ENTREPRENEURIAL SEARCH PRINCIPLES: HOW TO SAVE TIME AND AVOID BIAS

ROBERT HENDRIK LOUW

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Entrepreneurial Search Principles: How to Save Time and Avoid Bias

Robert Hendrik Louw
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Entrepreneurial Search Principles:
How to Avoid Useless Information and Bias

Robert Hendrik Louw

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Examiner
Terrence Brown
Supervisor
Gregg Vanourek
Commissioner
Terrence Brown
Contact person
Robert Hendrik Louw

Abstract
When entrepreneurs are searching for more information to develop their business ideas, they generally do not have enough time to do extensive research and thus are inclined to take shortcuts. This could undermine the rationality of their decisions, depending on what information is not found. However, one popular shortcut offers an interesting opportunity. By consulting experts, entrepreneurs can save time and, if they apply the search principles identified in this study, they can further avoid search obstacles, such as cognitive biases and poor decision framing. For example, by consulting skeptics of a technology, entrepreneurs can counteract their own optimism. While the right mitigation techniques for bias may seem obvious once the bias has been identified, acting pro-actively is not obvious and seems to require experience or prior learning. The results of this study were obtained by applying grounded theory on data obtained from semi-structured interviews. Nine interviews were done in Stockholm, Sweden. The interviewees included founders of companies, a business developer and a business coach for entrepreneurs.

Key-words
Cognitive bias; information search; entrepreneurship.
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# TABLE OF CONTENTS

Terminology........................................................................................................................................ VII

1. Introduction........................................................................................................................................ 1
   1.1 Research question and aim ................................................................................................................ 1

2. Literature review ................................................................................................................................. 2
   2.1 Similar studies and the academic niche ............................................................................................ 2
   2.2 Decision-making theory on an organizational level ........................................................................ 2
   2.3 Decision-making theory on an individual level ............................................................................... 3
   2.4 Entrepreneurial decision making: ................................................................................................. 6

3. Methodology ........................................................................................................................................ 7
   3.1 Research paradigm ........................................................................................................................... 7
   3.2 Research approach ........................................................................................................................... 7
   3.3 Developing the interview questions ................................................................................................. 9
   3.4 Delimitations .................................................................................................................................. 10
   3.5 Limitations of the research methodology ....................................................................................... 11
   3.6 Ethics and sustainability ................................................................................................................ 11

4. Results from interviews ...................................................................................................................... 12
   4.1 Interview information ....................................................................................................................... 12
   4.2 Overview of results ........................................................................................................................ 12
   4.3 Selected results ............................................................................................................................... 13
      4.3.1 Have a goal-orientated information search strategy ............................................................... 13
      4.3.2 Get expert inputs ...................................................................................................................... 14
      4.3.3 Learn by doing ......................................................................................................................... 16
      4.3.4 Learn from customers ............................................................................................................. 16
      4.3.5 Notes on search styles ............................................................................................................ 17

5. Discussion ........................................................................................................................................... 17
   5.1 Basic analysis of methods ............................................................................................................... 18
      5.1.1 Have a goal-orientated search strategy ...................................................................................... 18
      5.1.2 Get expert inputs ...................................................................................................................... 19
      5.1.3 Learning by doing .................................................................................................................... 20
      5.1.4 Learning from customers ......................................................................................................... 21
   5.2 Overcoming bias and search pitfalls ............................................................................................... 21
5.2.1 Get a balanced view ................................................................. 22
5.2.2 Get multiple views ................................................................. 23
5.2.3 Be self-critical ................................................................. 23
5.2.4 Do a structured search ................................................................. 23

6. Conclusion ................................................................................. 24
References ...................................................................................... 26
Appendix A: interview questions .................................................. 29
TERMINOLOGY

• **Anchoring:** occurs when later ideas are unduly influenced by an initial idea (Kahneman, 2011).
• **Availability heuristic:** making judgments on importance or frequency according to “the ease with which instances come to mind.” (Kahneman, 2011)
• **Bounded rationality:** decision making based on satisficing (see “Satisficing” below).
• **Causal reasoning:** formulating a strategy for working towards a pre-determined goal with given means or by generating new means (Sarasvathy, 2001), it stands in contrast to effectual reasoning (see below).
• **Cognitive bias:** flaws in the thinking of individuals that match recurring patterns in the systematic errors people generally make while thinking (Kahneman, 2011).
• **Confirmation bias:** people tend to seek and pay attention to information that supports their beliefs, rather than searching for information to refute their beliefs (Kahneman, 2011).
• **Competition neglect:** the tendency to focus on oneself and subsequently ignore the possibility of others undertaking the same venture: it typically causes excess market entry (Kahneman, 2011)
• **Distrust:** a bias to focus on negative evidence (Kahneman, 2011)
• **Effectual reasoning:** generating new goals based on given means (Sarasvathy, 2001).
• **Framing:** “different ways of presenting the same information evoke different emotions” (Kahneman, 2011)
• **Functional fixedness:** people’s thoughts tend to be limited to known applications and uses for objects (Adamson & Taylor, 1954).
• **Heuristic:** a decision rule or simplified strategy to make a decision (Busenitz & Barney, 1997)
• **Linguistic relativity:** language influences the way people think and can therefore influence what people think (Lucy, 1996).
• **Optimism:** a bias favoring positive evidence (Kahneman, 2011)
• **Prospect theory:** a decision-making theory explaining how people deal with uncertainty (Kahneman, 2011).
• **Satisficing:** the inclination to search for information until sufficient information is found, rather than searching for all the information required to make a decision in an optimal way (Simon, 1956; Simon, 1991).
• **WYSIATI:** What You See Is All There Is; a human tendency to ignore the possibility that there is missing information (Kahneman, 2011)
1. INTRODUCTION

In the last two decades there have been an increasing number of experts advocating the superiority of adaptive strategies over strategies based on predefined visions, built on some analysis (Wilson & Eisenman, 2010). The new theories and methods have developed from Rita McGrath’s “discovery driven planning” (McGrath, 1995) to Steve Blank’s “customer development” (Blank, 2003) to Eric Ries’s “lean startup” (Ries, 2011). These theories, while influential and popular, have not gone without criticism, particularly because it focuses on trial-and-error learning. Peter Thiel, a renowned billionaire entrepreneur, has criticized this style by saying that in some cases it leads to entrepreneurship being treated as “agnostic experimentation,” where planning and vision are undervalued (Masters & Thiel, 2014). Thiel does suggest strategies to build sound visions, but it seems there is not enough acknowledgment in the academic field and among entrepreneurs that the value of analyses and predictions are undermined by the limits of human rationality.

The computational limits of the mind go hand in hand with the brain’s limited ability to take in information. Today people are exposed to an ever-increasing amount of information (see (Ware & Mabe, 2012)), which may serve as raw material for entrepreneurs and inventors to create new things. Unfortunately, the human brain has a limited capacity and energy to process the huge amount of information available from the world. This is why humans are prone to be biased and take shortcuts (Kahneman, 2011).

By now, theories regarding cognitive biases and heuristics have been seminal to developments in the fields of psychology and decision-making theory, which culminated in Daniel Kahneman winning the Nobel Prize in economics in 2002 (Kahneman, 2011). Yet, only a limited number of biases have been explored in the field of entrepreneurship (Åstebro & Elhedhli, 2006; Gudmundsson & Lechner, 2013). It should therefore be possible for research to discover techniques for entrepreneurs to minimize the negative effects of cognitive biases while developing their business ideas, and possibly minimize information processing requirements at the same time.

1.1 RESEARCH QUESTION AND AIM

Besides the huge amounts of information entrepreneurs often handle when starting a new business, it is clear that there are considerable constraints on decision-making. This leads us to the primary question of this research: How should entrepreneurs search for information such that the information-processing requirements are reduced without compromising progress in developing services and products? With the question phrased as it is, the research will look at entrepreneurial work in general, which may range from generating original product ideas to ensuring that company complies with legal regulations.

The research question will be answered in two parts: it is necessary to uncover the shortcuts entrepreneurs take to access the most useful information and also what techniques entrepreneurs use that might help to mitigate cognitive bias. In order to complete the study, it will be necessary to investigate cognitive biases and heuristics, in addition to satisficing and bounded rationality. (See the Terminology section above for definitions of key terms.)
This study will contribute to the academic fields of entrepreneurship, innovation management, and ideation by documenting strategies and techniques used by entrepreneurs in practice. The aim is to provide an analysis, in light of decision-making theory, that highlights the best information search principles for entrepreneurs to help them save time and avoid cognitive biases.

2. LITERATURE REVIEW

2.1 SIMILAR STUDIES AND THE ACADEMIC NICHE

Surprisingly few studies have been conducted on the effect of cognitive biases on the work process of entrepreneurs, although from the research that has been done shows that cognitive biases do affect the ultimate success of business ventures. For example, a recent study (Gudmundsson and Lechner, 2013) showed how cognitive biases that positively affect firm survival: the study concluded, with the help of surveys, that optimism facilitates firm creation, but it is best to counteract this optimism by having both optimistic and distrustful people on the team, to increase the likelihood of firm survival. Another study found that optimism and overconfidence among entrepreneurs are positively correlated with excess market entry and consequently high failure rates (Camerer and Lovallo, 1999).

Biases and heuristics are important because they play a pivotal role in how decisions are made (Tversky and Kahneman, 1974). Recently, Norman and Delfin (2012) applied Tversky and Kahneman’s decision-making theories to argue that biases and heuristics affect policy decisions. This study proposes to draw upon the study by Norman and Delfin by emphasizing the same main elements of Tversky and Kahneman’s theory. That is in addition to the theories regarding satisficing and bounded rationality, which will be covered towards the end of this literature review.

2.3 SATISFICING AND BOUNDED RATIONALITY

It has been shown that an overabundance of information is furthermore a threat to rational decision making, even in organizations, specifically because people tend to search until they have found an answer that meets some standards, rather than working to find the optimal solution (Simon, 1956). Herbert Simon (1956) named this tendency by combining the words “satisfy” and “suffice” into “satisfice.” This tendency to search until something sufficient is found, in combination with the overwhelming amount of information available on the internet, could be a threat to rational idea evaluation. By applying the idea of satisficing, we see that humans are inclined to search for information until there is sufficient information to make a rational conclusion, but when a search for information stops at such a point, then the conclusion drawn might be suboptimal, in comparison to a conclusion drawn when all available information has been taken into account.

The theories, biases and heuristics that have been discussed up to this point has been applicable to decision making on an individual level. However, it is also necessary to review the theories for decision-making in
organizations, since successful idea generation depends on successful idea evaluation in the larger organization.

Herbert Simon (1991) argued that computers are like organizations, in that both complete large tasks by completing a series of smaller tasks. Just like a computer’s output depends on the code it was given, an organization’s output depends on the “problem representation” (or its view of the problem) and the “prescribed decision premises” for the individual members of the organization (Simon, 1991). This setup determines what information an organization takes into account and ultimately could mean that the organization is vulnerable to satisficing on an individual level. As mentioned before, satisficing occurs when a person uses satisfactory information to make a rational decision, while the information could be incomplete and the decision suboptimal. When only a fraction of the total information is taken into account it is called “bounded rationality” (March, 1978).

A review by Busenitz and Barney (1997) summarized the literature to show that rational decision-making is often impeded in organizations by the fact that taking all information into account has too high a cost. Moreover, people who have to make decisions can only take into account a limited amount of information (Busenitz & Barney, 1997). At this point in time there seems to be an increasing risk of satisficing and suboptimal decision making, because of information overload through the Internet. Consider for example the change in reading patterns in academics: according to the STM Report (Ware and Mabe, 2012) the average academic is reading more articles per year, but the average time spent per article has decreased from about 45 minutes in the mid-1990s to 30 minutes in 2012. The ever-increasing amount of information and the increased accessibility of it may result in useful pieces of information becoming lost in noise.

2.2 Decision-making theory on an individual level

When people are confronted with a choice, they often do not choose the option that provides the maximum benefit or utility (Kahneman, 2011). People do not always make rational decisions. In reality, there are two main factors that affect decision-making: (1) people make choices that depend on how the options are framed and (2) people tend to mispredict probabilities (Norman and Delfin, 2012). These two factors are the foundation of a modern decision-making theory known as prospect theory. Each of these will be explored next, before the literature describing their implications for entrepreneurs will be explored in the next subsection.

A widely acclaimed study on option framing showed that decisions made by professional doctors depends heavily on how the options are framed (Tversky & Kahnemand, 1981). This specific study presented the exact same scenario to two groups of doctors. Although the same quantitative information was given to both groups, different words were used to give context this information. For one group the options were framed in terms of survivors and for the other group the options were framed in terms of the number of lives lost. The result of the problem framing was that it dramatically affected the number of doctors who picked one option: it went down from 70% to 30%. Subsequent studies provided similar results: people make decisions based on how they view the options, rather than simply the context of the decision.
(Kahneman, 2011, s. 271). The implication is that the way an entrepreneur views an idea determines whether or not it is accepted or rejected, rather than a reasonable assessment of the idea’s utility.

Another major factor that influences people’s choices is their perception of the possible utility of a decision option, rather than the actual utility of the option. This discrepancy may also occur between the perceived probability and the real probability of certain outcomes. People are thought to mispredict what is possible because we have “simplifying strategies” for evaluating decisions, which are complex and uncertain (Busenitz & Barney, 1997). These “decision rules” and “cognitive mechanisms” come in two variations: biases and heuristics (Busenitz & Barney, 1997). There are been more than 58 cognitive biases and heuristics identified (Baer & Lubin, 2014), but a few have been most abundant in the literature that is otherwise relevant to this research.

Norman and Delfin (2012) (state that the most prominent of these cognitive phenomena are the representativeness heuristic, the availability heuristic and anchoring, while Barbosa and Fayolle (2007) focus only on the availability heuristic and anchoring in their research. People are swayed by the availability heuristic in that they tend to be biased towards overestimating the probability of events that are more easily remembered or imagined (Norman & Delfin, 2012; Barbosa & Fayolle, 2007). On the other hand, anchoring is a cognitive bias that causes initial information to inappropriately constrain future thinking, which leads to “flawed assessments” of value or significance (Norman and Delfin, 2012). Anchoring occurs because people tend to arrive at a final choice by making adjustments from their starting point, rather than starting at a new point (Barbosa & Fayolle, 2007; Kahneman & Tversky, 1974). Lastly, the representativeness heuristic is a process whereby people make judgments based on a thing’s most prominent characteristics rather than considering all available facts (Kahneman & Tversky, 1974; Norman & Delfin, 2012).

Optimism, distrust and overconfidence are also popular biases for entrepreneurial research. It is not difficult to see why these three biases cause mispredictions. Kahneman (2011, s. 258) cites several researchers who have show that CEOs are often overconfident and optimistic when acquiring new firms into their own. Åstedbro et al. (2007) further show that innovators’ perseverance is affected by optimism: 51% of individual inventors in their study continued to spend time on their inventions after receiving expert advice to quit. In the same study one third of individuals inventors continued to invest money in their projects, even though it was clear that it was a bad investment. In contrast to the negative associations biases have in the field of entrepreneurship, Gudmundsson and Lechner (2013) showed that distrust is a cognitive bias that encourages skepticism and consequently reduces risk-taking and failure. At the same time, they found that optimism and overconfidence is also useful, but more so during the start of a venture.

High confidence has two additional functions: firstly, it helps an entrepreneur start a second venture after a failed venture (Hayward, Forster, Sarasvathy, & Fredrickson, 2010). This means that overconfidence facilitates learning and the application of lessons that have been learned. Secondly, high confidence serves as a useful tool for encouraging others to undertake a risky venture (Busenitz & Barney, 1997).
In his book *Thinking, Fast and Slow*, Daniel Kahneman (2011, s. 259) points out that there are several factors underlying to the phenomena of optimism and overconfidence, most of which relate to misplaced focus. According to Kahneman, your brain is inclined to believe that “what you see is all there is” (WYSIATI) and this is what results in a misplaced focus. In the words of this Nobel-prize-winning researcher (Kahneman, 2011, s. 259):

- “We focus on our goal, anchor on our plan, and neglect relevant base rates, exposing ourselves to the planning fallacy.
- We focus on what we want to do and can do, neglecting the plans and skills of others.
- Both in explaining the part and in predicting the future, we focus on the causal role of skill and neglect the role of luck. We are therefore prone to an illusion of control.
- We focus on what we know and neglect what we do not know, which makes us overly confident in our beliefs.”

Optimism and overconfidence can manifest in different ways. As mentioned before, Åstebro et al. (2007) related unreasonable perseverance to optimism and overconfidence. In addition to this, other authors suggest that optimism and overconfidence can be associated with “competition neglect” and excess market entry (Camerer & Lovallo, 1999; Kahneman, 2011; Simonsohn, 2010). These authors found that entrepreneurs are prone to neglect the possibility that there may have been others, who are as skilled and experienced as they are, if not more, who have failed at what they will attempt next. At the same time, entrepreneurs tend to neglect the possibility that others, possibly with the same or higher level of competence, may be preparing to enter the same market at the same time. The result is that entrepreneurs’ decisions to enter markets can often be regarded as irrational, as they mispredict the level of competition beforehand. Simonsohn (2010) concludes that this is more frequently caused by “bounded rationality rather than mindlessness.”

In addition to the subconscious biases entrepreneurs might have, they can furthermore make decisions based on “gut feeling” or intuition and their confidence in this ability may be miscalibrated. An overestimation of intuitive ability may have two causes. Firstly, people are inclined to overestimate their future performance is because “we understand the past less than we believe we do” (Kahneman, 2011, s. 201). Secondly, people are inclined to have a selective memory about when they used their intuition to make a decision. Daniel Kahneman (2011, s. 202) points out the following: “The statement ‘I had a premonition that the marriage would not last, but I was wrong’ sounds odd, as does any sentence about intuition that turned out to be false.” An empirical study found that people are inclined to adjust their memories of their predictions after the events have occurred, such they recall making higher estimates for the probability of thing that did happened and lower estimates for the probability of things that did not happen (Fischhoff & Beyth, 1975). Thus there is reason to believe that entrepreneurs might overestimate their own performance at intuitive judgments. It raises the question: have more experienced entrepreneurs developed techniques to counteract this bias?
2.4 ENTREPRENEURIAL DECISION MAKING:

Effectual reasoning

The academic literature regarding entrepreneurship suggests that entrepreneurs have a different style of reasoning than business managers. Dew et al. (2009) used protocol analysis to compare the reasoning of experienced entrepreneurs and MBA students on specific tasks related to starting a new business. Their finding was that these two groups have distinctly different styles of reasoning. In addition, Busenitz (1999) found that entrepreneurs are more likely to have their thoughts affected by biases and to think using heuristics. These findings suggest that it is important to review the literature surrounding the entrepreneurial style of reasoning specifically.

In the year 2001, Saras Sarasvathy first pointed out that expert entrepreneurs think in terms of “effectuation” (Sarasvathy, 2001). There are several factors to consider in developing an accurate conception of effectual reasoning. The word “effectuate” means to “put into force or operation” (Oxford Dictionaries, 2015). Thus effectual reasoning focuses on observing the result of actions and choices, rather than betting on accurate predictions of these actions or choices. Dew et al. (2009) describe it by saying that effectual reasoning proceeds “outward from means and causes to new effects and unanticipated ends.” They contrast effectual reasoning with “predictive logic” that proceeds “from pre-determined effects to striving for means and causal paths that would direct them toward the pre-selected goals” (Dew, Read, Sarasvathy, & Wiltbank, 2009). Sarasvathy (2005) refers to this latter style of reasoning as “causal” reasoning.

Perhaps the most important feature of effectual reasoning, for the purposes of this investigation, is that it is an alternative to making decisions based on rational predictions (Wiltbank & Sarasvathy, 2010). Thus effectual reasoning may serve to counteract mispredicted probabilities, which is said to be one of the key reasons why people fail to make rational decisions (Norman & Delfin, 2012), as discussed earlier.

Sarasvathy (2005) states that there are three principles that characterize effectual reasoning. (1) Focus is placed on minimizing investment, rather than possible returns on investment. This is the “affordable loss” principle. (2) Focus is placed on building partnerships and thereafter a market is found based on the firm’s extended capabilities, rather than choosing a market according based on a competitive analysis. (3) Focus is placed on “leveraging contingencies”: the goal is to seek benefit from surprises, rather than continuing to work to the same static goal.

Deliberate irrationality and deliberate bias

Up to this point we have reviewed the positive and negative effects of biases and heuristics on entrepreneurial work, but the deliberate use of biases and heuristics has not been covered yet. Busenitz and Barney (1997) have argued that biases and heuristics are necessary to entrepreneurship, rather than simply the result of negligence. These two researchers have argued that biases and heuristics are useful tools for simplifying decisions, such that action can be taken within a small window of opportunity and such that the complexity of building a new company would not be overwhelming. Earlier, Brunsson (1985) made the same
claim, but his argument was based on the idea that considering all possible alternatives thoroughly would take too much time. In such cases, he argued that rational decision-making could be harmful in such situations. Thus, although comprehensive information searches and cautious decision-making would minimize risk, the result may be that action cannot be taken in time to yield any return on investment (Busenitz & Barney, 1997).

Gudmundsson and Lechner (2013) have also suggested that optimism could be a useful bias for firm creation. However, they warn that optimism might be most useful for firm creation. Later, optimism could increase the probability of venture failure (Gudmundsson & Lechner, 2013; Camerer & Lovallo, 1999). Gudmundsson and Lechner (2013) conclude that teams should be balanced with both optimists and skeptics.

3. METHODOLOGY

3.1 RESEARCH PARADIGM

As stated earlier, the aim of this investigation is to document strategies and extracting principles for entrepreneurs to save time in finding useful information and by avoiding bias. This implies that the research done is inductive: the conclusions are derived based on empirical observations, rather than by testing hypotheses as with deductive research (Collis & Hussey, 2009, s. 8). Others (Åstebro, Jeffery, & Adomdza, 2007) have studied entrepreneurship and biases with a deductive approach. These studies have been useful for establishing that, like most people (Kahneman & Tversky, 1974), entrepreneurs succumb to cognitive biases (Åstebro, Jeffery, & Adomdza, 2007), just. Now the question remains as to how to mitigate the effect of biases. Luckily, entrepreneurs have done their own deductive research, in a way, by first making some (perhaps educated) guess about the best way to search for information and thereafter to adopt that method according such that it becomes closer to the apparent optimum. Thus, this research can be seen as having an inductive approach, but it is also a meta-analysis of deductive learning by entrepreneurs.

Given that this research methodology is based on an inductive approach and obtained its results through interviews, it falls under the interpretivist paradigm (Collis & Hussey, 2009). This philosophical association leads to the insight that the interviewer will influence what the interviewee says during the interview process. Collis and Hussey (2009) point out that “the act of investigating social reality has an effect on it.” This phenomenon will be discussed next, alongside the development of the interview questions.

3.2 RESEARCH APPROACH

The chosen methodology for this research is grounded theory, which is “one of the most established and respected qualitative methods” (Pontorotto, 2005). Glaser and Strauss introduced grounded theory in 1967 as a method to generate new hypotheses in behavioral studies under the interpretivist paradigm (Collis & Hussey, 2009). The research methodology entails finding information, categorizing it and then analyzing it. Similarly, this thesis focuses on extracting knowledge regarding search procedures from professionals and then categorizing it such that their choice in search methods can be analyzed in a qualitative manner. At first
this would seem similar to a case study approach, but grounded theory differs in that it is not limited to studying a limited number of incidents.

Given the parameters of this investigation, it does not seem feasible to do an experimental study or extensive surveys. Camerer and Lovallo (1999) did conduct an experimental study in the field of cognitive biases by asking entrepreneurs whether they would enter markets in different scenarios. Such an approach is not feasible or appropriate for this study, because a simulated business environment would be less complex than the real world and consequently its applicability to identify the best search strategies in reality would be dubious. Another alternative to grounded theory is conducting surveys, as was done by Åsterbro et al. (2007). This would be better to do in future research, once a more complete list of search strategies has been created from the case studies in this research.

There are four parts to this investigation, centered on the grounded theory approach, which will be discussed shortly. First, there was a preliminary literature review, in order to determine the interview questions. Second, interviews were conducted, focused on search methods and lessons learned. Third, the literature was reviewed more with greater depth. Last, an analysis was conducted based on the grounded theory approach. These steps are broken down below, in Figure 3.1.

Step 1 and 3: Literature review
Before the interviews, it was difficult to know what literature would be more useful to review: e.g., research on optimism in entrepreneurs or competition neglect or confirmation bias. It was clear, however, that cognitive biases and heuristics would be relevant, with relation to decision-making on an individual level (Kahneman, 2011). In addition, satisficing and bounded rationality was relevant on an organizational or interpersonal level (Simon, 1991). The literature review was extended into the field of decision-making theory, according to what the interviewees brought up, such that the cases can be analyzed in depth.
Step 2: Interviews

A large part of the literature review was completed before the interview questions were set up, such that as much knowledge as possible can be extracted from the interviews. Superficially, the interviews covered search methods used in practice for ideation and also about the relevant lessons learned in practice. Yet, on a more academic level, the questions were designed in a way to prompt the interview to speak about choices, which can be evaluated using decision-making theory. For example, question 13 in the interview script relates to how the task was approached, because deciding on the “problem framing” may impact the task performance significantly (Simon, 1991). Questions 14, 15 and 16 were designed to learn whether a search methodology could be affected by the human inclination to believe that “what you see is all there is” (WYSIATI) (Kahneman, 2011). The development of the interview questions will be discussed in the next subsection, while the full list of interview questions can be seen in Appendix A.

The diversity among interviewees provided multiple perspectives on how things can be done and why. Interviewees include entrepreneurs, business developers, innovation consultants and business coaches. For the latter, the questions given in Appendix A were modified to focus on the business coach’s mentees. This can be done with the following preface for example: “Has any of your mentees ever....”

Step 4: Analysis

As mentioned earlier, the analysis was guided by grounded theory. This means that the first step of the analysis involved developing categories “that illuminate the data” (Collis & Hussey, 2009). These categories were then be filled with the relevant data, before the content of the categories are analyzed. Next, the framework of analysis looked at both possible immediate implications of the methods, as well as future implications. The immediate benefits and costs were analyzed according to the information available from each case study; then the future possibilities and risks associated with the different methods were analyzed. This provided the basis on which generalized search principles were derived. Finally, the interview notes and recordings were revisited to see if the interviewees were understood correctly and fully.

3.3 Developing the Interview Questions

Many of the interview questions were designed according to the critical incident technique: they aim to extract details around memorable experiences of the interviewee, which may serve as a case study for this research. The interviewee is asked to recall an event and then asked questions about this event (Collis & Hussey, 2009), particularly how it shaped her/his search methodology while developing the product or service idea. There is possibility that the critical incident technique will produce biased recollections, selective memory and post-rationalizations (Collis and Hussey, 2009), but hopefully this can be avoided by contrasting the results from interviewees of different ages and at different stages of the business development process.

In order to avoid emotional bias, Collis and Hussey (2009) recommend that one should steer clear of questions that could offend the interviewee. The problem is that the interviewee could have learned the most useful lessons relevant to this research during failure. For example, she may have used a bad heuristic,
which led to a specific failure. In such a case it would be very insightful to know exactly why the heuristic was used, how it was used and how it caused failure. Here is the crux of the matter: the interviewee, perhaps influenced by the emotions associated with entrepreneurial failure, might feel inclined to cover up some aspects of the case, rationalize her actions, or cast them in an artificially favorable light.

Special attention was paid to developing an appropriate interview script during this study. Not only is it important not to get the interviewee on the defensive, but it is also important to get the most possible information in the shortest time. The focus of this study is specifically on handling information for ideation purposes, but there is a risk that the interviewee may start talking about a tangential topic or he may start talking about the administrative challenges of handling information in a small company (which is not relevant to this investigation). These risks provide further reason to have a set list of questions for the interview. Yet, at some points it may be required to ask follow-up questions to get the most out of the open questions, to get more complete information for the scenario described in the answer. Thus, the interviews can be regarded as semi-structured interviews, which, according to DiCocco-Bloom and Crabtree (2006), is the “most widely used interview format for qualitative research.”

The interview script was developed to contain supporting questions for the interview content. The first questions were included to provide more contextual information. Collis and Hussey (2009) point out that “qualitative data need to be understood with context.” These questions relate to the interviewees background and job position, as well as the company’s industry and age. There are also questions in the script, which are not as narrow and specific as others, that have been included to set the interviewee at ease and avoid some of the issues mentioned above.

Finally, once a first draft of the interview questions were completed, a trail interview was done with one entrepreneur, which was used to make final revisions to the interview script. The trial interview particularly helped identify questions that were unclear and too broad. For example, the question “What do you think are the most useful sources of information?” was changed to “How did you get most of the information used to develop the current business idea?” The trial interview also helped improve questions that originally prompted rationalization. For example, the word “think” was replaced with “feel” in the following question: “At what point did you feel you have to search for more information?” The interview question script is provided in Appendix A.

### 3.4 Delimitations

As mentioned before the interviewees were people working on developing startup ideas or supporting this process. It seems reasonable to limit “startups” to companies that are specifically less than five years old and are developing a “solution that is not obvious” (Robelmed, 2013). That is to say, these new companies must work with a new product, service or process, with some degree of innovation.

The interviews were constrained to people based in Stockholm, simply for convenience. However, there are several reasons why Stockholm is of particular interest for entrepreneurial research. These reasons are
condensed into one fact: the number of startups that have grown to a valuation above 1 billion USD is disproportionately high, given the small population size of the city (Benwell, 2014). A recent article in The Independent suggested that Stockholm has the potential to rivals the world’s most prolific entrepreneurial region, Silicon Valley (Benwell, 2014).

No preference will be shown to any specific demographic for interviewees, although it is necessary to note a possible constraint on the demographics of the interviewees in terms of gender. Several studies have found that women are gravely under-represented among the possible interviewees. These studies showed that only 10% of founders and only 7% of startup executives are female (according to data from 2013), while female executives typically achieve a 35% higher return on investment (Say, 2013).

### 3.5 LIMITATIONS OF THE RESEARCH METHODOLOGY

Firstly, it is important to acknowledge the limitations of the methodology in capturing the lessons learned by professionals accurately. One could argue that the interview process would influence the interviewee’s thoughts, as with any other methodology based on the positivist paradigm (Collis & Hussey, 2009). In order to try to avoid contaminating the interviewees’ thought process, the questions should not any mention of specific biases that the interviewees might not be mindful of in general. This approach is moreover constrained by the idea that the interviewees would not be willing to give more than half an hour to an hour for this research.

Secondly, it is important to acknowledge that the advantages and disadvantages of these search methods documented during the interviews may be debatable. Understanding the value of each shortcut requires a thorough understanding of the context and also the risks involved. The same heuristic could be severely criticized or lauded by the same people, depending on the outcome of something that is actually up to chance or heavily influenced by factors outside the entrepreneurs’ control (Kahneman, 2011, s. 204). Thus, this analysis emphasized the essential reasoning behind the search practices, i.e. the search principles, rather than the search habits of the interviewees.

There is a possibility that the limited amount of time available for this study will limit the number of search principles discovered. If more time were available, it might also have been possible to track down more experienced entrepreneurs. The time constraints of the project made it necessary to find entrepreneurs through organizations, associations and industry events. Consequently, it is possible that a future study, based on a larger network, might yield more results.

### 3.7 ETHICS AND SUSTAINABILITY

There seems to be only one ethical issue and one sustainability issue with this research. It will be necessary to ensure that the level of confidentiality and privacy promised to the interviewees is delivered as promised. In addition, this student paid special attention to be polite and courteous at all times, such that future
students from the same institution may have equal or better opportunities to gain interviews for their research.

4. RESULTS FROM INTERVIEWS

4.1 INTERVIEW INFORMATION

Table 4.1: Interviewee profiles of people who generate and evaluate business ideas

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Age</th>
<th>Sex</th>
<th>Academic background</th>
<th>Industry</th>
<th>Title</th>
<th>Number of startups launched</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30</td>
<td>M</td>
<td>Engineering, innovation management</td>
<td>Technology development in various industries</td>
<td>Innovation consultant</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>25</td>
<td>M</td>
<td>IT, International business and management</td>
<td>Food / health</td>
<td>Founder</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>27</td>
<td>M</td>
<td>Masters degree in entrepreneurship</td>
<td>Pet food</td>
<td>Business developer</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>61</td>
<td>M</td>
<td>Economics, IT, management, venture capital, entrepreneurship</td>
<td>Startup pre-incubation in various industries</td>
<td>Business coach</td>
<td>8</td>
</tr>
<tr>
<td>E</td>
<td>26</td>
<td>M</td>
<td>Molecular biophysics, entrepreneurship</td>
<td>Social entrepreneurship</td>
<td>Managing director</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>38</td>
<td>M</td>
<td>IT, entrepreneur</td>
<td>Internet companies</td>
<td>Founder</td>
<td>9</td>
</tr>
<tr>
<td>G</td>
<td>33</td>
<td>F</td>
<td>Economics</td>
<td>Social entrepreneurship</td>
<td>Founder</td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td>25</td>
<td>M</td>
<td>Economics</td>
<td>Nutrition / health</td>
<td>Founder</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>34</td>
<td>M</td>
<td>Industrial design, business</td>
<td>Industrial design</td>
<td>Co-founder</td>
<td>2</td>
</tr>
</tbody>
</table>

Nine interviews were conducted for this thesis, and in addition a trial interview was conducted beforehand to help develop and test the interview questions. The results from this interview are not included with the other nine. The interviewees came from a diverse range of industries and backgrounds, as shown in Table 4.1. Their ages ranged from 25 to 61. Most interviewees were male, but the 8:1 male-female ratio is representative of the profession (Say, 2013). Some interviewees were founders of young companies, while
others work to develop new businesses with the support of an established firm. One interviewee was a business coach, which provided an alternative perspective on the challenges of entrepreneurial work. The size of the startup teams that these people were part of ranged from one person to fourteen people. Revenues ranged from zero to €6 million (55 million SEK) per year. More information about the interviewees is given in Table 4.1 above.

4.2 OVERVIEW OF RESULTS
At first it seems there is no clear-cut way to structure all the information from the interviews, as with other methodologies based on grounded theory (Collis & Hussey, 2009). The raw information, notes and recordings from the interviews have no structure: the questions were open-ended questions and consequently the results obtained from the various participants vary greatly. Different interviewees often spoke about the same topics in response to different questions. It is thus necessary to rearrange the content of the interview results into new categories, as is usually done with grounded theory (Collis & Hussey, 2009). This is what was done in Table 4.2. Four categories were invented for the methods mentioned in the interviews, before the interview notes and recordings were revisited such that the relevant points could be recorded under each category. After the raw results have been structured, the search principles will be derived from these results.

Table 4.2: Search methods mentioned by the different interviewees. (The interviewees are arranges from youngest to oldest, left to right.)

<table>
<thead>
<tr>
<th>Method category</th>
<th>Interviewee</th>
<th>Total times mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H  B  E  C  A  G  I  F  D</td>
<td></td>
</tr>
<tr>
<td>Have a goal-orientated search strategy</td>
<td>✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓</td>
<td>6</td>
</tr>
<tr>
<td>Talk to experts</td>
<td>✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓</td>
<td>9</td>
</tr>
<tr>
<td>Learn by doing</td>
<td>✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓</td>
<td>9</td>
</tr>
<tr>
<td>Learn from customers</td>
<td>✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓</td>
<td>7</td>
</tr>
</tbody>
</table>

4.3 SELECTED RESULTS

4.3.1 HAVE A GOAL-ORIENTATED INFORMATION SEARCH STRATEGY

Methods
The most results from this category of methods come mainly from two interview questions: “At what point did you feel you have to search for more information?” And, “at what point do you stop your searches?” Interviewee A. captured the essence of how most of the interviewees search for information when he said: “I searched until I found all the information I wanted to have.” Some interviewees reported that they have
developed a “gut feel” for when to stop searching for information, while others had more concrete methods for limiting their searches, such as funding proposal deadlines or predetermined budgets.

Five of the nine interviewees had their information searches limited by external parties: A., C. and I. had deadlines set by the people they work for, while B. and H. had to comply with governmental regulations. However, one interviewee had a strategy for structuring information searches that could be adopted by other entrepreneurs: D. (a business coach to new ventures) recommends to his mentees to structure their information searches according to frame-works for entrepreneurial decision-making. He recommends first focusing on identifying the venture’s NABC (Needs satisfied, Approach, Benefits, Competition) and thereafter focusing on the components of the venture’s Business Model Canvas.

Factors to consider
About half of the interviewees reported that it is better not to search for complete information. C. And D. are of the opinion that “good enough is good enough,” seeing that perfecting work delays action and work will never be perfect. Interviewee I. had a different, more philosophical point of view. He said the more information we have, the less we can verify it and the more trust is required to use it. This is “fundamentally stressful,” as the line between fact and belief blurs.

Interviewee A provided an interesting testimony for why complete information is not always desirable. Earlier in his career he was working on a funding application for a venture to the value of € 1.2 million (11 million SEK). He was the primary author of the application, but he had the support of a team of experts. As per his habit, he completed the funding application with all the information he wanted to have and the team soon received good news: they had been awarded the funding. However, there were problems at the first team meeting. An expert on the team had not fully understood what they would have attempted once they had received funding. This expert had in fact attempted the same thing earlier and failed. According to his previous experiments, the product was not technically feasible. Because A.’s method was to fill the proposal with information he “wanted,” he had been more successful than he would have been if the funder were more informed. Finally, though, A.’s team did succeed in developing a working product that overcame the technical challenges that crippled the first idea.

4.3.2 GET EXPERT INPUTS

Methods
Several of the interviewees said that their favorite shortcut to reduce the amount of information they need to deal with is to talk to others with the right knowledge. There is an array of methods they have discovered to extract information from experts, and these methods are presumably adjusted in their different business environments. For example, interviewee G. is sometimes persuasive enough to “get someone else to write a short summary,” while B. gets condensed information from informal interviews with experts in his industry, even competitors. It is not always easy to get in contact with an expert, though. This is why B. also follows a blog online, which that filter expert articles for him.
There were very few similarities in the methods used by the interviewees to get expert summaries and analyses, some of which were formal processes, while others were completely ad hoc. Interviewee A. had a preference for establishing a new consortium or joint venture for every new innovation project. This would provide a financial incentive for the best experts to support the project. It is not always necessary to establish a joint venture: H.’s company has a scientific advisor, who is an academic in another country. Startups can further supplement their industry knowledge by finding the right business coach, venture capitalist of business angel, according to D. The methods employed by C. require less commitment: he prefers visiting industry conferences and trade shows. He also contacts associations and visits similar companies in other countries.

**Factors to consider**

The primary reason so many interviewees preferred to talk to others with more information and experience seems to be to save time. H. made it clear how much time can be saved when he said: “A one-hour talk with an expert could save a thousand hours [of independent research]”. In addition, E. pointed out that building a good network “is key” to getting news as fast as possible. In his line of work, it is too late when the information becomes available in the media. Beyond these reasons for speaking to experts, A. points out another, subtler, reason. According to A., speaking to others is imperative because “you need someone else’s point of view on information in order to understand it fully.”

It is clear from the interviews that there are many lessons to be learned when it comes to getting information from people. Five interviewees shared some very insightful lessons, as well as some painful lessons. Two of them touched on communication issues and relationship issues, which may justify a whole new study. Perhaps the most relevant fact for this study is that both of these interviewees learned to be more thorough with their inquiries and more cautious when depending on the information provided by others. The other three interviewees further discussed information issues related to expert interviews, which may be more useful for this study.

According to A., it is important to get a “balanced view” when determining the potential of a new technology. There are always people who would support a new technology and argue in favor of its potential. Simultaneously, there are people one the other side of the spectrum, who would provide a more critical view. Interviewee A. specifically tries to avoid biases by getting information from diverse sources in this manner.

F., who is also one of the most experienced interviews, further emphasized the importance of looking for positive and negative views. There are challenges and obstacles one could only know about once you are in the industry. This is what F. learned while working to launch internet startups in a variety of different industries, over more than a decade. There is some “black magic” in the industry; it is as if there is a “black hole” and you cannot see what is inside of it while you are outside, according to him. On the other hand, there are opportunities that are significantly more apparent for someone outside of the industry. Therefore, F. recommends that anyone who wishes to start a new venture in an industry should get the “inside view” if
they themselves do not have experience in the industry or they should get an “outside view” if they want to start a new venture in their industry.

Lastly, interviewee I., notes that people are inclined to stay within the known and work to confirm their own beliefs. One way to overcome this is for people to move out of their comfort zones, for example by spending time with people they normally would not spend time with.

4.3.3 LEARN BY DOING

Methods
All of the interviewees brought up the importance of learning by doing and, yet, many of them expressed it in different ways. Both interviewee C. and D. shared a preference for testing work as soon as possible. The one said that “good enough is good enough” and the other explained that work will never be perfect and should thus be tested earlier rather than later. According to C. his style of entrepreneurship revolves around “running before walking.”

By contrast, the other entrepreneurs interviewed were more cautious with their work. Interviewees E, G and H conducted pilot programs and built prototypes to test their predictions, before committing to their ideas fully. F. spent a year researching his current company idea before starting. He emphasized the importance of being “data driven,” but then stated that it is also important to develop a “gut feel” for what needs to be done.

Factors to consider
It seems that most business undergo critical development when the ideas are put to the test. Indeed, interviewee D., who has overseen the development of many startups as a business coach, claims that most businesses develop by “trial and error.” The reason there is such a need for it, as expressed by A., is because “you can’t know when you have all the information,” “you just have to do it.”

Sometimes, however, there is reason to be cautious. For example, C. started a process to sell a product he believed he could deliver. Soon he realized that he would not be able to deliver the quantities required for transaction to be worthwhile for the client. This experience led him to realize one of the dangers of learning by doing: beyond risking time and capital, one also gambles with relationships. Despite such risks, interviewee F. recommends a maxim that was popularized by Facebook: “move fast and break things.”

4.3.4 LEARN FROM CUSTOMERS

Methods
Learning from customers was a major recurring theme in the interviews, even thought the interview questions were not designed to obtain information from the interviewees about this process. A few
interviewees mentioned the techniques they apply to get information from customers, which ranged from spontaneous informal interviews to structured interviews to collecting market data from other sources. For the purposes of this study and in line with the interview questions, this results section will focus on the utility of learning from customers in general and will not go into the details of employing the technique.

**Factors to consider**

One interviewee, F., said that typically more vision-driven innovators are less considerate of others and “crazier.” A good example of the opposite stance is that of B.: although he has a vision for an innovative method to supply his product, he is working to collect customer feedback, such that he can optimize the product being supplied. A. added that getting in contact with the customer is also about developing an accurate understanding of the problem or need of the customer.

There are some arguments that can be made in favor of vision driven business development. For example, D. mentioned a quote attributed to Hendry Ford, which is “If I had asked my customers what they wanted, they would have said faster horses.” (Perhaps D. knew but chose not say that there is no evidence that Henry Ford ever said this (Vlaskovits, 2011).

**4.3.5 Notes on search styles**

Four of the nine interviewees commented on their own style of working in a way that does not relate to specific search methods or strategies, but which is nonetheless relevant to the study. These comments seem to be deliberate efforts to manage intuition and thereby search style. The four interviewees had emphasized styles that all relied on deliberate effort. Two interviewees, D. and H., mentioned that they do brainstorming to widen their searches for possible alternatives. Similarly, F. spoke about being self-critical and I. exerts deliberate effort to step out of his mental comfort zone. Others, such as C. and H. are deliberately optimistic that things could work.

**5. Discussion**

The first step of the grounded theory methodology was already applied in filtering the interview results into four categories: (1) have a goal-orientated search strategy, (2) get expert inputs, (3) learn by doing and (4) learn from customers. Next, in Section 5.1, the strategies and methods preferred by the interviewees will be analyzed in terms of benefits, costs, risks and opportunities. This first analysis is important to give context to the work, while Section 5.2 will be focused on extracting valuable insights from the results.
5.1 Basic Analysis of Methods

5.1.1 Have a Goal-Orientated Search Strategy

The goals entrepreneurs set for their own information searches fundamentally influence what they ultimately create. Herbert Simon (1991) argued this point when he analyzed organizational decision-making theory and concluded that the “problem representation” determines the solution. Daniel Kahneman and Amos Tversky (1981) similarly found that the “framing” of a decision dramatically influences what decisions experts make. The information entrepreneurs prioritize finding is therefore of critical importance.

One could estimate the optimal search goals as those that minimize investment risk and maximize possible returns. Entrepreneurs are known to do this in general, by employing effectual reasoning. As mentioned in the literature review, effectual reasoning entails prioritizing actions such that losses are minimized when a change of course is required (Sarasvathy, 2005). From the information collected during the interviews, we see that goal-setting strategies for information searches can be divided into two broad categories: pre-launch and post-launch. Each of these may have different optimal strategies.

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Focus on the NABC and business model canvas</th>
<th>Focus on answering questions to get funding</th>
<th>Focus on getting real-world feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits</td>
<td>• Avoid competition neglect</td>
<td>• Reduce time investment to match risk.</td>
<td>• Reduce time and capital investment to match risk.</td>
</tr>
<tr>
<td>Costs</td>
<td>• Negligible</td>
<td>• Negligible</td>
<td>• Negligible</td>
</tr>
<tr>
<td>Risks</td>
<td>• None</td>
<td>• Increased risk of preventable failure.</td>
<td>• Possible neglect of long-term strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Possible costs to reputation</td>
<td></td>
</tr>
<tr>
<td>Opportunities</td>
<td>• None</td>
<td>• Gain opportunities through ignorance</td>
<td>• None</td>
</tr>
</tbody>
</table>

There are two cases that were mentioned in the interviews relevant to the pre-launch goal setting. Interviewee D spoke about first doing an “NABC assessment” and then drawing up a business model canvas. In the NABC assessment, entrepreneurs investigate the need they will aim to fulfill, their approach, the benefits of their approach and their competition (according to I.). Together with the business model canvas, which describes the business model in nine parts, it is possible to obtain a complete picture of the business. It makes it possible to evaluate whether it justifies further investment, without large time investment into a business plan or financial models. It seems that this systematic approach further also avoids a cognitive pitfall called competition neglect. Psychological studies have shown that humans tend to focus on their own
capabilities and consequently neglect to notice other players in the market, who might have failed earlier using the same approach or who might be better positioned to undertake the same venture. This instinctive negligence is results in the phenomenon called competition neglect (Kahneman, 2011). Following a structured procedure thus minimizes the risk that further investments would be fruitless and minimizes the risk of competition neglect.

The other pre-launch search-goal strategy pertains to funding applications. Interviewee A.’s strategy was one of deliberate optimism. He searched specifically for information supporting what he was trying to argue. This strategy clearly minimizes time investment, but it may increase the risk of failure. In some cases it could mean greater investment before the venture fails; in other cases, such as in A.’s case, it could lead to the project being funded. What is particularly notable about A.’s case is that if it were not for his focus on positive feedback, he would not have received funding and would not have persevered to overcome the existing challenges.

With regards to post-launch goal setting, most of the interviewees focused on getting real-world feedback to adjust their products or services. There is a risk that this may be accompanied by a neglect of broader long-term strategy. E. stressed the importance of being continuously updated about what is happening in his industry, which most interviewees preferred to do by talking to people. The next subsections will discuss these this information search method.

5.1.2 Get expert inputs

The interviewees have reported great benefits to talking to people who are more knowledgeable than them. H. even said, “a one hour talk with an expert could save a thousand hours [of independent research].” This may be why the majority of interviews said that the talking to experts was their favorite method of reducing the time they need to spend searching for information. Beyond the timesaving, A. also reported that discussions with experts help one develop a more accurate understanding of a topic. Table 5.2, below, summarizes the different approaches used by the interviewees to get to the thoughts of experts.

There are costs involved with getting information from others. Networking does take time and attending conferences does cost money. Establishing a consortium and sharing profits can be even more undesirable. However, there are methods to get expert insights with minimal investment. For example, B. has a supply of information curated by experts via a blog. On the one hand, there are few risks associated with talking to people, besides poor communication, but, on the other hand, talking to people does increase the opportunities for creating teams or strategic alliances.
Table 5.2: Analysis of a search based on getting expert inputs

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Get an expert advisor</th>
<th>Build an industry network / visit industry events</th>
<th>Establish a consortium</th>
<th>Follow experts online</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reduce time spent on research</td>
<td></td>
<td></td>
<td></td>
<td>Reduce time spent on research</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Low cost</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Historic posts</td>
</tr>
<tr>
<td>Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Comparatively negligible</td>
<td></td>
<td></td>
<td></td>
<td>There is no dialog</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Poor communication</td>
<td></td>
<td></td>
<td></td>
<td>The information may be misunderstood</td>
</tr>
<tr>
<td>• Opinions and facts may be hard to distinguish</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• He/she may not be a real expert</td>
<td></td>
<td></td>
<td></td>
<td>The information may be outdated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunities</td>
<td></td>
<td></td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>• New ideas originate from the intersection of fields</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

5.1.3 LEARNING BY DOING

The interview questions were not designed to discover how the interviewees learn from practice. There have been several renowned books written on this topic recently, such as those by Steve Blank (2003) and Eric Ries (2011). It is a particularly interesting topic for entrepreneurs, because all entrepreneurs should learn how to manage their businesses better as they spend time managing it. Although this is not the focus of this study, it is interesting to note to what extent entrepreneurs plan in advance before they take action, as this ties in with the concept of satisficing.

It seems that entrepreneurs fall on a spectrum, where some take a year to research an idea before taking action (like F.) and others take action within one week (like C.). It is particularly difficult to compare the two approaches: firstly, because each business is unique; secondly, one cannot recreate the same company in the exact same business environment and restart it under different decision parameters to see if the final outcome is different. Yet, there is clear benefit to at least doing some experimentation. As A. pointed out, “you can’t know when you have all the information.” His argument was that there would always be some uncertainty associated with predictions, which may be even more hazardous if the degree of uncertainty is underestimated. Hence, the primary argument for employing the learning by doing strategy earlier is that one could get an earlier indication of if an idea will fail. Interviewee C., the most enthusiastic disciple of the
learning by doing approach, was the only one to name a drawback of the learning by doing approach: in a few cases one only has a single chance to make something work, because after that you might have ruined the relationship with the company you need to do that specific deal with.

5.1.4 LEARNING FROM CUSTOMERS

The interview questions were also not set up to learn about strategies to get information from customers. However, it is clearly an indispensible component of the entrepreneurial learning process. Learning from customers is heavily emphasized in design thinking theory and Steve Blank’s theory of customer development (Blank, 2003). From the perspective given in the literature review, one of the biggest benefits of getting feedback from customers can be to improve problem framing or problem representation. As mentioned before, this significantly affects the decision made by the company (Simon, 1991) and the entrepreneur (Tversky & Kahnemand, 1981). There is an additional benefit to learning from customers that was not mentioned by the interviewees: Lead users may be a source of innovative ideas, because they used the most advanced technologies, they have most experience with its problems and potential (Von Hippel, 1986)

While it is possible to get new ideas from lead users, it is also a risk that nothing innovative will come from relying on customer feedback for ideas. For example, interviewee D. pointed out that if Hendry Ford asked his customers what they wanted they probably would not have imagined being able to get cheaper cars. Another problem with interviewing customers is functional fixedness: it is difficult for people to imagine new uses for things they only know how to use in a limited manner (Adamson & Taylor, 1954).

None of the interviewees mentioned any costs associated with getting feedback from customers. This may be because it is necessary for entrepreneurs to have customers and they may as well make the best of this. None of the interviewees mentioned the possibility that a customer could steal their idea. Perhaps their thinking is in line with that of Paul Graham, a business coach at a successful startup incubator, who believes that not speaking to customers early enough is a more common reason for failure (Eisenmann, 2013).

5.2 OVERCOMING BIAS AND SEARCH PITFALLS

After considering the literature review and the above analysis, the interview recordings and notes were revisited. This time four search principles stood out. These principles serve to address the biases and the pitfalls that could ruin an entrepreneur’s search for information. This section will take an in-depth look into these obstacles specifically and it will analyze the utility of the principles used to overcome them. Table 5.3, below, lists all the cognitive biases, heuristics and decision-making issues covered in this research. In addition, it shows which principles should be effective in overcoming which obstacles.

1 Steve Blank has become renowned for arguing that rather than focusing on product development, one should focus on “customer development.” (Blank, 2003)
5.2.1 Get a balanced view

This first principle that may be applied to improve an information search is to counter-balance optimism with distrust. Interviewee A mentioned it as a risk aversion strategy, which can be applied in some circumstances. Gudmundsson and Lechner (2013) also recommend that firms balance optimism and distrust, in order to manage overconfidence, but they propose doing it by building a team that contains both optimists and pessimists, rather than merely seeking expert opinions. This search principle concurs with a technique used in the design thinking process. While design thinking emphasizes interviewing users, rather than experts, the reasoning is translatable: experts in design thinking recommend focusing to the extremes, because these people are often better at articulating the concerns and ideas that those in the middle might agree with (Brown, 2008; Daylight Design, 2014).

Although getting a balanced view might reduce risk and support firm survival, unjustified optimism does sometimes bring success. Interviewee A., who now regularly seeks a balanced view, has previously launched a project that was ultimately successful, but would not have taken off if he had started by lessening his optimism. This isolated account agrees with the finding of Gudmundsson and Lechner (2013) that optimism can aid firm creation.

Table 5.3: Techniques to overcome bias and search pitfalls

<table>
<thead>
<tr>
<th>Bias addressed</th>
<th>Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Get a balanced view</td>
</tr>
<tr>
<td>Anchoring</td>
<td></td>
</tr>
<tr>
<td>Competition neglect</td>
<td></td>
</tr>
<tr>
<td>Confirmation bias</td>
<td></td>
</tr>
<tr>
<td>Distrust</td>
<td>✓</td>
</tr>
<tr>
<td>Functional fixedness</td>
<td>✓</td>
</tr>
<tr>
<td>Linguistic relativity</td>
<td>✓</td>
</tr>
<tr>
<td>Optimism</td>
<td>✓</td>
</tr>
<tr>
<td>Overconfidence</td>
<td>✓</td>
</tr>
<tr>
<td>Poor problem framing</td>
<td>✓</td>
</tr>
<tr>
<td>Satisficing</td>
<td></td>
</tr>
</tbody>
</table>
5.2.2 Get multiple views

The second principle underlying expert entrepreneurs’ search methods is to get multiple views on something. There are three obstacles that can be avoided with this approach: functional fixedness, linguistic relativity and poor problem framing. Functional fixedness is a name for people’s inclination to constrain their conception of applications for something to the familiar uses (Adamson & Taylor, 1954). Someone who does not know how something is used normally could circumvent this problem. Linguistic relativity, on the other hand, occurs when someone lacks the words to express a concept and thus might only be able to see something thanks to someone with a different vocabulary (Lucy, 1996). Then, there is also the issue of problem framing: the optimal decision sometimes depends perspective (Tversky & Kahnemard, 1981) and consequently, satisfying multiple stakeholders depends on understanding multiple perspectives.

There are a few different ways to get multiple views when searching for information. Interviewee F. compared looking at an industry from outside to looking at a black hole: there are things inside that you cannot see from outside. Thus, if an entrepreneur wants to enter a new industry, it is recommended that he/she seeks information by contacting people inside of the industry. Conversely, if an entrepreneur wants to start a new venture in his/her industry, F. also recommends getting an outside view. Interviewee I. made a similar point, but focused on contrasting the company’s view with that of the client and end user. A., on the other hand, spoke about seeking agreement of experts from different fields.

5.2.3 Be self-critical

Some cognitive biases and heuristics cannot be avoided with set procedures. It does happen that people seek information and then refuse to accept it when they find it. This is confirmation bias at its most extreme and it is surprisingly prevalent among people working along. A study by Åstebro et al (2007) showed that “approximately one third (29%) of independent inventors continue to spend money and 51% continue to spend time on projects after receiving highly diagnostic advice to cease effort.” Here, confirmation bias can be said to accompany anchoring, which is the reluctance to move away from an initial idea (Kahneman, 2011). Perhaps it is the prevalence of these phenomena that made experienced entrepreneurs, F. and I., emphasize the importance of being self-critical.

5.2.4 Do a structured search

The last and perhaps the most important search principle identified in this research is to do a structured search. It underpins the other search principles. By employing a systematic procedure to get a balanced view and to get multiple views, it is possible to reduce overconfidence and improve problem framing. Moreover, scheduling regular self-evaluation points, or decision-points, with predefined decision-criteria, can help prevent confirmation bias and anchoring.

Having a structured search can also prevent other mistakes, like competition neglect and poor problem framing. Interviewee D. did mention using the NABC analysis to set search goals, which does involve investigating possible competition. However, whoever applies this method must be sure to consider both current competitors as well as possible future competitors, seeing that there may be excess market entry.
On the other hand, it could be possible to avoid poor problem framing, by setting a specific task in the search process to find alternative methods to present the same situation and options, although it cannot be certain that this would be effective.

Lastly, the account of interviewee A. (who received funding for a project, while the original idea was not feasible, but then eventually succeeded with a similar idea) suggests that a structured search procedure could also lead to effective satisficing, i.e. effective bounded rationality. By focusing on completing a funding application, A. managed to receive funding, which he would probably not have received if he used his own network to refute his idea. Thus his success story entails focusing on getting more opportunities (money) first. This suggests that perhaps entrepreneurs should structure their search process in a way that they commit satisficing, but work towards maximizing future opportunities.

6. CONCLUSION

All the entrepreneurs interviewed take shortcuts and try to avoid useless information. For example, they speak to experts to reduce the amount of reading they have to do, they study customers to ensure correct problem framing early on and they learn by doing, such that they can minimize the time spent searching for unknown unknowns. While all nine interviewees shared methods to avoid useless information, the more experienced entrepreneurs articulated more nuances of the process.

There are several hazards associated with the information search process. Luckily, it seems that the methods to counteract them can be standardized. Firstly, entrepreneurs can be more self-critical to reduce overconfidence. Secondly, they can work to get a view from inside before they enter a new industry or a view from outside if they are in an industry that they have worked in for some time, such that they reduce anchoring on ideas and thoughts tied to functional fixedness. Thirdly, they can look for positive and negative feedback to balance optimism and distrust. Lastly, they can use structured information searches to avoid competition neglect and optimize satisficing.

Fundamentally, the methods entrepreneurs use to search for information affects what information they find and, if they do not consider everything, this affects what they create. It can thus be said that the search process is path dependent: where they end up depends on the decisions they make along the way. These choices effect the interim conclusion, i.e. the conclusion that is used as a justification for action. However, interim conclusion is seldom the optimal conclusion, because there are multiple possible interim conclusions.

While there are methods to reduce the risks of suboptimal decisions, entrepreneurs should realize that their information search is path dependent and consequently may lead to large differentiation among startups. This means that if a number of entrepreneurs construct their ideas based on information only, they are likely to have vastly differentiated ideas. However, once these entrepreneurs enter the market, it is seems likely that market factors will drive their ideas to converge to a particular solution. This theory ties in with Utterback and Abernathy’s notion of dominant design (Tidd & Bessant, 2011). Of course one could use this
to argue that entrepreneurs should maximize their experimentation in the market, but one could also conclude from this that entrepreneurs should develop as many ideas as possible, such that they can obtain various perspectives and ultimately predict the dominant design.

In conclusion, applying the search principles identified in this study with the conscious goal to counteract bias is expected to improve predictive reasoning. While there are clear benefits to trial-and-error learning, as with discovery-driven planning (McGrath, 1995) and customer development (Blank, 2003), less biased predictive logic could improve the end result.

**Further research**

This research has been exploratory research and may be a starting point for several future studies. A psychological study needs to be done to establish the need for entrepreneurs to apply the principles derived in this study. Alternatively, a future study could use the same methodology, but increase the sample size, in order to assess the conclusions with more information. With a larger sample, and perhaps with improved interview questions, it would have been possible to contrast experienced and inexperienced entrepreneurs to a greater extent, such that the need for communicating search principles can be determined.

If it were possible to allocate more time and resources to the research, it may have been possible to do a protocol analysis, with concurrent verbalizations, as was done in a related study by Dew et al. (2009). In this procedure, the thoughts of participants are recorded as they work and think (Collis and Hussey, 2009). This latter methodology was too time consuming for this study, however if possible different versions of project documentation will be studied to compare the reasoning of subjects at different points in time.

Future research could also consider the difference between individual and team performance in this area. Particularly because Gudmundsson and Lechner (2013) have suggested that this could be an effective method for entrepreneurs to counteract some biases, such as optimism and distrust.
REFERENCES


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APPENDIX A: INTERVIEW QUESTIONS

Interview time: 30 to 50 minutes

Part 1: Background information (5 minutes)
1. Interviewee sex and age
2. Interviewee job position
3. Current company name, age, stage of development and industry, stage
4. Interviewee background
5. Number of startups attempted
6. Number of startups launched (i.e. that sold a product at least once)

Part 2: General questions (10 - 20 minutes)
7. Would you give me the names of the startups that you learned most from, so that I could ask you about them later in the interview?
8. Just so that I can ask more precise questions, I have to ask: could you tell me if there are distinct stages in your business development process, with your current business? And can you tell me a little about the different stages?
9. Tell me about the time when you started your current company:
   a. Can you tell me how you got the idea?
   b. Where did you start to investigate the new business idea?
   c. If you had to break your information search up into different phases how would you do that?
      i. In what sequence do these stages generally follow each other?
10. Tell me about the way you searched for information during your time at your current company (and ask again for other company)...
   a. At what point did you feel you have to search for more information? What encouraged you to search more?
   b. At what point do you stop your searches? Why? What stops your searches most often?
11. How did you get most of the information used to develop the current business idea? (Is it online? Can you be more specific?)
12. How do you balance time investment into understanding the problem or need or opportunity with time investment into developing a solution?

Part 3: lessons learned (15 - 30 minutes)

13. Can you think of a specific time when changing the way you see the problem OR need of the customer OR opportunity, ever resulted in new insights?
   a. What were the circumstances that led to the problem being redefined?

14. Have you ever worked on a team that pivoted to a new idea? (Ask again for different companies)
   a. What did the old idea and new idea have in common?
   b. What were the circumstances that led to the change?

15. With your current company, how much time did you spend researching alternative ideas?
   a. What methods do you now use to find alternative ideas?

16. Have you ever worked on a team where the team overlooked a critical piece of information that you did have access to earlier?

Part 4: Bonus question

17. What is your favorite shortcut for reducing the amount of information you have to handle during ideation?