates the new knowledge afforded by the previously undertaken action. It is in this sense that an opportunity can be considered perpetuated through the cycling of ideas and actions." (Dimov, 2011, p. 67)*

Arriving at an opportunity worth pursuing, and keeping it relevant, mainly entailed the utilization of two decision-making processes, namely, causation (Kirzner, 1979, 2009) and effectuation (Sarasvathy, 2001, 2008; Sarasvathy & Dew, 2005). Although recent studies have acknowledged that the entrepreneur employs both in deciding the

appropriate actions to be taken (Alzamora-Ruiz et al., 2021; An et al., 2020; Servantie & Rispal, 2018), there is still significant debate regarding how these different processes relate. That said, there are still gaps as to what we know.

Previous research leads us to believe that effectuation and causation are predominantly complementary (Dew, Read, et al., 2009; Fisher, 2012; Sarasvathy, 2008). Yet, some scholars argue the complementary nature exists through a simultaneous presence (Alzamora-Ruiz et al., 2021; Smolka et al., 2018), while others claim the dominance of one process at a specific point in time depending on the context (Berends et al., 2014; Servantie & Rispal, 2018). Reymen et al. (2015) advance the discussion by suggesting that entrepreneurs employ effectuation processes when the aim is to broaden the venture's scope, whereas causation processes dominate during the narrowing of the venture's scope.

Building upon this, we shift the focus toward how and why the entrepreneur broadens or narrows the venture's scope could contribute to advancing the relationship and boundaries of the processes (Arend, 2020; Arend et al., 2015). The main reason is the ability to consider the contexts the entrepreneur is situated in, which ultimately shapes perceptions and subsequent actions taken in the venture creation process (Kitching & Rouse, 2020; F. Welter, 2011). Furthermore, this contribution of theoretically explaining the underlying mechanics of why and how an entrepreneur employs the processes would advance the descriptive observations regarding the utilization of the said processes (Grégoire & Cherchem, 2020). For that reason, this is exactly what this paper aims to explore. To investigate how and why entrepreneurs identify an opportunity as attractive, and hence worth pursuing, and how the means available in their context are utilized to act upon it.

1.2. Purpose and Expected Contribution

The purpose of the study is to deliver a nuanced understanding of how and why an entrepreneur identifies, and subsequently takes action upon, a particular opportunity. This is accomplished through a qualitative study that explores how entrepreneurs employ the means available to progress in the entrepreneurial journey, in the quest of arriving at an opportunity worth pursuing. Specifically, we do this by interviewing entrepreneurs in the advent of their venture creation process. In doing so, the subjective reality and perspectives of the entrepreneur can be tapped into, as well as how the context affects the means and actions taken as they are unfolding. With this in mind, the study is expected to contribute to researchers by clarifying the relationship and

boundaries of the two decision-making processes (Arend, 2020). In addition, it will grant practitioners the opportunity to understand the elements necessary to arrive at, and maintain, an opportunity worth pursuing.

1.3. Research Question

With the aforementioned research purpose in mind, the following research question has been formulated:

> *How do entrepreneurs identify an opportunity worth pursuing, and keep it relevant over time?*

1.4. Delimitations

To fulfill the purpose of this study, several delimitations have been imposed. Firstly, this paper takes a qualitative, multiple-case approach (Eisenhardt, 1989a) and it investigates several entrepreneurial journeys. Although studying various cases allows for patterns to emerge, it may affect the applicability of the findings. One limitation is that the investigation of various cases could lead to nuances and deep contextual idiosyncrasies being lost. Whereas on the other end, the data collected has limited generalizability of the venture creation process in other contexts not represented in the sample. Secondly, the value of exploring the process of venture creation longitudinally could not be accomplished due to time constraints, and hence, the gathered data only represents one point in time. As a result, this limits the trustworthiness of the conclusion.

2. Theory

This chapter provides a review of the relevant literature (2.1), followed by a synthesis featuring the research gaps identified (2.2).

2.1. Literature Review

The concept of opportunity is a longstanding topic within entrepreneurship research, where scholars have "a shared goal of understanding how and by whom entrepreneurial opportunities are discovered, evaluated, and exploited" (Dimov, 2011, p. 57). Depending on the theoretical perspective, the *whens*, *hows,* and *whys* of the entrepreneurial process to discover, evaluate, and exploit opportunities differ. According to Acs & Audretsch (2010) and Sarasvathy et al. (n.d.), there are two main streams of literature on entrepreneurial opportunities, namely, market as an allocative process and market as a creative process. Since this study investigates the entrepreneurial journey through a process approach, processual concepts will be utilized, where the allocative process is described as 'causation' and the creative process as 'effectuation' (Reymen et al., 2015).

2.1.1. Causation Process

Under causation (Sarasvathy, 2001, 2008), also termed the traditional model, opportunities exist exogenously in the market and are being discovered by alert entrepreneurs in the quest to move the economy from disequilibrium towards equilibrium (Kirzner, 1979, 2009). Therefore, all entrepreneurs will discover the same opportunities in a given market change (Kihlstrom & Laffont, 1979) uncorrelated to the entrepreneur's characteristics (Evans & Jovanovic, 1989), and hence, "no one can discover a misalignment that would generate an entrepreneurial profit because, at any point in time, all opportunities have been recognized and all transactions perfectly coordinated" (Shane, 2000, p. 449).

An entrepreneur begins with the effect in mind to select appropriate means, according to the criteria of maximizing the expected returns, to achieve predetermined goals (Sarasvathy, 2001). Hence, the choice of resources is determined by the characteristics of the outcome the entrepreneur wants to realize and the knowledge of possible resources, which further implies an excellent ability to exploit knowledge.

This approach has numerous adjacent theories, like 'neoclassical equilibrium' (Kihlstrom & Laffont, 1979; Shane & Venkataraman, 2000), and the 'discovery approach' (Alvarez et al., 2013; Alvarez & Barney, 2007; Gruber et al., 2015), where emphasis is on business planning (Brinckmann et al., 2010; Delmar & Shane, 2003) and resource acquisition (Katz & Gartner, 1988). The linear entrepreneurial process focuses on the intention, identification, evaluation, and exploitation of objective opportunities *a priori* to lower the levels of uncertainty. Therefore, the entrepreneur should place attention on the predictable aspects of an uncertain future in order to control it (Bird, 1988; Fisher, 2012; Sarasvathy, 2001).

However, reasons such as the tension between ex-post insight and ex-ante foresight – whether it constitutes an opportunity can only be known retrospectively – have moved the literature from the traditional model towards an avenue offering quite different epistemological explanations for entrepreneurial behavior (Dimov, 2011).

2.1.2. Effectuation Process

According to Gruber et al. (2015), what defines an attractive opportunity differs between entrepreneurs because of heterogeneous 'opportunity templates' creating systematically varying preferences, which are dependent on prior knowledge and previous experience (Shane, 2000). Furthermore, these differentiated 'opportunity templates' not only affect what type of opportunities the entrepreneur can identify but are also persistent and increasing in divergence over time. Specifically, it is shown how entrepreneurs and managers, with generalist experience, identify more opportunities than technologists with specialist experience (Shane, 2000).

Overall, the emphasis of research shifted towards the *creation* of the venture's opportunities and goals through action (Gartner, 1989), during an inherently uncertain entrepreneurial process (McMullen & Shepherd, 2006). The assumption of complete knowledge of payoffs and future scenarios is, therefore, replaced by positioning uncertainty into the center of a dynamic and interactive environment, where the entrepreneur's decision-making alters accordingly (McMullen & Shepherd, 2006; Sarasvathy, 2001). This academic discourse, described through 'effectuation' in this study, also has various adjacent theories, namely, 'Austrian Economics' (Shane, 2000), 'entrepreneurial bricolage' (Baker & Nelson, 2005), and the 'creation approach' (Alvarez et al., 2013; Alvarez & Barney, 2007; Gruber et al., 2015).

The concept of effectuation was initially proposed by (Sarasvathy, 2001), and expanded upon by (Sarasvathy & Dew, 2005) and (Sarasvathy, 2008), as an approach where the

means within one's control are taken as given, instead of the effect, in the entrepreneurial process. Effectual decision-making is considered relevant in dynamic, nonlinear, and ecological environments, hence, in the context of high uncertainty. Uncertainty refers to a lack of knowledge and the inability to predict an outcome. As a result, the outcome can neither be linked to probabilities nor foreseen before decision-making (Cowden et al., 2024; McKelvie et al., 2011). Therefore, uncertainty dominates decision-making, which is an environment many entrepreneurs operate within (Alvarez & Barney, 2005), especially in the early venture stage (Reymen et al., 2015).

Sarasvathy, (2001) explains how an entrepreneur utilizing effectuation decision-making begins with three types of resources, namely: (1) "Who am I?" – traits, skills, and preferences, (2) "What do I know?" – knowledge, expertise, and experience, and (3) "Whom do I know?" – social network(s).

These means are combined with the entrepreneur's contingent individual aspirations to choose an effect from a set of possible ones imagined by the entrepreneur, answering the question "What can I do?". The effect chosen, dependent on the means available, is based on the affordable loss or acceptable risk of the entrepreneur. As the course of actions progresses, both resources and aspirations for the opportunity form, change, and are constructed over time as the effectuator interacts with others. Consequently, this co-creative process allows for ideas to converge and goals to emerge iteratively (Reymen et al., 2015). This iterative loop of continuously expanding and acquiring new resources and goals (Sarasvathy & Dew, 2005) is created by exploiting contingencies. The outcome generated is new markets through cooperative strategies and partnerships.

To summarize, the following four principles manifest the effectuation approach; (1) affordable loss rather than expected returns; (2) strategic alliances rather than competitive analyses; (3) exploitation of contingencies rather than exploitation of preexisting knowledge, and; (4) controlling an unpredictable future rather than predicting an uncertain one.

The first principle, regarding affordable loss, outlines making a decision based on what and how much one is willing to lose (Chandler et al., 2011). It entails an effectuator determining how much loss is affordable to be able to experiment with as many strategies as possible, instead of maximizing the return by choosing one, hopefully optimal, strategy. Therefore, the entrepreneur will commit a specific amount of resources to an initiative while having the acceptance that those resources might be lost (Fisher, 2012).

The second principle concerning strategic alliances suggests the focus on leveraging partnerships rather than conducting competitive analysis, even though the latter has been a traditional input to strategy creation (Porter, 2008). One reason is based on the benefits entailed in establishing relationships with people to work with instead of competing against.

Exploiting contingencies, the third principle, regards embracing unanticipated happenings over time and transforming them into beneficial opportunities instead of achieving a predetermined goal. Thereby, the chance of attaining unexpected outcomes can be realized. Nonetheless, Sarasvathy (2001) adds that utilizing the causation approach might be appropriate when preexisting knowledge, like expertise in a certain technology, becomes a source of competitive advantage. However, the essence of the principle, regarding the willingness of the entrepreneur to change when confronted with new information, surprises, or means, is still valid (Read et al., 2009).

The fourth principle is based on different relations to the future and the nature of unknowns. Causation emphasizes the predictable facets of an uncertain future, which transforms into an underlying logic of “to the extent we can predict [the] future, we can control it”. Whereas effectuation focuses on the controllable facets of an unpredictable future, in other words, “to the extent we can control [the] future, we do not need to predict it" (Sarasvathy, 2001, p. 243).

According to Perry et al. (2012), additional studies also contribute to the conception of effectuation. For instance, results showing how entrepreneurs manage uncertainty through effectuation (Sarasvathy et al., n.d.; Wiltbank et al., 2006), that new ventures engage in effectual processes to a higher degree than established firms (Dew et al., 2008), and how the heuristic of affordable loss explains the excess entry/poor returns puzzle of entrepreneurial endeavors (Dew, Sarasathy, et al., 2009).

2.1.3. Empirical Findings of Effectuation

Several empirical findings indicate that effectuation processes are present in venture creation, specifically, that entrepreneurs often don’t base their decisions on thorough objectives, but rather make small decisions based on resources within their control and iteratively build up their venture (Fisher, 2012; Furlotti et al., 2020; C. Welter et al., 2016).

Chandler et al. (2011) contributed to the development of validated scales that measure both causation and effectuation processes. In addition, he has also demonstrated that the

sub-dimension of effectuation, namely experimentation, is positively correlated to uncertainty, whereas causation is negatively associated with uncertainty. This is extended by Cowden et al. (2024), who show that entrepreneurs perceive uncertainty on a spectrum that affects the level of effectuation utilized in decision-making. The relationship between perceived uncertainty and level of effectuation is curvilinear, which indicates that pure uncertainty that previously has dominated the context for effectuation, might lead the entrepreneur to protect the status quo rather than explore opportunities. Nevertheless, a greater means orientation at the early venture stage has been shown to positively affect new venture performance, since the means available serve as a suitable focus for the time-constrained entrepreneur (Furlotti et al., 2020). In addition, Read et al. (2009) found a positive connection for three of the principles.

This performance seems to be particularly the case for experienced entrepreneurs (Dew, Read, et al., 2009), especially if the experience has been gained through exposure to startups (Schmidt & Heidenreich, 2018). However, it has been debated whether the reason for experienced entrepreneurs relying on available resources is due to the superior quality of the means available to them in comparison to novice entrepreneurs (Baron, 2009). Yet, Furlotti et al. (2020) show how student entrepreneurs' means orientation, specifically opportunity recognition beliefs and process control practices, in the early days of the entrepreneurial process has positive effects on venture performance.

Nevertheless, there has been critique of the under-development of effectuation as a theory (Arend, 2020; Arend et al., 2015; Arend et al., 2016), specifically referring to the failure of utilizing prior research, not specifying the context of use and being descriptive rather than explanative. Kitching & Rouse (2020) goes further by arguing that effectuation has reduced the entrepreneurial process to a decision-making logic that is incapable of considering the influence of socio-cultural, socio-historical, and cultural contexts on venture creation. Hence, effectuation cannot explain the process of venture creation fully, because of the pivotal effects context has on the perceptions and actions of the entrepreneur (Baker & Welter, 2018; F. Welter, 2011). This is illustrated empirically for African American women, who face discriminatory practices that limit strategic alliances and financial resources (Norman et al., 2024). Thus, this represents a context when effectuation principles don't explain entrepreneurial experiences.

Nevertheless, the effectuation process has also contributed to related literature relevant to entrepreneurial endeavors. For example, Scheve et al. (2024) indicate that effectual decision-making is required when responding to crises through temporary pivots.

Concurrently, Karami & Hossain (2024) illustrate effectuation as a mediation mechanism between entrepreneurial alertness and a small venture's performance. In addition, effectuation has been a fruitful theory for product innovation (Berends et al., 2014; Brettel et al., 2012; Keskin et al., 2020), internationalization (Johanson & Oliveira, 2024), and strategy (Wiltbank et al., 2006) research.

2.1.4. Effectuation and Causation: Complementary or Contrasting?

Causation and effectuation have since their inception been described in contrast to each other, in that "causation rests on a logic of prediction, effectuation on the logic of control" (Sarasvathy, 2001, p. 243). Entrepreneurial behavior within causation takes an effect as given and chooses between different means to create that effect. Whereas within effectuation, a set of means is given, and the entrepreneur chooses between different effects that can be created with that set of means. Thus, conceptualizing them as opposite poles (Brettel et al., 2012; Corner & Ho, 2010).

This fulfilled the quest of distinguishing a new academic discourse from the traditional one, where several researchers advanced it by proposing the two processes to be mainly independent of each other (Chandler et al., 2011; Perry et al., 2012). However, recent studies have come to relate these processes in other ways, stating that they may not have to be mutually exclusive (Reymen et al., 2015). Furthermore, entrepreneurial bricolage has on some occasions been discussed and distinguished in the same type of studies (Fisher, 2012; Vasconcelos Scazziota et al., 2020; C. Welter et al., 2016).

Evidence has been found of entrepreneurs utilizing both processes (Dew, Read, et al., 2009; Fisher, 2012; Sarasvathy, 2008) and therefore, being complementary (Kogut et al., 2023; Racat et al., 2024). Depending on the nature of the opportunity, the experience, and the actions of the entrepreneur, one decision-making process could be more appropriate (Servantie & Rispal, 2018) – effectuation to overcome means constraints and causation for process efficiency. Sarasvathy (2001) mentions that in situations where the decision maker has preselected an effect, causation processes are appropriate in selecting the fastest and most efficient method for achieving that effect. Whereas when the decision maker imagines possible effects and chooses among them, effectuation processes are involved.

But the two decision-making processes have also been shown to exist simultaneously, despite their differing behavioral elements, in all phases of the entrepreneurial process, namely, emergence, growth, and replication (Servantie & Rispal, 2018). This indicates that there is no exclusive approach, which Nabi et al. (2024) suggest occurs when an

entrepreneur has high entrepreneurial self-efficacy to utilize both, although there is a bias towards effectuation, Reymen et al. (2015) agrees:

> *"In fact, it could be that optimal decisions result from a combination of both logics, where the causal logic ensures that the venture stays focused and predicts what is predictable, while effectual decision-making allows responding flexibly to changing circumstances and maintaining hands-on control over uncertain aspects of the venture."*

Alzamora-Ruiz et al. (2021) strengthen these findings by first suggesting that an ambidextrous logic provides increased benefits for product and process innovation. For instance, it provides a clear direction while being able to adapt to changes, and shows that competitive analysis can complement partnerships. She also advances our understanding by illustrating synergistic effects. Specifically within resources, where effectuation means allocation strategies together with causation's maximization of available means leads to less negative impact of failure.

In contrast, Servantie & Rispal (2018) identified several patterns where effectuation was employed throughout the whole journey, whereas causation began in the growth phase and was increasingly implemented during the replication phase. This is partly in line with Berends et al. (2014), who demonstrated the existence of both processes in their qualitative analyses, but found in the quantitative analyses the transition from effectuation towards causation over time as the venture matured (An et al., 2020). At the same time, causation processes in the early phase have been shown to impact innovation outcomes in the long term through their interaction with social capital. Specifically, Faridian et al. (2024) illustrate how planning has positive, avoiding the unexpected has negative, and goal commitment has no effect on innovation outcomes.

To summarize according to An et al. (2020), the co-existence of the processes can take two forms for the individual entrepreneur: the domination of one process at different moments during the journey (Nummela et al., 2014; Reymen et al., 2015; Smolka et al., 2018), and the combination of both processes at the same time (Brettel et al., 2012).

2.2. Synthesis and Research Gap

Having conducted a critical and comprehensive review of the effectuation literature, possible development areas of the decision-making process, in relation to causation, have become evident.

Although the effectiveness of causation processes, such as prediction, appears to be limited in the early venture stage (Brinckmann et al., 2010; Chwolka & Raith, 2012; Gruber, 2007), causation has still been shown to be utilized in practice, together with effectuation, and benefit the entrepreneurial process in several ways. Specifically, previous research leads us to believe they are predominantly complementary (Dew, Read, et al., 2009; Fisher, 2012; Sarasvathy, 2008). Yet, some scholars argue the complementary nature exists through a simultaneous presence (Alzamora-Ruiz et al., 2021; Smolka et al., 2018), while others claim the dominance of one process at a specific point in time depending on the context (Berends et al., 2014; Servantie & Rispal, 2018).

Therefore, it raises the question of, not whether and how causation is effective in the early venture stage, but instead, why and how causation is utilized together with effectuation in the entrepreneurial process. As a result, the aim becomes to comprehend the circumstances in which the entrepreneur discovers the idea and why the entrepreneurial actions unfold in a particular manner (Gruber et al., 2015), and hence, how effectuation and causation processes relate.

Reymen et al. (2015) advance the discussion by suggesting that entrepreneurs employ effectuation processes when the aim is to broaden the venture's scope, whereas causation processes dominate during the narrowing of the venture's scope. In addition, she describes that the widening of the venture's scope is triggered by increased environmental uncertainty or decreased venture resource position. While the narrowing process is triggered by decreased environmental uncertainty or increased stakeholder pressure. However, why the entrepreneur decides to either broaden or narrow the scope on a deeper level, especially the context necessitating the changes, to arrive at an opportunity worth pursuing is still unclear (Kitching & Rouse, 2020; F. Welter, 2011). Furthermore, beyond the discovery of effectuation processes being present during broadening and causation processes when narrowing, the granularity of what actions are taken to implement the necessary changes during the venture creation process – the *how* – lacks clarity (Reymen et al., 2015). An overview of the identified research gaps and the researchers supporting the lack of investigation is featured in Table 1.

For that reason, we shift the focus toward why and how the entrepreneur broadens or narrows the venture's scope by utilizing effectuation and causation processes. This could contribute to advancing the relationship and boundaries of the two processual concepts (Arend, 2020; Arend et al., 2015). Therefore, the first research gap pertains to

why and how the entrepreneur broadens the venture's scope (1), whereas the second research gap refers to why and how the entrepreneur narrows the venture's scope (2).

Table 1. Overview of Research Gaps.

Research Gap	**Highlighted By**
Why and how venture scope *broadens* (1)	Reymen et al., 2015; Kitching & Rouse (2020); F. Welter (2011); Arend (2020); Arend et al. (2015); Arend et al. (2016)
Why and how venture scope *narrows* (2)	Reymen et al., 2015; Kitching & Rouse (2020); F. Welter (2011); Arend (2020); Arend et al. (2015); Arend et al. (2016)

The main reason for studying the why and how is the ability to consider the contexts the entrepreneur is situated in, which ultimately shapes perceptions and subsequent actions taken in the venture creation process (Kitching & Rouse, 2020; F. Welter, 2011). Furthermore, this contribution of theoretically explaining the underlying mechanics of why and how an entrepreneur employs the processes, would advance the current descriptive observations regarding the utilization of the said processes (Grégoire & Cherchem, 2020). In addition, studying the venture creation process with the aim of arriving at an opportunity worth pursuing, could expand the effectuation process as more than a 'decision-making logic [that] pays insufficient regard to the substantial, pervasive and enduring influence of social-structural and cultural contexts on venture creation' (Kitching & Rouse, 2020, p. 515).

3. Method

This chapter describes the research strategy (3.1) guiding this study, the research design (3.2) applied, including preparatory work, followed by data collection (3.3) and data processing (3.4). The chapter concludes by discussing the quality of the study (3.5).

3.1. Research Strategy

This study was conducted with a constructivist worldview (Baker & Nelson, 2005), where reality is constructed by individuals based on their experiences and the cognitive schemas they apply to make sense of those experiences (Guba & Lincoln, 1994). In line with this ontology, an interpretivist epistemological position was taken. Therefore, research must focus on the individual's perspectives and beliefs to understand how and why they engage in certain behaviors (Bell et al., 2019). Since we sought to understand the reality of a venture creation journey and the interpretations of it by the entrepreneur, it seemed appropriate to use the lens of a reality that is subjective and multi-faceted. Thus, we acknowledge that entrepreneurs may have viewed things differently from the way we, as researchers, perceived them.

Furthermore, an exploratory approach to answering the research question was practiced, since the purpose of this study was to seek new insights which could help set a direction for future research (Makri & Neely, 2021). As such, a qualitative approach was decided upon because it would fulfill the aim of examining themes in an ambiguous research field. In addition, this research approach aligned well with the approach of previous scholars within the field (Grégoire & Cherchem, 2020). Thus, the study sought to yield rich descriptions of the experiences, views, and thinking of the entrepreneur. Thereby, allowing for new concepts and relationships between concepts to emerge that, in turn, can contribute to explaining how entrepreneurs find an opportunity worth pursuing.

As a result, inductive reasoning was chosen where theory was developed in a "data-driven manner" by collecting data through interviews (Bell et al., 2019) that later could be analyzed to guide subsequent work. With an inductive approach, we could deliberately "[…] not knowing the literature in great detail, because knowing the literature intimately too early puts blinders on and leads to prior [confirmation] bias" (Gioia et al., 2013, p. 21).

3.2. Research Design

Since an inductive approach is utilized together with the assumption of a subjective reality, grounded theory was chosen as the basis for the research design (Glaser & Strauss, 1967). The primary reason is the ability to introduce new concepts as they emerge from the collected data, without forcing any leads (Makri & Neely, 2021). Specifically, this study follows the approach advocated by Glaser – the classic view – whereby researchers can follow the data naturally instead of focusing on exercising the technique used in the correct way (Glaser, 1978, 1992, 1998).

Since the process of venture creation may look very different from case to case, a cross-case comparison approach was chosen. This would enable us to examine a diverse set of entrepreneurs, and thus look beyond the specifics of any single case to the broader patterns that hold true regardless of industry, product, personality, or experience of the founder (Eisenhardt, 1989; Yin, 2003).

3.3. Data Collection

Theoretical purposive sampling was used to select interviewees with the most relevant experience and insights for the research question. This enabled us to selectively pick subjects with the most relevant experience for the purpose of generating a theory that would answer the research question (Glaser & Strauss, 1967).

The choice was made to specifically focus on early-stage startups (defined in criteria (a) and (b) in section 3.3.1), since the early days of a company represent the period with the greatest uncertainty about what the right opportunity to pursue is. As a company finds product-market fit, grows, and eventually becomes more stable, the venture's scope tends to change less and less. Thus, understanding how entrepreneurs decide what the right opportunity to pursue is can best be studied during the period of the early days of a company.

To increase the chances of wider applicability of findings, (co-)founders from a multitude of industries were selected, including fintech, AI, healthcare, hardware, sustainability, task automation, and marketing. This would increase the chances of inquiring (co-)founders utilizing a multitude of different business and pricing models, including B2C, B2B, marketplace, subscription, and usage-based pricing. By intentionally interviewing a wide variety of early-stage startups, one can identify the

opportunity-selection themes that are applicable in a broader context, and not just for a specific segment of startups.

3.3.1. Criteria for Selecting Interviewees

To ensure interviewees would have relevant experience, several criteria were applied when selecting interviewees, namely: (1) the person is working actively in the startup, (2) the person holds the role as (co-)founder. Furthermore, the startup the person is active in also had to meet three criteria: (a) the company headcount should be between 2 and 20 employees, (b) the annual revenue needs to be less than 5 MSEK, and (c) the company must be at least 6 months old since the time of its founding.

Criterion 1 was chosen to ensure the interviewee has had enough hands-on experience with working on the opportunity the startup aims to pursue, thereby increasing the number and quality of insights the interviewee has been able to gather. Criterion 2 ensures that the person has had enough authority in the startup to influence the direction of the company based on their personal insights.

Criteria (a) and (b) were chosen to ensure the company would be ‘early-stage’ enough that there is still a high degree of uncertainty regarding what opportunity the business ought to pursue. Criterion (c) was chosen to ensure the entrepreneurs would have had enough time to gain insights about the opportunity to be solved and potentially change their venture’s scope.

Based on the above-mentioned criteria, a list of 96 startups were selected and approached, 24 of which agreed to be interviewed for this study. The entrepreneurial ventures are situated in various industries, such as fintech, energy, and security. Most ventures are business-to-business (B2B), with only 3 providing a solution directly to consumers (B2C). The age of the venture is rather similar across the cases, although there are outliers with companies founded in 2002 and 2023 (see Appendix A).

When selecting startups that matched the criteria, one of two the following approaches was employed: 1) (co-)founders known through personal networks, and 2) startups found through websites of startup accelerators, such as Norrsken, Antler, and Sting.

3.3.2. Interview Design

For each of the 96 startups selected, the founder or one of the co-founders was identified to subsequently send an informative message introducing us and describing the purpose of the study. This was accomplished through LinkedIn or email.

Because of the entrepreneurs' busy schedules, the interviews were conducted over Zoom to allow for maximum flexibility for the interviewees. The interviews were recorded using Zoom's built-in recording functionality and later transcribed using Klang.ai. The transcripts were then reviewed and adjusted to ensure correct speech-to-text interpretation.

Each interview lasted between 30 and 40 minutes, for a total of 876 minutes (see Appendix A). To ensure consistency in language across the interviews, English was used as the standard language. Many founders were also not proficient in Swedish, which is why English was favored. Only in two interviews, where the interviewee was not as comfortable with English, was Swedish used to ensure language would not be a barrier. All interviews were collected over a period of 3 weeks during March of 2024.

To be consistent with the exploratory nature of the study, a semi-structured approach was chosen for the interviews (see interview guide in Appendix B). This decision was appropriate since it entails researchers starting with a base set of questions, but still having the freedom to improve them or change direction as new themes emerge (Makri & Neely, 2021). The result was a richer understanding of the entrepreneur's subjective views and beliefs, which underpinned their decision of what opportunity was worth pursuing.

An interview guide was developed to ensure the data gathered was relevant to the research question and had a baseline of consistency across interviews (Bell et al., 2019). The guide was created to probe into a variety of aspects relevant to how entrepreneurs decide what opportunity to focus on. We decided to cast a wide net of questions to approach the venture creation process from multiple angles. Follow-up questions were also utilized to gain a deeper understanding of the entrepreneur's reasoning. The emphasis of the questions in the interview guide was slightly adjusted throughout the data collection process based on which areas and perspectives provided the most insight into the research question.

3.3.3. Ethical Considerations

To respect the privacy of the interviewees and ensure safety in sharing data openly and honestly, all names and references of individuals and organizations have been anonymized for this study. Before being interviewed, participants were informed about the purpose of the study and asked for their consent to participate and have the interview recorded (Bell et al., 2019). Participants were further briefed that their data would be anonymized and strictly confidential, that no specific data would be used in

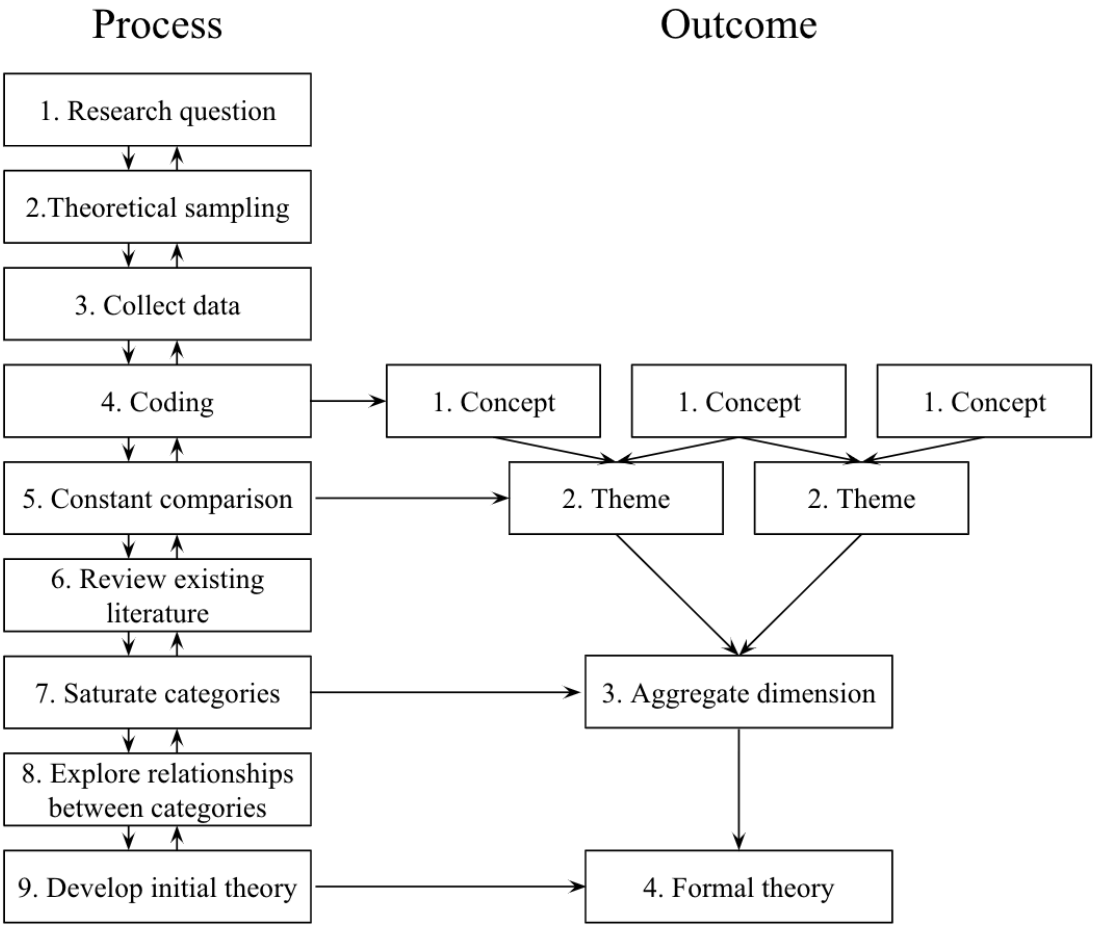
the report other than anonymized and non-sensitive quotes, and that they could request any data shared to not be included in the study.

3.4. Data Processing

To go from a wide collection of data to a validated theory, we followed the approach of moving from 1st order concepts, to 2nd order themes, to finally aggregate dimensions (Gioia et al., 2013). The data was analyzed continuously throughout the data collection process, where insights gained from initial interviews were used to improve the data collection and analysis in an iterative manner (Bell et al., 2019).

To minimize the risk of undermining our findings' interpretability and validity, a comprehensive description of our process is offered in the sections that follow (Grégoire & Cherchem, 2020). Figure 1 shows an overarching illustration.

Figure 1. Overview of the Method.



3.4.1. From Interview to 1st Order Concepts

After each interview was conducted, the recording was immediately transcribed. The interviews were subsequently coded, in which new concepts were continuously added in an emergent fashion (Strauss & Corbin, 1990; Charmaz, 2000).

To gain an overview of the data, an Excel sheet containing all the recurring themes (including exemplary quotes) was constructed. The Excel sheet was structured with each column corresponding to an interview question, each row corresponding to an interviewee, and each cell corresponding to the recurring themes and exemplary quotes of each interviewee's answer to that respective question.

3.4.2. Refining the Data Collection and Analysis

Grounded theory calls for the need for constant comparison of the data to refine the data collection and analysis (Glaser & Strauss, 1967). Hence, as more interviews were conducted, the quotes from different interviews were constantly compared, resulting in new coding concepts being added and previous ones being refined.

This comparison also highlighted the need for adapting the interview questions, as well as the sampling of new subjects. To ensure a diverse sample set, we continuously adjusted the criteria for the entrepreneurs they approached based on the characteristics of the entrepreneurs they had already interviewed. For instance, had many AI companies already been examined, but few in sustainability or fintech, we would de-emphasize the former and prioritize the latter for subsequent rounds of interviews.

3.4.3. From 1st Order Concepts to 2nd Order Themes

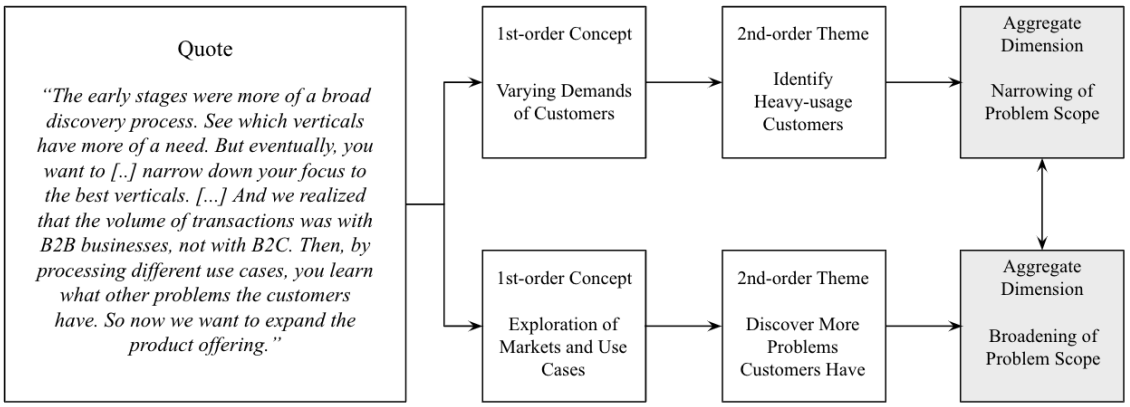
From comparing the data, the concepts were merged and elaborated into themes representing the real world (Bell et al., 2019). When developing both concepts and themes, we would write brief memos as a tool to capture their ideas and crystallize their thinking in writing (Corbin & Strauss, 2008). These memos were written in a "summary row" at the bottom of the Excel sheet, in which recurring concepts were noted, similarities and differences were identified, and further thoughts were added until broader themes had formed (Gioia et al., 2013).

3.4.4. From 2nd Order Themes to an Aggregate Dimension

The above data collection and analysis process was continued until the themes eventually reached saturation, i.e. the point at which new data no longer contributed to

new insights (Glaser & Strauss, 1967). At this stage, the themes themselves were analyzed for similarities that held true across the entrepreneurs and startups examined, regardless of their varying specifics and contexts. These similarities were then distilled into an aggregate dimension that would encompass all the complex variety into a single, unifying theory. An overview of the process from 1st order concept to aggregate dimension is presented in Figure 2.

Figure 2. Example of Data Processing.



3.4.5. From Aggregate Dimension to Theory

Once an initial theoretical framework was developed, we went back and reviewed the literature to see how the findings and analysis fit into the existing research (Gioia et al., 2013). Where similarities to the existing literature were identified, we incorporated and contrasted that research to theirs. However, some parts of the framework had no clear similarities to the existing body of literature. Those parts were consequently elaborated into a new standalone theory.

In finalizing the data into a formal theory, researchers face two risks: (1) unknowingly missing parts of the literature, and (2) interpreting their findings differently from other researchers To mitigate these risks, we consulted our supervisor, who provided invaluable assistance in reviewing the literature and gave a second opinion on interpreting the data. In finalizing the data into a formal theory, researchers face two risks: (1) unknowingly missing parts of the literature, and (2) interpreting their findings differently from other researchers (Gioia et al., 2013). To mitigate these risks, we consulted our supervisor, who provided invaluable assistance in reviewing the literature and gave a second opinion on interpreting the data.

3.5. Quality Considerations

When it comes to qualitative research, researchers hold divided opinions regarding what criteria are most appropriate for determining a study's quality (Bell et al., 2019). However, there is a consensus that the criteria used should reflect the ontological and epistemological assumptions of the study (Flick, 2018). In that vein, we decided to evaluate this study's quality based on its *trustworthiness* (Guba & Lincoln, 1985). Trustworthiness consists of four criteria, namely, credibility, transferability, dependability, and conformability (Bell et al., 2019). Each of these criteria has been used to evaluate the overall quality of this study.

3.5.1. Credibility

Credibility corresponds to the concept of internal validity in quantitative research (Bell et al., 2019), i.e. whether there is a strong causal relationship between the proposed theory and the research findings. A key concept for strengthening credibility is *triangulation*, whereby data is sourced using multiple methods or sources to arrive at a finding anchored in multiple reference points (Patton, 1999). Consequently, we decided on a cross-sectional research design with semi-structured interviews to source multiple diverse data points. By cross-checking the same questions across different subjects, a greater confidence in the validity of the research findings could be established. In addition to data triangulation, we also incorporated investigator triangulation by continuously reassessing and aligning their interpretation of the data, thus mitigating biases (Kvale & Brinkmann, 2015).

3.5.2. Transferability

Transferability relates to the concept of external validity in quantitative research, i.e. the degree to which the findings can be generalized beyond the specific research context to other settings (Bell et al., 2019). In most qualitative research, transferability tends to be weak due to the typical small sample size and homogeneous subject characteristics (Ibid). To mitigate this, we favored an approach of intentionally sampling subjects from a diverse set of company industries, business models, and founder demographics. As a result, the specifics of any single subject could be abstracted away to reveal the general themes that were consistent across all subjects. Because the research findings of this study held true across such a diverse set of cases, their transferability to contexts other than startups can be considered quite strong.

3.5.3. Dependability

Dependability corresponds to the concept of reliability in quantitative research, i.e. the extent to which the results can be consistently replicated (Bell et al., 2019). Lincoln and Guba (1985) argue that credibility is underpinned by the accuracy and detail in which researchers describe their methodology. Hence, we have made the effort to create an audit trail that describes the steps taken to conduct this study in as comprehensive and detailed a manner as possible (Korstjens & Moser, 2018).

3.5.4. Confirmability

Confirmability relates to the concept of objectivity in quantitative research, i.e. whether the results are free from biases by the researcher (Bell et al., 2019). According to Nickerson (1998): “People tend to [...] interpret information in ways that are partial to [their existing] hypotheses or beliefs.” Consequently, we decided to conduct this study without any initial theory, thereby limiting the risk of confirmation bias. Leaving an audit trail is also considered a key strategy for strengthening confirmability (Korstjens & Moser, 2018). In addition, both of us played an active role in interpreting and analyzing the data collected, thereby reducing the biases inherent in any one of us. However, no triangulation of multiple types of sources was used, which can be considered a limitation of this study as it pertains to confirmability (Lincoln & Guba, 1985).

4. Empirical Results

The following chapter presents the research findings of the study. The section begins with an introduction of the interviewees' startups (4.1), followed by the findings of how the entrepreneurs discovered their initial problem (4.2), and ends with the findings of how the entrepreneurs reframed their venture's scope over time (4.3).

In these findings, we discover the importance that passion, and familiarity with the problem and work field, has on what ideas entrepreneurs consider. Furthermore, the findings show how most entrepreneurs adapt their problem definition by broadening or narrowing it, and why they decide to do so.

During the study, we found interviewees to use the word 'problem' or 'problem definition' to describe their entrepreneurial journey and how the scope of their venture has evolved over time. Not all problems are considered opportunities, and therefore, opportunities are the outcome of problems that are worth solving. For that reason, we will henceforth utilize the concepts applied by the interviewees.

4.1. Initial Problem Discovery and Selection

4.1.1. Finding 1: Passion was the most common factor when entrepreneurs selected a problem to pursue, and the source of passion determined what ideas were considered.

All 24 entrepreneurs mentioned that passion influenced the problem they chose to pursue, making passion the most cited reason for selecting a problem to solve. However, the *source* of that passion varied among entrepreneurs, and depending on what that source was, it influenced the selection of their problem in different ways. Three main categories emerged as key drivers of the passion for the entrepreneurs: (1) passion for the problem, (2) passion for the work itself, and/or (3) passion for running one's own business. For further information see Appendix C.

For most entrepreneurs, one of the categories tended to be the dominant source of their passion. Some cited just a single category for why they were excited about the problem, whereas others mentioned several categories. For 16 of the entrepreneurs, their motivation was related to the first reason, namely, solving the problem and seeing

people benefit from the solution. The interviewee from Company 9 and 22 mentioned (for more quotes see Appendix D):

> *"I was personally inspired by my brother's frustration. So knowing him really well and seeing the amount of friction he was experiencing in this field motivated me to make something better." – 9*

> *"So the reason that I really, really loved this idea was because of the audience that it targeted. [...] My little brother was like 18-19, and he'd been asking: "Oh well, what [personal finance app] should I use?' And I kind of had to dig around and I couldn't really find anything that I thought was perfectly suited for him and his generation. I felt that there was a need there to help give these guys a boost up." – 22*

9 of the entrepreneurs cited reason (2); being excited about the work itself. Specifically, regarding the entrepreneurial process of investigating how it could work, and for contributing with something new. Company 17 and 3 shared:

> *"It was something that we realized that we wanted to do. We love this area, so why not go with it?" – 17*

> *"There's a tremendous amount of theory about what happens around a fin. Very few have tested it in real life. That's what makes it very exciting." – 3*

Finally, 15 of the entrepreneurs mentioned reason (3); the excitement of running their own business, as a major driver. For instance, interviewees at Company 17 and 15, startups working in pet travel and sustainability respectively, highlighted:

> *"When I saw this post about starting your own company at a [startup accelerator], I realized that this is what I actually wanted to do." – 17*

> *"I was like, 'I really want to [start a business]'. I just pitched a new idea every day to my friend." – 15*

4.1.2. Finding 2: Entrepreneurs gravitate toward ideas where they have closeness to the problem.

When the entrepreneurs considered what idea to pursue, having experienced the problem came up as a major factor in how they discovered it. 22 of the 24 entrepreneurs mentioned having found their idea through a close encounter with the problem. This closeness to the problem was developed through having personally experienced the

problem, and/or having learned of the problem through another person (see Appendix E for more information).

Of the 22 entrepreneurs who mentioned closeness to the problem as important, 11 cited having personally experienced the problem. For example, the entrepreneurs of Company 4 and 6 stated (see Appendix F for more quotes):

> *"It was the personal experience and the hassle and the time-consuming administration that I was stuck in in my earlier consulting company that made me start this startup. The current admin tools were so unmodern." – 4*

> *"The problem we're solving is based on my experience. [...] Both working as a clinician and then in health tech, there has been a problem with integrating different software systems that are used in healthcare. As a doctor, you're forced to work in multiple systems, you copy-paste, or you have to use fax machines to transfer data. And when I was working at a health tech company, I saw how difficult it was to integrate our system with mainly electronic health records." – 6*

16 had learned of the problem through another person. This sometimes occurred through a conversation, and sometimes by the entrepreneur observing others experiencing the problem:

> *"I had lunch with a friend, a CEO of a scaleup, and he described how much more difficult it was to lead remotely. Keeping the team together. [...] I asked him if he wanted me to come up with a solution. He said, 'Yes. Please, just solve it.' " – 11*

> *"My co-founder was working at [Company X] at the time, and he had been telling me there was a lot of pressure on cutting costs, and they were screaming for price improvements. But they didn't have the tools to address this really large cohort of suppliers. And then on my end, I had seen exactly the same thing." – 5*

The reasons are not mutually exclusive; entrepreneurs often mentioned more than one reason. For example, the interviewee from Company 16, a startup helping parents to divide their responsibilities equitably, highlighted:

> *"It was actually based on both my own experiences and needs that I saw in my surroundings. I was at the time discussing a potential marriage with my partner, as well as what would happen if we were to start a family. And I realized that it will be hard for us to share all the responsibilities equally, and how should we set up a structure to support the one who takes most of the responsibility." – 16*

Of the 24 entrepreneurs interviewed, 2 did not mention either of these two reasons as a contributing factor for how they came up with their idea. Instead, they mentioned discovering the problem through market research and studying social and technological trends. The co-founder of Company 13, an AI edtech startup, said:

> *"Generative AI had just appeared and its usability was very useful and very visible immediately [...]. But when it comes to edtech, there weren't a lot of people working on it, so it was an unsaturated market at the time. That's why we tackled this area. So we kind of noticed that this simple feature is already being integrated into a lot of business tools." – 13*

4.1.3. Finding 3: Entrepreneurs gravitate toward ideas where they have expertise in the field.

Besides closeness to the problem, 14 of the 24 entrepreneurs mentioned that expertise in the field was a key factor in discovering the idea and deciding to pursue it. Although entrepreneurs sometimes realized this by themselves, it was usually the case that the co-founders together came to a conclusion regarding their competencies (see Appendix G for quotes). The co-founders of Company 20 and 14, two startups working in AI and having competencies within this technology field, brought up:

> *"We sat down as a team and we were like: 'Okay, we like working together [...]. So in what area could we build something where our competencies would be like the perfect mix to start a company?' [...] Then [my co-founder] started telling me a lot about robotic process automation, and we both realized that this is a space where we could get the benefits of AI." – 20*

> *"We actually started with a different idea around knowledge sharing. But [...] we realized that there's too much we don't know, and therefore, we can't build a good solution because we don't know what the actual problem is and how it can be solved there. That was why we decided to pivot." – 14*

4.1.4. Finding 4: Entrepreneurs favor problems with a large scope.

Another reason for pursuing an idea was the *size* of the problem. Working on a big idea was a key factor for 14 of the 24 entrepreneurs interviewed. Part of this was related to the financial prospect of targeting a large market. For example, the entrepreneurs of Company 1 and 5 mentioned (see Appendix G for more quotes):

“I think this is the biggest problem that we can solve. [...]. 10,000 consumer products end up in our storage, excluding fashion. The buying journey for this is so bad it's ridiculous.” – 1

“We saw this huge potential in a global market where, if you just take Sweden, it's 1,000 billion SEK every year that is being consumed in the tail supplier segment. So if you can just create a little bit of efficiency gain in these transactions, billions of transactions, then there is a lot of potential in it.” – 5

However, many entrepreneurs also mentioned the intrinsic reward of making a large impact, which seemed to act as an amplifier for their passion for the idea. Company 3, a startup working to replace propellers on ships with fin propulsion, shared:

“You may have heard of this in Hawaii, a whole family of whales just swimming right up on land with babies and everything. They can't stand the noise underwater from cavitating propellers. [It’s like] tinnitus times 100,000. So one of my goals is also to restore silence in the world ocean with fin drift." – 3

4.1.5. Finding 5: Entrepreneurs prefer ideas validated by customers.

In addition to the above problem-selection factors, 11 entrepreneurs also mentioned a third factor as key for deciding to take the leap, namely, positive validation from potential customers**.** This sometimes took the form of a Minimum Viable Product (MVP), and at other times as plain conversations with potential customers. The interviewee from Company 17, a startup in software security, declared:

“We went out to a lot of customers and like: ‘Why does this not work better? What tools are you using? [...] Like:‘Why is this problem not solved?’. And we got feedback that [...] when companies use them, they get so many false positives that they are not used by the actual engineers that much. [The existing tools] were simply not good enough.” – 17

Positive validation was important for both the passion-driven and the non-passion-driven entrepreneurs alike. However, the non-passion-driven entrepreneurs seemed to consider positive validation from customers to a larger extent than the non-passion driven (see Appendix G for more quotes).

4.1.6. Finding 6: Entrepreneurs anchor their search for ideas around a particular insight, customer need, or expertise.

22 of the entrepreneurs were asked whether they had also considered other problems besides the one they pursued. The answers from these entrepreneurs reveal three patterns (see Appendix H for further information). Some entrepreneurs, specifically 7, had only considered different aspects of the same problem. For instance, the co-founders of Company 9 and 5, which build a software product for consumers and enterprises respectively, said:

> *"There were many ideas on how you can make a good practice tool for chess, so we have had a billion ideas on how to achieve that. But it's all rooted in the same problem that we found very early." – 9*

> *"It was quite clear that once we started to brainstorm a little bit and then discuss that this was our case. This was where we figured that we could be the best of something." – 5*

Other entrepreneurs, which were 8 in total, had considered other problems but within the same field. Interviewee of Company 20, an AI workflow automation startup, emphasized (for more quotes see Appendix I):

> *"Yes, we were discussing a few other ideas, which were all in one way or another related to IT. But then we kind of ended up more and more in the IT space and we felt like there are multiple areas in IT that are kind of ready for the next step." – 20*

That said, there were also (co-)founders who considered ideas from different fields before deciding to pursue the chosen one. These 7 entrepreneurs highlighted the discussion of many different ideas, like the entrepreneur of Company 8:

> *"Yeah, tons of other ideas, actually. My co-founder and I discussed many different ideas." – 8*

This finding suggests that entrepreneurs don't search for ideas anywhere, but rather anchor their search around a particular insight, customer need, or expertise. Some entrepreneurs even mentioned that they wouldn't have started their business unless it was to work on the specific idea they were targeting. This was exemplified by the co-founder of Company 6, a startup working to integrate patient's medical data between different systems:

"I was actually waiting for someone else to do it because I didn't see myself as a founder [...]. But then I just couldn't let go of it. And I decided that if I don't pursue it, I'm going to regret it my whole life." – 6

4.1.7. Summary of Initial Problem Discovery and Selection

Passion was the most common factor when entrepreneurs considered what idea to pursue. The source of their passion also fell into three categories; passion for the problem, the field of work, and/or for running one's own business. When selecting a problem, the entrepreneur's attention was subsequently drawn to ideas that matched the most dominant source of their passion. For example, entrepreneurs passionate about a certain problem mostly considered different aspects of that core problem. In contrast, entrepreneurs passionate about running their own business were more open to exploring many different ideas, and they put a greater emphasis on positive customer validation.

In addition, entrepreneurs gravitated to problems and work fields they were familiar with, even when they didn't have passion for the problem or the field. Discovering the problem and developing a closeness to it typically came either from personal experience, or from another person. Problem closeness and field expertise thus set an initial frame of what ideas are even considered. Only 2 of the 24 entrepreneurs ventured outside this dual frame to consider problems they neither had close experience with nor expertise in.

Furthermore, the size of the problem and receiving positive validation from potential customers were considered important factors among all entrepreneurs, regardless of what the source of their passion was. However, entrepreneurs who were primarily motivated by running their own business were especially sensitive to positive validation from potential customers.

Finally, entrepreneurs rarely search for ideas anywhere. Rather, they typically anchor their search around a particular insight, customer need, or expertise. This reinforces findings 2 and 3, that entrepreneurs gravitate to problems they are close to and fields they have expertise in, again setting an initial frame of what ideas are even considered.

4.2. Problem Reframing Process

4.2.1. Finding 7: Entrepreneurs mostly change their problem definition by broadening or narrowing it.

When asked how their problem definition has evolved from the initial stage to where they are today, most entrepreneurs described their changes as either a broadening or a narrowing of the problem. When broadening the problem, the process often entailed making the solution more comprehensive. For example, Company 5 and 18, both building B2B enterprise products, said (see Appendix J):

> *"From the outset, we were only focusing on savings, on price improvements. Then we learned in dialog with our clients that [...] you don't only pay too much, you pay too fast, you pay too early. So it has a negative impact on your cash flow. And these insights are something that we are converting into new products. So, if [our product] was just a saving generator, now [our product] is a working capital improvement facilitator." – 5*

> *"Initially, we just focused on creating automated dashboards and metrics. But then we realized that it's much more valuable to provide applications, not within automation, but within financial reporting and business data. So we are now looking into those areas [...] to increase the range of the services we can provide and be more holistic." – 18*

When (co-)founders answered that their problem definition had narrowed, it often involved the process of tapering the venture to only contain the elements that they could act on immediately. The entrepreneurs of Company 17 and 20, also two B2B startups, stated:

> *"No, the number of problems has narrowed, and the use cases have narrowed, definitely. Everything has narrowed." – 17*

> *"I think it's narrowed, which is good. I think starting out [...] we talked a lot about like automation space as a whole [...]. And I think we've narrowed it a lot to specifically robotic process automation, which feels much better. It's what we know the most about. It's where we can build something right away. It's where we can get paid right away." – 20*

In addition, several entrepreneurs mentioned going back and forth between these two processes along the venture creation journey. Some of these started with a narrow

problem definition, then broadening it, and then narrowing it back again. This pattern was often caused by the entrepreneur discovering more adjacent problems as they started researching the field, but then being forced to narrow their focus to one or two problems due to resource constraints. For instance, interviewees of Company 7 and 16, a B2C and B2C/B2B startup respectively, shared:

> *"It started narrow, and then it became quite broad, and now we've brought it back to being narrow. We started out with a one-sentence pitch [...], and then from there we went into: 'Oh, well, if we're doing that, we might as well [add features X, Y, and Z].' And it's good to have a big vision [...]. But not when it comes to getting from zero to one. We went broad and then we got a lot of feedback, which was like, 'You're not super clear on your one call to action.'" – 7*

> *"If you've seen this kind of design thinking approach, the Double Diamond, I think that was actually what we went through. The first we saw was this specific problem connected to the moment you become a parent. And then we dug into that problem and we discovered like 10 more problems related to financial inequality. And we wanted to try to solve all of these. But then we realized, okay, we need to start one kind of specific moment in life to really nail down the product as a step one." – 16*

Furthermore, other entrepreneurs cited starting with a broad definition, then narrowing it down, only to broaden it again. This pattern typically involved going broad to discover the ideal customer segment, then narrowing down to focus on that segment, and later broadening to a more comprehensive product for the customers within that segment. The entrepreneur of Company 19, a startup helping to notarize cross-border documents, said:

> *"The early stages were more of a broad discovery process. See which verticals have more of a need. But eventually, you want to be more efficient and narrow down your focus to the best verticals. [...] And we realized that the volume of transactions was with B2B businesses, not with B2C. Then, by processing different use cases, you learn what other problems the customers have. So now we want to expand the product offering." – 19*

4.2.2. Finding 8: When the problem definition changes, the core problem often stays the same.

While the problem definition may broaden or narrow, 18 of the 24 entrepreneurs emphasized that the *core* problem they are solving has stayed the same, as illustrated by the quotes below (for more quotes see Appendix K):

> *"The initial very high-level problem of being a unified API, that has stayed the same. But then of course how to do it, go to market and how to grow and what kind of business model and so forth, that has changed definitely." – 6*

> *"I would say that the core problem has stayed the same. I think the evolution has been more about how to clearly speak to this pain. So, it's more about how to package it and then also kind of unlocking this joy aspect I'm talking about." – 9*

4.2.3. Finding 9: Whether entrepreneurs broaden or narrow the problem definition varies immensely.

Table 2 below shows a summary of the different kinds of problem definition journeys that the entrepreneurs have gone through during the venture creation process. 16 of the 24 entrepreneurs changed their problem definition through broadening or narrowing, and 6 of them went through more than one such phase. 4 of the entrepreneurs pivoted to a different problem, and only 4 entrepreneurs did not change their problem definition.

Table 2. Process of Problem Definition Change.

Process of problem definition change	Number of entrepreneurs
Narrow to broad to narrow	4
Broad to narrow to broad	2
Narrow to broad	5
Broad to narrow	5
Pivot	4
No change	4
In total	**24**

As the above quotes and table show, the majority of entrepreneurs do change their problem definition. Furthermore, one can see that the core problem tends to stay the same, and it's only the *scope* of the definition that changes; either towards a broader or a more narrow scope. However, *which way* the problem changes varies immensely from founder to founder.

4.2.4. Finding 10: Four reasons why entrepreneurs *broadened* their problem scope.

The overarching reason why (co-)founders broadened their problem scope was to solve more problems, larger problems, and/or to widen the number of customers they could serve. Within this theme of providing more service, however, there were four different reasons that caused entrepreneurs to broaden their problem scope. To see more quotes from the four reasons, see Appendix L.

1. Founders discovered that their customers have more and/or larger problems to be solved.

Sometimes, entrepreneurs recall that their customers don't get enough value from the single problem their venture solves. The current solution may have resulted in one of several features necessary and the option, therefore, lies in either solving a large adjacent problem or expanding into a one-stop shop. However, this insight is not typically obvious at the start, and entrepreneurs mentioned gaining this knowledge after their customers tried the initial product and gave feedback on it. Interviewee of Company 8 emphasized:

> *"In the beginning, we were just focusing on the content collection. But then we talked with marketing departments, and they already have so many different platforms. So, we realized that only content collection was maybe too narrow. So, we quickly went for doing the collection, and then curation [...], and then the storing of the content, the organization, the publishing, and the legal rights. So, like the entire workflow." – 8*

2. First, narrow down to the customer segment with the most heavy-usage customers. Second, broaden the product specifically for those customers.

When entrepreneurs described how their problem definition had broadened, two different ways of broadening emerged, which were either to (1) broaden the customer segment targeted, or to (2) broaden the product for a customer segment. The latter was the most commonly cited approach among the founders interviewed.

11 of the entrepreneurs mentioned having broadened their solution to better serve their target customer, and 10 of them had either started with a narrow customer segment since founding the venture, or started with a broad customer segment that narrowed down over time. Only once a narrow customer segment was defined did they expand their product for those customers. A broadening of the solution typically occurred simultaneously with a narrowing of the customer segment.

> *"By processing different use cases, you start learning how to solve this problem from the customer. What else do they need? Are there more complicated cases that would require me to develop a different kind of workflow? [...] what we started on was very niche, and now we want to expand the product offering along with sophisticated user experience, [...] like adding other add-ons." – 19*

> *"I think that it's a good way for a startup to spearhead your way [...]. You find a solution to something that is desirable for a big enough market or client base. And then you get into the big companies because you solve a problem that they need. And then you can expand from that." – 21*

3. Customers' idiosyncratic needs lead to a broadening of the solution.

Although customers use various features to differing degrees, which doesn't create the necessity to broaden the solution, the entrepreneurs sometimes discovered their target customers to have idiosyncratic needs. This requires founders to broaden the solution to better serve the specific needs of their customers, as mentioned by the entrepreneur of Company 8:

> *"Customers all want to do different things. I'm not talking about big strategy changes, more like functions. We had one customer in Italy last week who said that they really were missing one function. So, we just dropped everything and fixed this function." – 8*

4. After initial investments, founders seek to leverage their solution to other areas.

Entrepreneurs often described the process of making the first sale as involving some initial investment, such as building out enough features for the product to be valuable. However, once this investment has been made it often only takes a marginal investment to add one more feature, which tempts entrepreneurs to broaden their solution. Thus, entrepreneurs found ways to leverage their initial investment by broadening the product with more features. For instance, this is mentioned by the (co-)founder of Company 7, which is active in marketing technology:

"And then from there, we went into: 'Oh, well, if we're doing that, we might as well provide data around all of the restaurants and bars and cafes that are pet friendly in the areas. And if we're doing that, we should be thinking about [description of features X and Y].'" – 7

4.2.5. Finding 11: Four reasons why entrepreneurs *narrowed* their problem scope.

The overarching theme as to why entrepreneurs narrowed their problem definition can be summed up as "concentrating one's resources on the most valuable problem". However, within this main theme, there were four different reasons that caused entrepreneurs to narrow their problem scope (for more quotes see Appendix M).

1. Not enough resources to do everything at once.

Several entrepreneurs mentioned that, because they had limited resources, they must concentrate those resources on just one or a few areas to get the startup off the ground. Some (co-)founders also said that, because they had limited resources, they had to concentrate on just one or a few areas to get their startup off the ground. The entrepreneurs of Company 12 and 4 mentioned:

"I found out this is too big of a problem to solve. Then you gotta niche it a bit." – 12

"It's very easy to start narrow and then you expand to you will 'rule the world'. But then you tend to go back and be a bit more narrow again [...] because it quickly becomes very complex." – 4

2. Focus on the heavy-usage customers and their primary problem.

As mentioned earlier, once founders had identified their heavy-usage customers and the main problem those users had, the best decision according to them was often to focus on those customers.

"The verticals where we wanted to focus changed. The early stages were more of a discovery process. See which verticals have more of a need [...]. So basically, we narrow down which verticals we're going to focus on, given the size of the team that we have." – 19

"So [one of the co-founders] noticed an interest in another product, a specific feature in the product. He noticed that a specific type of people was showing

interest, and that group of people were teachers. Then we kind of combined the existing functionality of AI we're using and that group of people that showed interest." – 13

3. Focus on being best in one area to differentiate against the competition.

This was particularly the case for entrepreneurs who targeted an existing market with a new solution. To stand out, they mentioned the need to focus on the one thing they could do better than all existing alternatives. The interviewee from Company 9 stated:

"[Our biggest competitor] does everything to a gradual capacity. We want to make sure we do the one thing that they can't do very well so that we can stand out [...]. Because otherwise, if we're just a chess service that could do different things, then it's hard to communicate that." – 9

4. Narrow sales pitch to better fit each customer segment.

Several entrepreneurs mentioned that their customers have different needs and idiosyncrasies, and hence, want to know that the solution is specifically built for them. Thus, narrowing the pitch to perfectly fit each customer led to better success when selling the product. This point was brought up by 15 of the entrepreneurs interviewed, and is illustrated through the quotes below:

"When we talk to each segment of a customer [...] we don't talk broadly at all. Otherwise, we lose them. We mainly just focus on their key problem in that segment." – 23

"I think the evolution has been more about how to clearly speak to this pain [...]. Being crystal clear about what you can do with [our product] that is impossible to do with the classical [...] architecture. That's what I think has become more and more clear." – 9

4.3. Summary of Findings

The aim of this thesis is to answer the research question: "*How do entrepreneurs identify an opportunity worth pursuing, and keep it relevant over time?*". In light of that question, a summary of the empirical findings is presented below.

Passion was the most common factor when entrepreneurs considered what idea to pursue. The source of their passion also fell into three categories; passion for the problem, the field of work, and/or for running one's own business. When selecting a

problem, the entrepreneur's attention was subsequently drawn to ideas that matched the most dominant source of their passion.

In addition, entrepreneurs gravitated to problems and work fields they were familiar with, even when they didn't have passion for the problem or the field. Entrepreneurs typically anchor their search for ideas around a particular insight, customer need, or expertise. Problem closeness and field expertise thus set an initial frame of what ideas are even considered. Only 2 of the 24 entrepreneurs ventured outside this dual frame to consider problems they neither had close experience with nor expertise in.

Most entrepreneurs, 20 of 24, had changed their problem definition over time. However, they mainly broadened or narrowed the initial problem definition they started with in a way that preserved the core of the problem. Only 4 of the 24 entrepreneurs had pivoted to a completely different problem that shared little resemblance to the initial definition.

However, *whether* entrepreneurs broadened or narrowed their problem definition varied immensely. The entrepreneurs cited many valid reasons for either broadening or narrowing their problem, with some entrepreneurs going through more than one phase of broadening or narrowing.

With these findings in hand, the next chapter will interpret the meaning behind these findings, with the aim of providing greater insight into *how* and *why* entrepreneurs behave as they do.

5. Discussion

The following chapter presents the discussion of the findings. The first section (5.1) describes the frame entrepreneurs operate within when identifying a problem worth solving. The second section (5.2) delves into how and why entrepreneurs reframe the scope of their problem definition to find a balance between their available resources and the problems customers want solved. This section explores both the broadening and the narrowing of the problem scope, and presents four contextual factors that cause the problem-resource balance point to broaden, and four factors that cause it to narrow.

5.1. The Frame for a Problem Worth Solving

5.1.1. The Reasons Behind the Problem Chosen

To start off, our findings point to three main categories of passion, which impacted the choice of problem to solve, namely: (1) passion for the problem, (2) passion for the work itself, and (3) passion for running one's own business. The entrepreneur could have one or multiple sources of passion but primarily one of these three played a dominant role. In addition, the size of the problem, underpinned by the intrinsic reward of having a large positive impact, affected the choice.

The reasons exemplified above represent specific preferences, which is one of the main types of resources for an effectuator – "Who am I?" (Sarasvathy, 2001). Furthermore, the resource of "What do I know?", which constitutes the knowledge, expertise, and experience of an entrepreneur, was also prominent in our findings. The knowledge and expertise did not only contribute to the initial problem discovery, but also in deciding to pursue it. For instance, Company 17 was founded upon creating a technical solution situated at the technological frontier, and hence, the expertise of the team was essential in being able to pursue it. Simultaneously, when an entrepreneur utilizes specialist knowledge as a source of competitive advantage, creating a "knowledge corridor" (Shane, 2000), it also represents causation processes (Sarasvathy, 2001). This illustrates the complementary nature of effectuation and causation which is in line with previous research (Reymen et al., 2015; Smolka et al., 2018).

Another example illustrating this type of resource was the entrepreneur's closeness to the problem, which impacted the problem chosen. Specifically, some interviewees mentioned experiencing the problem by themselves, where the experience relevant to

the initial problem definition mainly regarded time-consuming and difficult administration tasks at work. When the problem was discovered through observing others encountering it, the initial realization often came from friends discussing their challenges at work. In some cases, however, the entrepreneur had created the first problem definition through experiences in their personal life, such as deciding to start a family. This also represents the third resource of "Whom do I know?" – social networks. This type of means was also found to influence the choice of problem for the entrepreneur. For instance, the entrepreneur of Company 9 shared how her sibling introduced the problem which eventually persuaded her to pursue it.

These various reasons for choosing a problem worth solving demonstrate the individual frame of the entrepreneur, which affects what problems they consider. This is in line with Gruber et al. (2015) who expressed founders to have 'opportunity templates' based on their specific preferences, expertise, and experience (Shane, 2000). This individual frame for what ideas to consider was permeated with the question "What can I do?" (Fisher, 2012), affecting the course of actions possible.

Moving forward, we suggest these findings also contribute to describing the degree of flexibility within each entrepreneur's individual frame. Regarding passion, if one was mainly passionate about the problem, the entrepreneur mentioned being willing to alter the solution in order to continue solving the particular problem. The same result was encountered when an entrepreneur had specialist expertise within a particular technology or industry. This demonstrates the establishment of goals and planning for the appropriate course of action, a vital aspect within causation decision-making, although none of the interviewees mentioned the requirement of seeking new resources to accomplish the first steps. This indicates simultaneous utilization of available means in accordance with effectuation (Smolka et al., 2018).

However, if the entrepreneur was passionate about the work itself or running one's own business, there was a willingness to change the problem or alter both the problem and the field respectively. Of the four entrepreneurs who pivoted to a fundamentally different problem, none mentioned being passionate about the actual problem. Instead, two said being passionate about the field, and all four revealed being passionate about running their own business. Therefore, these entrepreneurs contemplated the means available and what effects they could achieve with those particular means, and hence, showcasing effectuation processes. As a result, their individual frames exhibited a higher degree of flexibility in terms of what ideas they were willing to pursue.

Nonetheless, that some entrepreneurs establish a less flexible frame could imply they have fewer alternative options to pursue. However, according to Keeney (1996), establishing a narrower frame based on one's values can be an advantage in decision-making, as it steers the decision-maker toward the alternatives most worth pursuing:

> *"Value-focused thinking is a way to channel a critical resource – hard thinking – to lead to better decisions. Better decisions come about both because of insights provided by the thinking and because of specific procedures that view decisions through ' value-focused' glasses.' A shift to this way of thinking about decisions can significantly improve decision-making because values guide not only the creation of better alternatives but the identification of better decision situations."* (Keeney, 1996, p. 537)

It's important to note, however, that the size of the problem and positive validation from customers were important factors for all entrepreneurs, regardless of the dominant reason for considering a problem worth solving. This suggests that entrepreneurs share a common desire for their work to be considered important by a large market. Some entrepreneurs put a greater emphasis on the extrinsic financial rewards, while others prioritize the intrinsic rewards of purpose and recognition. While different aspects of success held different appeals, the desire to do important work was a common occurrence among the entrepreneurs.

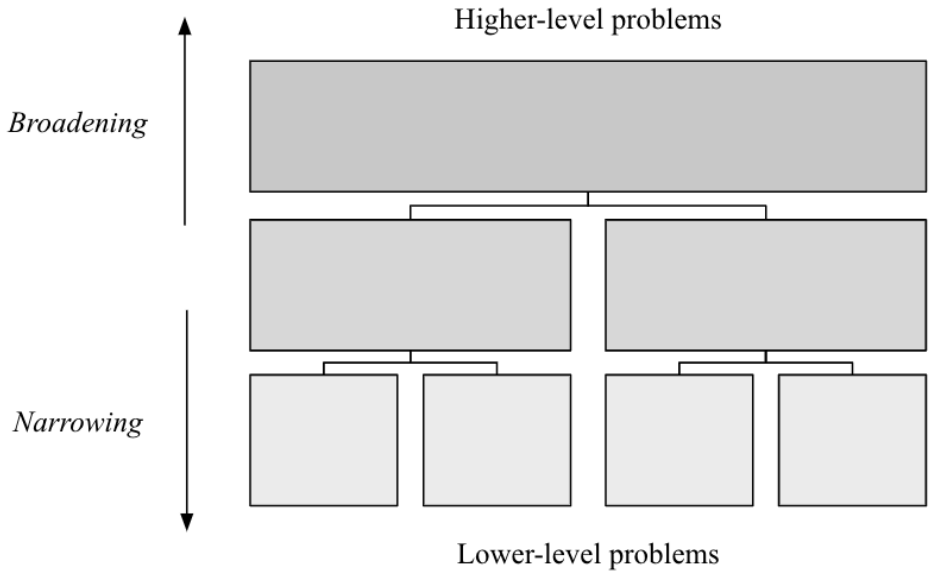
5.1.2. The Problem Hierarchy

The empirical findings suggest that the scope of the initial problem definition, which represents a specific position in the problem hierarchy, is altered during the venture creation process. Entrepreneurs described their process of selecting and subsequently reframing the problem worth solving through either a *broadening* or a *narrowing* of the venture's scope, which confirms the study by Reymen et al. (2015). At the same time, interviewees emphasized that they were still solving the same core problem, although the scope of the problem had changed.

These two findings suggest that problems can be graphed on a hierarchy, where larger problems are a collection of several smaller problems, which in turn are a collection of even smaller problems. An illustration of the problem hierarchy is shown in Figure 3. Therefore, when entrepreneurs broaden or narrow their problem definition, i.e., change their venture's scope, this implies a vertical movement in the problem hierarchy. Broadening the problem scope implies moving one's focus up the hierarchy to a larger

problem, which requires the entrepreneur to solve most of its sub-problems. Narrowing, on the other hand, implies moving one's focus down the problem hierarchy to solve just one of the sub-problems.

Figure 3. Problem Hierarchy.



This approach of dividing problems into smaller sub-problems is akin to the means-ends analysis described by Anderson (1993) with its two key features being *difference reduction* and *subgoaling*. The problem-solver first selects a desirable end state, notes the difference between that end state and their current state, and creates the subgoal to eliminate that difference. The process is subsequently repeated for the new subgoal, resulting in a stack of subgoals similar to a problem hierarchy, until the most low-level subgoal in the stack can be immediately solved with one's available means. This top-down planning and goal stack creation can thus be likened to causation.

5.2. The Reframing Process Toward Problem-Resource Balance

As described above, the process of altering the problem's scope is accomplished through either *broadening* or *narrowing* within the problem hierarchy. We advance these findings by suggesting that the choice to either broaden or narrow is triggered by the entrepreneur's context and individual aspirations for the venture. Therefore, the entrepreneur first considers the context, i.e., the resources available, potential customer needs, and individual aspirations. In turn, the entrepreneur will choose to broaden the venture's scope by utilizing effectuation processes or narrow the scope by applying

causation processes. As a result, the strategic scoping decisions affect the "set of technologies, products, and markets venture founders consider at a certain moment in time" (Reymen et al., 2015, p. 372). Our data suggests that this subsequently alters the entrepreneur's context, beginning the cycle anew, and hence, creates a journey within the problem hierarchy. A summary of how causation and effectuation relate to the problem hierarchy is shown in Table 3 below.

Table 3. How Causation and Effectuation Relate to the Problem Hierarchy.

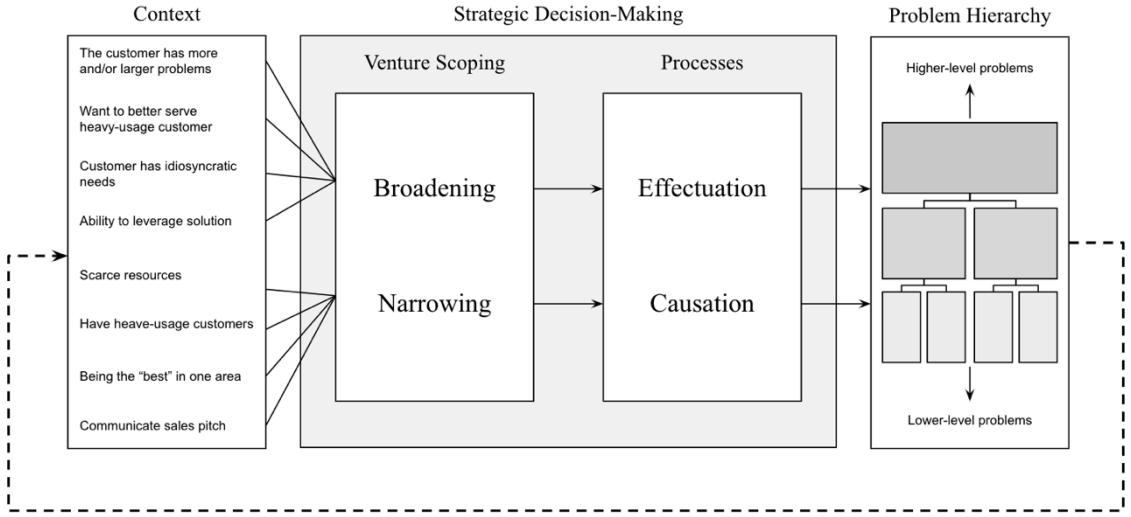
	Causation	**Effectuation**
Starting Point	Problem to solve	Available resources
Direction	From high- to lower-level problems	From low- to higher-level problems
How Problem Hierarchy Is Traversed	Narrowing problem scope until a solution can be delivered using given resources	Broadening problem scope until customers realize enough value from possible solutions that can be delivered

These actions are taken to strike the right *balance* between two opposing forces within the problem hierarchy, i.e., solving large enough problems so customers find it valuable, versus solving few enough problems whose solution can be delivered with the available resources. Thus, entrepreneurs described that the market seemed to set a lower bound of the minimum number of problems it needs to solve to find it valuable, while the entrepreneur's resources set an upper bound of the maximum number of problems able to build a solution for.

The starting point within the problem hierarchy is created through the initial problem definition, whereas the destination is where the entrepreneur finds the individual *problem-resource balance*. That said, the difference between these points determines whether the entrepreneur must broaden or narrow their problem scope. These findings relate to Reymen et al. (2015), where scoping decisions in the venture creation process are found to be an integral part of the dynamic context, and hence, when an entrepreneur chooses to use effectuation and causation. In turn, it leads to perceived changes in the venture's conditions and external environment which subsequently affects "strategic decisions on venture scope and thereby increase or decrease the use of effectual or causal decision making" (Reymen et al., 2015, p. 372).

As can be seen in Figure 4, this creates an iterative cycle that founders go through, in some cases several times, to arrive at a problem worth solving at one point in time.

Figure 4. Overview of the Entrepreneurial Process Towards a Problem Worth Solving.



5.2.1. The Broadening Process

When investigating why and how entrepreneurs broadened the venture's scope, four reasons were found in the empirical results. To start off, when the customer has more and/or larger problems to be solved in order to find the solution valuable, the entrepreneur is inclined to broaden the venture's scope. By widening the venture, and hence, moving upwards in the problem hierarchy towards higher-level problems, the entrepreneur will create a more holistic solution. During this process, the entrepreneur will make strategic scoping decisions by adopting effectuation processes which determine how the venture is broadened.

For instance, the interviewee of Company 8 shared how their solution within content collection wasn't enough to attract customers, and hence, they had to create a solution incorporating the customers' whole workflow. This was accomplished through the entrepreneur's years of experience and expertise in the marketing field, to widen the solution in a way that eventually customers found valuable (Sarasvathy, 2001). Although the team had troubles with financing, they were able to take small steps based on the resources within their control and iteratively build up their solution (Fisher, 2012; Furlotti et al., 2020; C. Welter et al., 2016).

The second reason appeared in situations when entrepreneurs had found their target customer, and the aim became instead to serve them better. This was found to be accomplished by broadening the solution in directions the customers found valuable. The entrepreneur of Company 19, a startup within legal and insurance, described how they started very niche and iteratively learned what their target customer additionally needed. These learnings were incorporated into strategic scoping decisions where they decided to expand their solution offering through add-ons. Through experiments, the team learned what worked, which set the direction for the solution, in a way that resembles the principle of affordable loss (Fisher, 2012).

However, some entrepreneurs found themselves in a context where their customers had idiosyncratic needs, in other words, very specific demands that required a varied solution for every customer. The decision to customize the solution led to a broadening of the venture's scope, where effectuation processes contributed to materializing the specific requirements. Specifically, our results suggest that a third principle of effectuation – exploiting contingencies – was involved which created beneficial opportunities for expansion and higher customer satisfaction. For instance, the entrepreneurs of Company 8 and 23 emphasized how their target customers wished to achieve dissimilar goals, which practically meant providing solutions for differing versions of the same core problem.

Another example, confirming the literature, happened when the entrepreneur of Company 3 created a new use case with the current solution after being confronted with surprising information. Therefore, exploiting the contingencies in his context led to creating additional value, which was guided by his intrinsic interest in the workings of the technical solution (Read et al., 2009). This entrepreneur stated:

> *"That's how I got the idea. I was at a dolphin show and watched dolphins that weighed 350 kilos pull away at breakneck speed. And then I thought, how many horse powers can a dolphin make? [...] I was boat racing many years ago too. And the poor efficiency of the propeller has long interested me. The efficiency of a propeller is about 40 percent on a normal outboard [...]. But a perfectly designed fin has 92 percent efficiency." – 3*

The fourth reason behind broadening the problem's scope was found when entrepreneurs had created the first iteration of their solution, and therefore, after an initial investment in resources. Having a working solution set the scene for expanding it, which in some cases led to a broadening of the venture's scope. Through effectuation processes, founders found a way to leverage their solution. For example, the interviewee

of Company 22, a startup within the regulated industry of financial services, shared how they leveraged heavy work in the beginning to expand their scope towards financial education later (see Appendix L for quote). By focusing on adhering to regulations from the start, they emphasized the controllable facets of an unpredictable future (Sarasvathy, 2001). As a result, they didn't have to spend time trying to predict how legislation would turn out.

To summarize, our empirical findings suggest that various effectuation processes are used in broadening the venture's scope to arrive at a problem worth solving within the problem hierarchy. Three of the four principles were found repeatedly, namely, to experiment through the principle of affordable loss, to exploit contingencies, and to focus on the controllable aspects of an uncertain future. Nevertheless, the principle of building strategic alliances was only found in the context of Company 10, and hence, could not be utilized in creating a worthwhile concept. However, the situation necessitating the entrepreneur to consider strategic alliances appeared as they aspired to create an ecosystem for researchers. In other words, to broaden the venture's scope to arrive at a problem worth solving:

> *"[We] started as a research project, and we pivoted into being a platform for researchers that have perhaps a patent or a commercialized product." – 10*

This is in contrast with Read et al. (2009) who found a positive relationship between effectual strategic partnerships and new venture performance. Furthermore, the same study also found insignificant results for the principle affordable loss, which in our case were found to be present in venture creation.

5.2.2. The Narrowing Process

When investigating why and how entrepreneurs narrowed the venture's scope, four reasons were found in the empirical results. The first reason concerns the situation when the entrepreneur doesn't have enough resources to do everything necessary at once, and hence, is required to take small steps and iteratively build up their venture. This, according to entrepreneurs, created a situation where the founder needs to be resourceful in allocating resources while at the same time maximizing the utilization of the resources as they have been allocated. This confirms the research of Alzamora-Ruiz et al. (2021), where she discovered synergistic effects when having an ambidextrous logic – combining causation and effectuation. Simultaneously, it in part contrasts the

findings of Reymen et al. (2015) where only causation decision-making is found in the process of narrowing the venture's scope.

Another reason for narrowing was the decision to focus on heavy-usage customers of the solution. After having found the customer group especially in need of the solution, the perceived environmental uncertainty of the venture decreased (Reymen et al., 2015), leading to the strategic decision to narrow the scope toward those customers. This illustrates the process of choosing an effect – creating a solution for a target customer – and collecting available resources to achieve the effect. Additionally, the choice of providing a solution for the heavy-usage customers was based on the expectation to receive higher returns, further demonstrating the logic of causation. The entrepreneur of Company 13 noticed on the first iteration that teachers were the heavy-usage customers, and subsequently, decided to alter the solution to adhere more deeply to their challenges. As a result, the scope Company 13 moved downwards in the problem hierarchy.

> *"So we noticed that a specific type of people were showing interest in a specific feature in the product. That group of people were teachers. And then we kind of combined the existing functionality of AI we're using and teachers, and the idea to make an education-specific AI toolbox was born." – 13*

The third reason for choosing to narrow the venture's scope was taking the strategic decision to focus on being "the best" in one area to differentiate against the competition. The context warranting this decision was the new venture participating in a market where the market leader solves, on the surface, all sub-problems on an adequate level. Therefore, the interviewee of Company 9 decided to solve a specific sub-problem to the greatest capacity possible so that the target customer would choose their service for that particular need, demonstrating competitive analysis as part of strategy creation (Porter, 2008).

The process to achieve this "best in class" was permeated with causation processes, such as establishing a goal and plans for accomplishing it. In addition, it involves being able to exploit knowledge and expertise within the team as a source of competitive advantage, and in case of a shortage, acquiring the necessary resources. However, the founder of Company 9 also discussed the flexibility present on the journey to achieve the specified goal, where surprises and new resources changed the path toward their vision. In that regard, a causation approach, in combination with effectuation, can be argued when Company 9 continuously had a willingness to change when confronted

with new information (Read et al., 2009; Sarasvathy, 2001). As the co-founder of Company 9 emphasized:

> *"Deciding on the user experience we wanted to achieve was not an accident, but the way we implemented it was an accident. [...] We just color-coded your move immediately after you move. So you see, 'Ah, that was a great move', or Oh, that was not a good move'. And we discovered that this was very powerful for users. That was something we accidentally tried, and then realized it was great." – 9*

Additionally, this shows the importance of context in choosing to either broaden or narrow the venture's scope. Since, in contrast to Company 9, the founder of Company 8 perceived it necessary to broaden towards solving the whole workflow instead of focusing on one task. In this case, the presence of many specialized platforms in the market led to this decision being appropriate, according to the entrepreneur.

The last reason observed in our findings for narrowing the problem's scope was the customer's confusion about the solution. Several entrepreneurs mentioned the struggle to create an understanding of the solution's value when they were solving a higher-level problem. As a result, changes in the founders' perception of pressures from customers led to narrowing the scope of the problem through their communication – moving down in the problem hierarchy. For instance, the entrepreneurs of Company 16 and 23 mentioned conducting market analysis to be able to customize their communication towards each customer segment. Therefore, our study confirms the results of Reymen et al. (2015) in that entrepreneurs had to respond to customer pressures and alter the venture's scope accordingly.

To conclude, our study suggests that various causation processes are employed to narrow the venture's scope in differing ways. However, effectuation processes have also been shown to be present, creating an ambidextrous decision-making logic (Sarasvathy, 2008). Although, our empirical findings can't extract whether they exist simultaneously (Alzamora-Ruiz et al., 2021; Brettel et al., 2012; Nabi et al., 2024) or are alternating (Berends et al., 2014; Nummela et al., 2014; Servantie & Rispal, 2018; Smolka et al., 2018). Nonetheless, our study contributes to demonstrating nuances in the decision-making process to narrow the venture's scope.

6. Conclusion

This study has taken a constructivist perspective to answer the following research question: "How do entrepreneurs identify an opportunity worth pursuing, and keep it relevant over time?"

In doing so, 24 entrepreneurs from a variety of industries were interviewed to identify common themes in how they discover, select, and reframe the problems they solve. In this final chapter of the study, we present our concluding answer to the research question in section (6.1). The theoretical contributions and practical implications are subsequently presented in sections (6.2) and (6.3) respectively. Thereafter, the limitations of the study are covered in section (6.4), finally concluding with suggestions for future research in section (6.5).

6.1. How Entrepreneurs Identify an Opportunity Worth Pursuing and Keep it Relevant Over Time

Our conclusion is that entrepreneurs decide to create a new venture owing to one of three factors: to solve a particular problem, to work in a particular field, and/or to run their own business. Depending on which of these factors is most appealing for the individual entrepreneur, that will determine what ideas the entrepreneur is willing to consider. Entrepreneurs who aspire to solve a particular problem rarely consider ideas that are not supportive of that core problem. In contrast, entrepreneurs who aim to run their own business are open to exploring many different ideas, and instead put greater emphasis on the viability of the business idea.

Thus, the source of the entrepreneur's passion creates an individual *problem-resource balance* of possible ideas that they are willing to consider. When entrepreneurs identify a problem worth solving, it's not just about the question: "*What problem is worth solving to the market?"*. It's just as much a question of: "*What problem is worth solving to me personally?"*

Within this individual frame of problems the entrepreneur is willing to solve, the problems can be mapped on a hierarchy, where each large problem can be broken down into several smaller sub-problems. Therefore, the entrepreneur can change what set of sub-problems they work on based on what the market wants, while at the same time staying consistent with the same core problem at the top of the hierarchy that fuels their

passion. This is how entrepreneurs keep their problem definition relevant to both the market and to themselves over time. Like a screwdriver with interchangeable screw heads, entrepreneurs preserve the core (the screw handle) to satisfy their intrinsic needs, and switch out the sub-problems (the specific screw heads) to satisfy the market.

So what determines if a problem is worth solving? Our conclusion is that entrepreneurs must strike the right *balance* between two opposing forces when defining the scope of their venture. On one hand, the scope must be broad enough that customers find value in having the problems solved. On the other hand, the scope must be narrow enough that a solution can be delivered with one's available resources. Depending on which force is stronger in the given context, entrepreneurs will either broaden the venture's scope by utilizing effectuation processes, or narrow the scope by applying causation processes. This alters the entrepreneur's context and creates a continuous feedback loop of broadening and narrowing within the problem hierarchy until balance is achieved.

We further identified that the point of problem-resource balance alters in the problem hierarchy depending on eight contextual factors. Four of these factors created a need for broadening, namely: (1) customers have more and/or larger problems, (2) opportunity to better serve heavy-usage customers, (3) customers have idiosyncratic needs, and (4) ability to leverage the solution. The other four factors created a need for narrowing, namely: (1) scarce resources, (2) focus on heavy-usage customers, (3) being the "best" in one area, and (4) communicating a specific sales pitch.

In this journey toward finding the right scope of one's problem definition that achieves problem-resource balance, we have found that entrepreneurs tend to follow a particular pattern. They narrow their focus to a specific customer segment that will be heavy users of the solution, but then broaden it for those customers. This narrow-and-deep approach allows the entrepreneur to selectively target customers who find the problem valuable, and capture the greatest amount of this value possible.

From this study, we can conclude that entrepreneurs operate in a world of multiple opposing forces, where identifying problems worth solving can best be understood as a balancing act between these continuously changing forces. A successful startup must reconcile the needs of the entrepreneur with the needs of the market, be adaptable while staying consistent, and balance the need for breadth with the need to focus.

However, by understanding what forces are at play, evaluating their current state, and sensing when they are about to change, entrepreneurs stand a better chance at

identifying problems worth solving, and maintaining the relevancy of their problem definition in a world that keeps changing.

6.2. Theoretical Contributions

This study addresses the identified research gaps by adopting a constructivist perspective with a process approach, to examine why and how entrepreneurs identify and reframe problems that are worth solving. Specifically, we investigate why and how an entrepreneur broadens or narrows their problem definition. By doing so, we tap into the areas that have previously been overlooked in establishing the relationship and boundaries between effectuation and causation processes. Applying a cross-case comparison approach in the early venture stage has allowed us to capture the contextual and dynamic nature of the entrepreneurial process. Thus, our study contributes to specifying the context of use by investigating the perceptions and actions of the entrepreneur, and thereby, discovering the *whys* and *hows* of the venture creation process (Arend, 2020; Arend et al., 2015; Kitching & Rouse, 2020).

In addition, our findings advance the work of Reymen et al. (2015), who advocate for venture scoping being an essential part of venture creation, by suggesting reasons behind founders choosing to either broaden or narrow their ventures' scope. As a result, we have been able to extend the framework of the entrepreneurial process by showing how the individual frame affects the problems considered, how the founder engages in broadening or narrowing to arrive at a problem worth solving, and how the actions taken affect the position in the problem hierarchy, hence, starting the cycle anew. Furthermore, the reasons behind broadening and narrowing mostly coincide with previous research (Reymen et al., 2015; Mauer et al., 2024), suggesting that the framework provides structure to what we, as previous scholars, have perceived to be a rather ambiguous research area.

6.3. Practical Implications

This study presents several practical implications for entrepreneurs. Firstly, it's essential for founders to understand what their reasons to solve a problem are, since those determine what alternative definitions of the problem they are willing to consider. Being passionate about solving a particular problem may, on the one hand, make an entrepreneur more persistent in solving that problem amidst challenging circumstances. On the other hand, if that problem turns out not to be worth solving, the entrepreneur

may stick too long. Furthermore, understanding the motivations of one's co-founder, investors, and employees can help prevent misalignments when the problem definition inevitably changes.

Secondly, the perspective of entrepreneurship as a balancing act of multiple opposing forces can be a helpful mental tool for founders. Understanding what these forces are, that both sides are necessary for success, and that one may misstep by prioritizing either side too much, can thus enable entrepreneurs to better judge whether a given problem is worth solving.

Thirdly, the pattern of narrowing down to heavy-usage customers, while broadening the solution for those customers, is an approach entrepreneurs may use as a guide when defining and redefining their problem definition. Asking which customers have the greatest need, and what additional problems and customizations they want, may help entrepreneurs identify which problem is most worth solving in their context.

6.4. Limitations of the Study

Despite its theoretical and practical contributions, the findings in this study are subject to limitations. First, due to the constructivist and interpretivist approach assumed in this study, some subjective interpretations have inevitably been made by us in presenting the findings. We have taken several measures in designing the methodology to eliminate bias to the greatest extent possible. Still, this subjective limitation should be noted. In addition, since no triangulation of utilizing multiple types of data sources was utilized, the confirmability of the study is somewhat weakened.

Second, in line with the methodology for choosing interviewees based on the criteria outlined in section (3.3), valuable perspectives and complementary sources of information may have been lost. For example, interviewing board members, investors, or employees of the venture could have uncovered additional views and data points relevant to the research question.

Third, since only one founder was interviewed from each startup, the findings gathered from each company are subject to the biases and subjective interpretations of the individual founder. However, as multiple founders were interviewed in total, any individual biases are likely to have been balanced out in aggregate. Still, interviewing an additional co-founder may have uncovered complementary perspectives on the problem definition journey for each respective startup.

Fourth, as entrepreneurs were only interviewed at a single point in time, some entrepreneurs may have recalled a different narrative of how they discovered and selected their problem now in hindsight, compared to their thinking at the time. Following entrepreneurs over a longer period, through a process approach, and interviewing them about their *current* thought process at different points in time would have mitigated this potential bias.

Fifth, and finally, as we used our personal network and the websites of local startup accelerators to identify entrepreneurs to interview, this meant that most entrepreneurs interviewed were based in Sweden, particularly Stockholm. While segmenting on geography was not an intentional limitation, the narrow geographical scope of the subjects interviewed may be considered a limitation of this study.

6.5. Suggestions for Future Research

To test the findings of this study, and close to its limitations, we encourage other researchers to conduct similar studies with a broader sample of interview subjects. In addition, studying entrepreneurs in a different environment, such as another geography, a less robust economy, or intrapreneurship within a larger company, would be of interest to see how broadly these insights apply to different contexts.

Furthermore, following entrepreneurs over a longer period of time may uncover interesting findings of how entrepreneurs evolve their problem definitions over the long run (Langley, 1999). Furthermore, we still see a shortage of studies emphasizing the underlying mechanics of why and how entrepreneurs decide to broaden or narrow their venture's scope (Reymen et al., 2015; Grégoire & Cherchem, 2020), which is essential in uncovering the influence of contextual factors (Kitching & Rouse, 2020).

Moreover, while the theoretical contributions and practical implications of this study have presented some answers, they have also opened additional questions for future research. One such question is whether there are other patterns of narrowing or broadening one's problem definition that entrepreneurs commonly pursue, other than narrowing to the heavy-usage customers while broadening the solution for those customers. If so, what are those patterns, and do some patterns have a higher likelihood of eventual success than others?

Another interesting question is – since this study reveals the importance for entrepreneurs to have strong reasons to pursue a startup – are there systemic measures that society can take to spark the motivation for entrepreneurship in more individuals?

As startups are a major driver of new job creation, this question may indeed have great relevance for the future prosperity of society at large.

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7. Appendices

7.1. Appendix A: Interview Subjects

Company	Industry	Customer focus	Founded	Country	Duration (min)	Date
1	Consumer service	B2C, B2B	2019	Sweden	32	2024-03-01
2	Fintech	B2C, B2B	2020	Sweden	36	2024-02-28
3	Energy	B2B	2020	Sweden	37	2024-03-05
4	Software	B2B	2018	Sweden	36	2024-03-05
5	Enterprise Software	B2B	2022	Sweden	40	2024-03-08
6	Healthtech	B2B	2022	Sweden	36	2024-03-08
7	Consumer tech	B2C	2023	Sweden	40	2024-03-06
8	Consumer tech	B2B	2021	Sweden	36	2024-03-06
9	Consumer tech	B2C	2021	Sweden	35	2024-03-05
10	Deeptech	B2B	2022	Sweden	40	2024-03-02
11	SaaS	B2B	2019	Sweden	33	2024-03-05
12	Fintech	B2B	2022	Sweden	31	2024-03-08
13	Edtech	B2B, B2G	2022	Sweden	40	2024-03-04
14	SaaS	B2B	2021	Sweden	38	2024-03-13
15	Sustaintech	B2B	2021	Sweden	33	2024-03-13
16	Fintech	B2B	2021	Sweden	37	2024-03-14
17	Security	B2B	2022	Sweden	35	2024-03-15
18	Software	B2B	2023	Sweden	34	2024-03-12
19	Legal & Insurance	B2C, B2B	2021	Sweden	37	2024-03-18
20	Software	B2B	2023	Sweden	34	2024-03-19
21	Software	B2B	2002	Sweden	36	2024-03-19
22	Fintech	B2C	2021	Sweden	40	2024-03-19
23	Fintech	B2B	2016	Sweden	40	2024-03-21
24	Food & Agritech	B2B	2022	Denmark	40	2024-03-25

7.2. Appendix B: Interview Guide

Background

- What is the problem your company is solving today?
- Can you tell us about your background before starting the company?

Entrepreneurial Journey

Idea Discovery

- How did you come up with the original idea?
- What made you decide that this opportunity was worth pursuing?
- Were there any other ideas you considered around the same time as you were thinking about this idea?
- How did you develop the first iteration of your solution?

Venture Creation Process

- How has your problem definition evolved from the beginning to today?
    - How did your original idea change?
    - Why?
- How has your problem definition evolved together with other stakeholders?
    - Why?
- When looking back at your journey to today, would you say that your problem definition has broadened and/or narrowed?
    - Why?
- Have there been any surprising successes?
- Have there been any pivots?
- Have there been any failed attempts?

Closing

- In your opinion, have you found the right problem to solve, or are you still in the process of finding the right problem?
    - Why?

7.3. Appendix C: Why Idea Was Pursued

	Why the idea was pursued									
	Passion for problem	Passion for the work	Passion for starting a business	Have expertise	Size of opportunity	Positive validation of idea	Must-have rather than nice-to-have	Received funding	Timing market	Timing new tech
1	x				x					
2	x			x						
3	x	x			x	x				
4	x				x	x				
5	x		x		x					
6	x									
7	x	x	x			x				
8	x	x			x		x		x	
9	x	x			x					x
10	x		x		x					
11			x			x			x	
12	x		x			x		x		
13		x	x	x						x
14			x	x						x
15	x		x		x			x	x	
16	x				x	x				
17	x	x	x	x	x	x	x			x
18			x							
19	x		x		x		x		x	
20		x	x	x		x	x			x
21		x	x		x	x				x
22	x		x		x					
23			x		x	x	x			
24	x	x			x	x				

7.4. Appendix D: Quotes of Why the Idea Was Pursued

	Company	Quote
Passion for the problem	9	*"I was personally inspired by my brother's frustration. So knowing him really well and seeing the amount of friction he was experiencing in this field motivated me to make something better."*
	22	*"So the reason that I really, really loved this idea was because of the audience that it targeted. [...] My little brother was like 18-19, and he'd been asking: "Oh well, what [personal finance app] should I use?' And I kind of had to dig around and I couldn't really find anything that I thought was perfectly suited for him and his generation. I felt that there was a need there to help give these guys a boost up."*
	1	*"My main passion for this field is that I believe that, today, we are generally practicing super-inefficient consumption patterns. So, yeah, I think it was more that than the solution."*
Passion for the work itself	17	*"It was something that we realized that we wanted to do. We love this area, so why not go with it?"*
	3	*"There's a tremendous amount of theory about what happens around a fin. Very few have tested it in real life. That's what makes it very exciting."*
	8	*"I'm also a big cinema fan. I love video production. I love content in general. So I guess that was the second reason for me [...], that I also thought it would be really fun to be in something content-related."*
	7	*"In terms of why I chose a personal consumer opportunity versus a business opportunity, I think predominantly because like the problems around the pet stuff. It was very personal to me and quite exciting and rewarding."*
Passion for running one's own business	17	*"When I saw this post about starting your own company at a [startup accelerator], I realized that this is what I actually wanted to do."*
	15	*"I was like, 'I really want to [start a business]'. I just pitched a new idea every day to my friend."*
	5	*"We wanted to do something different, [not] our old stuff at BCG and Ericsson [...]. We wanted to create a company that should somehow work in a different way, be based on us, on some other values and things that are important to us."*

7.5. Appendix E: Idea Creation

How the idea was created				
	Closeness to the problem		Expertise in the field	Timing market/ new tech
Company	Personal experience of problem	Observed others experiencing problem		
1	x			
2		x	x	
3	x		x	
4	x	x	x	
5		x		
6	x	x	x	
7	x			
8	x		x	x
9		x	x	x
10		x		
11		x		x
12	x			
13		x	x	x
14		x	x	x
15				x
16	x	x		
17	x	x	x	x
18		x	x	
19	x		x	x
20		x	x	
21			x	x
22		x		
23	x	x	x	
24		x		

7.6. Appendix F: Quotes of Idea Creation

	Company	Quote
Having personally experienced the problem	4	*"It was the personal experience and the hassle and the time-consuming administration that I was stuck in in my earlier consulting company that made me start this startup. The current admin tools were so unmodern."*
	6	*"The problem we're solving is based on my experience. [...] Both working as a clinician and then in health tech, there has been a problem with integrating different software systems that are used in healthcare. As a doctor, you're forced to work in multiple systems, you copy paste, or you have to use fax machines to transfer data. And when I was working at a health tech company, I saw how difficult it was to integrate our system with mainly electronic health records."*
	8	*"This is a problem that I had in my previous job. I was a global vice president of marketing at [X]. And at [X], we worked a lot with user-generated content, [...] and we realized how admin-heavy it can be. It's a nightmare to collect content from the customers in different formats, lots of mixed quality, etc."*
Having learned of problem through another person	11	*"I had lunch with a friend, a CEO of a scaleup, and he described how much more difficult it was to lead remotely. Keeping the team together. [...] I asked him if he wanted me to come up with a solution. He said, 'Yes. Please, just solve it.' "*
	5	*"My co-founder was working at [Company X] at the time, and he had been telling me there was a lot of pressure on cost cutting costs, and they were screaming for price improvements. But they didn't have the tools to address this really large cohort of suppliers. And then me on my end, I had seen exactly the same thing."*
A combination of the two reasons above	16	*"It was actually based on both my own experiences and needs that I saw in my surroundings. I was at the time discussing a potential marriage with my partner, as well as what would happen if we were to start a family. And I realized that it will be hard for us to share all the responsibilities equally, and how should we set up a structure to support the one who takes most of the responsibility."*
	4	*"It was the personal experience and the hassle and the time consuming administration that I was stuck in in my earlier consulting company that made me start this startup. I also asked colleagues in other consultant companies [...] and I talked to a person that then became a co-founder. She was working in a consulting company with just 15 or 20 people at that time, and she had the exactly the same hassle as I did.*
Discover through market research and/or technological trends	13	*"Generative AI had just appeared and its usability was very useful and very visible immediately [...]. But when it comes to edtech, there weren't a lot of people working on it, so it was an unsaturated market at the time. That's why we tackled this area. So we kind of noticed that this simple feature is already being integrated in a lot of business tools."*
	15	*"I was like, "Ok, so apparently this environment thing is being taken quite seriously. And it seems like measuring this commuting part is very difficult and the data seems to be of interest. So I said, "Well, if it's going to go that way [...], then why don't we start now with building something they're going to want later?"*

7.7. Appendix G: Quotes of Expertise, Size of Opportunity & Positive Validation

	Company	Quote
Having expertise in the field	20	*"We sat down as a team and we were like: 'Okay, we like working together [...]. So in what area could we build something where our competences would be like the perfect mix to start a company?' [...] Then [my co-founder] started telling me a lot about robotic process automation, and we both realized that this is a space where we could get the benefits of AI."*
	14	*"We actually started with a different idea around knowledge sharing. But [...] we realized that there's too much we don't know, and therefore, we can't build a good solution because we don't know what the actual problem is and how it can be solved there. That was why we decided to pivot."*
	18	*"In my work, I used a lot of automation and digitalization to improve the operations. So the idea came quite easy, because I think that there are many more companies that can benefit from this implementing digitalization and automation."*
Size of the problem	1	*"I think this is the biggest problem that we can solve. [...]. 10,000 consumer products end up in our storage, excluding fashion. The buying journey for this is so bad it's ridiculous."*
	5	*"We saw this huge potential in a global market where, if you just take Sweden, it's 1,000 billion SEK every year that is being consumed in the tail supplier segment. So if you can just create a little bit of efficiency gain in these transactions, billions of transactions, then there is a lot of potential in it."*
	3	*"You may have heard of this in Hawaii, a whole family of whales just swimming right up on land with babies and everything. They can't stand the noise underwater from cavitating propellers. [It's like] tinnitus times 100,000. So one of my goals is also to restore silence in the world ocean with fin drift."*
	4	*"We also confirmed that the market was huge. And the processes for a consulting company are also somewhat similar around the world [...], so that also increases the potential for our business."*
	9	*"If you look at the bigger picture, chess is so cool because it's been around for so long, like it's thousands of years old and still it's more relevant today than it has ever been."*
Positive validation	17	*"We went out to a lot of customers and like: 'Why does this not work better? What tools are you using? [...] Like:'Why is this problem not solved?'. And we got feedback that [...] when companies use them, they get so many false positives that they are not used by the actual engineers that much. [The existing tools] were simply not good enough."*
	16	*"We knew that [customers] were interested in [the problem], but we didn't know if they actually wanted to prevent it and solve it. And then we simply started to talk a lot to different types of stakeholders [...] to understand different angles of the problem."*

7.8. Appendix H: Consideration For Other Problems

Consideration for other problems			
	Different aspects of core problem	Within same field	In different fields
1	x		
2		x	
3			
4			
5	x		
6	x		
7		x	
8			x
9	x		
10			
11			x
12	x		
13		x	
14		x	
15			x
16	x		
17			x
18		x	
19			x
20		x	
21		x	
22			x
23	x		
24		x	

7.9. Appendix I: Quotes of Consideration of Other Problems

	Company	Quote
Have only considered different aspects of the same problem	9	*"There were many ideas on how you can make a good practice tool for chess, so we have had a billion ideas on how to achieve that. But it's all rooted in the same problem that we found very early."*
	6	*"I was actually waiting for someone else to do it because I didn't see myself as a founder [...]. But then I just couldn't let go of it. And I decided that if I don't pursue it, I'm going to regret it my whole life."*
	5	*"It was quite clear that once we started to brainstorm a little bit and then discuss that this was our case. This was where we figured that we could be the best of something."*
Have considered other problems but within the same field	20	*"Yes, we were discussing a few other ideas, which were all in one way or another related to IT. But then we kind of ended up more and more in the IT space and we felt like there are multiple areas in IT that are kind of ready for the next step."*
	7	*"We considered different ideas, but we were very focused around pets, like the initial insights we had around market growth as an opportunity and pets being being more and more like family members. We kind of held on to that nugget of insight throughout the process."*
Have considered ideas from different fields	8	*"Yeah, tons of other ideas, actually. My co-founder and I discussed many different ideas."*
	23	*"I had a list of 10 ideas, actually. Two were in the same problem, but just different parts of that problem. But then if I look at all those ideas [...] maybe, maybe seven of them were in the same field, something to do with the financial world. And then [the rest] were just widely out of those scope of those other seven."*

7.10. Appendix J: Problem Reframing Process

	Company	Quote
Broadening	5	*"From the outset, we were only focusing on savings, on price improvements. Then we learned in dialog with our clients that [...] you don't only pay too much, you pay too fast, you pay too early. So it has negative impact on your cash flow. And these insights are something that we are converting into new products. So, if [our product] was just a saving generator, now [our product] is a working capital improvement facilitator."*
	18	*"Initially, we just focused on creating automated dashboards and metrics. But then we realized that it's much more valuable to provide applications, not within automation, but within financial reporting and business data. So we are now looking into those areas [...] to increase the range of the services we can provide and be more holistic."*
Narrowing	17	*"No, the number of problems has narrowed, and the use cases have narrowed, definitely. Everything has narrowed."*
	20	*"I think it's narrowed, which is good. I think starting out [...] we talked a lot about like automation space as a whole [...]. And I think we've narrowed it a lot to specifically robotic process automation, which feels much better. It's what we know the most about. It's where we can build something right away. It's where we can get paid right away."*
Narrow to broad to narrow	7	*"It started narrow, and then it became quite broad, and now we've brought it back to being narrow. We started out with a one-sentence pitch [...], and then from there we went into: 'Oh, well, if we're doing that, we might as well [add features X, Y and Z].' And it's good to have a big vision [...]. But not when it comes from getting from zero to one. We went broad and then we got a lot of feedback, which was like, 'You're not super clear on your one call to action.'"*
	16	*"If you've seen this kind of design thinking approach, the Double Diamond, I think that was actually what we went through. The first we saw was this specific problem connected to the moment you become a parent. And then we dug into that problem and we discovered like 10 more problems related to financial inequality. And we wanted to try to solve all of these. But then we realized, okay, we need to start one kind of specific moment in life to really nail down the product as a step one."*
Broad to narrow to broad	19	*"The early stages were more of a broad discovery process. See which verticals have more of a need. But eventually, you want to be more efficient and narrow down your focus to the best verticals. [...] And we realized that the volume of transactions was with B2B businesses, not with B2C. Then, by processing different use cases, you learn what other problems the customers have. So now we want to expand the product offering."*
	20	*"Starting out, we talked a lot about like automation space as a whole. And the more things we tried out on the market, we realized that it's better to solve the problem for IT managers who already understand these types of automations. Now, [our problem definition] has narrowed, which is good [...]. But with each new client, we're finding new ways to make them more effective, and we add like 40,000 more actions with each new client."*

7.11. Appendix K: Quotes of Core Problem Staying The Same

	Company	Quote
The core problem has stayed the same	6	*"The initial very high-level problem of being a unified API, that has stayed the same. But then of course how to do it, go to market and how to grow and what kind of business model and so forth, that has changed definitely."*
	9	*"I would say that the core problem has stayed the same. I think the evolution has been more about how to clearly speak to this pain. So, it's more about how to package it and then also kind of unlocking this joy aspect I'm talking about."*
	7	*"I think that, at its core, we didn't change that much. What has changed is our depth of understanding and feedback from users, specifically our understanding of the market and the consumer behavior."*
	8	*"The major idea has stayed the same, really. It's more like the details [that have changed]."*

7.12. Appendix L: Quotes of Five Reasons Why Entrepreneurs Broadened Their Problem Scope

	Company	Quote
Founders discovered that their customers have more and/or larger problems to be solved.	8	*"In the beginning, we were just focusing on the content collection. But then we talked with marketing departments, and they already have so many different platforms. So, we realized that only content collection was maybe too narrow. So, we quickly went for doing the collection, and then curation [...], and then the storing of the content, the organization, the publishing, and the legal rights. So, like the entire workflow."*
	18	*"We started with a small solution. But when we started contacting customers in the middle of last year, it was a more challenging environment [...]. So, then we had [...] to look at other problems, identify what more problems customers have, and provide new solutions to those. So, it has become broader now."*
First, narrow down to the customer segment with the most heavy-usage customers. Second, broaden the product specifically for those customers.	19	*"By processing different use cases, you start learning how to solve this problem from the customer. What else do they need? Are there more complicated cases that would require me to develop a different kind of workflow? [...] what we started on was very niche, and now we want to expand the product offering along with sophisticated user experience, [...] like adding other add-ons."*
	21	*"I think that it's a good way for a startup to spearhead your way [...]. You find a solution to something that is desirable for a big enough market or client base. And then you get into the big companies because you solve a problem that they need. And then you can expand from that."*
Customers' idiosyncratic needs lead to a broadening of the solution.	8	*"Customers all want to do different things. I'm not talking about big strategy changes, more like functions. We had one customer in Italy last week who said that they really were missing one function. So, we just dropped everything and fixed this function."*
		"We have many different B2B customers doing completely different products, and many different problem definitions in that way."
After initial investments, founders seek to leverage their solution to other areas.	7	*"And then from there we went into: 'Oh, well, if we're doing that, we might as well provide data around all of the restaurants and bars and cafes that are pet friendly in the areas. And if we're doing that, we should be thinking about [description of features X and Y].'"*
	22	*"It's complex in financial services because it's a regulated industry and everything you do is scrutinized significantly [...]. But when we already had done all that legwork, we could take on the real problem of financial literacy education and incentivize people to learn about money by doing, which is how this generation highlighted they would find most interesting."*

7.13. Appendix M: Quotes of Four Why Entrepreneurs Narrowed Their Problem Scope

	Company	Quote
Not enough resources to do everything at once	12	*"I found out this is too big of a problem to solve. Then you gotta niche it a bit."*
	4	*"It's very easy to start narrow and then you expand to you will 'rule the world'. But then you tend to go back and be a bit more narrow again [...] because it quickly becomes very complex."*
Focus on the heavy-usage customers and their primary problem	19	*"The verticals where we wanted to focus changed. The early stages were more of a discovery process. See which verticals have more of a need [...]. So basically, we narrow down which verticals we're going to focus on, given the size of the team that we have."*
	13	*"So [one of the co-founders] noticed an interest in another product, a specific feature in the product. He noticed that a specific type of people was showing interest, and that group of people were teachers. Then we kind of combined the existing functionality of AI we're using and that group of people that showed interest."*
Focus on being best in one area to differentiate against competition	9	*"[Our biggest competitor] does everything to a gradual capacity. We want to make sure we do the one thing that they can't do very well so that we can stand out [...]. Because otherwise, if we're just a chess service that could do different things, then it's hard to communicate that."*
	8	*"It's going to be a lot of AI in the future. That's a real danger to us because the bigger competitors have more money, so they can invest there while we don't have the muscles to do it. So we have to focus on what they can't do."*
Narrow sales pitch to better fit each customer segment	23	*"When we talk to each segment of a customer [...] we don't talk broad at all. Otherwise, we lose them. We mainly just focus on their key problem in that segment."*
	9	*"I think the evolution has been more about how to clearly speak to this pain [...]. Being crystal clear about what you can do with [our product] that is impossible to do with the classical [...] architecture. That's what I think has become more and more clear."*
	16	*"When you're pitching to companies [...], you of course test various ways of trying to nail what actually solves their problem and what they actually feel is valuable [...] The way you talk about your earnings, your savings, etc. is very local. So we've done some studies in different markets. And we've seen that both behaviors and social norms and the language is very, very different from market to market."*