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A New Model of Opportunity Recognition: Linking Individual Agency, Entrepreneurial Action, and the Innovation Process

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A New Model of Opportunity Recognition: Linking Individual Agency, Entrepreneurial Action,
and the Innovation Process

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**Dissertation Completion Approval
Doctor of Business Administration**

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Project Title:

**A new model of opportunity recognition: Linking individual agency,
entrepreneurial action, and the innovation process**

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Abstract

The purpose of this study is to explore how individuals go about identifying new business opportunities, also known as opportunity recognition. Opportunity recognition is the first and most critical step in the entrepreneurship and innovation process. Past models of opportunity recognition took a narrow approach, subscribing to a single perspective of opportunity recognition and tended to overemphasize either the person or the process rather than examining all possible mechanisms and their interaction effects. This study has taken a holistic approach, with a focus on both serial entrepreneurs and intrapreneurs, aimed at exploring a range of conditions present in small startups and large organizations. Data findings were distilled down into ten proposition statements and presented in a visual process model of opportunity recognition. A total of 23 variables emerged in the research study, 12 of which were new concepts not identified in previous models. The most salient and profound insight from the study was the importance of reframing the opportunity until the “real opportunity” emerged. This back and forth reframing process occurred in cycles until a clear problem-solution fit was identified. The major contribution of this model is that it expands upon cognition theory by showing how the idea enactment process feeds back into the individual’s thought process, emphasizing the interaction effects between thinking and action. The resulting model follows a clear flow and sequence of events but also illustrates the organic nature of the ideation process and allows for multiple pathways into an innovative idea. This study bridges an important divide between the entrepreneurship and innovation literature and shows how different perspectives in the literature such as creation and discovery, identification and enactment, and active and passive search can coexist. This research provides the foundation from which to operationalize the model and develop training and educational materials for management, consultants, and educators. The

study has the potential to help business leaders and aspiring entrepreneurs unlock new market opportunities, navigate a broad mix of innovation tools and techniques, and enhance cognitive skills that are central to the opportunity recognition process. Cultivating this talent is critical to achieving a sustainable competitive advantage and the successful value creation of new ventures.

Keywords: active search, alertness, cognition, creation perspective, discovery perspective, entrepreneurship, grounded theory, idea generation, innovation, opportunity identification, opportunity recognition, passive search

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Chapter 1 – Introduction

Opportunity recognition is the first and most critical step in the entrepreneurship and innovation process, and scholars agree it is one of the most fundamental entrepreneurial behaviors; without it, there would be no idea to act upon and no venture to build (Gabrielsson & Politis, 2012; Kirzner, 1997; Saks & Gaglio, 2002; Shane & Venkataraman, 2000; Venkataraman, 1997; Zacca & Dayan, 2017). Substantial research has been conducted on opportunity recognition. However, multiple systematic literature reviews point to the multiplicity, fragmentation, and poorly grounded theories of opportunity recognition and innovation as a process (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). Entrepreneurship tends to emphasize the role of the individual in exploiting new market opportunities, while corporate entrepreneurship and innovation efforts focus more on the organizational dynamics and the organization's ability to adapt to an ever-changing external environment. The fragmented nature of entrepreneurship and innovation has made it difficult to share and apply new knowledge between fields.

There are four existing models and theories that attempt to explain the process of opportunity recognition—a model of opportunity identification and development theory (Ardichvili et al., 2003), the pattern recognition framework (Baron, 2006), the entrepreneurial information processing framework (Vaghely & Julien, 2010), and the integrated model of entrepreneurial opportunity recognition (Riquelme, 2013). Each framework emphasizes different aspects—the person, environment, and context—more heavily than others and fails to fully capture and integrate the key drivers of opportunity recognition. Mary George et al.'s (2016) systematic literature review of entrepreneurial opportunity recognition of 180 articles across three decades reveals that there is a deficiency of studies analyzing the factors that lead to

opportunity recognition and a dearth of studies that explore emerging perspectives such as the creation approach (Alvarez & Barney, 2007; Mary George et al., 2016; Sarasvathy et al., 2003).

A more rigorous approach to unearthing the cognitive and behavioral phases involved in generating new business ideas and developing a unified theoretical explanation is needed. The purpose here is to address these gaps in the literature on opportunity recognition and offer an updated and more accurate representation of the process of opportunity recognition.

Materials and Methods

A grounded theory approach was used to conduct this study. Two sociologists, Glaser and Strauss (1967), developed the grounded theory method, which is defined as “a general methodology for developing theory that is grounded in data systematically gathered and organized” (Strauss & Corbin, 1994, p. 273). Researchers are drawn to this method because it allows the researcher to generate a theory inductively from real data, rather than through speculation, and strengthens its applicability in the real world (Corbin & Strauss, 2015). This study focuses on the process of opportunity recognition. The central research question is as follows: How do individuals go about identifying new business opportunities?

Data were collected from 27 serial entrepreneurs and intrapreneurs across 23 different organizations in the United States. These individuals were identified as experts of opportunity recognition based on the following four criteria: 1.) individuals must have successfully launched two or more ideas, 2.) the ideas must have launched within the past 10 years, 3.) the ideas must be innovative in nature, and 4.) the ideas must be revenue-generating or cost-cutting. To ensure each participant met the study requirements, the criteria were included in the initial contact email inviting the individual to join the study and were reiterated again using control questions during

the interview. A combination of three sampling strategies were used during the study—a convenience sample, a purposeful sample, and a theoretical sample.

Participants came from a variety of educational and family backgrounds, including individuals with degrees in engineering, finance, and history and families with and without entrepreneurship experience. Of the 27-person sample, there were 26 men and one female. The sample was split almost evenly between entrepreneurs and intrapreneurs with 13 entrepreneurs, 10 intrapreneurs, and four who had experience as both entrepreneurs and intrapreneurs. Entrepreneurs included in the study held prominent roles in the startup, either as sole founders or co-founders of the organization. The entrepreneurs interviewed had each launched at least two successful businesses still in existence today, and some had raised multiple rounds of venture capital. Intrapreneurs held a range of job titles from senior vice president of innovation to director of product development and strategy to other creative leadership positions at multi-billion-dollar corporations. These individuals were responsible for entrepreneurial projects from conception to deployment or commercialization. The most information-rich interviewees were those who had experience as both entrepreneurs and intrapreneurs as well as those who had launched a business with little to no life or work experience and again as more seasoned entrepreneurs later in life. These cases surfaced different conditions, which led to a deeper understanding of the phenomenon. Figure 1 provides a full list of industries represented in the sample, and Figure 2 provides an overview of key characteristics of the sample members including total number of entrepreneurs, intrapreneurs, individuals in active search mode, and individuals in passive search mode.

Industries		
Banking	Financial Investment	Real Estate Investment
Child Education	Food & Beverage	Restaurant
Confectionary	Humanitarian Relief	Retail
Corporate Compliance	Insect Repellent	Steel Manufacturing
Digital Media	Insurance	Transportation
Electronic Test Equipment	Market Research & Intelligence	
Entrepreneurship Support Services	Outdoor Cooking	

Figure 1. Industries represented in the sample.

Characteristic	Number (out of 27 total sample members)
Entrepreneur	13
Intrapreneur	10
Both Entrepreneur & Intrapreneur	4
Active Search	15
Passive Search	12

Figure 2. Characteristics of the sample members.

Data collection from the interviews occurred in two phases. The first phase of data collection consisted of one-on-one interviews lasting approximately 1.5–2 hours each and followed a similar semi-structured interview format. Interviews were simultaneously scheduled, conducted, coded, and reflected upon using detailed notes and memos. After the first phase of data collection was complete, I developed a new model of opportunity recognition along with

supporting proposition statements. I initiated the second round of interviews to collect feedback on the model. Participants received a second email with a request for a shorter, follow-up interview taking approximately 30 minutes to 1 hour. Interviewees were sent a visual of the model and supporting proposition statements for review two days prior to the call. In the follow-up interview, I provided a brief overview of the model, and respondents were then asked to discuss what aspects of the model did or did not fit their experience with opportunity recognition. The interviewees were further asked if any items should be added, removed, or rearranged on the model to rank the variables and if they knew of any other ways in which new opportunities were recognized that were not currently represented on the model. This feedback loop helped refine the researcher's understanding of the relationship between concepts and to address existing biases.

Twenty-five of the 27 interviewees agreed to provide feedback during the second phase. One of the 25 participants provided feedback via email as they were unable to find a time to meet. Regarding the two participants who did not provide feedback, one participant declined due to recently being diagnosed with a medical condition requiring surgery. The other participant did not respond after several attempts to make contact. Given the robust sample size, the high response rate, and strong agreement among the other 25 respondents, this was not a concern.

As prescribed by leading grounded theory experts Corbin and Strauss (2015), all procedures for building a theory using coding were applied. The data analysis took place in three phases—open, axial, and selective coding. During open coding, I identified lower level concepts and found patterns and relationships among concepts through constant comparison within and across data sets. Subsequently, axial coding involved re-examining the results from open coding and establishing links between emerging categories by critically evaluating the data under

different conditions. Finally, selective coding was used to further analyze the causal relationships among categories, determine the core category of the phenomena, and integrate the categories around it.

Theoretical Background

Ardichvili and Cardozo (2000) define opportunity recognition as “recognition that results in a creation of viable new businesses” (p. 105). This topic is of great importance because opportunity recognition allows for the advancement of knowledge (Dess & Picken, 2000; Drucker, 1992), innovation (Audretsch et al., 2015; Crossan & Apaydin, 2010; Dess & Picken, 2000; Dimov, 2007; Drucker, 2014; Gabrielsson & Politis, 2012), and competition in markets (Antoncic & Hisrich, 2001; Ireland & Webb, 2007; Moustaghfir & Schiuma, 2013). Opportunity recognition is often misunderstood, which is detailed immediately hereto in this literature review followed by a detailed account of perspectives that lead to the need to further research the model and theory of opportunity recognition.

The English language is full of metaphors used to describe the discovery of breakthrough ideas—“that eureka moment,” “the light bulb went on,” or a “stroke of genius” (Johnson, 2010, 14:04). Johnson (2010) explains how poorly these expressions depict the process through which good ideas emerge in the real world. Johnson argues that good ideas form across networks and have long incubation periods. This characterization contradicts the impression many people have of innovation and ideation occurring like a spark rather than a process. Seminal research recognizes ideation to be more than a mere moment of genius. Vaghely and Julien (2010) describe the idea development process as a complex interweaving of both heuristic and algorithmic information processing. Baron (2006) noted opportunity recognition as a repeated search for patterns where one must “connect the dots” between seemingly unrelated events in the

external environment by using cognitive frameworks or knowledge structures often built over years of experience. The research indicates that breakthrough ideas are a result of an unfolding process rather than a singular moment of inspiration.

While the event of discovery is important, it is equally or more important to understand that the point of eureka is the outcome from the process of perhaps many interrelated variables. As such, the process can be argued as being much more important than the event itself; this is a growing topic of interest in the fields of entrepreneurship and innovation because as noted, understanding the process that leads to opportunity recognition enables value-generating capability which is seen as a source of sustainable competitive advantage (Moustaghfir & Schiuma, 2013). Opportunity recognition is a critical step in the entrepreneurial process (Ardichvili & Cardozo, 2000). Opportunity recognition is defined in three parts : “(1) sensing or perceiving market needs and/or underemployed resources, (2) recognizing or discovering a “fit” between particular market needs and specified resources, and (3) creating a new “fit” between heretofore separate needs and resources in the form of a business concept” (Ardichvili et al., 2003, p. 109). The most prominent model and theory of opportunity recognition identifies several factors that lead to successful opportunity recognition including personality traits, social networks, prior knowledge of the market and customer problems, and entrepreneurial alertness (Ardichvili & Cardozo, 2000; Ardichvili et al., 2003). The definition, model, and process of opportunity recognition seem to go well beyond an “aha moment” as portrayed in society today (Johnson, 2010).

Relative to opportunity recognition, it is important to distinguish entrepreneurship and innovation. Although entrepreneurship and innovation are both concerned with opportunity-seeking behaviors, the literature in these two areas remains divided (Crossan & Apaydin, 2010).

Entrepreneurship is the study of why, when, and how opportunities to create future goods and services emerge and the process of discovery, evaluation, and exploitation (Venkataraman, 1997). Innovation is the means through which organizations improve business performance, pursue growth, and develop a sustained competitive advantage (Antoncic & Hisrich, 2001; Lumpkin & Dess, 1996; Zahra, 1991). Entrepreneurship tends to emphasize the role of the individual in exploiting new market opportunities, while corporate entrepreneurship and innovation efforts focus more on the organizational dynamics and the organization's ability to adapt to an ever-changing external environment. Consequently, existing models of opportunity recognition tend to consider different aspects—the person, environment, and context—more heavily than others. The fragmented nature of these two research domains has made it difficult to share and apply new knowledge between fields. Future research should examine ways to leverage knowledge across domains and connect these parallel fields (Crossan & Apaydin, 2010). Opportunity recognition is a natural starting point to address this gap in the literature.

Entrepreneurial opportunity: Discovery versus creation. Why, when, and how do opportunities for creation of goods and services come into existence? Why, when, and how do some people discover entrepreneurial opportunities and not others? These are the central questions of scholars studying opportunity recognition (Shane & Venkataraman, 2000). Researchers disagree on whether opportunities are discovered or created, a debate as to whether the opportunity exists independent of the entrepreneur. Mount Everest is used as a metaphor to explain these two perspectives of opportunity recognition—"mountain climbing" versus "mountain building" where the mountain represents the opportunity (Alvarez & Barney, 2007, p. 11). According to the first perspective, opportunities are objective and merely waiting to be discovered. Entrepreneurs rely on environmental scanning and data analysis to find opportunities

and exploit them. The opposing viewpoint, the creation approach, argues that opportunities do not exist and therefore must be created by the entrepreneur through an iterative learning process.

Sarasvathy et al. (2003) argues for a third, more integrative perspective where the entrepreneur relies on multiple methods at different points in the development of the opportunity. Ardichvili et al. (2003) support this integrated view as they contend that opportunities are developed in cycles and continue to unfold over time. The entrepreneur recognizes an opportunity, evaluates it, and then develops it. Each time the entrepreneur evaluates the opportunity, it leads to recognition of new opportunities and redirects the entrepreneur's original vision. Additional studies have found that entrepreneurs draw from multiple scripts and schema when identifying new opportunities (Chiasson & Saunders, 2005; Gaglio & Katz, 2001). A single view of entrepreneurial opportunity does not adequately describe the process. A closer look at how entrepreneurs go about discovering or creating opportunities is useful in understanding the different perspectives of opportunity recognition.

Opportunity recognition—systematic versus random. Opposing viewpoints in the literature argue whether individuals can systematically search for opportunities or whether they are a result of blind luck (DeTienne & Chandler, 2004). Scholarly work falls on a broad spectrum between these two extremes. DeTienne and Chandler (2004) classify opportunity identification in four categories: active, passive, fortuitous, and creation. Active search is the systematic search for markets in disequilibrium. This method suggests market opportunities are easy to spot through activities such as environmental scanning, competitive analysis, and strategic planning. Unlike the other three methods—passive search, fortuitous discovery, and creation—human creativity is not a critical component of active search. Passive search (Ardichvili et al., 2003) differs from active search in that it suggests objective opportunities exist

but cannot be clearly defined prior to the moment of discovery. Therefore, this method maintains that the individual stays alert but does not initiate an active search. Techniques improve one's ability to sense changes in the environment, and training enhances their creativity. This sets passive search apart from fortuitous discovery which is a serendipitous happening while the individual's attention is elsewhere and results in complete surprise (Kirzner, 1997). The creation approach relies entirely on the individual's imagination; nothing in the environment facilitates or prompts recognition of the opportunity (Shackle, 1961). However, creativity is not blind luck but rather a competency that entrepreneurs can develop and increase. In these four methods, only active search is purely systematic, and only fortuitous is purely a result of random, blind luck. Passive and creation approaches fall in between these two extremes. These methods suggest four sources for identifying new venture opportunities: the environment, personal knowledge and aspirations, sheer luck, and the imagination.

A study by Vaghely and Julien (2010) offers a blended approach where opportunities are both recognized and constructed. Opportunity recognition has a foundation in cognitive psychology and relies on a pattern-like, algorithmic model. Opportunity construction or enactment stems from developmental psychology, which derives from a trial-and-error or heuristic model. In Vaghely and Julien's (2010) study, successful entrepreneurs are skilled at switching between both algorithmic and heuristic modes of thought when processing information. Entrepreneurs use social interaction and boundary spanners to identify new opportunities. Both systematic and random approaches are developed from the discovery theory perspective of opportunity recognition as they are based on the premise that the opportunity is objective and exists independent of the entrepreneur. These perspectives do not consider the creation theory in which the opportunity is created through an iterative learning cycle between

the entrepreneur and the environment (Alvarez & Barney, 2007). Opportunities are not truly “constructed” unless they are dependent on the entrepreneur’s actions.

Existing models of opportunity recognition. Ardichvili (Ardichvili & Cardozo, 2000; Ardichvili et al., 2003) authored several seminal works on the process of opportunity recognition in entrepreneurship. He developed a model and a theory of opportunity recognition and was among the first researchers to examine a combination of factors influencing the success of new business ventures. Ardichvili and Cardozo (2000) conducted a study of 20 successful

entrepreneurs with company sales ranging from \$2 million to \$200 million. Results generated a proposed model of opportunity recognition. In the model, prior knowledge of markets and customer problems, entrepreneurial alertness, and social networks lead

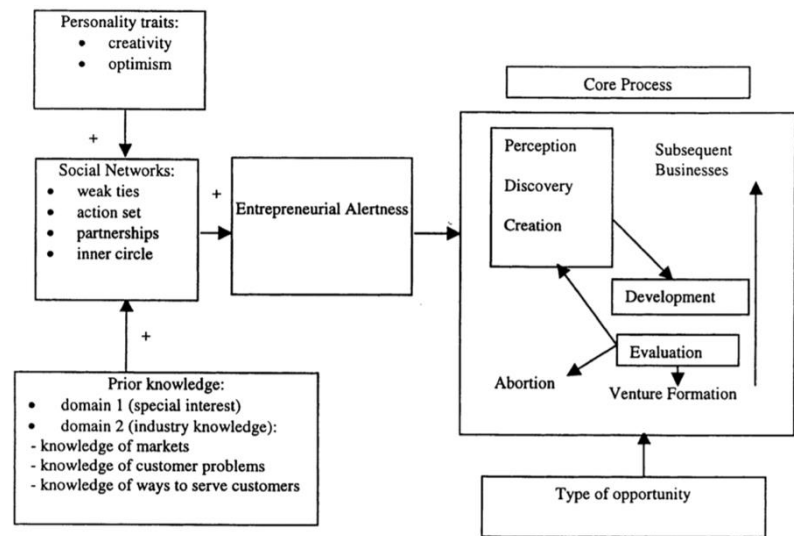


Figure 3. Model of Opportunity Recognition

to successful opportunity recognition. Three years later, Ardichvili et al. (2003) introduced a theory of opportunity identification and development that built on existing models of opportunity recognition to better understand specific factors and causalities. The theory of opportunity recognition proposes that high levels of entrepreneurial alertness lead to successful identification of new venture opportunities. Alertness relates to high levels of entrepreneurial creativity and optimism, a convergence of special interest knowledge and industry knowledge, and an extended social network.

Ardichvili et al. (2003) developed the model of opportunity recognition, which laid the foundation for future researchers to better understand this first stage of the entrepreneurial journey. New models were developed in response to this seminal work on opportunity recognition and adopted different lenses such as cognitive psychology (Baron, 2006) and developmental psychology (Vaghely & Julien, 2010), exploring both the mental and social aspects of ideation (Ruttan, 1959).

Baron developed the pattern recognition model in 2006; it applies a human cognition research lens to better understand how individuals identify new business opportunities. Cognitive frameworks suggest a process called pattern recognition. Opportunity recognition as pattern recognition explains the connection between an individual's ability to see changes in the external environment and how one uses these scanning capabilities to generate ideas for new business ventures. The proposed pattern recognition model incorporates three critical factors: active search, alertness, and prior knowledge.

The pattern recognition process starts with an individual's ability to draw connections between seemingly unrelated events or trends in the external world (Baron, 2006). Changes in the external world include shifts in

technology,
demographics,
markets, government
policies, and other
factors. For example,
wheeled luggage was

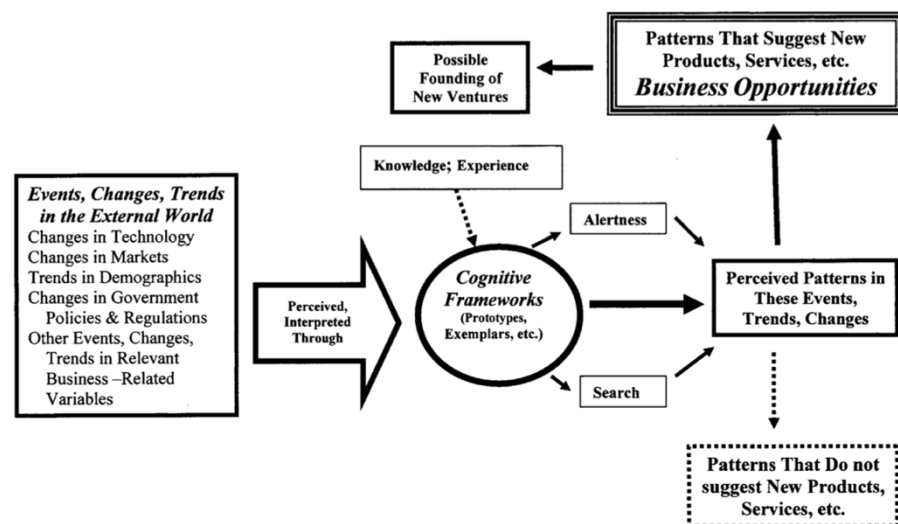


Figure 4. Pattern Recognition in Opportunity Recognition

used by flight crews for years before it was introduced to the mass market. It was not until someone “connected the dots” between several rising trends that this business opportunity emerged. The influx of air travelers due to more affordable ticket prices, increased issues with checked luggage, and the growth of airports were key trends that made wheeled luggage an attractive business opportunity. The entrepreneur’s cognitive frameworks provide the links between raw data or pieces of information to form patterns that lead to new possibilities. More specifically, an individual’s memory of associated changes in forces in the external environment affects the proficiency of opportunity recognition. Previous life experience enhances the cognitive structures, which compose one’s memory. These experiences serve as prototypes and exemplars from which to form connections. Baron’s (2006) model is built on theoretical propositions, not actual data analysis.

Alternatively, Vaghely and Julien (2010) apply a more evidence-based approach to formulating a model of entrepreneurial opportunity identification. In the study, 65 in depth interviews of 10 small and medium-sized enterprises (SMEs) ranging from financial brokers to manufacturing firms were conducted to better understand how entrepreneurs use information to identify opportunities. Findings indicate that entrepreneurial opportunities can be both recognized and constructed at individual and organizational levels. Entrepreneurs rely on both algorithmic information processing and heuristics to identify new business opportunities. These two modes of thought include rational evaluations of explicit information in the environment as well as intuitive connections that spark new ways to examine common problems.

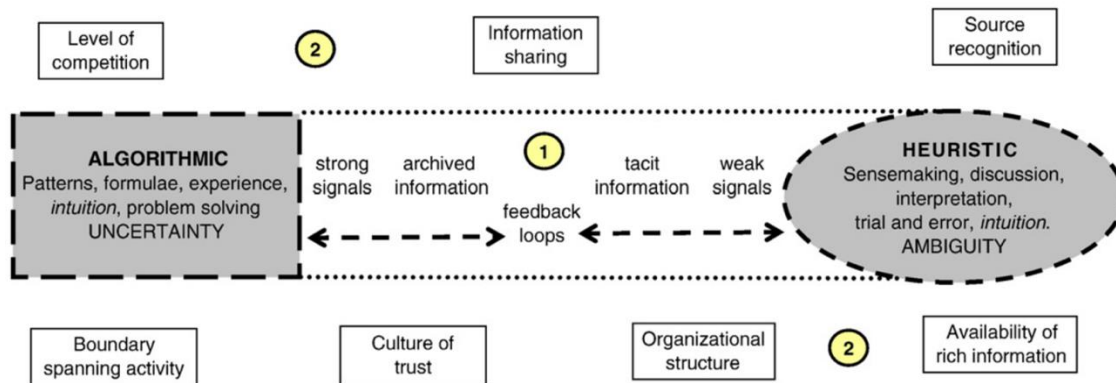


Figure 5. The Entrepreneurial Information Processing Framework

Need for a strong unifying theory. Multiple systematic literature reviews point to the multiplicity, fragmentation, and poorly grounded theories of opportunity recognition and innovation as a process (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). The many units of analysis studied across both opportunity recognition and innovation processes make it difficult to establish one, unifying theory of opportunity recognition. Different units of analysis may refer to the individual, the organization, and the individual's information network, which may all be further qualified by the type of innovation, size, and industry. Researchers are calling for the crosspollination of research findings across the entrepreneurship and innovation literature (Crossan & Apaydin, 2010). The entrepreneurship literature suggests the field should focus less on the individual and more on the external environment (Zahra & Dess, 2001). In contrast, the innovation literature states that the individual level of analysis is underrepresented in innovation studies. The literature urges researchers to examine the individual agency that is clearly established in the entrepreneurship literature and apply it at the organizational level (Crossan & Apaydin, 2010), thereby linking entrepreneurial action with the innovation process (Mary George et al., 2016).

The most prominent model of opportunity recognition was developed using a case study analysis of 20 successful entrepreneurs almost 20 years ago (Ardichvili et al., 2003). Ardichvili et al.'s (2003) model does not fully capture the drivers of opportunity recognition. Mary George et al.'s (2016) systematic literature review of entrepreneurial opportunity recognition of 180 articles across three decades shows there is a deficiency of studies analyzing the factors that lead to opportunity recognition. Specifically, the authors urge researchers to analyze the mechanisms of the opportunity recognition model more closely by examining effects on sub dimensions of opportunity recognition and diverse dependent variables. Moreover, the model may lack relevance in today's ambiguous and uncertain business environment (Bennett & Lemoine, 2014; Blank, 2013; Neck & Greene, 2011; Thurik et al., 2013). Today's complex business environment indicates a need for research on opportunity recognition from a creation perspective (Alvarez & Barney, 2007). Theories must evolve as the world changes and consider new conditions that shape the phenomenon (Strauss & Corbin, 1994).

More recent models of opportunity recognition have significant limitations in the design and methodology. Vaghely and Julien's (2010) information processing framework was developed using a case study approach. A case study approach lacks the necessary iterative steps to describe the conditions under which the theory holds. Baron's (2006) pattern recognition model is based on a set of theoretical propositions instead of actual data analysis. While these models provide valuable insights into cognitive and social aspects of opportunity recognition, they do not present a holistic model that answers the core questions—why, when, and how do opportunities for creation of goods and services come into existence? Why, when, and how do some people discover entrepreneurial opportunities and not others (Shane & Venkataraman, 2000)? The research methodologies used in the current theories and models of opportunity

recognition do not apply the rigorous research techniques needed to develop a holistic and integrated theory of opportunity recognition and therefore fail to accurately describe the opportunity recognition process.

A grounded theory study offers a rigorous approach to unearthing the cognitive and behavioral phases involved in generating new business ideas. Grounded theory accounts for causal conditions, context, and outcomes (Creswell & Poth, 2018). As themes and influences emerge, the data develop into larger buckets of categories and eventually into a “unified theoretical explanation” (Creswell & Poth, 2018, p. 82). The reflexive nature of a grounded theory study revealed the different iterations of the idea over time. The present study explains and describes the mechanisms that lead to successful opportunity recognition in an age of uncertainty and a rapidly changing external environment. The central question of the study is as follows: How do individuals anticipate and identify new business opportunities in both startup ventures and established organizations today? This study explores critical factors of opportunity recognition as well as possible sub dimensions. In doing so, the study offers an updated and more accurate representation of opportunity recognition.

Results

The grounded theory design sought out the experience and perspective of expert individuals well versed in opportunity recognition to inform the theory building process. The sample included 27 expert individuals with experience in launching two or more startup ventures or corporate entrepreneurship initiatives that were innovative in nature. There were 13 entrepreneurs, 10 intrapreneurs, and four individuals with both entrepreneurship and intrapreneurship experience. Twenty-three organizations and 19 industries were represented in the sample. Data collection and analysis occurred simultaneously over the course of 10 months.

Interviews were conducted in two phases via video conferencing technology; initial interviews captured the essence of the opportunity recognition process, and follow-up interviews created a feedback loop between the researcher and participants to check for accuracy of the opportunity recognition process model. All but two of the 27 interviewees were available to provide feedback.

Findings derived from the expert sample confirmed that opportunity recognition is a highly iterative process and involves a complex interplay between the person, process, and context (Dimov, 2007; Gabrielsson & Politis, 2012). At the highest categorical level, the process involves stimuli, perceptual filters, connect the dots, alertness to the perceived problem or opportunity, active idea development through stakeholder engagement, and reframing the problem or opportunity. Figure 9 illustrates the complex and iterative nature of opportunity recognition through a visual model of the process that was developed. In addition, a summary of study findings derived from the expert sample were codified in 10 proposition statements in Table 1.

Results from the study indicate that the opportunity recognition process is inherently messy and iterative in nature, but that it can be understood, codified, and even learned. One expert sample member emphasized that the process of discovery is not a programmatic approach nor alchemy or magic. Another interviewee said, “It’s actually a discipline, I believe anyone can be creative. I believe new ideas can be sustainably generated...I think it’s a big myth that people misconstrue is [that we have to] outsource our ideas.”

Participant reactions to the final opportunity recognition model developed in the study confirmed the importance of a model that mapped out the process from end-to-end but also one that acknowledged multiple pathways and reflected the organic, non-linear steps individuals

must navigate. Interviewees agreed the present study accomplished that outcome and compared and contrasted the model developed in this study with existing innovation tools and techniques used in industry, commenting on the flexibility of this new model and on where existing innovation methods fall short. One participant stated:

...while all these elements and these paths take place, it is entirely possible for them to change in order of priority...So, it's linear until it stops being linear. I think the great challenge is the reason I think design thinking has been overemphasized, over-talked, and broadly misunderstood. And that it is a linear process from one to two to three to four to five and so forth. That's just not the truth of the world in my experience, it would be great if everything could be linear, because then we would know exactly what to do next every single time. But what you've done is sort of identify the steps that are going to occur, but you also have to be agile and savvy and good at this, you also have to be able to play leapfrog and come back to things...there's every permutation under the sun.

Another sample member discussed the value of the model in this study in contrast to the lean canvas tool that has been popularized in entrepreneurship and innovation (Blank, 2013). His statements were as follows:

I love what you're doing. And I think you're dead on, which is why I'm analyzing it. I'm obviously intrigued... I started thinking about lean canvas, which I don't like lean canvas very much. I feel it's become this crutch, it serves a purpose, but it's not the end all be all....here's your 12-step program, do this and you'll get there. I don't think it's the intention but... when somebody says, here's your solution. I think there's too much weight put on it. But what I like about what you're doing is that it feels more organic, which is because it is organic.

Still, another respondent stated, “You’ve taken the engine apart and understand how fuel gets into the engine and combustion, the process behind it.” The holistic nature of the opportunity recognition model resonated from both entrepreneur and intrapreneur perspectives in the study, further validating the notion that bridging two distinct domains of research in the literature, entrepreneurship and innovation, by examining the individual and the process has merit in the real world. From an industry standpoint, the value of this new integrated framework is threefold: The model 1.) identifies all critical steps in the discovery process, 2.) reflects the organic, iterative nature the process demands, and 3.) integrates the role of the individual in the process.

Perhaps the most salient and profound insight from the study findings was the importance of reframing the opportunity until the “real opportunity” was identified. During the interviews, it quickly became clear that the discovery of the opportunity did not occur at any one given moment in time and that the individual did not fully conceptualize the core value of the idea until later. As one interviewee stated, “I don’t think we were smart enough to see the whole picture...it was like a foggy road...we only saw maybe 10 yards in front of us.” The original concept morphed over time, and new distinctions to the business concept were identified through stakeholder engagement, which led to a more meaningful competitive advantage. One participant’s comment sums up this concept, “No one was tapping into what the real reason and emotion was for people to do this, which is fear of losing their most important memories...like we aren’t video converters...we should approach the market from a consumer-friendly perspective.” Another interviewee said, “We thought we were a product development company...like the real project isn’t material. The material is great. The real project is trying to bring private funding into the space in an innovative way.” In most cases, opportunity recognition started with a kernel of truth but was not fully recognized until after the idea was

implemented. “I’ve found that for myself an idea is never 100% right, but maybe there is a small percent that is a unique insight that when explored further starts to uncover a bigger or more refined opportunity.”

This iterative learning process is at the center of opportunity recognition and can best be understood as a reframing of the problem or opportunity several times over until a strong problem-solution fit is achieved at scale, also referred to as adoption or integration. This is an important aspect that emerged in the research in that the goal of successful opportunity recognition is not merely to generate a novel or creative idea but rather a concept that satisfies a real customer need, possesses commercial viability, and sustains a profit against the competition (Dimov, 2007; Gabrielsson & Politis, 2012). As one interviewee said, “Just because you invent a new gadget, doesn’t mean that’s going to have room in the marketplace. For that you need innovation and there’s a lot more that goes into it than just a new idea or a new widget.” In summary, invention is not innovation.

Furthermore, the ongoing reframing of the opportunity sample members spoke of aligns with the literature, which states that entrepreneurship and innovation is a holistic process that is continuous, not bound by the early stages of a new venture (Zhao, 2005). More specifically, the reframing aspect of this study supports the creation perspective, which states that opportunities are constructed through an enactment process (Aldrich & Kenworthy, 1999) in which an entrepreneur holds initial beliefs about an opportunity that are quickly revised after taking action and learning from the market’s response (Arrow, 1974). However, unlike what the creation perspective suggests (Baker & Nelson, 2005; Sarasvathy, 2001), the present study found that opportunities emerge from changes in the external environment, which validates a more integrated perspective of opportunity recognition. An integrated perspective encompasses

characteristics of both discovery and creation at different stages in the development cycle (Sarasvathy et al., 2003). Depending on how well the problem and decision parameters are defined, different approaches may be more fitting. An integrated perspective acknowledges a variety of starting points and pathways through the opportunity recognition process.

The opportunity recognition theory resulting from this study contains concepts that support certain aspects of the four existing models of opportunity recognition (Ardichvili et al., 2003; Baron, 2006; Riquelme, 2013; Vaghely & Julien, 2010) and presents new concepts not identified in past models. There were 23 concepts identified in the present study, only 11 of these concepts are represented in previous models, leaving a total of 12 new concepts discovered in this research study. Several of the new concepts are discussed in other domains of the literature but were not explicitly addressed in past conceptual or theoretical models of opportunity recognition. It is not surprising that several new concepts were discovered in this study as it took a more holistic approach to the unit of analysis in the research design and relied on a more rigorous research method suited for unearthing the cognitive and behavioral phases involved in opportunity recognition.

Similar to past models (Ardichvili et al., 2003; Baron, 2006), the proposed opportunity recognition model identifies prior knowledge and social networks as key drivers of alertness. Sub dimensions of these categories align with past models including education, industry knowledge, customer knowledge, and special interest knowledge. Furthermore, in line with previous models, especially Baron's (2006) pattern recognition model, are the cognitive properties necessary for sensing and perceiving a connection between an individual's knowledge structures and the external environment to generate new business ideas. These cognitive properties include perceptual filtering and connecting the dots.

In addition, the findings of this study support critical aspects of Vaghely and Julien's (2010) information processing framework, which asserts that entrepreneurial opportunities can be both recognized and constructed. In addition, individuals rely on back and forth information sharing techniques that include algorithmic information processing and heuristics to identify new business opportunities. This relates to the present study in that the individual engages in both a rational evaluation of information obtained through well-defined entrepreneurial activities in the active idea development process while also relying on intuitive connections influenced by the individual's knowledge structures.

New concepts in this study that deviate from past models include (1) values as a source of prior knowledge; (2) changes in the internal (versus external) environment and (3) personal desire as stimuli of the opportunity recognition process; (4) reframing as a key cognitive property; (5) curiosity and (6) passion as important attitudes associated with alertness; (7) problem immersion; (8) select tools and techniques to gather data and (9) test and validation as important entrepreneurial behaviors in the active idea development stage; and finally (10) empathy, (11) open-mindedness, and (12) holistic thinking as the entrepreneurial mindsets associated with active idea development. Perhaps surprisingly, two personality traits that did not emerge in the present study but were found in previous models include creativity and optimism. These items may be related to concepts such as curiosity and passion. It is also worth noting the proposed model's emphasis on active idea development as a means of discovery. None of the previous models delineate the entrepreneurial behaviors that contribute to the individual's increasing awareness of unmet needs and opportunities. The premise of the study findings herein emphasize the need to act on one's original hunch to refine and reframe the opportunity.

Discussion

This study offers a unified theory of opportunity recognition, connecting two distinct domains of knowledge—entrepreneurship and innovation—thereby linking the person to the process. Approaching the research with a holistic lens revealed numerous significant findings with implications relative to the full conceptualization of a new business concept, previously divisive and fragmented theories in the literature, and the role of cognitive and behavioral factors in the opportunity recognition process. In addition, using a grounded theory method designed to generate substantive theory produced a process model with real-world relevance and significance to leaders and managers in the entrepreneurial firm, entrepreneurs, and educators.

Culture tends to idolize the “idea-preneur,” one sample member noted, pointing to society’s obsession with the individual who experiences that instant “stroke of genius” or “aha moment.” Nevertheless, expert sample members in this study emphasized that an opportunity cannot be fully conceptualized in the early stages. Furthermore, participants described successful opportunity recognition in terms of market adoption or system-wide integration. Individuals experienced multiple “aha moments” until this end was achieved. The participants’ description of successful opportunity recognition is supported by Sanz-Velasco's (2006) assertion that an opportunity is only identified once it has recognized the following five elements:

- a.) offer: an opportunity involves a definite offer to the customer
- b.) customer: an opportunity envisages a definite customer segment
- c.) value: an opportunity creates definite value
- d.) revenue model: an opportunity has a definite revenue model
- e.) technology: an opportunity is accomplished through technology (p. 257)

The interviewees reiterated the importance of not being satisfied with the business concept too soon as the “real opportunity” was often not discovered until farther down the road as the individual connected more dots through the enactment process. By remaining open and sensitive to new information, individuals reframed the opportunity in a way that created a true competitive advantage. Past models are inadequate depictions of the process because they focus more on thinking *or* action instead of the interaction effects between thinking *and* action.

The fragmented and divisive nature of the existing literature on opportunity recognition hinders the value and applicability of past models. Existing studies tend to approach the research with a binary lens, viewing opportunities from a discovery *or* creation perspective and as active *or* passive search. Even an integrated perspective and a blended approach to these theories suggest that each view is applicable in distinct stages such as opportunity identification *or* opportunity development rather than simultaneous (Sarasvathy et al., 2003; Vaghely & Julien, 2010). This bifurcation of viewpoints overlooks the merits of each as complimentary approaches uniquely positioned to coexist as ways of fully conceptualizing new business opportunities.

The “birth” of an opportunity in the real world contains exceedingly many variables to confine it to a discrete stage (Karlsson, 2001). The discovery of a new opportunity is a complex socio-cognitive process where social and cognitive properties are reciprocally connected (de Koning, 1999; Witt, 2000). The current study examined all perspectives, looking for similarities and differences. The findings suggest that how the individual perceives of and acts on an opportunity are vital to successful opportunity recognition and evolve together in real time. Research shows that action can precede perception because sense-making and meaning are often derived after the action takes place (Weick, 1979). It is worth stating again that perception and action are reciprocal. Reciprocity is at the heart of the process model presented in this study and

depicted in the reframing phase of the model. Initial perceptions of an opportunity may be extremely rudimentary, requiring a great deal of active development to make sense of the opportunity. In this respect, opportunity recognition is a learning process—one where the opportunity and venture are developed in parallel (Sanz-Velasco & Magnusson, 2004).

Past models of opportunity recognition have placed a stronger focus on the “identification” component of the process rather than on the “development” component of the process. This imbalance is most likely because much of the literature subscribes to the discovery perspective and passive search approach to opportunity recognition as they are the most well-researched phenomena and favor cognitive theory. The creation view and active search approach surfaced more recently and took longer to gain acceptance among scholars in the field. The later views align more closely with the enactment view of opportunity recognition. The current study took a holistic approach, including questions in the line of inquiry to explore conditions surrounding each perspective. The model outlined in this study found strong interaction effects between the individual’s cognition and behaviors, resulting in a more accurate representation of the interactive, unfolding process of opportunity recognition.

Entrepreneurial action is an underrepresented component of current models of opportunity recognition despite its central importance to opportunity development (Kitching & Rouse, 2017; Snihur et al., 2017) and thus opportunity recognition theory. Entrepreneurial action includes activities such as social interactions with clients, family, potential or existing customers, and suppliers where the entrepreneur acquires feedback on the viability of the offering, challenges one’s assumptions relative to the offering, and generates new ideas to improve the original version of the offering or decides to abandon the idea (Dimov, 2020). The behaviors and actions of individuals in the development process create a feedback loop that serves as a source

of learning (Politis, 2005; Wang & Chugh, 2014). Entrepreneurial actions are further delineated and supported by the innovation literature. Meinel et al. (2011) developed a six phase procedural model of design thinking which includes (1) understand, (2) observe, (3) point of view, (4) ideate, (5) prototype, and (6) test. Similar to the entrepreneurship literature, the innovation literature recognizes the importance of taking action and testing business concepts in the real world to learn and iterate. The findings in this study support the importance of entrepreneurial action and detail the most critical actions in the active idea development phase of the process model. However, while opportunity development favors entrepreneurial action and argues that opportunities are the result of what individuals do, not what they see (Carter et al., 2003), the present study argues opportunities are a result of seeing, doing, and seeing again. The findings of this study continuously reinforce the importance of both cognition and action along with the person and the process.

This dual focus on person and process extends the literature on existing tools and methods of innovation. One such tool—design thinking—outlines practical steps for learning and iterating one's way into innovative business concepts, aligning well with the opportunity development and entrepreneurial action theories in the entrepreneurship literature (Kitching & Rouse, 2017; Snihur et al., 2017). The major contribution of this study supports and expands upon the practice of design thinking by providing a holistic focus on entrepreneurial behaviors as well as context and cognition. As is the case with many popularized innovation tools, individuals and organizations tend to adopt one process and implement it as though it is a “magic bullet” and will produce immediate results. The early developers and distributors of design thinking as a tool most likely did not intend for it to be used as a sequential step-by-step process, but nevertheless, this is what some expert sample members said they have witnessed and site it as a major barrier

to developing the organization's capacity to innovate. Design thinking methods incorporate aspects of the individual such as empathetic and integrative mindsets (Brown, 2008); however, this study takes that knowledge a step farther by understanding the role of the individual's background or prior knowledge as well as environmental stimuli, which must integrate with new insights gained through the innovation process. Furthermore, the individual's prior knowledge helps guide the order and sequence of steps in active development and continuously connects new dots or data points between prior knowledge and active development that steer the process.

There are also implications of this study relative to strategy and management because opportunity recognition allows for the advancement of knowledge (Dess & Picken, 2000; Drucker, 1992), innovation (Audretsch et al., 2015; Crossan & Apaydin, 2010; Dess & Picken, 2000; Dimov, 2007; Drucker, 2014; Gabrielsson & Politis, 2012), and competition in markets (Antoncic & Hisrich, 2001; Ireland & Webb, 2007; Moustaghfir & Schiuma, 2013). Large organizations have sought ways to increase the firm's absorptive capacity or ability to recognize what information is valuable and how to leverage it for the purpose of innovation (Cohen & Levinthal, 1990). The present study reinforces the importance of prior relevant knowledge and diversity of expertise within the organization as strong contributors to developing a firm's absorptive capacity and offers insight into how that knowledge leads to new discoveries and a more sustainable competitive advantage. While techniques such as environmental scanning and data analysis are useful in becoming more alert to sizeable opportunities, they lack the human insight needed to fully conceptualize the opportunity. The process model developed in this study reflects the value of systematic approaches to opportunity recognition and the significance of changing environmental conditions, but it pairs this approach with active development and deep customer contact where a unique understanding of the problem and novel solutions are

generated. A broader mix of tools and methods help to uncover the core value of the opportunity that is not easily copied by firms who lack this unique customer insight.

One of the greatest potential strengths of this study is its real-world relevance and applicability. Leaders and consultants could use the opportunity recognition model to better visualize where the organization gets stuck in the recognition process and which factors present the greatest barriers to innovation in their context. In addition, individuals could use the results of this study to guide the development of programs and workshops to enhance the organization's capacity to spot new business opportunities. This study illuminates multiple areas that are key to unlocking new opportunities, including the individual or team's knowledge base, cognitive skillsets, attitudes, mindsets, and active development techniques. Central to the process is equipping the audience with thinking skills to navigate a variety of pathways into innovation and building up the organization's toolbox with a range of methods and approaches to innovation.

Similarly, this study informs entrepreneurship and innovation educators in what and how to go about teaching opportunity recognition. Specifically, a focus on cognitive skills such as connecting the dots and reframing the problem or opportunity are transferrable skills that can be taught to novice entrepreneurs and young students who can later draw upon these skills as they gain more industry experience. To compensate for the student's lack of industry and life experience, schools could encourage greater collaboration with professional advisors and avenues to grow the student's social network. This opportunity recognition theory also has the potential to inform teachers what combination of mindsets and attitudes should be cultivated through the curriculum. For example, approaches that encourage students to think through a variety of lenses—such as design, sales, and engineering—could foster more holistic thinking. Finally, in depth exposure to different markets and their needs along with practice applying a

variety of tools have the potential to improve novice entrepreneurs' ability to recognize new business opportunities.

Finally, this study provides valuable insight into the process of opportunity recognition in today's business environment—marked by advancements in technology, communication, and transportation. While the current environment does not change the fundamental process of opportunity recognition, it indicates that there are new tools that can increase the speed and efficiency of the conceptualization of new business opportunities. This study emphasizes the importance of leveraging new tools and forms of communication to connect with customers and other stakeholders to increase the rate of learning and therefore innovation, especially those solving complex and ambiguous problems.

Limitations and Future Research

By design, the sample in this study consisted of entrepreneurs and intrapreneurs who had launched at least two or more innovative revenue-generating or cost-cutting initiatives. This purposefully excluded novice entrepreneurs and one-time innovators. Serial entrepreneurs or intrapreneurs possess more information-rich experiences to pull from and more fully developed cognitive frameworks. Limiting the sample to experienced entrepreneurs also increased the likelihood the individual had experience with both successful and failed ideas, thereby increasing the varied types of data and perspectives collected in the study. While the sample was limited to serial entrepreneurs and intrapreneurs, the researcher captured numerous accounts of the individual's first business venture experience as well as subsequent businesses. Therefore, the study has implications for novices as well as serial entrepreneurs though this was not the focus of the study, and conclusions regarding this population should be carefully considered.

Another delimitation of the study was that the business opportunity be innovative in nature. The purpose of this study was to understand the complex process entrepreneurs undergo when creating new value in the marketplace, not imitative goods and services such as a hair salon or a restaurant. The literature defines a truly entrepreneurial opportunity as “the chance to introduce innovative (rather than imitative) goods, services, or processes to an industry or economic marketplace” (Gaglio, 2004, p. 534) and represents a type of breakthrough in addressing a conceptual gap in the marketplace (Sarasvathy et al., 2003). Findings should not be generalized relative to types of businesses that are imitative in nature.

Opportunity recognition is one of the most fundamental entrepreneurial behaviors (Dimov, 2007; Gabrielsson & Politis, 2012; Kirzner, 1997; Venkataraman, 1997) and yet remains one of the least understood phenomenon (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). This study is one of the first to develop a unified theory of opportunity recognition and link the individual, entrepreneurial action, and the innovation process. This work lays the foundation for future studies to delve deeper into the relationships and sub dimensions of the categories and concepts presented in this theory.

The opportunity recognition process model depicted in Figure 9 is the first of its kind to map both cognitive and behavioral concepts and bridge the gap between multiple perspectives of opportunity recognition. Empirical research is needed to quantitatively test the category interrelationships and sub dimensions and their impact on successful opportunity recognition. In addition to testing the model and examining variable relationships, future research should look to how to operationalize the opportunity recognition model. In the follow up interviews conducted in this study, entrepreneurs and intrapreneurs asked the researcher, “How can I put this into practice in my organization? How do I train my employees to spot opportunities?” Now that

more is understood about the core components of the process, educators and consultants could focus on curriculum development and training interventions to build up individual and organizational capacity for opportunity recognition. This study suggests a holistic approach that is organic and with equal focus on person and process.

Chapter 2 – Literature Review

This is a literature review regarding opportunity recognition. Ardichvili and Cardozo (2000) define opportunity recognition as “recognition that results in a creation of viable new businesses” (p. 105). This topic is of great importance because opportunity recognition allows for the advancement of knowledge (Dess & Picken, 2000; Drucker, 1992), innovation (Audretsch et al., 2015; Crossan & Apaydin, 2010; Dess & Picken, 2000; Dimov, 2007; Drucker, 2014; Gabrielsson & Politis, 2012), and competition in markets (Antoncic & Hisrich, 2001; Ireland & Webb, 2007; Moustaghfir & Schiuma, 2013). Opportunity recognition is often misunderstood, which will be detailed immediately hereto in this literature review followed by a detailed account of perspectives that lead to the need to further research the model and theory of opportunity recognition.

The English language is full of metaphors used to describe the discovery of breakthrough ideas—“that eureka moment,” “the light bulb went on,” or a “stroke of genius” (Johnson, 2010, 14:04). Johnson explains how poorly these expressions depict the process through which good ideas emerge in the real world. Johnson argues that good ideas form across networks and have long incubation periods. This characterization contradicts the impression many people have of innovation and ideation occurring like a spark rather than a process. The argument made by Johnson is supported by several studies that find that strong and weak ties in the entrepreneur’s network are key factors in recognizing opportunities (Ardichvili et al., 2003; Ozgen & Baron, 2007). Informal industry connections, mentors, and engagement in professional forums have been found to serve as sources of information that have a positive effect on the entrepreneur’s ability to recognize opportunities (Ozgen & Baron, 2007).

Recognizing ideation to be more than a mere moment of genius that enables opportunities to be recognized, Vaghely and Julien (2010) describe the idea development process as a complex interweaving of both heuristic and algorithmic information processing. In short, it is an investigation as suggested by Baron (2006) who noted opportunity recognition as a repeated search for patterns where one must “connect the dots” between seemingly unrelated events in the external environment by using cognitive frameworks or knowledge structures often built over years of experience (p. 106). The research indicates that breakthrough ideas are a result of an unfolding process rather than a singular moment of inspiration.

While the event of discovery is important, it is equally or more important to understand that the point of eureka is the outcome from the process of perhaps many interrelated variables. As such, the process can be argued as being much more important than the event itself; this is a growing topic of interest in the fields of entrepreneurship and innovation because as noted, understanding the process that leads to opportunity recognition enables value-generating capability which is seen as a source of sustainable competitive advantage (Moustaghfir & Schiuma, 2013). Opportunity recognition is a critical step in the entrepreneurial process (Ardichvili & Cardozo, 2000). Opportunity recognition is defined in three parts: “(1) sensing or perceiving market needs and/or underemployed resources, (2) recognizing or discovering a ‘fit’ between particular market needs and specified resources, and (3) creating a new ‘fit’ between heretofore separate needs and resources in the form of a business concept” (Ardichvili et al., 2003, p. 109). The model and theory of opportunity recognition identifies several factors that lead to successful opportunity recognition, including personality traits, social networks, prior knowledge of the market and customer problems, and entrepreneurial alertness (Ardichvili & Cardozo, 2000; Ardichvili et al., 2003). The definition, model, and process of opportunity

recognition seem to go well beyond an “aha moment” as it is portrayed in society today (Johnson, 2010).

Relative to opportunity recognition, it is important to distinguish entrepreneurship and innovation. Although entrepreneurship and innovation are both concerned with opportunity-seeking behaviors, the literature in these two areas remains divided (Crossan & Apaydin, 2010). Entrepreneurship is the study of why, when, and how opportunities to create future goods and services emerge and the process of discovery, evaluation, and exploitation (Venkataraman, 1997). Innovation is the means through which organizations improve business performance, pursue growth, and develop a sustained competitive advantage (Antoncic & Hisrich, 2001; Lumpkin & Dess, 1996; Zahra, 1991). Entrepreneurship tends to emphasize the role of the individual in exploiting new market opportunities, while corporate entrepreneurship and innovation efforts focus more on the organizational dynamics and the organization’s ability to adapt to an everchanging external environment. Consequently, existing models of opportunity recognition tend to consider different aspects—the person, environment, and context—more heavily than others. The fragmented nature of these two research domains has made it difficult to share and apply new knowledge between fields. Future research should examine ways to leverage knowledge across domains and connect these parallel fields (Crossan & Apaydin, 2010). Opportunity recognition is a natural starting point to address this gap in the literature.

Why, when, and how do opportunities for creation of goods and services come into existence? Why, when, and how do some people discover entrepreneurial opportunities and not others? These are the central questions of scholars studying opportunity recognition (Shane & Venkataraman, 2000). Experts disagree on whether opportunities are discovered or created, whether opportunities exist independent of the entrepreneur or must be created by the

entrepreneur (Alvarez & Barney, 2007). The theory of opportunity identification is rooted in theories of the Austrian School and Schumpeter and Kirzner's seminal works. According to Schumpeter (1934), opportunities are discovered and driven by the creativity of the individual. In contrast, a Kirznerian view states that opportunities are recognized and depend on the individual's alertness levels rather than on their creativity (Kirzner, 1997). Unlike the discovery theory, the creation theory has not yet been established as a single, coherent theory (Alvarez & Barney, 2007) despite research that suggests a creation approach is more appropriate when the problem is not well defined and a greater degree of uncertainty exists (Sarasvathy et al., 2003).

The most prominent model and theory of opportunity recognition was developed nearly 20 years ago (Ardichvili & Cardozo, 2000; Ardichvili et al., 2003) and does not reflect the current context in which businesses emerge today. The current business market environment is largely characterized by uncertainty and ambiguity (Bennett & Lemoine, 2014; Blank, 2013; Neck & Greene, 2011; Thurik et al., 2013), and organizational success in the new entrepreneurial economy (Thurik et al., 2013) is centered around "flexibility, turbulence, diversity, novelty, innovation, linkages and clustering" (Audretsch & Thurik, 2004, p. 7). As conditions in society change, the validity of a theory may become outdated (Strauss & Corbin, 1994). Leading experts in grounded theory such as Strauss and Corbin (1994) state, "In short, theories are embedded 'in history'—historical epochs, eras, and moments are to be taken into account in the creation, judgement, revision, and reformulation of theories" (p. 280).

Adding to the need to revisit the model of opportunity recognition, Mary George et al.'s (2016) systematic literature review of entrepreneurial opportunity recognition of 180 articles across three decades shows there is a deficiency of studies analyzing the factors that lead to

opportunity recognition and a dearth of studies that explore emerging perspectives such as the creation approach. The authors' statement is as follows:

To this end, our review of the entrepreneurial opportunity research illuminates the distinctive views different researchers hold regarding opportunity discovery, creation, and recognition. Some clarity regarding the different views on opportunity recognition has emerged; still, certain views on opportunity, such as opportunity creation, have remained underexplored. Moreover, the prominent factors that can influence the opportunity process need further attention. (Mary George et al., 2016, p. 328)

A more rigorous approach is needed to unearth the cognitive and behavioral phases involved in generating new business ideas and to develop a unified theoretical explanation. For these reasons, a review of the model of opportunity recognition is necessary.

Overview of Entrepreneurship and Innovation

Significance of innovation.

The knowledge-based economy. “Every organization will have to learn to innovate...Unless this is done, the knowledge-based organization will very soon find itself obsolescent” (Drucker, 1992, para. 17). Drucker (2014) predicted the shift from the industrialized economy to the knowledge-based economy, a shift in which people generate value with their minds instead of their hands. In the Industrial Age, companies built their success around traditional factors of production including land, labor, and capital (Drucker, 1992). However, as these resources became more easily attainable, a new factor of production emerged as a central tool for achieving sustainable competitive advantage—specialized knowledge. Knowledge was established as an input of production (Lucas, 1988; Romer, 1986) and a key

driver of technological advancement, which sustains long run organizational growth (Grossman & Helpman, 1994).

“Innovation, flexibility, responsiveness, and the creative redefinition of markets and opportunities are the new sources of competitive advantage” (Dess & Picken, 2000, p. 18). The Information Age ushered in a demand for *all* employees across the organization to be innovators—to connect and create new knowledge to effectively compete in an everchanging competitive environment. In the 21st century, innovation does not belong to the individual (Hidalgo & Albers, 2008). Innovation is an interactive process that takes place between various actors in the innovation system (Edquist, 1997). This rapid expansion of value-generating firm capabilities and sensitivity to market demands created a whole new competitive environment.

A turbulent business environment. Organizations are under enormous pressure to create value for a variety of stakeholders due to increased competition and international trade (Guen, 2020). The rate at which social, economic, cultural, and political changes impact businesses today has drastically accelerated due to advancements in technology, communication, and transportation. These advancements have also caused the competitive landscape to become a more even playing field for both large and small organizations as well as domestic and international competitors (Friedman, 2005). Consequently, the increased competition led to the diversification of customer demands and put pressure on organizations to improve performance of existing products and services as well as develop entirely new forms of business (Zacca & Dayan, 2017).

Academics and practitioners agree that the long term success of a firm operating in a dynamic and complex environment depends on its ability to learn and innovate (Teece et al., 1997). A study of the Fortune 100 rankings shows how difficult it is for businesses to obtain a

competitive advantage, and it is even more difficult to sustain such an advantage (Cappelli & Hamori, 2005). Only 26% of the 100 companies listed on the Fortune 100 rankings in 1980 topped the list again in 2001. A notable change in company rankings during this period is the decline in manufacturing and the rise of financial services as top performers. Financial services are a result of knowledge-based organizational assets rather than labor or capital. Additional research shows that between 30–50% of a firm's sales and profits stem from new products launched in the last five years (Griffin, 1997; Hauser et al., 2006). The portion of profitability from new products is a clear signal of the importance of adapting to changing market preferences and developing the creative capacity to meet unique market needs and the need for continuous improvement relative to new products or services introduced due to opportunity recognition.

Innovation as a source of competitive advantage. According to Crossan and Apaydin (2010), innovation is the “production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems” (p. 1155). Essentially, innovation is the means through which organizations improve business performance, pursue growth, and develop a sustained competitive advantage. A study of 119 of the Fortune 500 firms in the U.S. shows that corporate entrepreneurship, which includes innovation activities, contributes to greater financial performance (Zahra, 1991). In addition, intrapreneurship is a significant predictor of firm growth (Antoncic & Hisrich, 2001). Innovative firms experience two types of growth—*absolute growth*, which refers to the increase in number of employees and total sales, and *relative growth*, which refers to the growth in market share as compared to the competition (Antoncic & Hisrich, 2001). Entrepreneurial endeavors stimulate business expansion, technological development, and wealth creation (Lumpkin & Dess, 1996).

Opportunity-seeking firms engage in the exploration of future opportunities rather than merely focusing on ways to exploit existing competitive advantages (Ireland & Webb, 2007). The organization's knowledge base drives the pursuit of new opportunities. Entrepreneurial firms actively pursue the integration of diverse knowledge with existing knowledge bases to effectively satisfy market demands and develop efficient processes of production. This capability is often referred to as the firm's absorptive capacity (Cohen & Levinthal, 1990). Absorptive capacity is the ability to recognize what information is valuable and how to leverage it, which ultimately leads to innovation. Prior relevant knowledge and diversity of expertise within the organization are strong contributors to developing a firm's absorptive capacity and are often forged through heavy investment in research and development. Increased knowledge, learning, and innovation combine to create a new kind of capital that creates lasting value for the firm (Moustaghfir & Schiuma, 2013).

Many large scale organizations struggle to respond quickly to unique customer demands and therefore lose to smaller businesses who are constantly seeking better ways to serve the customer (Nielsen et al., 1985). The entrepreneurial spirit embraces speed, change, and risk, but these strengths often get lost amidst the size, bureaucracy, and complexity of established firms. Intrapreneurship, or corporate entrepreneurship, enables large organizations to regain some of the agility it once had as a startup and compete more effectively.

In summary, the topic of "innovation" has taken center stage in business today. One study found that 80% of the S&P 500 cite *innovation* as a corporate value, occurring even more frequently than *integrity* (Guiso et al., 2015). Established companies, large and small, are competing in a more volatile and disruptive marketplace. They recognize the need for new thinking and approaches to business as usual. Many are creating innovation teams or turning to

outside consultants for help. The opportunity-seeking behaviors that link entrepreneurship, innovation, and corporate entrepreneurship offer a key starting point for firms wishing to build a long term, sustainable competitive advantage.

Distinct domains of research. The concept of an “entrepreneurial opportunity” dates back to the work of three economists, two of whom have already been mentioned in this literature review—Schumpeter, Hayek, and Kirzner (Sarasvathy et al., 2003). Schumpeter (1934) argued that opportunities arise from changes in the external environment as the economy is in a constant state of disequilibrium. Hayek (1945) added to the entrepreneurship literature by theorizing why some individuals notice changes in the environment while others do not. According to Hayek (1945), no two people possess the same knowledge or information about the economy at the exact same time. This uneven dispersion of knowledge and asymmetric access to information results in a variety of business opportunities. Finally, Kirzner (1979) was the first to identify “alertness” as a critical factor in recognizing new market opportunities. This perspective suggests that market opportunities are not obvious, and some aspects of the market demand must be invented to become a reality. These economists set the stage for the different perspectives regarding entrepreneurial opportunity and the lens through which large established firms as well as small startups pursue new opportunities.

It is important to establish an understanding of the similarities and differences between the broader fields of entrepreneurship, innovation, and corporate entrepreneurship before attempting to leverage findings from across the fields regarding opportunity recognition. Despite widespread disagreement on the definition of entrepreneurship, scholars consistently agree that entrepreneurship is defined by its focus on innovation (Lumpkin & Dess, 1996; Zacca & Dayan, 2017). Innovation is the source of entrepreneurship, while entrepreneurship is the enactment of

the opportunity so as to realize its economic value (Zhao, 2005). Corporate entrepreneurship deals with the ongoing nature of entrepreneurship and innovation within the confines of an organization. Each field places a different emphasis on the role of the individual, the environment, and the context that shapes the opportunity.

Entrepreneurship. Venkataraman's (1997) work established the field of entrepreneurship as a distinctive domain of research. Entrepreneurship is the study of why, when, and how opportunities to create future goods and services emerge and the process of discovery, evaluation, and exploitation. Past definitions focused on entrepreneurial personality traits as opposed to the activities and entrepreneurial behaviors involved in bringing an organization into existence. Disagreement on who and what the entrepreneur does pushed the boundaries of entrepreneurship (Gartner, 1988). The research of Venkataraman (1997) and Gartner (1988) point to the complexity of new venture creation, which a set of fixed traits cannot predict, and suggest ongoing behaviors lead to the creation of an organization. Gartner (1985) introduced a framework for new venture creation, which includes the individual, the organization, the process, and the environment. The framework emphasizes the interaction among these four variables.

Entrepreneurship and innovation. Entrepreneurship encompasses a wide range of activities but is predominantly concerned with innovation, ideation, creativity, new venture development, discovery, and economic growth (Audretsch et al., 2015). These words are often used interchangeably and demonstrate the close connection between entrepreneurship and innovation. Peter Drucker said, "Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service" (Drucker, 2014, p. 19). Drucker's definition describes the relationship between entrepreneurship

and innovation where the entrepreneur is the individual actor (or group of actors), and innovation is a tool (or set of tools) that the individual uses to discover new opportunities.

The synergy between entrepreneurship and innovation may be better understood in terms of economic output. “Innovation and entrepreneurship are complementary because innovation is the source of entrepreneurship and entrepreneurship allows innovation to flourish and helps to realize its economic value” (Zhao, 2005, p. 34). Innovation may be defined as both a *process* and an *outcome*, where the former precedes the latter (Crossan & Apaydin, 2010). Innovation as a *process* is critical but not sufficient on its own. Innovation for innovation’s sake achieves nothing. Successful exploitation of an idea requires the realization of economic output. Therefore, entrepreneurship is the mechanism that brings innovative ideas to fruition and justifies the value of innovative processes.

While entrepreneurship and innovation share many qualities and both link back to Schumpeter's (1934) work on economic development, there are critical differences. Entrepreneurship places a stronger emphasis on the role of the individual, whereas the literature on innovation asserts the importance of both the individual’s actions and the organizational dynamics (Crossan & Apaydin, 2010). Innovation must account for the multidimensionality of the organization composed of innovation leadership, managerial levers, and business processes. The nuances of practicing innovation within the boundaries of a large organization led to scholarly work on corporate entrepreneurship.

Corporate entrepreneurship. Entrepreneurial behavior is not dependent upon context and, therefore, exists in all types and sizes of organizations including startups, large corporations, and even institutions such as the government (Audretsch et al., 2015). Entrepreneurship and innovation are holistic processes that are ongoing inside the organization, not bound by the early

stages of a new venture (Zhao, 2005). Corporate entrepreneurship is somewhat of an oxymoron as many large organizations are characterized by bureaucracy, complex processes, and hierarchy, which hinder the speed and agility that define most startups. However, when corporations can recapture that entrepreneurial spirit, it can lead to more successful adaptation to new market entrants and greater topline growth. Corporate entrepreneurship “encompasses a set of activities, attitudes, and actions that are believed to help large companies regain some of this lost magic” (Thornberry, 2001, p. 526). Often referred to as “intrapreneurship” (Pinchott, 1985) or “strategic entrepreneurship” (Ireland et al., 2003), corporate entrepreneurship is fully focused on identifying new business opportunities that may be revolutionary or evolutionary (Thornberry, 2001). This is a distinct orientation, different from the organizational administrator who is focused on maintaining the status quo (Zacca & Dayan, 2017).

While entrepreneurship, innovation, and corporate entrepreneurship are all concerned with opportunity-seeking behaviors, they each have a unique frame of reference. Entrepreneurship analyzes the role of the individual in exploiting successful market opportunities, while corporate entrepreneurship emphasizes organizational dynamics and external pressures to adapt to a changing environment by leaning into innovation tools and processes, which lead to successful business development. The fragmented nature of these research domains has made it difficult to share and apply new knowledge between fields. Future research should examine ways to leverage knowledge across domains and connect these parallel fields (Crossan & Apaydin, 2010).

Fragmentation of entrepreneurship and innovation. Multiple systematic literature reviews of the definitions and frameworks related to entrepreneurial opportunity and innovation reveal the highly fragmented nature of these fields and the challenges of sharing knowledge

across fields (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). After reviewing 27 years of academic research on innovation, Crossan and Apaydin (2010) say, “Our review has produced a clear picture of a fragmented field with several theoretical streams emerging...The multiplicity of dimensions and their only sporadic recognition across the literature, as well as insufficient theorizing, have led to fragmentation and lack of interconnectedness” (p. 1165). The lack of consistency stems from the multiple angles from which innovation may be studied, including different levels of analysis, stages of innovation, and types of innovation which will be expounded upon later in this literature review. In addition, the research on opportunity recognition does not belong to one discipline. Mary George et al. (2016) offer important observations in their comprehensive review on opportunity recognition:

Although one may think that research on opportunity recognition is most influenced by entrepreneurship researchers in business, management, and accounting, the field of academic inquiry is based on a multitude of researchers from various subject areas ... research has also been published in subject areas such as economics, econometrics and finance, social science, decision sciences, engineering, psychology, and agricultural and biological science, as well as computer science, environmental science, arts and humanities, and neuroscience. (p. 314)

The multidimensional and multidisciplinary aspects of entrepreneurship and innovation should be discussed to better understand the many contexts and perspectives that must be considered in future research.

Multidimensional. Entrepreneurship and innovation are multifaceted domains of research, each lacking a single definition (Audretsch et al., 2015; Baregheh et al., 2009; Crossan & Apaydin, 2010; Zacca & Dayan, 2017). The fragmented nature of these fields may be seen in

the numerous dimensions, contexts, and applications which shape these theories and practices. A comprehensive review of definitions of innovation pulled from different disciplines including economics, innovation and entrepreneurship, business and management, and technology, science and engineering reveal six key attributes of the concept of innovation (Baregheh et al., 2009):

1. Nature of innovation refers to the form of innovation as in something new or improved.
2. Type of innovation refers to the kind of innovation as in the type of output or the result of innovation, for example, product or service.
3. Stages of innovation refers to all the steps taken during an innovation process which usually start from idea generation and end with commercialization.
4. Social context refers to any social entity, system or group of people involved in the innovation process or environmental factors affecting it.
5. Means of innovation refers to the necessary resources (e.g., technical, creative, financial) that need to be in place for innovation.
6. Aim of innovation is the overall result that the organization wants to achieve through innovation. (p. 1331-1332)

These attributes illustrate the wide spectrum of innovation activities, encompassing different levels of “newness” (Baregheh et al., 2009). Innovation ranges from radical technological breakthroughs in product development to incremental improvements to a business process. Innovation progresses through stages, advancing in terms of feasibility and viability of the idea to adoption in the marketplace. It is an evolving phenomenon that grows and develops as different people and environmental factors interact with the original idea. Innovation draws upon

multiple individuals with the technical, creative, financial, and market understanding to add value to the process. Innovation is a complex and dynamic process that is difficult to harness.

Similar to innovation, the scholarly literature on entrepreneurship applies multiple lenses and assigns disparate meanings to the practice of entrepreneurship. There are three prevalent research perspectives in entrepreneurship that seek to classify and define it—organizational status, individual behaviors, and business performance (Audretsch et al., 2015). Organizational status describes entrepreneurship in terms of size, age, and ownership of the firm. This stream of literature examines individual characteristics such as age, education level, gender, work experience, occupational status, and familial background and how they relate to the status of owning a business (Blanchflower & Meyer, 1994; Blanchflower & Oswald, 1998; Blau, 1987) or the propensity to be self-employed (Audretsch, 2012; Svaleryd, 2015). This perspective is helpful in describing *who* typically pursues entrepreneurship, but it does not attempt to explain what the entrepreneur *does* during the exploitation process.

The second strand of entrepreneurship literature places an emphasis on the individual's behaviors rather than on the individual's status (Audretsch et al., 2015). It suggests that an individual may exhibit "entrepreneurial behaviors" regardless of whether he or she owns a business (Brandstätter, 1997). According to Shane and Venkataraman's (2000) definition, entrepreneurship involves behaviors such as discovery and exploitation, creativity, and commercialization of opportunities. This characterization aligns with corporate entrepreneurship and suggests that entrepreneurial behavior is context free and may be found in all types and sizes of organizations (Audretsch et al., 2015). Kuratko et al. (2005) examines which midlevel managers' entrepreneurial behaviors and corresponding actions result in successful corporate entrepreneurship.

The third perspective of entrepreneurship emphasizes the organization's performance in terms of growth, innovation, and social entrepreneurship (Audretsch et al., 2015). Growth is the strongest indicator of a firm being classified as entrepreneurial (Clarysse et al., 2011). Innovative activity represents another criterion that leads to greater innovative performance (Ireland et al., 2009; Kuratko et al., 2001). Finally, social entrepreneurship adds a new layer of performance measured not in financial returns but by the positive impact on society (Kuratko et al., 2015). The numerous dimensions of entrepreneurship and innovation make the boundary lines difficult to navigate and limit the generalizability of the results from various studies.

Multidisciplinary. Innovation and corporate entrepreneurship occur in every industry and span every function of business, which creates additional complexity in advancing the methods and theories in the field. The types and forms of innovation make it a topic of interest to practitioners and researchers across several disciplines. Damanpour and Schneider (2006) said, "Innovation is studied in many disciplines and has been defined from different perspectives" (p. 216). Definitions of innovation appear in literature on human resources, operations management, entrepreneurship, research and development, information technology, engineering and product development, and marketing and strategy (Baregheh et al., 2009).

The nature of different disciplines cause specific aspects of innovation to surface more prominently than others. For example, engineering and technology fields may place greater value on the newness or novelty of an innovation and are usually more concerned with physical products (Baregheh et al., 2009). These fields tend to focus on radical innovations, which are evaluated based on four dimensions including a) technological uncertainty, b) technical inexperience, c) business inexperience, and d) technology cost (Green et al., 1995).

In contrast, marketers focus on finding new markets to serve. “Value innovation makes the competition irrelevant by offering fundamentally new and superior customer value in existing markets and by enabling a quantum leap in buyer value to create new markets” (Matthyssens et al., 2006, p. 753). This definition of innovation does not revolve around technological developments but instead reconceptualizes the entire business model to deliver greater value. Value creation is focused on breaking free from deeply rooted assumptions about the way an industry or organization should work (Spender, 1989) and embracing a willingness to reconfigure resources as new markets “emerge, collide, split, evolve and die” (Eisenhardt & Martin, 2000, p. 1107).

Economists define entrepreneurial opportunities in the broadest sense based on the economic output or profit they generate. Casson (1982) defines them as “those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their cost of production” (p. 220). Finally, management experts define innovation as “the process wherein knowledge is acquired, shared, and assimilated with the aim to create new knowledge” (du Plessis, 2007, p. 21). This new combination of knowledge aids in the development of commercially viable solutions in the form of a new product or service (du Plessis, 2007). The role of knowledge management in innovation lies in its ability to organize a vast amount of information and put it in more accessible forms for future use and collaborative transformation.

While the starting point of innovation for each discipline may be different, for example the product technology versus the customer segment (Baregheh et al., 2009), they each begin with an “act of insight” where an individual perceives a problem or develops a new configuration of thoughts (Ruttan, 1959, p. 600). An “act of insight” is a mental and social process whereby an

insight is critically revised until a “new thing” emerges. As the innovation is put to new uses and contextualized, it may be described as a “scientific innovation,” “technical innovation,” “organizational innovation,” or some other more precise subset of innovation. It is that “act of insight” that binds the multifaceted dimensions and disciplinary perspectives of research on entrepreneurship and innovation together. In the entrepreneurship literature, the “act of insight” is more formally referred to as opportunity recognition.

Opportunity Recognition

Significance of opportunity recognition. Some scholars have described opportunity recognition as the most fundamental entrepreneurial behavior (Dimov, 2007; Gabrielsson & Politis, 2012, 2012; Kirzner, 1997; Venkataraman, 1997); opportunity recognition serves as the foundation for all entrepreneurial endeavors; without it, there would be no opportunity to act upon and no venture to build. Opportunity recognition serves as a key distinction between entrepreneurs and other market players and represents one of the core intellectual questions in the field of entrepreneurship (Gaglio & Katz, 2001). The process required to transform a good idea into a viable, profitable business concept that improves society and provides revenue for the entrepreneur is vital (Gabrielsson & Politis, 2012; Lumpkin & Lichtenstein, 2005). It is not enough to have a creative idea; the concept must be refined until it satisfies a real customer need and possesses commercial viability and the capacity to sustain a profit against competitors (Dimov, 2007; Gabrielsson & Politis, 2012).

The source of opportunities for future goods and services is one of the least understood questions in entrepreneurship literature (Venkataraman, 1997). Some scholars believe the central focus of the field should be the link between the individual and opportunity recognition within new and established firms (Shane & Venkataraman, 2000). Others say the discipline should

examine opportunity recognition in a broader context without limiting it to a certain type of individual but rather consider the powerful environmental forces that precede entrepreneurial activities (Gartner, 2001; Zahra & Dess, 2001). In addition, a more holistic and elaborate focus on the product, person, process, and context that accounts for the lapse in time between the original idea and the final idea to be implemented would be a valuable contribution of future studies on successful business idea generation (Dimov, 2007; Gabrielsson & Politis, 2012).

What is opportunity recognition? Opportunity recognition is the first and most critical step in the entrepreneurship and innovation process (Shane & Venkataraman, 2000). The field of entrepreneurship encompasses a wide range of activities including discovery, evaluation, and exploitation (Venkataraman, 1997) as does innovation, which progresses through a multistep process beginning with idea generation and ending with commercialization (Baregheh et al., 2009). However, opportunity recognition is only concerned with the initial stage in which an individual or group of individuals *perceive* an entrepreneurial opportunity, which is eventually transformed into a successful business venture.

Some disciplines refer to “opportunity” as the chance to start any type of business (Hills et al., 2000), but this study uses foundational work from thought leaders Schumpeter (1950) and Kirzner (1979) to examine it more narrowly to understand the more complex process entrepreneurs undergo when creating new value. “Opportunity” is “the chance to introduce innovative (rather than imitative) goods, services, or processes to an industry or economic marketplace” (Gaglio, 2004, p. 534). A truly entrepreneurial opportunity would not include businesses with traditional business models such as an Italian restaurant that opens in a neighborhood where there is not one in existence (Baron, 2006) nor is opportunity recognition an approach to optimization. Optimization uses existing means-ends relationships to improve

existing goods or services through the efficient use of raw materials and organizational processes (Kirzner, 1997). An entrepreneurial opportunity represents a type of breakthrough or vision to address a conceptual gap in the marketplace (Sarasvathy et al., 2003) often resulting from changes in technology, economic, political, social, and demographic conditions (Baron, 2006). The entrepreneur solves an intellectual puzzle and brings about new value to society through the discovery. The intellect and imagination required to envision such new opportunities represents the enigma of opportunity recognition.

Mitton (1989) describes the entrepreneur's ability to view the system as it is and the way it may be the posture necessary for identifying unique opportunities. Mitton (1989) states, "They [entrepreneurs] have a knack for looking at the usual and seeing the unusual, at the ordinary and seeing the extraordinary" (p. 12). Substantial research has been conducted to demystify the process of opportunity recognition. Several terms are used interchangeably when referring to opportunity recognition, including opportunity identification, discovery, exploration, seeking, formation, enactment, assessment, and construction (Mary George et al., 2016). Most of the literature on entrepreneurship define "opportunity recognition" in three parts: "(1) sensing or perceiving market needs and/or underemployed resources, (2) recognizing or discovering a 'fit' between particular market needs and specified resources, and (3) creating a new 'fit' between heretofore separate needs and resources in the form of a business concept" (Ardichvili et al., 2003, p. 109). By this definition, opportunity recognition includes processes of *perception*, *discovery*, and *creation*.

It is important to know that the term "creation" has different meanings in the entrepreneurial opportunity literature. In some contexts, *creation* refers to new resource combinations and to the development of the idea as in the above definition (Ardichvili et al.,

2003). A close derivative, *creativity*, is used to describe the role of an individual's imagination in the discovery process (Schumpeter, 1934). Still, yet, *creation* refers to the opportunity creation theory which sharply contrasts the opportunity discovery theory in terms of the process of opportunity recognition and the degree of uncertainty associated with the opportunity (Alvarez & Barney, 2007; Sarasvathy et al., 2003). The discovery versus creation theories are popularly debated in the literature.

Entrepreneurial opportunity: Discovered versus created. Why, when, and how do opportunities for creation of goods and services come into existence? Why, when, and how do some people discover entrepreneurial opportunities and not others? These are the central questions of scholars studying opportunity recognition (Shane & Venkataraman, 2000). Researchers disagree on whether opportunities exist independent of the entrepreneur. Mount Everest is used as a metaphor to explain two different perspectives of opportunity recognition—"mountain climbing" versus "mountain building" (Alvarez & Barney, 2007, p. 11). According to the first perspective, opportunities—similar to mountains—are objective and merely waiting to be discovered. Entrepreneurs rely on environmental scanning and data analysis to find opportunities and exploit them. The opposing viewpoint, the creation approach, argues that opportunities do not exist and therefore must be created by the entrepreneur through an iterative learning process.

Discovery. A discovery approach to opportunity recognition states that the opportunity presupposes the economic actor who then perceives it as an opportunity; however, the opportunity cannot be enacted without the entrepreneur and has no meaning in the real world until it is acted upon (Sarasvathy et al., 2003; Shane & Venkataraman, 2000). For example, the production of the movie *Titanic* may indicate that Leonardo DeCaprio is a desirable teen idol

(Sarasvathy et al., 2003). An entrepreneur may recognize this new information as an opportunity to make and sell posters of DeCaprio that will generate a profit far greater than the cost of production. Opportunities exist but go untapped until the individual recognizes the value and profit potential of new information (Hayek, 1945).

Shane and Venkataraman (2000) argue that the reason some individuals are able to recognize new opportunities while others are not is dependent on two factors: “(1) the possession of prior information necessary to identify an opportunity and (2) the cognitive properties necessary to value it” (p. 222). These factors relate to a myriad of factors later identified by Ardichvili et al. (2003) which influence successful opportunity recognition, including prior knowledge of the customer and markets, social networks, optimism, and alertness. The distinguishing factor that makes entrepreneurial opportunities possible is the different beliefs about the relative value of information and resources and how they can be transformed into profitable business concepts (Kirzner, 1979; Schumpeter, 1934; Shane & Venkataraman, 2000). This asymmetry of information means that no two individuals possess the exact same set of information at the same time (Kirzner, 1979). Different life experiences, knowledge, and education lead people to discover and create different businesses.

The theory of opportunity identification is rooted in theories of the Austrian School and seminal works by Schumpeter (1934) and Kirzner (1979). According to Schumpeter, opportunities are discovered and driven by the creativity of the individual. The entrepreneur is constantly innovating and discovering new combinations of resources in response to an everchanging market environment, often referred to as “creative destruction.” A continuous stream of new information is generated because of changes in the technological, political, social, and regulatory environment and offer entrepreneurs new ways to create wealth.

In contrast, a Kirznerian (1997) view states that opportunities are recognized and depend on the individual's alertness levels rather than on their creativity. Kirzner (1997) introduced the "alertness" perspective, which suggests there is an element of surprise where the entrepreneur experiences a flash of superior insight that leads to opportunity recognition. Opportunities from an alertness perspective are typically more concerned with optimization than with new means-ends relationships, which is a requirement for more radical innovations associated with Schumpeterian (1934) economics.

Three typologies emerge. Sarasvathy et al. (2003) constructed three typologies of entrepreneurial opportunities based on preconditions of uncertainty in the market—opportunity recognition, opportunity discovery, and opportunity creation. Varying degrees of uncertainty are associated with different opportunities depending on how much information is available regarding supply and demand in a market. The level of uncertainty dictates different processes of opportunity identification.

1. Opportunity recognition. On the most basic level, opportunities are obvious to the individual, and it is merely a process of bringing resources together (Sarasvathy et al., 2003). This type of opportunity is called the "allocative view" as it revolves around putting resources to good use to achieve given ends. All necessary information is readily accessible. The market exists and is waiting to be exploited. Supply and demand both exist and are waiting to be matched up. Practical examples include arbitrage and franchises.

2. Opportunity discovery. Opportunities that are "discovered" are not as easy to identify. While good information exists on the aggregate level, there is an uneven distribution of information among individual agents. Only one side of supply and demand exists, while the other must be discovered before a match is possible—that is, demand exists but supply does not and

vice versa (Sarasvathy et al., 2003). This type of opportunity may involve exploitation of existing or latent markets and effectively reconfigures resources to imagine “what is possible” (Ardichvili et al., 2003, p. 111). Two primary examples of opportunity discovery are finding cures for diseases and finding markets for applications for new technologies (Sarasvathy et al., 2003). In medicine, the demand often exists but supply must be discovered. In technology, the supply exists but demand must be discovered.

3. Opportunity creation. Opportunity creation presents the most complex type of opportunity as neither supply nor demand are obvious (Sarasvathy et al., 2003). Only partial information exists at the aggregate level, and individual ignorance is key to unlocking the opportunity. The market must be “created,” and numerous economic inventions such as marketing and finance are required to enable the opportunity to be successful. The opportunity involves creating new means as well as new ends and dramatic restructuring of resources to deliver superior value. Examples of opportunity creation include Edison’s General Electric, U-Haul, and Netscape (Sarasvathy et al., 2003).

Creation. Opportunity creation suggests that opportunities are subjective and do not exist independent of the entrepreneur who creates them (Baker & Nelson, 2005; Gartner, 1985; Sarasvathy, 2001). According to the creation theory, opportunities do not emerge from preexisting industries or markets (Dosi, 1988; Etzioni, 1963) or from changes in the external environment (Baker & Nelson, 2005; Sarasvathy, 2001). Instead, they are constructed through an enactment process—a series of actions and reactions that guide the formation of an opportunity (Aldrich & Kenworthy, 1999). The entrepreneur possesses initial beliefs about an opportunity, takes action, and learns from the market’s response (Arrow, 1974). This iterative learning process often disproves the entrepreneur’s original perception of the nature and scope of the

opportunity. Therefore, opportunities are path dependent and are based upon the knowledge, which is created through direct testing of the idea over time. These small changes in direction lead to major differences in market opportunities among entrepreneurs (Arthur, 1989). Unlike the discovery theory, the creation theory has not yet been established as a single, coherent theory (Alvarez & Barney, 2007).

Integrated perspective. All three of these views of entrepreneurial opportunities—opportunity recognition, opportunity discovery, and opportunity creation—possess distinctive characteristics; however, they are also interconnected. Sarasvathy et al. (2003) argue for a third, more integrative perspective where the entrepreneur relies on multiple methods at different points in the development of the opportunity. For example, the original founders of Starbucks did not launch a coffee shop knowing that it would become a global coffee bar. The opportunity evolved as their understanding of the market opportunity evolved. The founders started out selling fresh roasted beans in Seattle because they personally enjoyed fresh roasted beans. It was not until later, after customers asked to taste the coffee, that they thought of brewing coffee and serving it through a coffee bar and eventually franchising it on a national scale. Each of the three views of entrepreneurial opportunity were effectively leveraged at different stages of the development of the business.

Ardichvili et al. (2003) support this integrated view as they contend that opportunities are developed in cycles and continue to unfold over time. The entrepreneur recognizes an opportunity, evaluates it, and then develops it. Each time the entrepreneur evaluates the opportunity, it leads to recognition of new opportunities and redirects the entrepreneur's original vision. The ongoing nature of opportunity development may call for different perceptual skills and creativity. Dew et al. (2004) suggest that three views of entrepreneurial opportunity—

allocative, discovery, and creative—are context-dependent and may be deemed more or less appropriate under certain criteria. When goals and resources are clearly specified, an allocative approach would be most appropriate. When the problem is not well defined and decision parameters are ambiguous, a creative approach is more fitting. Additional studies have found that entrepreneurs draw from multiple scripts and schema when identifying new opportunities (Chiasson & Saunders, 2005; Gaglio & Katz, 2001). A single view of entrepreneurial opportunity does not adequately describe the process. A closer look at how entrepreneurs go about discovering or creating opportunities is useful in understanding the different perspectives of opportunity recognition.

Opportunity recognition – systematic versus random. Opposing viewpoints in the literature argue whether individuals can systematically search for opportunities or whether they are a result of blind luck (DeTienne & Chandler, 2004). Scholarly work falls on a broad spectrum between these two extremes. DeTienne and Chandler (2004) classify opportunity identification in four categories: active, passive, fortuitous, and creation. Active search is the systematic search for markets in disequilibrium. This method suggests market opportunities are easy to spot through activities such as environmental scanning, competitive analysis, and strategic planning. Unlike the other three methods—passive search, fortuitous discovery, and creation—human creativity is not a critical component of active search. Passive search (Ardichvili et al., 2003) differs from active search in that it suggests objective opportunities exist but cannot be clearly defined prior to the moment of discovery. Therefore, this method maintains that the individual stays alert but does not initiate an active search. Techniques improve one's ability to sense changes in the environment, and training enhances their creativity. This sets passive search apart from fortuitous discovery, which is a serendipitous happening while the

individual's attention is elsewhere and results in complete surprise (Kirzner, 1997). The creation approach relies entirely on the individual's imagination; nothing in the environment facilitates or prompts recognition of the opportunity (Shackle, 1961). However, creativity is not blind luck but rather a competency that entrepreneurs can develop and increase. In these four methods, only active search is purely systematic and only fortuitous is purely a result of random, blind luck. Passive and creation approaches fall in between these two extremes. These methods suggest four sources for identifying new venture opportunities: the environment, personal knowledge and aspirations, sheer luck, and the imagination.

Systematic. Systematic search aligns with the theoretical perspective of reductionism, which limits the number of stimuli to strengthen the understanding of a topic and leads to opportunity recognition (DeTienne & Chandler, 2004). However, others assert that overemphasis on reductionism in universities stifles creativity and suggest a more holistic approach to improve creativity and therefore opportunity recognition (Bundy, 2002). The implications of these studies are that both deep and broad perspectives trigger opportunity recognition. Fiet and Patel (2008) criticize the alertness perspective to systematic search because of the cost and difficulty in defining cognitive decision rules to prompt discovery. Fiet and Patel (2008) introduced a prescriptive model for constrained, systematic search. They proposed that individuals can deliberately search for and recognize signals by establishing boundaries and information channels. Systematic search is the fit between the individual's specific knowledge and the new venture idea. Restricting the domains of the search leads to a greater number of innovative ideas with greater wealth-creating potential. Information channels provide the entrepreneur with a set of messages versus one singular message. An information channel could include a realtor's

office with numerous properties, a close circle of friends and confidants, colleagues, weekly publications, trade shows, or friends from a golfing club.

Random. A study by Busenitz and Barney (1997) found biases and heuristics that effectively guide decision making processes among entrepreneurial individuals. Entrepreneurs were more susceptible than managers in large organizations to rely on overconfidence and representativeness in the decision making process. This is not surprising as entrepreneurs must take advantage of short windows of opportunity for the venture to succeed, especially in conditions of uncertainty. Waiting to act until all the information is available to make a rational decision would result in a missed opportunity. Both authors suggest there is an element of intuition that leads to opportunity recognition.

Blended approach. A study by Vaghely and Julien (2010) offer a blended approach where opportunities are both recognized and constructed. Opportunity recognition has a foundation in cognitive psychology and relies on a pattern-like, algorithmic model. Opportunity construction or enactment stems from developmental psychology, which derives from a trial and error or heuristic model. In the Vaghely and Julien (2010) study, successful entrepreneurs are skilled at switching between both algorithmic and heuristic modes of thought when processing information. Entrepreneurs use social interaction and boundary spanners to identify new opportunities. Both systematic and random approaches are developed from the discovery theory perspective of opportunity recognition as they are based on the premise that the opportunity is objective and exists independent of the entrepreneur. These perspectives do not consider the creation theory in which the opportunity is created through an iterative learning cycle between the entrepreneur and the environment (Alvarez & Barney, 2007). Opportunities are not truly “constructed” unless they are dependent on the entrepreneur’s actions.

A Model of Opportunity Identification and Development Theory

Ardichvili (Ardichvili & Cardozo, 2000; Ardichvili et al., 2003) authored several seminal works on the process of opportunity recognition in entrepreneurship. He developed a model and a theory of opportunity recognition and was among the first researchers to examine a combination of factors influencing the success of new business ventures. Ardichvili and Cardozo (2000) conducted a study of 20 successful entrepreneurs with company sales ranging from \$2 million to \$200 million. Results generated a proposed model of opportunity recognition. In the model, prior knowledge of markets and customer problems, entrepreneurial alertness, and social networks lead to successful opportunity recognition. Three years later, Ardichvili et al. (2003) introduced a theory of opportunity identification and development which built on existing models of opportunity recognition to better understand specific factors and causalities.

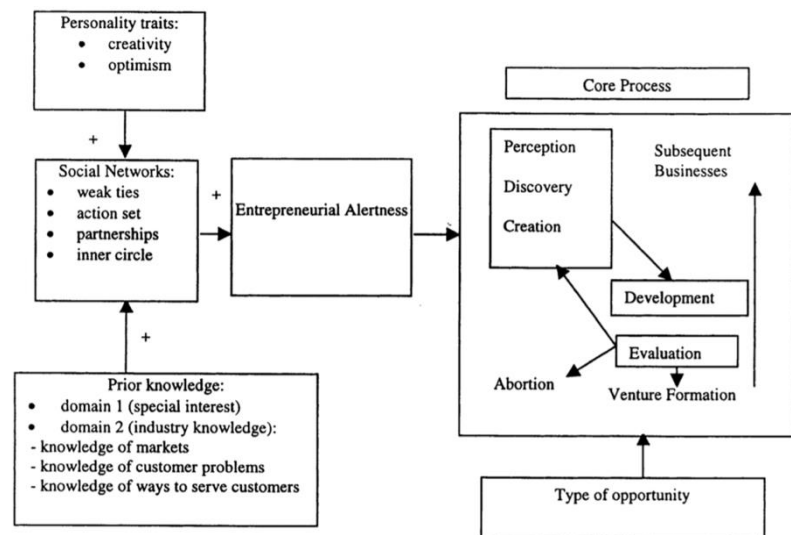


Figure 3. Model of Opportunity Recognition

The theory of opportunity recognition proposes that high levels of entrepreneurial alertness lead to successful identification of new venture opportunities. Alertness relates to high levels of entrepreneurial creativity and optimism, a convergence of special interest knowledge and industry knowledge, and an extended social network.

Prominent factors in the model of opportunity recognition.

Entrepreneurial alertness. Kirzner (1973) was the first to introduce the concept of “alertness” to describe the process of opportunity recognition. Alertness refers the individual’s ability to notice changes in the environment or to see overlooked possibilities. Entrepreneurs with high alertness are cognizant of critical information just prior to recognizing an opportunity. Alertness may also be called entrepreneurial awareness (EA), which is defined as “a propensity to notice and be sensitive to information about objects, incidents, and patterns of behavior in the environment, with special sensitivity to maker and user problems, unmet needs and interests, and novel combinations of resources” (Ray & Cardozo, 1996).

Prior knowledge. Prior knowledge serves as a knowledge corridor that informs entrepreneurs of the value of new information (Hayek, 1945). This information is used to discover new opportunities (Shane, 2000). There are three main dimensions of prior knowledge that affect opportunity recognition: prior knowledge of markets, prior knowledge of ways to serve markets, and prior knowledge of customer problems (Ronstadt, 1988). This knowledge is acquired from two domains—special interest knowledge or industry knowledge (Sigrist, 1999). Special interest knowledge is derived from an area of fun and fascination to the entrepreneur. Industry knowledge is typically accumulated over several years of work experience in a particular job. The intersection of these two domains of knowledge lead the entrepreneur to discover a new opportunity, a new market, or a new solution to customer problems.

Social networks. An individual’s network is composed of strong and weak ties (Granovetter, 1973). Strong ties consist of close friends and family, while weak ties include casual acquaintances. Strong ties often provide a depth of information that extend the entrepreneur’s understanding of critical information to the opportunity. Weak ties serve as a

“bridge” to information the entrepreneur would not likely obtain from close friends within their strong tie network. Individuals with a broad network identify significantly more opportunities, and the quality of this network positively impacts other variables such as alertness and creativity (Hills et al., 1997).

Personality traits. Creativity and optimism are the only two personality traits that have been found to be significantly related to opportunity recognition (Shaver & Scott, 1991). Schumpeter (1934) was the first to introduce the idea that entrepreneurs discover opportunities that others do not see. Creativity was found to play a role in entrepreneurial decision making (Kay, 1986), and 90% of entrepreneurs surveyed in one study reported creativity being crucial in the process of opportunity identification (Hills et al., 1997). However, entrepreneurs with a strong network were less likely to view creativity as important and indicated that their connections served as sources of opportunity (Hills et al., 1997). Optimism is another important personality trait that is related to the entrepreneur’s beliefs of self-efficacy or one’s ability to achieve challenging goals (Krueger & Brazeal, 1994; Krueger & Dickson, 1994). Greater levels of optimism motivate entrepreneurs to take on varying degrees of risk.

Ardichvili et al. (2003) identified these five factors as the most important drivers of opportunity identification and development in the literature: alertness, creativity, optimism (related to self-efficacy), social networks, and prior knowledge. Ardichvili et al. (2003) theorized that the “core process” (as shown in Fig. 1) begins when the entrepreneur reaches a certain threshold of alertness. In this model, several factors enhance an individual’s level of alertness including creativity, optimism, a dense social network, and relevant prior knowledge. An entrepreneur’s alertness is especially high when his or her special interest knowledge intersects with their industry knowledge.

The process of opportunity identification is cyclical (Ardichvili et al., 2003). The entrepreneur will likely conduct several iterations, moving back and forth between evaluation and development processes leading to recognition of additional opportunities. The authors point out that development processes are unique and depend on the individual, the team, and the corporation. Some individuals and teams possess strengths in Research and Development (R&D) of product inventions, while others are better suited for innovations in business model design. No two institutions have the same personalities or procedures for arriving at successful venture formation.

Limitations of the model of opportunity recognition. One concern with the original model of opportunity recognition is that it was developed nearly twenty years ago (Ardichvili et al., 2003), and the external environment in which entrepreneurs emerge today is vastly different (Neck & Greene, 2011). Entrepreneurs today operate in conditions of increasing uncertainty and unknowability. Advances in technology, increasing globalization and competition, growing customer sophistication, and the decentralization of communication and information have directly contributed to rapid environmental changes (Blank, 2013; Crossan & Apaydin, 2010; Matthyssens et al., 2006). A few examples of the changing environmental landscape include uncertainty due to threats of terrorism (Bennett & Lemoine, 2014), shifting government regulations (Hagemann & Bawany, 2016), and the complexity of outsourcing business components (Bennett & Lemoine, 2014) or navigating new supply chain efforts to support new products (Dervitsiotis, 2012). Additionally, the shift from print to digital media has contributed to the increasing uncertainty as companies are unclear on how customers will use and react to new technologies (Bennett & Lemoine, 2014).

The rapidly evolving business environment has prompted a shift away from the managed economy to the entrepreneurial economy (Thurik et al., 2013). The managed economy is best characterized by “stability, specialization, homogeneity, scale, certainty, and predictability” (Audretsch & Thurik, 2004, p. 7). In contrast, the entrepreneurial economy is centered around “flexibility, turbulence, diversity, novelty, innovation, linkages and clustering,” and the creation of knowledge (Audretsch & Thurik, 2004, p. 7). According to Dew et al. (2004), different processes of opportunity identification are appropriate for different types of opportunities with varying degrees of certainty.

More complex opportunities, where the problem is ill-defined and decision parameters are ambiguous, call for a *creation* approach to opportunity identification, yet there remains a dearth of studies that explore the *creation* perspective (Mary George et al., 2016). The current opportunity recognition model assumes a *discovery* perspective where opportunities are readily available and waiting to be discovered (Alvarez & Barney, 2007). In addition, a single view of opportunity recognition (i.e., discovery or creation) oversimplifies the process and fails to describe the different approaches entrepreneurs use to go about identifying opportunities (Chiasson & Saunders, 2005; Gaglio & Katz, 2001).

At the time the Ardichvili et al. (2003) model was developed, the authors rejected the idea of purposeful search. More recent research suggests active search (Fiet & Patel, 2008) or a blended approach involving both active and passive processing of information (Vaghely & Julien, 2010) are useful in the identification of new business opportunities. While Ardichvili et al.’s (2003) model substantiated opportunity recognition at the time, scholars and practitioners alike would largely agree that the disparate conditions under which entrepreneurs act today warrants attention.

The entrepreneurship and innovation literature emphasize the need for a model that takes an evolutionary approach and reflects the iterative, nonlinear nature of the ideation process (Crossan & Apaydin, 2010; Dimov, 2007). Dimov (2007) states that there is a lack of research aimed at understanding the “conceptual collapse of the time between a first insight and the idea that ends up being implemented” (Dimov, 2007, p. 717). These complex aspects regarding the process of opportunity recognition represent a significant gap in the literature and support the need for new model of opportunity recognition.

Ardichvili et al. (2003) developed a model of opportunity recognition that laid the foundation for future researchers to better understand this first stage of the entrepreneurial journey. New models have been developed in response to this seminal work on opportunity recognition and have adopted different lenses such as cognitive psychology (Baron, 2006) and developmental psychology (Vaghely & Julien, 2010), exploring both the mental and social aspects of ideation (Ruttan, 1959). The most recent model on opportunity recognition integrates multiple perspectives, including cognition, social capital, environmental development, and personality (Riquelme, 2013).

Perhaps the biggest motivator for developing new theories related to opportunity recognition has been prompted by the landmark study differentiating opportunity discovery versus opportunity creation (Alvarez & Barney, 2007) as discussed earlier in this literature review. Additional frameworks have sought to bridge the divide between objective and subjective viewpoints on opportunity recognition (Vaghely & Julien, 2010), which seems to create continuous tension in understanding the factors that lead to successful opportunity recognition. Three models related to opportunity identification have been developed since the inception of the original model.

Other Models of Entrepreneurial Opportunity Recognition

The pattern recognition framework (Baron, 2006), the entrepreneurial information processing framework (Vaghely & Julien, 2010), and the integrated model of entrepreneurial opportunity recognition (Riquelme, 2013) demonstrate the continued interest and importance of this topic in the literature. These models draw from a variety of perspectives in the field of psychology and in their assumptions about whether opportunities are discovered or created. In addition, some models emphasize the individual and the role of personality traits, while others shed light on influential forces in the external environment and social dynamics. The contributions and limitations of each of these models are discussed further.

Pattern recognition. The pattern recognition model was developed by Baron in 2006; it applies a human cognition research lens to better understand how individuals identify new business opportunities. Cognitive frameworks suggest a process called pattern recognition. Opportunity recognition as pattern recognition explains the connection between the individual's ability to see changes in the external environment and how one uses these scanning capabilities to generate ideas for new business ventures. The proposed pattern recognition model incorporates three critical factors: active search, alertness, and prior knowledge.

The pattern recognition process starts with the individual's ability to draw connections between seemingly unrelated events or trends in the external world (Baron, 2006). Changes in the external world

include shifts in

technology,

demographics,

markets, government

policies, and other

factors. For example,

wheeled luggage was

used by flight crews for

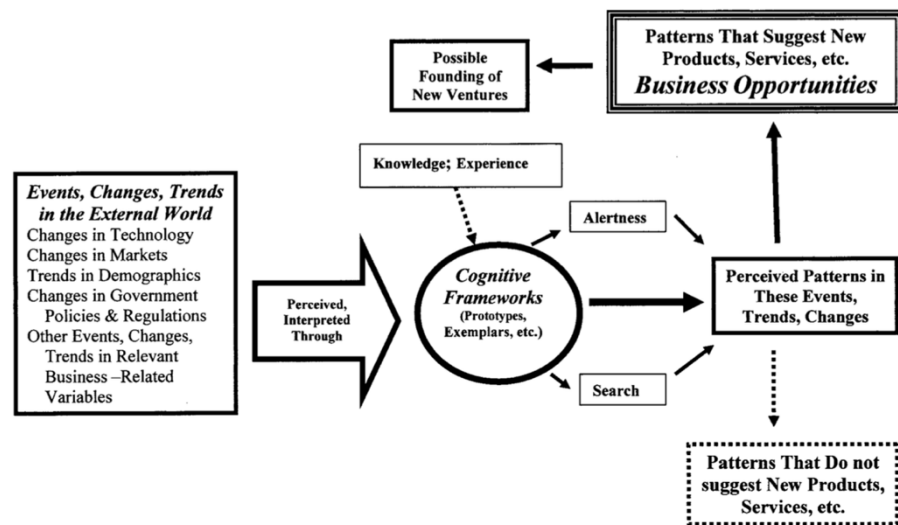


Figure 4. Pattern Recognition in Opportunity Recognition

years before it was introduced to the mass market. It was not until someone “connected the dots” between several rising trends that this business opportunity emerged. The influx of air travelers due to more affordable ticket prices, increased issues with checked luggage, and the growth of airports were key trends that made wheeled luggage an attractive business opportunity. The entrepreneur’s cognitive frameworks provide the links between raw data or pieces of information to form patterns that lead to new possibilities. More specifically, the individual’s memory of associated changes in forces in the external environment affects the proficiency of opportunity recognition. Previous life experience enhances the cognitive structures, which compose one’s memory. These experiences serve as prototypes and exemplars from which to form connections.

Pattern recognition aligns with the opportunity recognition model in its assertions that work and personal experience influence the entrepreneur’s knowledge base, which improves entrepreneurial alertness (Ardichvili et al., 2003). However, unlike Ardichvili et al.’s (2003)

model of opportunity recognition, Baron's (2006) “connect the dots” approach incorporates both active search and alertness. Pattern recognition acknowledges that many entrepreneurs engage in systematic searches for information that will lead to profitable business opportunities and emphasizes that their search process may be influenced by a heightened sensitivity to stimuli in the environment. A cognitive lens allows Baron (2006) to dive deeper into the initial stage of opportunity recognition—identification. Identification is distinct even from evaluation and development and represents a complex interweaving of stimuli and interpretation.

Research states that the best predictors of opportunity recognition are 1) the individual's possession of relevant prior knowledge and 2) their ability to organize and interpret that information (Shane & Venkataraman, 2000). The pattern recognition model is more effective than past models in illustrating *how* the entrepreneur organizes information which suggest new business opportunities. However, the model is not integrative and fails to show how other critical factors such as social networks, creativity, and optimism can influence prior knowledge and alertness factors. In addition, the model does not consider contexts where the problem space is ambiguous and the innovation is more dependent on the individual for enactment, such as in the opportunity creation theory. Finally, Baron's (2006) model is built on theoretical propositions not actual data analysis. Overall, the model does not fully capture the subdimensions of the phenomenon and is not well supported by data.

Entrepreneurial information processing framework. Alternatively, Vaghely and Julien (2010) apply a more evidence-based approach to formulating a model of entrepreneurial opportunity identification. In the study, 65 in depth interviews of ten small and medium-sized enterprises (SMEs) ranging from financial brokers to manufacturing firms were conducted to better understand how entrepreneurs use information to identify opportunities. Findings indicate

that entrepreneurial opportunities can be both recognized and constructed at individual and organizational levels. Entrepreneurs rely on both algorithmic information processing and heuristics to identify new business opportunities. These two modes of thought include rational evaluations of explicit information in the environment as well as intuitive connections that spark new ways to look at common problems.

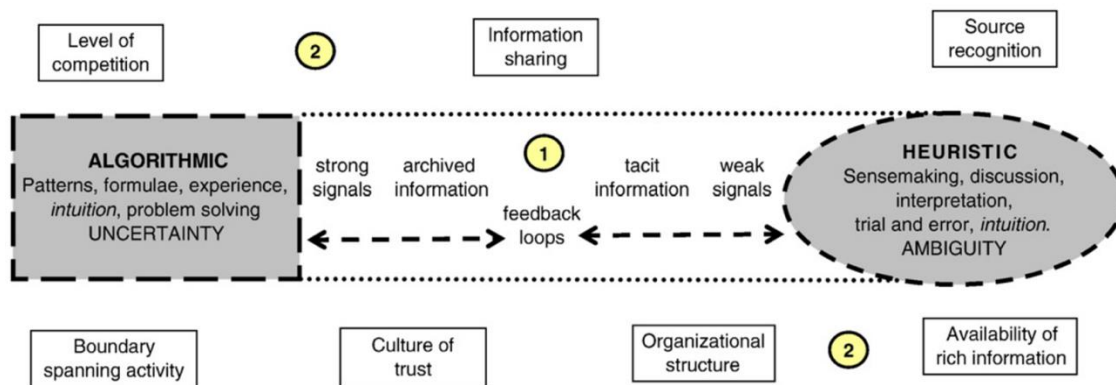


Figure 5. The Entrepreneurial Information Processing Framework

Vaghely and Julien's (2010) information processing framework aligns with Baron's (2006) pattern recognition model in that it heavily relies on cognitive psychology by examining how knowledge structures are interconnected and how "boundary spanners" help to narrow the search for information and lead to more successful outcomes (p. 82). Unlike past models, Vaghely and Julien's (2010) model supports not only the discovery approach but also includes aspects of the creation approach to opportunity recognition. Algorithmic information processing produces algorithms or patterns that enable entrepreneurs to problem-solve and identify new business opportunities. This type of information processing leads to discovery. Heuristic information processing relies more heavily on trial and error processing where information is tacit and best understood through enactment. This type of information processing leads to opportunity creation. The duality of entrepreneurial mindsets and the ability to switch back and

forth between modes of information processing moderates the distinction between discovery versus creation and objective versus subjective opportunities throughout much of the literature.

The information processing framework provides a more holistic approach to opportunity identification than pattern recognition as it accounts for contextual factors such as culture, organizational dynamics, and competitive environment (Vaghely & Julien, 2010). However, similar to pattern recognition, it is focused on *how* entrepreneurs process information rather than on external factors that influence the acquisition of relevant knowledge. The methodology of Vaghely and Julien's (2010) study is a case study analysis of 10 SMEs. While this research approach does posit some important findings, it is not the best suited form of qualitative research for generating a unified theoretical explanation. A case study approach lacks the rigor necessary for unearthing the cognitive and behavioral phases involved in opportunity recognition.

An integrated model of entrepreneurial opportunity recognition. Riquelme's (2013) research study integrates theories of cognition, social capital, environmental development, and personality. The quantitative study includes 240 entrepreneurs from Kuwait and uses a multiple regression analysis to understand the relative importance of each factor hypothesized to lead to opportunity recognition. As one of the few empirical studies in the opportunity recognition literature, this study provided valuable insight into the weight and relevance of the most prevalent factors hypothesized to date.

A factor analysis and Cronbach alpha were used to test the validity and reliability of eight factors: market munificence, self-efficacy, weak ties, schemas, strong ties, market dynamism, market heterogeneity, and mentors (Riquelme, 2013). Results indicate that six of the eight components explain 75% of the variation in the data with a Cronbach alpha ranging from 0.74 to 0.86. The significant factors found to influence successful opportunity recognition in this study

were organization of prior knowledge in an accessible format, high confidence, use of weak and strong ties in their social network, and the ability to see changes in the economic environment. Schema, or the cognitive frameworks used to organize and interpret separate streams of information, was the strongest predictor of opportunity recognition. The study did not find mentors or market heterogeneity to be

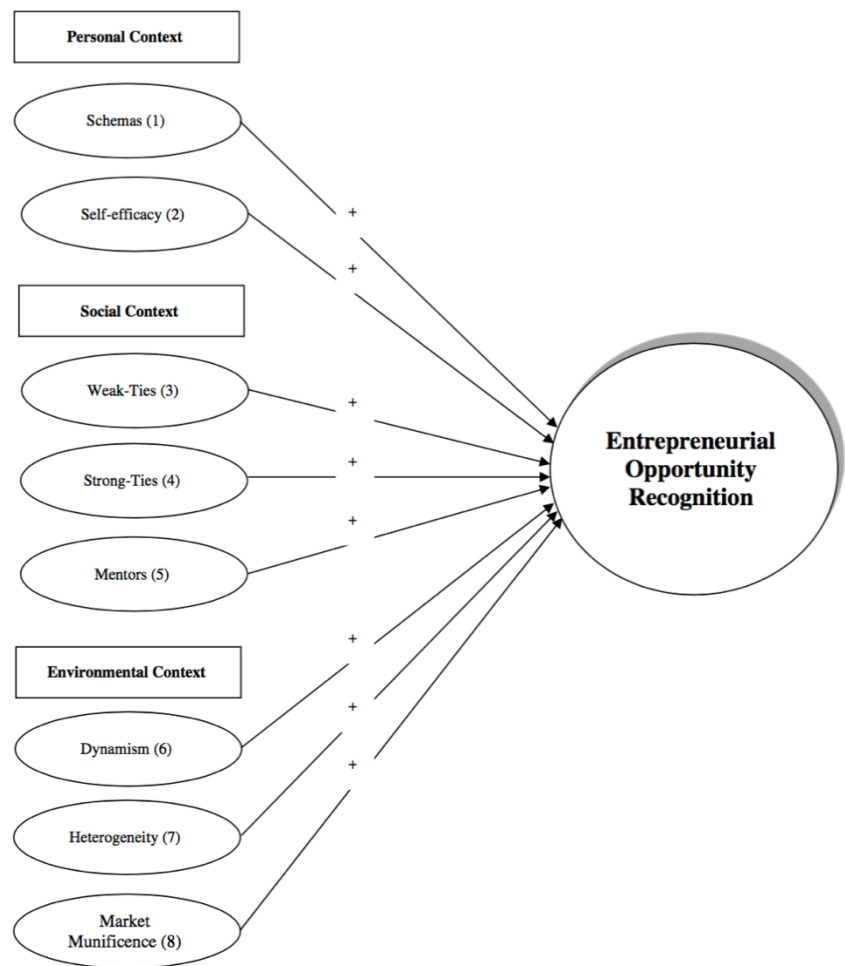


Figure 6. Hypothesized Model of Entrepreneurial Opportunity Recognition

opportunity recognition process. In addition, a Chi square test was used to test several demographic variables such as gender, age, experience, and education and their impact on

opportunity recognition. Entrepreneurs aged 30–41 and entrepreneurs with 8–15 years of experience had a statistically significant above average propensity for recognizing opportunities.

The hypothesized model of entrepreneurial opportunity recognition took a more holistic approach compared to past studies by considering personal, social, and environmental contexts and examines under-researched factors such as the role of mentors and self-efficacy (Riquelme, 2013). The study also compared how different groups use their strong and weak ties in their social network (e.g., men versus women or collectivist cultures). In addition, the study reinforced findings from Ardichvili et al. (2003) in relation to self-efficacy and social networks, from Baron (2006) in relation to external environmental factors and the role of cognition, and from Vaghely and Julien (2010) in relation to competitive forces and cognitive processes necessary for organizing incoming information.

Riquelme (2013) acknowledged several limitations of the study including potentially skewed results as it was based on a self-reported survey of entrepreneurs. Additionally, the lack of background information collected on the quality of the business opportunities entrepreneurs discovered in terms of wealth generation detract from the value of the findings. Another issue not addressed in the limitations of this study was the sample, which comes from the Kuwait Chamber of Commerce. It is likely that most of these businesses are more imitative in nature (e.g., restaurants, boutiques, etc.) and do not fit the criteria for innovation which characterizes opportunity recognition (Baron, 2006; Gaglio, 2004; Kirzner, 1979; Sarasvathy et al., 2003; Schumpeter, 1950).

Other factors that may limit the generalizability of the study include the location of the study in Kuwait. The market in Kuwait is not heterogeneous and does not possess the same level of social and technological diversity of other heterogeneous markets (Riquelme, 2013). Kuwait is

heavily influenced by tribal divides and lacks the consumer sophistication present in more competitive countries. Finally, the hypothesized model itself does not adequately explain the opportunity recognition process. It fails to identify antecedents of key variables such as prior knowledge and does not capture the interaction effects between factors.

Need for a Strong Unifying Theory

Multiple systematic literature reviews point to the multiplicity, fragmentation, and poorly grounded theories of opportunity recognition and innovation as a process (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). The many units of analysis studied across both opportunity recognition and innovation processes make it difficult to establish one, unifying theory of opportunity recognition. Different units of analysis may refer to the individual, the organization, and the individual's information network which may all be further qualified by the type of innovation, size, and industry. Researchers are calling for the crosspollination of research findings across the entrepreneurship and innovation literature (Crossan & Apaydin, 2010). The entrepreneurship literature suggests the field should focus less on the individual and more on the external environment (Zahra & Dess, 2001). In contrast, the innovation literature states that the individual level of analysis is underrepresented in innovation studies. The literature urges researchers to examine the individual agency that is clearly established in the entrepreneurship literature and apply it at the organizational level (Crossan & Apaydin, 2010), thereby linking entrepreneurial action with the innovation process (Mary George et al., 2016).

The most prominent model of opportunity recognition was developed using a case study analysis of 20 successful entrepreneurs almost 20 years ago (Ardichvili et al., 2003). Ardichvili et al.'s (2003) model does not fully capture the drivers of opportunity recognition. Mary George et al.'s (2016) systematic literature review of entrepreneurial opportunity recognition of 180

articles across three decades shows there is a deficiency of studies analyzing the factors that lead to opportunity recognition. Specifically, the authors urge researchers to analyze the mechanisms of the opportunity recognition model more closely by examining effects on subdimensions of opportunity recognition and diverse dependent variables. Moreover, the model may lack relevance in today's ambiguous and uncertain business environment (Bennett & Lemoine, 2014; Blank, 2013; Neck & Greene, 2011; Thurik et al., 2013). Today's complex business environment indicates a need for research on opportunity recognition from a creation perspective (Alvarez & Barney, 2007). Theories must evolve as the world changes and consider new conditions that shape the phenomenon (Strauss & Corbin, 1994).

More recent models of opportunity recognition have significant limitations in the design and methodology. Vaghely and Julien's (2010) information processing framework was developed using a case study approach. A case study approach lacks the necessary iterative steps to describe the conditions under which the theory holds. Baron's (2006) pattern recognition model is based on a set of theoretical propositions instead of actual data analysis. While these models provide valuable insights into cognitive and social aspects of opportunity recognition, they do not present a holistic model that answers the core questions—why, when, and how do opportunities for creation of goods and services come into existence? Why, when, and how do some people discover entrepreneurial opportunities and not others (Shane & Venkataraman, 2000)? The most comprehensive model to date—the integrated model of entrepreneurial opportunity recognition (Riquelme, 2013)—attempts to create a holistic model, but the criteria used to select the sample for the study does not align with what most experts say qualifies as an entrepreneurial opportunity (Baron, 2006; Gaglio, 2004; Kirzner, 1979; Sarasvathy et al., 2003; & Schumpeter, 1950) thereby posing significant doubts as to whether the findings are useful and

applicable in these other contexts. The research methodologies used in the current theories and models of opportunity recognition do not apply the rigorous research techniques needed to develop a holistic and integrated theory of opportunity recognition and therefore fail to accurately describe the opportunity recognition process.

Conclusion

While a model of opportunity recognition has been substantiated (Ardichvili et al., 2003), there is a scarcity of information regarding the antecedents to opportunity recognition. The proposed study seeks to better explain and describe the mechanisms that lead to successful opportunity recognition in an age of uncertainty and a rapidly changing external environment. Therefore, the central question of the study is how do individuals anticipate and identify new business opportunities in both startup ventures and established organizations today? The proposed study explores critical factors of opportunity recognition as well as possible subdimensions. In doing so, the study aims to offer an updated and more accurate representation of opportunity recognition.

The fragmented nature of this topic in the entrepreneurship and innovation literature has either under or over emphasized the role of the individual, organizational dynamics, and the external environment. This presents an opportunity to take a more comprehensive and balanced approach to the design of the study, linking the individual's role in opportunity recognition to the dynamics of the organization and bridging a gap that exists between two closely related fields.

A grounded theory study offers a rigorous approach to unearthing the cognitive and behavioral phases involved in generating new business ideas. Grounded theory accounts for causal conditions, context, and outcomes (Creswell & Poth, 2018). As themes and influences emerge, the data develop into larger buckets of categories and eventually into a “unified

theoretical explanation” (Creswell & Poth, 2018, p. 82). The reflexive nature of a grounded theory study will allow the researcher to understand the different iterations of the idea over time. The study should use a purposeful sampling method to select individuals and organizations with a successful innovation track record. The innovations being studied should be relatively recent in their development and from a wide range of industries to better learn about the process of opportunity recognition in the current business environment.

The process of opportunity recognition is important to aspiring entrepreneurs, current entrepreneurs, and existing organizations seeking innovative solutions or a competitive edge. A new study of the process of opportunity recognition that accounts for differences in today’s external environment, considers multiple levels of analysis, and addresses the limitations of past models will provide academics and industry practitioners with a more comprehensive model at a point in time where the demand for innovation is unprecedented.

Chapter 3 – Method

The design of any research endeavor must be driven by the research problem and the research question under investigation. The following was noted in the literature review: Why, when, and how do opportunities for the creation of goods and services come into existence? Why, when, and how do some people discover opportunities and not others? These are the central questions of scholars studying opportunity recognition (Shane & Venkataraman, 2000) and as such make good sense to start with ahead of any details regarding the research method. These questions serve as a guide for all design aspects of this study. This chapter introduces the research method by first discussing the rationale for the chosen research method and then detailing the research problem, purpose, research strategy, the sample, plan of inquiry, data analysis and reporting, significance, risk and limitations, timing and budget, and success measures relative to this study.

Questions about how and why new business opportunities emerge continue to plague researchers in this field. The exploratory nature of the research question points toward a qualitative research approach (Creswell & Poth, 2018). Unlike quantitative methods, qualitative methods allow the researcher to “explore areas not yet thoroughly researched,” “discover relevant variables,” and “take a holistic and comprehensive approach to the study of phenomena” (Corbin & Strauss, 2015, p. 5). The five most common qualitative approaches include narrative theory, phenomenology, ethnography, case study, and grounded theory (Creswell & Poth, 2018). The present study takes a grounded theory approach; however, it is valuable to evaluate why the other four qualitative research methods were not selected for the study.

According to Creswell and Poth (2018), each qualitative approach differs in terms of what they are trying to accomplish, the analysis process, and the “architecture” of the findings

reported at the conclusion of the study. Narrative theory is aimed at uncovering the meaning of individuals' experiences and presenting the stories of these individuals, often in chronological order. Phenomenology is concerned with the lived experience of individuals surrounding a specific phenomenon of interest and drawing out descriptive themes. Ethnography is focused on interpreting individual and group patterns in a shared culture and explaining how the culture works. Finally, a case study approach seeks to understand an event, program, or activity involving several individuals to make assertions about the key issues. While each of these qualitative methods provides important contributions to the advancement of knowledge, they are not suited for the research problem described herein this study.

This study seeks to understand the process of opportunity recognition and requires a research approach that locates the *process* at the center of the stage. Grounded theory is the only qualitative method that examines the process as the main unit of analysis and presents the findings as a set of theoretical propositions and as a robust visual model (Corbin & Strauss, 2015). Aptly named, grounded theory is concerned with “theory-building,” or construction of knowledge (Corbin & Strauss, 2015, p. 38) and is known for its explanatory power, which indicates the relationship between a set of complex concepts, and for its practical application in the real world (Lynham, 2002). For these reasons, a grounded theory approach is the best method to generate a substantive theory of opportunity recognition and extend the literature on this topic.

The Problem

In short, existing models of opportunity recognition (Ardichvili et al., 2003; Baron, 2006; Riquelme, 2013; Vaghely & Julien, 2010) do not fully capture and integrate the key drivers of opportunity recognition. Multiple systematic literature reviews point to the multiplicity, fragmentation, and poorly grounded theories of opportunity recognition and innovation as a

process (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). The literature urges researchers to examine the individual agency that is clearly established in the entrepreneurship literature and apply it at the organizational level (Crossan & Apaydin, 2010), thereby linking entrepreneurial action with the innovation process (Mary George et al., 2016). In addition, qualitative studies that examine the unfolding events leading to opportunity recognition possess an exceedingly broad focus on the entire venture creation process rather than the recognition stage (Rae, 2005). Finally, existing models may lack relevance in today's increasingly ambiguous and uncertain business environment (Bennett & Lemoine, 2014; Blank, 2013; Neck & Greene, 2011; Thurik et al., 2013). Greater uncertainty where the problem is ill-defined calls for a creation approach to opportunity recognition, yet this theoretical perspective remains underexplored in the literature (Alvarez & Barney, 2007; Sarasvathy et al., 2003). Theories must evolve as the world changes and consider new conditions that shape the phenomenon (Corbin & Strauss, 2015). The purpose here is to address these gaps in the literature on opportunity recognition.

Purpose of the Study

The specific goal is to gain a deeper and more integrated understanding of how individuals identify new business opportunities, also known as opportunity recognition (Ardichvili & Cardozo, 2000). At this stage in the research, opportunity recognition is generally defined as "perceiving a possibility to create a new business resulting in new profit potential" (Ardichvili & Cardozo, 2000, p. 104). The study explores how the idea crystallizes and results in the entrepreneur's decision to pursue the opportunity. The final outcome of the study is a comprehensive theory of opportunity recognition detailing the cognitive and behavioral phases that lead to successful opportunity recognition. The resulting framework is intended to illuminate

how and why entrepreneurial ideas form in the early stages, even prior to the idea evaluation and implementation stages, whether in a small startup or a large organization.

Research Strategy

A grounded theory approach is used to conduct this study. Two sociologists, Glaser and Strauss (1967), developed the grounded theory method, which is defined as “a general methodology for developing theory that is grounded in data systematically gathered and organized” (Strauss & Corbin, 1994, p. 273). Despite its origins in social science, grounded theory has been used effectively across numerous disciplines including psychology, nursing, education, and business (Morse et al., 2009). Researchers are drawn to this method because of the core features, which include the concepts of “constant comparison” and “saturation” which allow the researcher to generate a theory inductively from real data, rather than through speculation, and strengthens its applicability in the real world (Corbin & Strauss, 2015).

Grounded theory is often called the “constant comparison method” (Corbin & Strauss, 2015, p. 90) because it demands the systematic interplay between data and analysis. The methodology involves several interlacing steps including data collection, notetaking, coding, memoing, sorting, and writing (Dick, 2005). The iterative nature of these procedures enables one to fully conceptualize the process of opportunity recognition and reach a point of “saturation”—where all properties and dimensions of a concept have been explained (Corbin & Strauss, 2015).

The rigorous steps and protocols unique to grounded theory lend themselves to the development of a strong unifying theory of opportunity recognition. Grounded theory accounts for causal conditions, context, and outcomes (Creswell & Poth, 2018). As themes and influential factors emerge, the data develop into larger buckets of categories and eventually into a “unified theoretical explanation” (Creswell, 2007, p. 107). Baszanger (1992) noted the intense and

detailed work involved in identifying emergent concepts and tracing their relationships.

According to Dubin (1976), good theory building produces two types of knowledge—outcome knowledge and process knowledge. Outcome knowledge refers to the desired end goal to be achieved through the process, while process knowledge informs how something works or what it means. Linking the concepts in this way makes grounded theory the most appropriate method for explaining both how opportunity recognition occurs and how the variables influence success.

The Sample

The sampling strategy in this study evolves over time as new data and concepts emerge. Grounded theory is unique in its focus on the process level rather than the participant level (Corbin & Strauss, 2015). As themes and concepts emerge from the data, new cases are sought out to confirm or disconfirm conditions and strengthen the model. Corbin and Strauss (2015) emphasize that “multiple perspectives add insight, richness, depth and variation” (p. 308). The researcher typically begins with a homogenous sample of individuals and then progresses toward a heterogeneous sample as the theory develops.

To begin the research, a purposeful sampling strategy was used in conjunction with a convenience sample. Patton (2002) described purposeful sampling as the process used to “select information-rich cases strategically and purposefully” (p. 243). The researcher identified an initial group of individuals who match appropriate criteria to offer informed, expert opinions on opportunity recognition. The primary objective was to ensure the sample represents a wide variety of entrepreneurs and innovators with experience in launching multiple revenue-generating ideas that are innovative in nature. More specifically, participants must meet four criteria—1.) individuals must have successfully launched two or more ideas, 2.) the ideas must

have launched within the past 10 years, 3.) the ideas must be innovative in nature, and 4.) the ideas must be revenue-generating.

The initial sample of participants, a convenience sample, originated from the researcher's personal contacts in Northwest Arkansas and were contacted via email. Numerous Fortune 100 companies and their suppliers as well as a thriving entrepreneurial ecosystem in the region offer a solid base of potential interview participants to start the research process. Participants were selected from across a variety of industries, both large organizations and small startups. The researcher used purposeful sampling to obtain access to additional interview participants by asking individuals in the initial sample for recommendations in their network that may provide rich insights into the opportunity recognition process as well as by seeking out qualified participants via LinkedIn. Remaining participants in the purposeful sample were contacted via email and LinkedIn. This snowball-like approach helps in generating a sizeable list of possible interviewees to enable the researcher to reach the point of saturation.

The sample size cannot be determined at the onset of a grounded theory study. Morse (1994) stated, "Saturation is the key to excellent qualitative work" but "there are no published guidelines or tests of adequacy for estimating the sample size required to reach saturation" (p. 147). Some researchers argue as few as four individuals can provide extremely accurate information if they possess a high level of expertise in the domain of interest (Romney et al., 1986). Other researchers suggest between twenty to thirty participants are necessary for a grounded theory study (Charmaz, 2014). However, none of these studies provide evidence for their recommendations (Creswell & Poth, 2018).

Therefore, this study does not specify a minimum or maximum number of participants for the sample. Instead, a reasonable sample size was pursued to reach data saturation. Saturation

may be defined as “the point in category development at which no new properties, dimensions, or relationships emerge during analysis” (Strauss & Corbin, 1998, p. 143). This indicates that the interviews continue until no new findings emerge and all concepts are fully developed in terms of their properties and dimensions (Corbin & Strauss, 2015). Saturation is reached when a strong fit between the abstraction and raw data is established and there is no break in logic.

Another type of sampling, called theoretical sampling, was used in combination with purposeful sampling. Patton (2002) defined theoretical sampling as “finding manifestations of a theoretical construct of interest so as to elaborate and examine the construct and its variations” (p. 243). In other words, theoretical sampling expands as interviews, data collection, and analysis occur simultaneously, and the researcher becomes more sensitive to what data are needed next. Comparing similarities and differences among a broad range of cases adds variation and density to the categories and directs further sampling from information-rich sources that fill in any gaps in category development (Corbin & Strauss, 2015). Theoretical sampling is an important part of achieving the purpose of this study.

Plan of Inquiry

The primary source of data for this study is interviews, although additional supporting artifacts may be requested. A semi structured interview design was administered either in person or via video and audio conference technology. The simultaneous tasks of collecting and analyzing data means the questions may slightly change as new information is gathered regarding specific concepts, their properties, and dimensions and as new questions about external conditions arise. Corbin and Strauss (2015) state, “The original research question is modified over and over again in light of what is being discovered” (p. 240). While a detailed description of

the interview guide is presented here, it is important to note that modifications and additions are made throughout the process to fill in the gaps and logic in the data.

Before launching into the specifics of the interview questionnaire, it is worth noting a few challenges pertaining to the line of inquiry and how they will be overcome. This study seeks to unearth both cognitive and behavioral aspects of opportunity recognition. A concerted effort has been made to anticipate and address any barriers to exploring this phase. The first challenge is that participants may have trouble recalling early stages of the ideation phase and may overlook important factors because of how the business idea evolved over time and the direction it took to grow into a full-blown business concept. Second, interview participants may be unaware of the role cognition played in this phase of the entrepreneurial journey. For these reasons, a semi structured interview guide was used along with field data in the form of artifacts that document the evolution of the participant's idea.

According to Corbin and Strauss (2015), unstructured interviews provide the richest source of data for developing a theory. Unstructured questions are broad questions that give the participant complete control over the conversation and ensure topics emerge that they deem important. However, semi structured interviews are a common approach that is often preferred by researchers dealing with interviewees who possess a complex stock of knowledge (Flick, 2002). Given the challenges previously mentioned, a semi structured approach helps surface the complex cognitive and behavioral actions taken by participants throughout the opportunity recognition process.

The interview guide incorporates open-ended questions that give the participant room to explain what is important to them along with probing questions that assist the researcher in covering territory relevant to opportunity recognition based on the literature. For example, broad

and very open-ended questions, such as “How did you come up with the idea? What inspired it?” are given priority in the sequence to allow the participant to steer the conversation. Subsequently, specific probes related to concepts from the literature such as alertness and prior customer knowledge are included such as “When and why did your attention begin to shift toward this idea and how did it begin to gain momentum?” and “Tell me about your background experience as it relates to your business idea.” In addition, questions should help the interview participant think back to the stage of ideation most pertinent to the research. A cutoff criterion was established to effectively define the duration of the ideation stage. The researcher defined the area of interest to the participant as the period prior to any formal concept testing of the product or service and prior to any external funding allocated to implementation. The researcher asked two colleagues in journalism and one industry contact at a marketing agency to review the interview questions and ensure the questions would flow, be easily understood, and generate rich stories. In addition, a pilot study of three entrepreneurs was used to test and refine the interview questions.

The present study seeks to understand the process of opportunity recognition. The central research question is as follows: How do individuals go about identifying new business opportunities?

Control questions.

1. What is your position in the organization?
2. Have you launched two or more successful businesses or innovative products/services?
What was the time frame for these initiatives (i.e., last 5–10 years or less), from conception to implementation?
3. How would you describe your role in identifying this new business opportunity?

Theory questions.

1. Please describe your idea. How has it evolved over time? Please include the uniqueness of your idea.
2. Tell me how you came up with the idea. What inspired it?
 - a. Probe: How did you pick up on the problem and think of a solution?
 - b. Probe: When and why did your attention begin to shift toward this idea and how did it begin to gain momentum?
 - c. Probe: What else were you doing at the time and/or what else was happening in the world (i.e., historical, social, political, cultural, and environmental conditions)?
 - d. Probe: Were other people influential in the ideation?
 - e. Probe: Get a feel for the time frame for the unfolding of the idea.
3. Describe the role (if any) each of the following played for you in the ideation stage—intuition, luck, structured or planned innovation activities (e.g., environmental scanning, trend analysis, crowdsourcing, design-thinking workshop, etc.).
4. Tell me about your thought process as the idea was still forming. How did the idea crystallize in your brain?
 - a. Probe: Were there lots of puzzle pieces that had to come together or was it more straightforward and linear?
5. At what point did you decide to actively pursue the idea (i.e., test or raise money for it)?
When did it become real for you? When did you feel it was possible?
 - a. Probe: Was there a critical moment or push that caused you to switch from “this has potential” to “this might actually work”?

- b. Probe: How did you sense it was the “right” opportunity to pursue?
 - c. Probe: What gave you confidence in this idea?
6. Tell me about your background and experience as it relates to your business idea. Did you have formal work experience/education/training in this industry? What about personal experience such as a hobby or a relationship to someone that had helpful insights?
 7. Would you describe your idea as a success or failure? Why?
 8. What made the market, timing, and/or external conditions surrounding this idea different from past ideas you discovered?
 9. In your opinion, why do some people discover opportunities and not others?
 10. Is there anything else you would like to add that you think is important?

Interview Question – Main Topic	Related Areas of Literature
1. Idea Description	<ul style="list-style-type: none"> • Type of Innovation (e.g., scientific, technical, marketing, etc.) • Creation vs. Discovery
2. Idea Process/Inspiration	<ul style="list-style-type: none"> • Personality Traits • Alertness • Social Networks • Cognition • External Environment • Boundary Spanning Activities • Central Question of the Field • Creation vs. Discovery • Active vs. Passive Search • Emergent Concepts
3. Intuition, Luck, and Planned Innovation Activities	<ul style="list-style-type: none"> • Creation vs. Discovery • Active vs. Passive Search
4. Thought Process	<ul style="list-style-type: none"> • Alertness • Cognition • Information Processing • Creation vs. Discovery • Active vs. Passive Search
5. Tipping Point	<ul style="list-style-type: none"> • Personality Traits • Alertness

	<ul style="list-style-type: none"> • External Environment • Creation vs. Discovery
6. Background & Experience	<ul style="list-style-type: none"> • Alertness • Industry and Specialized Knowledge
7. Idea Success/Failure	<ul style="list-style-type: none"> • Confirming/Disconfirming Cases
8. How Different Than Past Ideas	<ul style="list-style-type: none"> • Cognition • External Environment
9. Why Some People & Not Others	<ul style="list-style-type: none"> • Central Question of the Field
10. Anything to Add	<ul style="list-style-type: none"> • Emergent Concepts

Figure 7. Interview question and corresponding areas of literature.

To aid in memory recall and provide more complete data, participants were asked to share any relevant documents that may shed light on the innovation or business endeavor in its early stages of conception. Bogdan and Biklen (2006) organize this form of data into three categories—personal documentation (e.g., emails or blogs), official documents (e.g., reports or handbooks), and popular culture documents (e.g., magazines or articles). Examples of documents pertinent to the process of opportunity recognition may include emails, idea journals, sketches of initial prototypes, informal customer feedback, trend reports, and news magazines or websites. This stage of the entrepreneurial journey is not typically well documented; therefore, it is possible participants are not be able to produce such artifacts. The researcher requested these items well in advance of the scheduled interview to allow participants ample time to search for them; however, the researcher recognizes documentation may not be available. In addition, participants may be reluctant to share internal documents such as these for purposes of confidentiality.

Data Analysis and Reporting

To achieve methodological consistency and avoid “method slurring,” or the mixing of key procedures between philosophically different qualitative methods, the researcher followed all procedures for building a theory as outlined by Corbin and Strauss (2015). Accordingly, the data analysis includes three phases of coding—open, axial, and selective coding. Open coding

simultaneously looks for relationships and identifies patterns through constant comparison within and across data sets. Codes are categorized into lower level, generic concepts. Subsequently, axial coding is applied to the data to elaborate on concepts found during the open coding phase and to establish links between emerging categories. Axial coding reexamines the data through three distinct lenses—various conditions, action-interactions, and anticipated or actual consequences. This step of constructing theory is adequately summarized by Corbin and Strauss (2015):

...we look for events or happenings (sets of conditions) and how persons define or give meaning to these (as problems, challenges, obstacles, goals, etc.). We look for action-interaction to handle problems, challenges, or goals. Then I look at the consequences that resulted from action and interaction. (p. 154)

This results in further understanding of how each category and subcategory relates to one another. Finally, selective coding determines the core category of the phenomena, unifies the categories around it, and validates the relationships.

Each phase of coding must be well documented through the use of memo writing and diagrams (Corbin & Strauss, 2015). These tools serve as an “efficient system” for “ongoing, developmental dialogue” between the researcher and the data (Schatzman & Strauss, 1973, p. 9). After each data session, the researcher should record personal feelings, impressions, and responses to the data in a separate journal. These memos are used to “clarify, magnify, and generate” (Corbin & Strauss, 2015, p. 128). Memoing clarifies ideas, magnifies concepts that did not instantly surface from the data, and often generates new concepts which inform the coding process. Though used less frequently throughout the data analysis process, diagrams are an

effective way to map the relationship between concepts and organize variables that are conceptually distinct.

Furthermore, a computer program specifically designed for qualitative data analysis was used to increase efficiency and systematically manage the large body of interview data, codes, and memos. NVivo software is a sophisticated tool with features to help search the data for key words and semantic capabilities to extract meaning. The program also enhances the researcher's ability to establish links in the data and visualize findings. Showing how the theory connects to the raw data is paramount in qualitative research. Guest et al. (2006) say, "Ultimately, themes should be able to be linked to data points; that is, one should be able to provide evidence of a given theme within the text being analyzed" (p. 77). Using a computer program to organize and code the data improves the fit of the theory and the data.

Toward the end of the data analysis process, the researcher conducted two additional steps to ensure the theory is well integrated and validated. The first step is to revisit the raw data and assess the explanatory power of the theory across most cases (Corbin & Strauss, 2015). The second step requires scheduling follow up interviews with participants to ask for their feedback on the emergent themes and to comment on how well it fits with their understanding of the phenomenon. "A theory that is grounded in data should be recognizable to participants, and the larger concepts or categories should apply to each case" (Corbin & Strauss, 2015, p. 200). This feedback loop between the researcher and the interviewees as well as the final check for "fit" with the raw data helps to increase the validity of the theory.

The findings were summarized as an analytical story, detailing the main issues and problems the participants experienced. The researcher discusses the findings and emerging theory considering existing literature, noting areas of agreement, and explaining areas of

disagreement. Areas where the literature supports the theory provide another degree of validity to the theory. The researcher then generates a set of theoretical propositions that hypothesize how a series of conditions and action-interactions result in a defined consequence. Finally, a comprehensive diagram shows how each category and its subdimensions relate to one another.

Significance of the Study

The primary goal of the present study is to establish a unified theory of opportunity recognition with real world relevance and to extend the academic literature in this area. As Lynham (2002) notes,

...an important function and characteristic of theory building is to make these explanations and understandings of how the world is and works explicit and, by so doing, to make transferable, informed knowledge for improved understanding and action in the world tacit rather than implicit. (p. 223)

This is to say that a good theory should explain how the world works and provide insight into how to act on things in the world. Developing a deeply grounded theory of opportunity recognition has the potential to demystify a complex process and inform entrepreneurs and innovators how to harness the pursuit of new business opportunities for sustained competitive advantage (Antoncic & Hisrich, 2001; Lumpkin & Dess, 1996; Zahra & Dess, 2001).

Regarding contributions to the literature, (Dick, 2005) comments on the importance of how the researcher treats disagreement between his or her emerging theory and the literature. “You don’t assume that your theory must be wrong...You seek to extend the theory so that it makes sense of both the data from your study and the data from the literature” (Dick, 2005, para. 11). This study adds value to the existing body of literature on opportunity recognition which lacks a coherent theory that considers recent shifts in the external environment (Bennett &

Lemoine, 2014; Blank, 2013; Neck & Greene, 2011; Thurik et al., 2013), new perspectives such as the creation approach (Alvarez & Barney, 2007; Sarasvathy et al., 2003), and a more holistic focus on the product, person, process, and context (Dimov, 2007; Gabrielsson & Politis, 2012).

In addition, this study integrates multiple lenses that are frequently studied in isolation due to the cross disciplinary and fragmented nature of the entrepreneurship and innovation fields, lenses such as innovation type and organizational size (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). The rigor and features of a grounded theory study uniquely qualify it to make sense of these points of tension in the literature and deliver a substantive theory that is “logical, dense, and innovative” (Corbin & Strauss, 2015, p. 313).

Risks and Limitations

There are several risks, limitations, and delimitations associated with this study. Grounded theory is a qualitative method that is both an art and a science and requires careful consideration of all potential risks (Corbin & Strauss, 2015). Interviewee recall bias, researcher bias, theoretical sensitivity, ethical concerns, and serial entrepreneur or intrapreneur delimitation are each discussed in terms of their potential impact on the study findings.

One of the primary risks of the study is the potential for interviewee recall bias. The study relies on participants to recall early stages of their entrepreneurial journey, which are not usually well documented. Memories are fragile and the participants may have a hard time generating an accurate account of the events and factors that serve as triggers in the recognition of the business opportunity. Informants may overlook or minimize important factors because of how the business idea evolved and the direction it took to grow into a full-blown business concept. This phase of the entrepreneurial journey is often a cognitive process that takes shape over many conversations and is informed by many events that are never formally written down.

Another factor that may interfere with the accuracy of the participant responses is the fact that thriving entrepreneurs and innovators are accustomed to sharing their success stories with the press and other interested parties. In the pilot study conducted in a research design course prior to commencement of this study, one of the participants provided rapid-fire responses, which seemed to be well-rehearsed answers. Testing these questions during the pilot study provided helpful insights into how to improve the line of inquiry and research protocols.

To combat these risks, the researcher used a semi structured interview design which helps the interviewee consider a wide range of factors and cover relevant territory. Additional probes help slow the participant down and think back to the idea formation stage. The interviewer should also take time to set the stage at the beginning of the interview. The interviewer should also acknowledge that the interviewee has likely told the story many times but that the purpose of this study is to dig deep into the past when the interviewee was only aware of fragments of the idea. Furthermore, to aid memory recall, the participant was asked to produce any supporting documents that show the evolution of the idea. Such documents may include emails, idea journals, sketches of initial prototypes, informal customer feedback, trend reports, and news magazines or websites.

Another risk to the study is the researcher's bias and its effect on theoretical sensitivity. In qualitative research, the researcher becomes the instrument (Patton, 1999). It is critical to understand what perspective and prior knowledge the researcher brings to the research topic and how it may affect the researcher's interpretation of the data. The researcher's interpretive skill comes in the form of *theoretical sensitivity*, that is, the researcher becomes "sufficiently theoretically sensitive" (Glaser & Strauss, 1967, p. 46) to conceptualize and formulate the theory

as it emerges from the data. This is the process that truly “grounds” the data. The researcher should be careful not to allow personal bias to influence the data analysis.

I am an assistant professor of entrepreneurship and innovation and marketing. My most significant background and training relevant to this topic is in design thinking and human-centered design approaches to innovation. The practice of reflexivity (Creswell & Poth, 2018) and the memo process (Corbin & Strauss, 2015) help eliminate this as a potential bias and potential projection onto the data. Memoing requires the researcher to consistently document his or her feelings, impressions, and responses to the data (Corbin & Strauss, 2015). This reflexive thinking throughout the study pushes the researcher to hold themselves accountable and maintain a fresh perspective (Creswell & Poth, 2018). Memos should be “exploratory, consisting more of questions than answers” (Corbin & Strauss, 2015, p. 195). This helps the researcher remain open to new possibilities and confront any assumptions that were challenged in the research process. Another technique used to ensure the theory generated accurately reflects the story the interviewee told is to conduct follow up interviews to ask the participant for feedback on the emerging theory. This additional measure was discussed in the data analysis and reporting section.

Ethical issues can arise during any phase of the research, including prior to the start of the study (Creswell & Poth, 2018). Proper approval from the institution’s internal review board is required to ensure the researcher has considered all possible ethical concerns in the study design and has taken steps to ensure no harm is done to the participants in the study. In addition, the researcher must obtain informed consent from each participant before proceeding. Finally, respect for the privacy of participants is vital in qualitative research. During the data analysis

phase, the researcher should assign pseudonyms to the participants and remove any identifying information from the interview transcripts and corresponding memos.

The sample selected for this study is delimited to individuals responsible for at least two or more innovative revenue-generating projects. By this definition, participants may be founders of a small startup or innovators in a large company but must have launched more than one idea. This purposefully excludes novice entrepreneurs and one-time innovators. Serial entrepreneurs or intrapreneurs possess more information-rich experiences to pull from and more fully developed cognitive frameworks. One study comparing novice (first-time) entrepreneurs to repeat (experienced) entrepreneurs found that “through their experience in founding new ventures, repeat entrepreneurs acquire cognitive frameworks (e.g., more fully developed prototypes) that are increasingly helpful to them in ‘connecting the dots’ between seemingly unrelated changes or events and in detecting meaningful patterns in these links” (Baron & Ensley, 2006, 1341). Limiting the sample to experienced entrepreneurs also increases the likelihood the individual has had experience with both successful and failed ideas, thereby increasing the varied types of data and perspectives collected in the study. Corbin and Strauss (2015) cite this as a strength, “Multiple perspectives add insight, richness, depth and variation” (p. 308). More experienced entrepreneurs have had more time to develop schema and exemplars that make them more cognizant of the forces at work.

Another delimitation of the study is that the business opportunity be innovative in nature. The purpose of this study is to understand the complex process entrepreneurs undergo when creating new value in the marketplace, not imitative goods and services such as a hair salon or a restaurant. The literature defines a truly entrepreneurial opportunity as “the chance to introduce innovative (rather than imitative) goods, services, or processes to an industry or economic

marketplace” (Gaglio, 2004, p. 534) and represents a type of breakthrough in addressing a conceptual gap in the marketplace (Sarasvathy et al., 2003). Furthermore, this type of innovation is more likely to produce the competitive advantage most organizations are searching for.

Drucker states that organizations must innovate or risk becoming obsolete (Drucker, 1992).

Therefore, control questions were used to confirm all participants fit the sampling criteria of the study and provided the most meaningful data for analysis.

Timing and Budget

The proposed study was estimated to take six months. Approximately three weeks was allocated toward identifying the initial sample and confirming their willingness to participate in the study. There is no established number of interviews for this study and therefore no fixed amount of time for conducting the interviews. Given the researcher’s dependence on interviewees’ schedules and the simultaneous collection and analysis of the data, four months was the estimated timeframe for this component of the research. Finally, four weeks was designated for documenting the final results and writing the discussion and conclusion of the study. Therefore, the total time needed to conduct this study was six months.

There are no monetary costs associated with the study. Neither the researcher nor the sample participants were compensated for their time or incentivized in any way. There were no costs anticipated in relation to the facility or materials needed to carry out the study. Therefore, no budget was requested for purposes of this study.

Measuring Success in Grounded Theory

Success in a grounded theory study is measured in terms of validity, credibility, and applicability (Corbin & Strauss, 2015). According to Hammersley (1987), validity “represents accurately those features of the phenomena that it is intended to describe, explain, or theorize”

(p. 67). In essence, validity means the theory describes reality. Credibility means the theory contains thick descriptions and “indicates that findings are trustworthy and believable” (Corbin & Strauss, 2015, p. 346) in that they accurately depict the participants’ and researchers’ experience with the phenomena. Applicability refers to the level of “fit” of the data with the context from where they were drawn and where they will be used, how well they are understood by others, their generalizability to diverse situations and populations, and their ability to bring about change (Glaser & Strauss, 1967, pp. 237-250). These evaluation criteria were carefully observed, and the study employed strategies to ensure they were adhered to, beginning with the interview protocols through the final documentation of findings.

Conclusion

This chapter summarized the grounded theory research design and specific protocols used in the study. Originally developed by Glaser and Strauss (1967), grounded theory has become a well-respected method of scholarly inquiry in applied disciplines (Lynham, 2002; Morse et al., 2009). Grounded theory may be defined as “a general methodology for developing theory that is grounded in data systematically gathered and organized” (Strauss & Corbin, 1994, p. 273).

Theory building is the intense process employed in this approach which is “the process or recurring cycle by which coherent descriptions, explanations, and representations of observed or experienced phenomena are generated, verified, and refined” (Lynham, 2000, p. 161). In addition, this rigorous and systematic method is capable of *explaining* complex processes that do not follow a linear path (Corbin & Strauss, 2015).

The explanatory and conceptual power of the method offers a valuable research approach for developing a unified theory of opportunity recognition and answering the central questions of scholars studying opportunity recognition: why, when, and how do opportunities for the creation

of goods and services come into existence (Shane & Venkataraman, 2000)? More specifically, grounded theory is an effective approach to understanding the iterative, cognitive, and behavioral phases individuals go through in the opportunity recognition phase. This chapter provided a detailed account of the grounded theory research process and protocols to be executed in this study as well as the rationale for the grounded theory approach. The next chapter discusses findings from the proposed study.

Chapter 4 – Results

The opportunity recognition literature is void of a unified theory of opportunity recognition that links the individual to the innovation process (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). Existing models of opportunity recognition (Ardichvili et al., 2003; Baron, 2006; Riquelme, 2013; Vaghely & Julien, 2010) fail to capture the key drivers of opportunity recognition and rely on insufficient research methods that are unable to effectively explain a complex process. The aim of this study is to understand how individuals go about identifying new business opportunities, also known as opportunity recognition (Ardichvili & Cardozo, 2000), and present a comprehensive and practical representation of the process of opportunity recognition. The research method selected to accomplish this goal is a qualitative research technique called grounded theory. This study generated a theory inductively from data gathered through expert interviews and employed the rigorous steps and protocols unique to grounded theory, including constant comparative analysis and data saturation.

This chapter outlines a new model of opportunity recognition and findings from the study along with a full account of the grounded theory research techniques administered by the researcher. The reader should be able to verify successful application of the grounded theory approach based on how well the results demonstrate validity, credibility, and applicability (Corbin & Strauss, 2015). In addition, the information presented in this chapter provides a deeper understanding of the conclusions drawn from the study. The discussion begins with a description of how the study was initiated. This is followed by a detailed account of how the study was carried out. Finally, the results of the study are presented as proposition statements with a supporting narrative.

Initiating the Study

To understand how and why some people discover new business opportunities, 27 serial entrepreneurs and intrapreneurs were individually interviewed. Interview participants came from a variety of industries ranging from banking, humanitarian relief, and medical software and were mostly located in Northwest Arkansas. Participants were identified through the researcher's personal experience and network as individuals who met the study criteria and possessed valuable experience in launching innovative products and services both inside large enterprises and in the marketplace. Prior to the start of the study, the researcher conducted a pilot study with three participants—two intrapreneurs and one entrepreneur – adhering to the research design and strategy outlined in Chapter 3. The purpose of the pilot study was to test the line of inquiry and research protocols and make any needed modifications. All steps of the research process were conducted during the pilot study, including note taking, coding, and memoing. The line of inquiry and process flowed smoothly and no changes to the research protocols were necessary, therefore the results from the participants in the pilot study were included in the final analysis, and the study proceeded as planned. The next section provides specific details of the actual execution of the research strategy.

Executing the Research Method

Multiple systematic literature reviews point to the multiplicity, fragmentation, and poorly grounded theories of opportunity recognition and innovation as a process (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). Grounded theory is the only qualitative method that locates the *process* at the center of the research (Corbin & Strauss, 2015) and possesses the explanatory power (Lynham, 2002) needed to unearth the cognitive and behavioral

phases involved in generating new business ideas and to develop a unified theoretical explanation. Therefore, grounded theory was the research method selected for this study.

The grounded theory design sought out the experience and perspective of expert individuals well versed in opportunity recognition to inform the theory building process. Data were collected through semi structured, in depth interviews via video conferencing technology. Data collection and data analysis occurred simultaneously. The process included interviewing, coding, memoing, sorting, and writing in a constant comparative manner to develop the categories and theoretical relationships unique to this research method. New data and conditions emerged to challenge and reinforce the researcher's interpretation of the data. Once a strong fit was achieved between the raw data and the theoretical abstractions, a visual model representing the core categories and concepts was developed. Subsequently, a second phase of the study was employed in the form of follow up interviews with the purpose of obtaining feedback on the model from participants and ensuring the theory was well integrated and validated.

The sample. Data were collected from 27 serial entrepreneurs and intrapreneurs across 23 different organizations mainly located in Northwest Arkansas, including a few individuals based in Texas, New York, Washington, and the District of Columbia. These individuals were identified as experts of opportunity recognition based on the criteria established in Chapter 3. Specifically, participants had to meet the following four criteria—1.) individuals must have successfully launched two or more ideas, 2.) the ideas must have launched within the past 10 years, 3.) the ideas must be innovative in nature, and 4.) the ideas must be revenue-generating. During the study, one modification to Criterion 4 was made to allow for individuals who had launched cost-cutting initiatives to be included in the sample. Upon reexamination of the literature and consultation with the researcher's committee chair, it was agreed that both

revenue-generation and cost-cutting are valid forms of measuring the success of an innovation and both enable a company to achieve sustainable competitive advantage. In addition, innovations that reduce the cost of operations fit within the study's definition of innovation, which includes any value-added activities such as new production methods and management systems. To ensure each participant met the study requirements, the criteria were included in the initial contact email inviting the individual to join the study and were reiterated again using control questions during the interview.

The initial sample of participants included eight individuals who were identified through the researcher's personal contacts. Through a combination of purposeful sampling and theoretical sampling, an additional 29 qualified interviewees were identified. The researcher asked current research participants and other industry contacts to provide recommendations of individuals who fit the study requirements and would add new dimensions to the researcher's understanding of emerging concepts. Not everyone invited to participate in the purposeful and theoretical sample could commit the time to the interview process and therefore declined to participate. However, 19 of the 29 who met the criteria and theoretical sampling process agreed to participate and did so. Thus, a total of 27 expert interviews were conducted.

Participants came from a variety of educational and family backgrounds, including individuals with degrees in engineering, finance, and history and families with and without entrepreneurship experience. Of the 27-person sample, there were 26 men and one female. The sample was split almost evenly between entrepreneurs and intrapreneurs with 13 entrepreneurs, 10 intrapreneurs, and four who had experience as both entrepreneurs and intrapreneurs.

Entrepreneurs included in the study held prominent roles in the startups, either as sole founders or cofounders of the organizations. The entrepreneurs interviewed had each launched at

least two successful businesses still in existence today, and some had raised multiple rounds of venture capital. The intrapreneurs held a range of job titles from senior vice president of innovation to director of product development and strategy to other creative leadership positions at multibillion-dollar corporations. These individuals were responsible for entrepreneurial projects from conception to deployment or commercialization. The most information-rich interviewees were those who had experience as both entrepreneurs and intrapreneurs as well as those who had launched a business with little to no life or work experience and again as more seasoned entrepreneurs later in life. These cases allowed the researcher to explore different conditions, which led to the discovery in greater depth. Figure 1 provides a full list of industries represented in the sample, and Figure 2 provides an overview of key characteristics of the sample members including total number of entrepreneurs, intrapreneurs, individuals in active search mode, and individuals in passive search mode.

Industries		
Banking	Financial Investment	Real Estate Investment
Child Education	Food & Beverage	Restaurant
Confectionary	Humanitarian Relief	Retail
Corporate Compliance	Insect Repellent	Steel Manufacturing
Digital Media	Insurance	Transportation
Electronic Test Equipment	Market Research & Intelligence	
Entrepreneurship Support Services	Outdoor Cooking	

Figure 1. Industries represented in the sample.

Characteristic	Number (out of 27 total sample members)
Entrepreneur	13
Intrapreneur	10
Both Entrepreneur & Intrapreneur	4
Active Search	15
Passive Search	12

Figure 2. Characteristics of the sample members.

Data collection. Data collection from the interviews occurred in two phases. First round of interviews took place across a period of five months, and second round of interviews occurred across two months for a total of seven months of data collection. All interviews were conducted virtually through video conferencing technology. Prior to data collection, extensive work was done to develop the line of inquiry, which was then followed by a pilot study consisting of three interviews. The researcher sought feedback from a second reader employed in the study, a member representative of the sample, and a faculty member of journalism to review the phrasing, sequencing, and critical nature of each interview question. Each question was then mapped out in reference to the literature, ensuring all relevant areas of literature were addressed by the line of inquiry.

At this point, the pilot study commenced and followed the steps of the grounded theory research design and strategy outlined in Chapter 3 so as to treat the pilot study as a legitimate test run. The researcher contacted three individuals, matching the sample criteria, via email and invited them to participate in the study. Here is the email template that was used to initiate contact:

Hello [Insert participant name]:

[Insert personal greeting.]

I'm reaching out to ask if I could interview you for my doctoral research. I'm working on my dissertation and developing a new model of *opportunity recognition*—the term in the literature for sensing, perceiving, and creating new market opportunities. Given your experience [launching xyz company or innovation project], I thought you would be a good person to interview.

In short, I'm researching how individuals go about identifying new and innovative business ideas, and I need to find interview participants who meet these four criteria:

1. Successfully launched two or more products/services/ideas
2. The ideas must have been innovative in nature
3. The ideas must have generated revenue
4. The ideas must have launched within the past 10 years

I will be sure to use your time efficiently. This type of research will require a couple of hours of your time over the next several months (at your convenience). I expect the first interview would take 1.5 hours and then a shorter, follow up interview to obtain feedback on the model as it emerges.

I know confidentiality may be a concern—I will not collect proprietary information during the interview and will remove all personal identifying information from the results.

Your participation will help me make a substantial contribution to a controversial area of the scholarly literature and establish a model of opportunity recognition that is relevant

and valuable to industry leaders. I'd be happy to present my final results to you and/or your organization.

Please let me know if you are willing to participate. I will be happy to hop on a quick phone call to discuss questions/concerns you may have before committing.

Thank you,

[Researcher's Name]

All three individuals agreed to participate in the study. Participants were asked to schedule a time for the interview using a scheduling application tool called Calendly and to sign a consent form prior to the interview. Here is the email template that was used for participant scheduling and consent:

[Participant's Name]:

Great—thanks for your time and willingness to help me with my dissertation research.

Please select a time that's convenient for you through my Calendly link here. I blocked off Fridays on my calendar to conduct these interviews, but please let me know if that day of the week does not work for you. Once you select a date/time, you will receive a Zoom link for the meeting and an option to add it to your calendar.

Prior to the meeting, could you read this Informed Consent Form and indicate whether you agree to participate in this study by checking the box at the bottom and typing your name.

Thanks again. I look forward to our conversation.

[Researcher's Name]

Calendly generated a calendar invitation with details to join the video conferencing technology, Zoom, on the appropriate date and time. The researcher opened each interview using the same

script in such a way to establish rapport, ensure anonymity, and request permission to record the session. Here is a copy of the introductory script used by the researcher:

Thank you for agreeing to talk with me today. As I mentioned, I'm doing research on *opportunity recognition* for my dissertation. What that really means is that I'm trying to understand how you came up with the idea for the products, services, or projects you've launched. It may have been a while since you have thought back to those early stages of the ideation process. I'm hoping we can take our time to dig back and understand the whole story and process of what led you to that idea. The goal is to have a candid conversation, maybe the less glamorous version than what you might pitch to investors or the media when you're retelling your success stories.

I want to take a minute and assure you that your responses today are confidential. I will ensure your name and identity are protected by assigning a pseudonym to you and removing any personally identifiable information you share with me in my data analysis.

Do you have any questions about confidentiality?

In addition, is it ok with you if I record our conversation today? This is just so I can focus on listening rather than trying to write down every word you say.

Alright, let's get started. To begin with, I have a few short, rapid-fire questions before we get into the really interesting stuff.

Interviews were recorded and transcribed using a transcription service called Temi. Upon completion of each interview, the researcher engaged in notetaking, coding, and memoing. The pilot study flowed smoothly and no substantial changes to the research protocols or line of questioning were warranted, so the results from the pilot study were included in the final

analysis, and the researcher continued scheduling and conducting new interviews alongside the data analysis.

After completion of the three pilot interviews, an additional 24 interviews were conducted with willing participants. Two of the participants requested additional steps be taken to protect the privacy and anonymity of their data. Specifically, it was agreed that the data analysis and reporting be stripped of any reference to the product and company as well as the individual's name. There were no other questions or comments from the remainder of the sample regarding their participation, and no one withdrew from the study.

The first phase of data collection consisted of one-on-one interviews lasting approximately 1.5–2 hours each and followed the same semi structured interview format and data collection and analysis process as outlined in Chapter 3 and as performed in the pilot study. Interviews were simultaneously scheduled, conducted, coded, and reflected upon using detailed notes and memos. The theory building process included three phases of coding—open, axial, and selective coding. During open coding, the researcher compared data sets and looked for relationships or patterns between the participants' experiences. Emerging concepts were divided into natural categories and subcategories. These categories changed a few times over as new data sets were added. During axial coding, links between categories were established as the researcher examined various conditions, action-interaction effects, and consequences in the data. Finally, selective coding was used to determine the core category and unify all other categories.

The ongoing use of memos and diagrams throughout the process aided the researcher in understanding the relationship between a complex set of cognitive and behavioral variables in the data. The participants possessed a rich vocabulary and tended to use several metaphors to explain their experience. This was extremely helpful to the researcher in interpreting the data and

checking for understanding from different angles. In addition, a second reader was consulted periodically to obtain input on the process, compare codes in an effort to reduce bias, give the researcher practice articulating the storyline of the data, and check for any breaks in logic.

Data saturation was reached by Interview 18. The diversity of the sample, coming from a wide range of industries and inclusive of both entrepreneurs and intrapreneurs, presented several dimensions to consider and verify a repeatable pattern. Once saturation was reached, nine more interviews were held. These subsequent interviews allowed the researcher to check for any deviations from the other cases and gain additional depth of perspective.

After the first phase of data collection was complete, a new model of opportunity recognition along with supporting proposition statements were developed. The researcher initiated the second round of interviews to collect feedback on the model. Participants were emailed a second time for a shorter, follow up interview taking approximately 30 minutes to 1 hour. Interviewees were sent a visual of the model and supporting proposition statements for review two days prior to the call. In the follow up interview, the researcher provided a brief overview of the model, and respondents were then asked to discuss what aspects of the model did or did not fit their experience with opportunity recognition. Additional probes asked the interviewee if any items should be added, removed, or rearranged on the model to rank the variables and if they knew of any other ways in which new opportunities were recognized that were not currently represented on the model. This feedback loop helped refine the researcher's understanding of the relationship between concepts and to address existing biases.

Twenty-five of the 27 interviewees agreed to provide feedback during the second phase. One of the 25 participants provided feedback via email as they were unable to find a time to meet via Zoom. Regarding the two participants who did not provide feedback, one participant declined

due to recently being diagnosed with a medical condition requiring surgery. The other participant did not respond after several attempts to make contact. Given the robust sample size, the high response rate and strong agreement among the other 25 respondents, this was not a concern.

Data analysis and findings. As prescribed by leading grounded theory experts Corbin and Strauss (2015), all procedures for building a theory using coding were applied. The data analysis took place in three phases—open, axial, and selective coding. During open coding, lower level concepts were identified, and patterns and relationships among concepts were found through constant comparison within and across data sets. Each interview was reviewed line by line and assigned a code. For example, the following quote was tagged as “Activities & Behaviors—Approach—Problem Immersion.”

There’s listening and then there’s listening...it was getting in front of people to listen. I spent hours or required my team to spend hours working alongside people, doing the work that they were doing. To understand the design components.

Once the interview was coded, each unique code was entered into a master code list. Subsequent interviews were coded separately and then compared to previous interviews, looking for similarities and differences between codes. This was an iterative process that continued to the point of saturation and beyond until no unique codes emerged in new cases and a variety of conditions had been explored. Natural categories or “buckets” for grouping the codes began to emerge. Initial categories included knowledge, external forces, activities and behaviors, cognition, and attitude and personality traits. Grouping the codes in this way set the stage for the next phase of coding.

Throughout the coding process, the researcher used memoing techniques to document and process what was being learned in each interview. First, the memo would summarize the

interviewee's point of view, such as whether they were an entrepreneur, intrapreneur, or both; whether they were in active or passive search mode; and the type of innovation. Subsequently, observational notes were used to describe the key events that led them to the innovation. Finally, theoretical notes were used to interpret and analyze the meaning of key events from the interviewee's experience. The notes documented questions about surprising or conflicting interview statements, compared and contrasted statements between interviews, and offered ideas on where the research may be going and gaps that still needed to be understood. As the data analysis progressed, summary memos were used to recap previous analyses, and linking memos were used to document hypotheses of the relationship between multiple codes.

The next phase of coding, axial coding, involved reexamining the results from open coding and establishing links between emerging categories by critically evaluating the data under different conditions. The master code list contained initial categories, unique codes, and frequency of each code across the data set. The researcher examined dominant codes and emergent themes to better understand the relationship between categories under different conditions. Through careful analysis of dominant codes, the use of memoing and diagramming, a common pattern or sequence of events began to emerge from the data. This helped the researcher to establish links and relabel the initial categories to better express the action-interaction effects that occurred in the data. These included stimuli, prior knowledge, active idea development, mindsets, thinking, and attitude. Here is one example of how two categories, active development and mindset, were linked via their respective sub dimensions, problem immersion and empathy.

Tag: Active Idea Development—Problem Immersion

Quote: We went out and interviewed. How did they store it in this little box, the size of your hand? They would wrap their leads. These leads are three feet long and you wrap

them around, shoving them inside of their bag. And they might sit there for a week, a month who knows, but they would leave these boxes, their tools in the garage, maybe in the trunk of their car. So, they'd be exposed to hot and cold. If you're in Arizona, these things are going to get hot.

Tag: Mindset—Empathy

Quote: These are really tight compact spaces. And so, you don't want to have a bunch of exposed metal when you're working in these tight exposed spaces. And then you might go work on something else. You might work on a motor or a deep sea motor.

Link: Empathy—Problem Immersion

These examples illustrate the close relationship between the intrapreneur's mindset, empathy toward the user's situation, and the problem immersion phase of the process. This was a common theme across most interviews and between other sub dimensions in the active idea development and mindset categories.

Finally, selective coding was used to further analyze the causal relationships among categories, determine the core category of the phenomena, and integrate the categories around it. During this stage, diagramming was used extensively to integrate categories and identify the main theme of the research. At the center of the research on opportunity recognition was this notion of "reframing the problem/opportunity." Participants repeatedly talked about the "real opportunity" that existed just below the surface of the initial concept discovered in the alertness stage and the multiple "aha moments" they experienced during active development. Reframing served as the bridge between alertness and active development. Furthermore, it facilitated the interactive transfer of knowledge between the individual's prior knowledge and the individual's evolving knowledge derived from external events. This back and forth transmission of

information guided the entire process and possessed the greatest explanatory power of the opportunity recognition theory, thereby illustrating the phenomena as both an art and a science and linking the person to the process.

Figure 8 provides a high-level representation of the core process of opportunity recognition resulting from this study. The data indicate that opportunity recognition is a highly iterative process and involves a complex interplay between the person, process, and context. Specifically, the process involves stimuli, perceptual filtering, connect the dots, alertness to the perceived problem or opportunity, active idea development through stakeholder engagement, and reframing the problem or opportunity. The dynamic nature of this theory is described in greater detail in the following propositions section.

Stimuli → Perceptual Filtering → Connect the Dots → Alertness to the Perceived
Problem/Opportunity → Active Idea Development → Reframing the Problem/Opportunity

Figure 8. High-level categorized findings of opportunity recognition.

Propositions of Opportunity Recognition

Figure 9 illustrates the complex and iterative nature of opportunity recognition through a visual model of the process that was developed. The model depicts the relationship between categories and subcategories of categorical findings derived from in depth interviews and follow up feedback sessions with expert sample members. The foundation and elaboration of this model was built on the following research question: How do individuals go about identifying new business opportunities? Despite opportunity recognition being known as the most fundamental

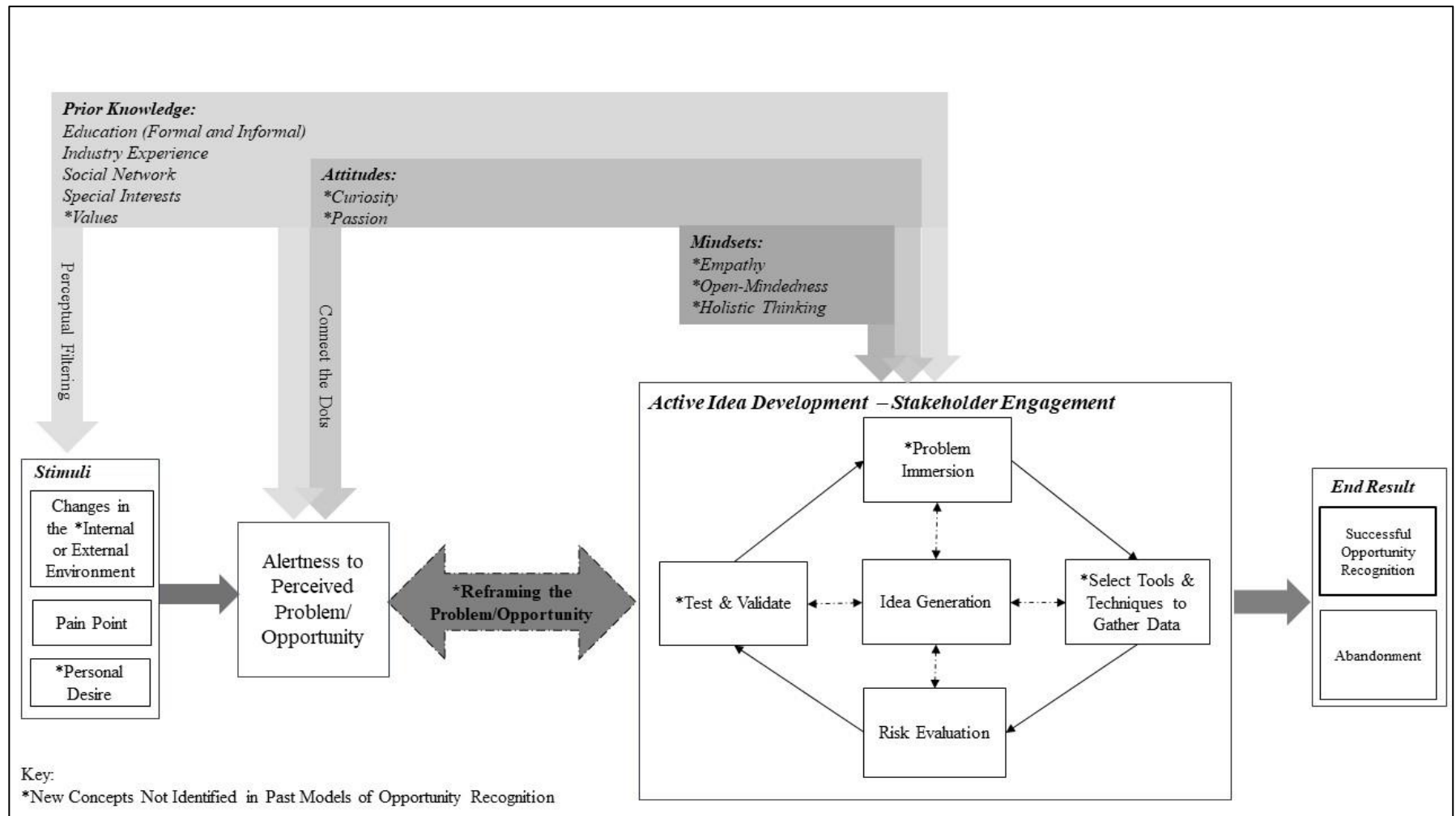


Figure 9. Opportunity recognition process model.

entrepreneurial behavior (Dimov, 2007; Gabrielsson & Politis, 2012; Kirzner, 1997; Venkataraman, 1997), it, along with the source of entrepreneurship—innovation, continue to have the most fragmented and poorly grounded theories in the entrepreneurship and innovation literature (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). The literature points to the need for a more holistic model of opportunity recognition that links the individual to the innovation process. The investigation into the question of how new business opportunities are discovered generated rich stories from expert sample members, which informed the opportunity recognition model illustrated in Figure 9 and proposition statements described herein.

Opportunity recognition theory: An iterative process. The semi structured interview design generated deep insights from the sample. A significant portion of the first hour of initial interviews was open-ended and invited participants to explain how they came up with the idea and what inspired it. It quickly became clear that the discovery of the opportunity did not occur at any one given moment in time and that the individual did not fully conceptualize the core value of the idea until later. As one interviewee stated, “I don’t think we were smart enough to see the whole picture...it was like a foggy road...we only saw maybe 10 yards in front of us.” Still, other interviewees described the experience as having a bucket full of ideas and going out into the world to see what stuck. Participants emphasized how much their original concept morphed over time and how new distinctions in their business concept were identified through customer engagement, which led to a more meaningful competitive advantage. One participant’s comment sums up this concept, “No one was tapping into what the real reason and emotion was for people to do this, which is fear of losing their most important memories...like we aren’t video converters...we should approach the market from a consumer-friendly perspective.”

Another interviewee said, “We thought we were a product development company...like the real project isn’t material. The material is great. The real project is trying to bring private funding into the space in an innovative way.” In most cases, opportunity recognition started with a kernel of truth but was not fully recognized until after the idea was implemented. “I’ve found that for myself an idea is never 100% right, but maybe there is a small percent that is a unique insight that when explored further starts to uncover a bigger or more refined opportunity.”

This iterative learning process is at the center of opportunity recognition and can best be understood as a reframing of the problem or opportunity several times over until a strong problem-solution fit is achieved at scale, also referred to as adoption or integration. This is an important aspect that emerged in the research in that the goal of successful opportunity recognition is not merely to generate a novel or creative idea but rather a concept that satisfies a real customer need, possesses commercial viability, and sustains a profit against the competition (Dimov, 2007; Gabrielsson & Politis, 2012). As one interviewee said, “Just because you invent a new gadget, doesn’t mean that’s going to have room in the marketplace. For that you need innovation and there’s a lot more that goes into it than just a new idea or a new widget.” In summary, invention is not innovation.

Furthermore, the ongoing reframing of the opportunity sample members spoke of aligns with the literature that states that entrepreneurship and innovation is a holistic process that is continuous, not bound by the early stages of a new venture (Zhao, 2005). More specifically, the reframing aspect of this study supports the creation perspective, which states that opportunities are constructed through an enactment process (Aldrich & Kenworthy, 1999) in which an entrepreneur holds initial beliefs about an opportunity that are quickly revised after taking action and learning from the market’s response (Arrow, 1974). However, unlike what the creation

perspective suggests (Baker & Nelson, 2005; Sarasvathy, 2001), the present study found that opportunities emerge from changes in the external environment, which validates a more integrated perspective of opportunity recognition. An integrated perspective encompasses characteristics of both discovery and creation at different stages in the development cycle (Sarasvathy et al., 2003). Depending on how well the problem and decision parameters are defined, different approaches may be more fitting. An integrated perspective acknowledges a variety of starting points and pathways through the opportunity recognition process, which lends support for the study's first proposition.

Proposition 1: The process of opportunity recognition is triggered by one or more events or *stimuli*, which include a.) changes in the internal environment of an existing organization as well as changes in the external environment, b.) one or more pain points and/or c.) an individual's personal desire to become an entrepreneur.

This proposition suggests that there is not just one entry point from which the individual begins the opportunity recognition process. It should be noted here that when referring to "the individual" in the findings of this study, it may also include a group of individuals. For the sake of readability, the researcher refers to the individual in singular form, but it is important to acknowledge that opportunity recognition can include a number of individuals working through this process together. It is important to remember that opportunity recognition may be taking place in a large, well-established organization or it may be taking place in a small startup.

Changes in the internal or external environment.

Internal environment. In some cases, the individual is responding to a change in their current context. Changes in the internal or external environment often prompt the need for and creation of new products, services, or systems. Changes in the internal environment affect

established organizations and may include a change in leadership, declining business performance, or new business priorities. Leadership was cited as a particularly significant catalyst or barrier to innovation efforts. As one participant said, “I can’t emphasize how big a deal [leadership change] is, you can change a leader and a culture of innovation can literally evaporate.” Leaders possess a certain risk tolerance, which affects resource allocation, the volume of idea generation, and the time horizon for exploring and implementing new ideas.

External environment. Changes in the external environment include shifts in technology, government policies and regulation, markets, demographic trends, and the competitive landscape and often spark the need for new products or services. For example, one intrapreneur in the sample developed a new product in the electronic test equipment industry in response to a new government regulation prohibiting a certain amount of metal exposure as several deaths had occurred because of poorly designed instruments. This prompted an immediate decision by the company to search for innovative solutions. Interviewees often talked about a “perfect storm” of trends that prompted their business idea, ranging from the rise of Google AdWords, to the explosion of dog boutiques across America, to the decline of home ownership among Millennials. Changes in the external environment are closely connected to other stimuli and often create the context from which new pain points emerge or are recognized as a sizeable problem.

Pain point. Another stimulus that can trigger the opportunity recognition process is a pain point voiced by any number of users—a customer, employee, or business partner—who possess a problem where existing solutions are inadequate. One entrepreneur in the corporate compliance industry talked about a two-sided problem costing companies millions of dollars and harming employees who were unfairly charged with fraud due to poor training. He said, “People sit through these e-learning courses, they hate them. And then they botch stuff like this because

no one makes that connection about how to reframe it around what they do day-to-day.” User problems such as this were the most frequently cited stimuli among the sample in the opportunity recognition process.

Personal desire. Finally, personal desire is another possible starting point of opportunity recognition. In these cases, an individual decides to actively search for or pursue an entrepreneurial opportunity because he or she is energized by the challenge and nature of the work. As one interviewee put it, “starting a business seemed rather impossible. And, as a result, it was more enticing because it was so challenging.” Another individual noted, “I was looking to get into startups or tech...I just found it interesting or exciting.” These individuals were highly motivated by the work itself and viewed the pursuit of an opportunity as worth the risk even if they failed or were fired by the company.

Past models of opportunity recognition in the literature only explicitly identify one of the stimuli found in this study—changes in the external environment. Changes in the external environment were noted in Baron’s (2006) pattern recognition model as a critical event leading to opportunity recognition. However, internal changes were not discussed in any previous opportunity recognition models. This is mostly likely because internal changes only apply to existing organizations, not startups, and most of the opportunity recognition literature takes the perspective of the entrepreneur not the intrapreneur. Overall, past models did not attempt to connect the individual to the process. Pain point was another stimulus only partially defined in past models such as Ardichvili and Cardozo’s (2000) model of opportunity recognition but was presented as a customer problem. This terminology is an incomplete description of the concept as it excludes other potential users who cannot be classified as customers but possess problems worth solving, such as employees or business partners. Finally, an individual’s personal desire to

do entrepreneurial work does not appear in any past models of opportunity recognition, but the concept is discussed at length in DeTienne and Chandler's (2004) classifications of opportunity recognition into four categories: active, passive, fortuitous, and creation. An individual who is motivated by a personal desire to start a new venture aligns with the active search or creation perspectives, which assert that opportunities can be discovered either through systematic search for markets in disequilibrium or can be created through the individual's imagination, respectively. The other two stimuli, changes in the external environment and pain points, align with the passive search perspective in which an individual does not initiate a search but can become more sensitive to the opportunity as they receive information from the environment and recognize its value. A blended approach, incorporating elements of both active and passive search (Vaghely & Julien, 2010), lends support for the next proposition.

Proposition 2: An individual's *perceptual filter* is a cognitive function whereby the individual draws upon knowledge they already possess and uses it to select and evaluate what new information or stimuli is worth their attention.

As members of the sample discussed how their attention began to shift to a particular business opportunity, they mentioned the weight of particular pieces of information that became top-of-mind and stimulated further action. One intrapreneur talked about the rising "fur baby" trend where high end dog boutiques started bubbling up across America and how that knowledge reinforced the importance of new brand asset information he was exposed to during an active search to grow a category of the business. One's perceptual filter is innately biased and explains why some people pay attention to or value some information over other information and discover opportunities others do not see. Leading economists, Hayek (1945) and Kirzner (1979), support this view of an uneven dispersion of knowledge and asymmetric access to information, which

results in the creation of a variety of business opportunities. The scholars proposed that no two individuals possess the exact same set of information at the same time due to different life experiences, knowledge, and education. These biases can serve as a valuable force for detection but can also result in catastrophic misjudgment. Sources of knowledge such as a person's social network, special interests, and values are all curated and self-selected; therefore, one could argue these sources are less objective and less reliable. As one interviewee put it, "perceptual filters have value, but they can also mislead you...there has to be a high level of awareness." This leads to the next proposition regarding sources of prior knowledge individuals possess that affect perceptual filtering, alertness, and active idea development.

Proposition 3: An individual's *prior knowledge* is composed of formal and informal education, industry experience, social network, special interests, and values. The breadth and depth of the individual's knowledge base affects how they filter new stimuli; how they connect the dots between prior knowledge, stimuli, and the perceived opportunity; and how they actively develop the idea.

The individual's prior knowledge informs all three core components of the opportunity recognition process: the perceptual filtering of new stimuli, one's alertness to perceived problems or opportunities, and the active development of the idea. The study found five main sources of knowledge, including 1.) informal and formal education, 2.) industry experience, 3.) social network, 4.) special interests, and 5.) values. The literature supports the first four sources of prior knowledge; however, the fifth source defined as "values" is a new concept. Each source is defined and discussed in sequence.

Education. Education includes both formal education, such as a university degree, and informal education derived from one's family background and life experience. A member of the

sample spoke at length about his travels as a child and how that affected the opportunities he pursued later in life. He said, "...we would live in Peru for a month at a time then live in Pakistan ... not just like a resort, we stayed with our families...I think that exposure really helped me see the world differently." More formal and technical training also influenced sample members' thinking and problem solving. As one intrapreneur stated, "...going into an engineering school, I think sort of taught me how to think, break down problems and really be thoughtful about how we solve things." Education played a role in becoming more sensitive or alert to opportunities and in having the technical knowledge needed for the problem solving and idea generation phases of active idea development. Education is identified as a part of the knowledge corridor in the literature and early models of opportunity recognition (Ardichvili & Cardozo, 2000; Ardichvili et al., 2003) though not as frequently mentioned as industry experience.

Industry experience. Industry experience was the most prominent source of knowledge. Industry experience provides the individual with an understanding of customer problems, how to solve customer problems, the way an industry works, and the organization's business model in the case of an existing company. Experience was found to enhance the individual's cognitive structures, serving as prototypes and exemplars from which to form connections and identify new possibilities and is supported by all past models of opportunity recognition (Ardichvili & Cardozo, 2000; Ardichvili et al., 2003; Baron, 2006; Riquelme, 2013; Vaghely & Julien, 2010). According to expert sample members in the study, the industry experience one acquires does not necessarily need to be in the same industry in which one pursues an entrepreneurial opportunity. Diversity of experience in both job function and industry was found to be highly valued by

interviewees. Numerous individuals commented on the variety of careers they had held and how that enabled them to come at problems from different angles. One member said,

I did a lot of things...from a marketing and a production standpoint...I'd spent eight years in corporate finance and had worked in general management...in a strategy group where we looked at mergers and acquisitions...it helped me come at the problem in different ways and then bring in different viewpoints to help fill in.

Another interviewee pointed to five distinct careers he held in engineering, sales, finance, manufacturing, and logistics. However, other sample members emphasized areas of specialty that led them to a new business opportunity. An interviewee said, "I think it starts with an intimate knowledge of some facet of the business. For me, it was an intimate knowledge of Google and the intimate knowledge of how Google then parlayed over into Facebook." To summarize, both broad and deep industry experience are valuable to the opportunity recognition process.

Social network. Social network is a source of knowledge that consists of an individual's personal and professional acquaintances as well as deeper relationships otherwise known as strong and weak ties (Ardichvili et al., 2003; Ozgen & Baron, 2007). One's social network expands his or her breadth and depth of knowledge. One expert interviewee described the importance of a broad network, "people who end up finding greater innovation ...do not have one big homogenous network, but rather sit on the bridge of very different networks. And it's the strength of those bridges that make that person so important." In addition to broad weak ties, strong ties formed through deep relationships within one's network can spark important connections. One entrepreneur talked about the expertise of a close friend in the oil rig industry, which helped him generate an idea for a new application of a similar technology in the medical

field. Stories of how one's social network helped individuals discover ideas and refine their thinking appeared repeatedly in the study.

Special interests. Special interests are a source of knowledge that stem from unpaid activities an individual engages in that provide enjoyment such as personal hobbies or self-directed learning. Interviewees cited personal interests such as real estate investment, technology product launches, and biking. Individuals with special interests accumulated knowledge about those industries, which in turn provided insight into customer needs and knowledge about the future of those industries. This source of knowledge is addressed in the literature and included as an important aspect of opportunity recognition (Ardichvili & Cardozo, 2000; Ardichvili et al., 2003; Sigrist, 1999). Past research indicates that alertness to an opportunity is especially high when special interest knowledge intersects with industry experience.

Values. Finally, values are a source of knowledge that include beliefs about the way the world should work and one's role in it. Values in the context of this study on opportunity recognition include beliefs about how to serve the customer and what products and services will have a positive impact on culture and society. Entrepreneurship and innovation are catalysts for change as they are the vehicles through which new products and services are introduced into the world and subsequently add new value to the way in which people live. One interviewee talked about unique points of differentiation in his business because of his beliefs about the importance of nature and the damaging effects of screen time. Another interviewee shared his disdain for the corporate compliance industry which was built around ambiguity and self-interest instead of doing right by people. He spoke about how he valued clarity and fairness and how that rubbed against the work he was doing. These values prompted a deep frustration in him with the way

things were and the way he believed things ought to be. Still, another participant had strong convictions around the significance of community, which inspired two of her business ventures.

Values is a new concept not identified in previous models of opportunity recognition; however, values are discussed in the opportunity recognition literature in relation to social entrepreneurship and sustainable development. One study found meaningful links between an individual's motivations, opportunity recognition, and prosocial activities among social entrepreneurs (Yitshaki & Kropp, 2016). Specifically, the individual's past experience with personal rehabilitation or their spiritual orientation may enhance the individual's empathy and therefore awareness of unmet social needs. In addition, pro environmental behavior values and moral competencies have been established as important moral antecedents in idea generation for sustainable development (Ploum et al., 2018). The present study expands the current literature on how values influence idea generation as the sample in this study was not limited to social or sustainable types of ventures.

Together, these five sources of knowledge form the individual's knowledge base through which he or she filters new stimuli, becomes alert to new opportunities, and actively develops the idea. The knowledge base acts as both a reservoir and a conduit of information feeding into the entire opportunity recognition process and evolving as an individual takes action on the idea and gains new insight. The first three propositions set the stage for the next proposition of the study, which is a core component of the opportunity recognition process—alertness.

Proposition 4: *Alertness* is the cognitive function at the center of opportunity recognition, often referred to as the “aha moment” of discovery. If the incoming stimulus is perceived as valuable, this results in a heightened level of alertness as the individual connects the dots between the stimuli, their prior knowledge, and a potential opportunity.

At this stage of the process, the individual perceives a problem or opportunity that is worth investing further resources and forms an initial concept of the solution to the perceived problem. Alertness is an interactive mental state that is continuously revised as the individual reframes the problem or opportunity with new information obtained from their evolving knowledge base and insights gained from the active idea development process. Alertness, or entrepreneurial alertness, is a well-established concept in the literature first introduced by Kirzner (1973) as a critical factor in the opportunity recognition process and later defined by Ray and Cardozo (1996) as “a propensity to notice and be sensitive to information about objects, incidents, and patterns of behavior in the environment, with special sensitivity to maker and user problems, unmet needs and interests, and novel combinations of resources.” According to Kirzner, alertness is more important than creativity. Alertness appears in three of the four previous models of opportunity recognition discussed in the Chapter 2 literature review (Ardichvili & Cardozo, 2000; Baron, 2006; Vaghely & Julien, 2010).

Interview questions about how the idea crystallized in their mind and what role (if any) luck, intuition, and structured innovation activities played in the opportunity recognition process were especially useful in understanding the alertness phenomenon. Interviewees described their experience as being ready to seize opportunities when they popped up because of their past experience and knowledge. Alertness was the intersection of multiple data points, old and new, which came together and forged an opportunity in their minds. Interviewees identified bits and pieces of information which, when added up, reached a threshold at which they perceived a sizeable problem worth solving and one they were highly interested in solving. People who are not alert were described as desensitized and too accepting of the problem. One participant said, “I think most people see opportunities, very few see opportunities for what they are, because if

you're not looking for the opportunities, you just saw a thing, you just saw some guys complaining." There appears to be some personal agency associated with alertness, which can be explained by Proposition 6 outlining the role of attitude in shaping the individual's motivation and intentions. However, before mindset is discussed, it is important to understand the underlying skill that increases one's alertness—connect the dots.

Proposition 5: *Connect the dots* is pattern recognition used by an individual to connect seemingly unrelated events or stimuli in their current environment and their knowledge base to determine if there is a sizeable problem or opportunity and drive alertness to potential solutions.

"Connect the dots" is the bridge between the stimuli, the individual's prior knowledge, and his or her original concept of the opportunity. Connect the dots, also called pattern recognition, refers to someone's ability to link raw pieces of data to form patterns that lead to new possibilities (Baron, 2006). Pattern recognition research shows that previous life experience enhances the cognitive structures needed to draw out these connections from one's memory. This explains why the study participants valued diverse career paths and the range of industries in which they had worked as these experiences increased the number of prototypes and exemplars they possessed from which to form connections. Connecting the dots is a process of arranging old and new information in novel ways. One interviewee described it this way:

Let's say I have a trick over here that works...And then like that kind of sits in the back of my brain. And if I'm playing golf with somebody and we talked for four hours, maybe they say something that strikes an interest in me. And I just start asking questions to see if this one piece of knowledge that I have fits in their world somehow.

When asked what role (if any) intuition, luck, and/or structured innovation activities played in the ideation stage, interviewees emphasized that it was not a programmatic approach nor alchemy or magic. To them, it was about spending time listening and learning and reapplying what one learns. Another sample member said,

I took something that I knew in my personal life with something that I was trying to learn in a professional setting, and then leverage the third dot, which was my friends who were thinking about like business models and what that means...I had all these bodies of experiences and expertise that I had brought to the table. And then when it was applied to this new setting innately, it started to be drawn upon. So it's that unconscious competence that we can call intuition that is really this collection of experiences that come to life at that moment combined.

Many people have a rich set of life experiences, but not everyone recognizes new opportunities as a result. Several participants talked about the importance of having margin or the time and headspace to make these connections. One interviewee went as far as to say that the idea one commits the most resources to, meaning time and energy not necessarily capital, will succeed. He said, "I know it sounds simple, but the stuff that we invest in is the stuff that works." This leads to the next proposition, which details the individual's attitude and how it contributes to a person's alertness and approach to active idea development.

Proposition 6: An individual's ability to connect the dots and see opportunities is influenced by the knowledge they possess and their *attitude*, or mental and emotional disposition. Specifically, curiosity and passion are two important attitudes that influence one's alertness levels and engagement in active idea development.

To understand how individuals go about identifying new business opportunities, it is helpful to analyze what makes them different from other people. One of the interview questions asked for participant opinions on why some people discover opportunities and not others. This is also one of the central questions of scholars studying opportunity recognition (Shane & Venkataraman, 2000). The question provoked thoughtful, reflective responses from the sample members. Interviewees described the entrepreneurial type as someone who was both curious and passionate. These same attitudinal traits appeared in the sample members' personal stories as well.

An attitude is a "psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993, p. 1). Furthermore, attitudinal traits have been shown to have a strong, direct, and positive effect on intentions and behaviors (Fishbein & Ajzen, 1975). Curiosity was the most pervasive and explicit attitude exhibited in the study. Passion was not a concept identified during the first round of interviews. It was not until the follow up interviews when the researcher asked participants if anything was missing from the model that passion was recognized as a critical concept. This feedback caused the researcher to return to the original data set, finding numerous codes that related to the overarching concept of passion but which had slightly different codes. This feedback loop helped the researcher better understand the categorization of codes. The analysis confirmed that passion was evident in the research and should be added as an item in the model. An individual's curiosity and passion help to explain why some people and not others discover opportunities in that they naturally seek out information and are highly motivated to understand how the information fits together.

Curiosity. In this study, curiosity was the individual's attitude, which encompassed a deep desire to learn about a variety of topics and an enjoyment that came from learning about how things work. In the literature, curiosity is demonstrated by an individual when

He (a) reacts positively to a new, strange, incongruous, or mysterious elements in his environment by moving toward them, exploring them, or manipulating them; (b) exhibits a need or a desire to know more about himself and/or his environment; (c) scans his surroundings seeking new experiences; and/or (d) persists in examining and/or exploring stimuli in order to know more about them. (Maw & Maw, 1968, p. 462)

Sample members talked about being avid readers, watching documentaries every Saturday as a child, or tinkering with odds and ends around the house. One participant listed off a number of books he was currently reading with seemingly little in common—Edison's biography, the history of shipping containers, and different varieties of bananas—pointing out that “we read disparate crazy things to be like, oh, there's this little nugget of something over here. Let's try to apply that to what we're doing.” Another sample member described himself as “sponge-like.” “I absorb lots of information and do it pretty fast and I'm completely agnostic about the source, right? Like, is it a magazine, is it a website or article, is it a book? Is it a novel?” Curiosity was the most ubiquitous trait in the findings. Curiosity was evident in the sample members' opening story and was explicitly stated by the sample as an important attribute of entrepreneurial people. The desire to learn drove individuals to ask questions, seek out and store information that may or may not be useful in the future.

Passion. The second attitudinal trait was the individual's passion, also described by participants as “tenacity” toward their work. A scholarly definition gives credence to this depiction of passion, “Passion is defined as a strong inclination toward an activity that people

like, find important, and in which they invest time and energy” (Vallerand & Verner-Filion, 2013, p. 46). In the context of this study, passion consisted of one’s inner drive to do challenging work and persevere despite setbacks because they believe in and enjoy the work. As one participant stated,

I don’t need to be driven by money if that makes sense. The day I start doing that is the day that I just, you know, sell out to myself. So anyways, I think there’s a personal component there that I see a lot of people, they come in, they do their job, they go home. I don’t think that’s a bad thing, but I think it is unique when you are passionate about something where you’re going above and beyond in your mind and your time and your effort to go unlock things and go the extra mile and take on the risk.

Other sample member descriptions of passion included having an internal energy and fire, an elevated purpose, and not stopping when met with the first, second, and third lines of resistance. Still, others noted the “joy in creating, innovating, something new.” This attitude facilitated a propensity to notice problems and take action, thereby increasing one’s alertness and engagement in active idea development. The decision to act on one’s initial hunch leads to the next proposition of the study.

Proposition 7: Once an individual becomes alert to an opportunity, and depending on their passion toward solving the problem, he or she will make a decision to invest more resources in developing the idea. In *Active Idea Development*, the individual invests more resources in the idea and engages key stakeholders to better understand the potential of the opportunity and develop a solution to the perceived problem. The active development process is extremely fluid; the individual moves in and out of a loop containing the following phases: a.) problem immersion, b.) select tools and techniques to

gather data, c.) risk evaluation, and d.) test and validate. At the center of the loop is the idea generation phase, which occurs both simultaneously with the other phases and as a separate step in the process through both formal and informal methods as the individual moves through each phase of the loop. The individual will most likely complete several iterations of the active development cycle and reframing process before achieving successful opportunity recognition.

The active idea development process is a series of behaviors the individual engages in to improve upon the original concept conceived in the alertness stage and test their assumptions with real customers or users. The development process is composed of both structured and unstructured activities, and it may occur in a few days or across several years depending on the complexity of the problem and solution being developed. This leads to the next subset of propositions.

Proposition 7a: *Problem immersion* is the first phase in the active development process through which the individual engages themselves in the user's world to gain a deeper understanding of the user's problems and point of view. As the individual becomes more well versed in the problems and perspective of the end user, he or she may engage in more active idea generation or advance to gathering more data.

Immersing oneself in the problem may include mining internal or external data sources, field observation, and extensive time spent listening to prospective or current users. One interviewee in the food and beverage industry commented on the sheer amount of data his company collected as a gold mine for finding white space to innovate. "We were seeing a great deal of consumption data. One of the things that was so powerful about [Company X] is we invested deeply in consumer data, upwards of a hundred million dollars a year...we had a tracker

study that at the time was doing phone interviews with 20,000 people every month to understand basic brand measures.” Another sample member expressed the importance of observing and understanding the problem in context. “I won’t allow my team to do any change until they go to the store and do the process themselves with the team members in the stores. You need to live it.” Still, another participant working in the humanitarian aid industry expressed the complexities of how each international crisis operates in a very different way and how he once spent 30 days, six hours each day, on the phone calling organizations trying to better educate himself on the problem. Even more impressive, one entrepreneur couple launched a 12-month research trip to 10 countries to stay in people’s homes to better understand the problem and how they could be of service. The entrepreneurs and intrapreneurs in the study were deeply invested in understanding the problem from all angles, including the customer, partners, and community’s points of view.

As greater clarity was obtained regarding the problem, the entrepreneur or intrapreneur would naturally begin to refine the idea or solution to the problem originally conceived in the alertness stage. However, problem immersion usually led to more questions, which leads to the next proposition.

Proposition 7b: Subsequently, the individual *selects tools and techniques to gather data* to better understand the root problem or opportunity, validate the size of the opportunity, and generate solutions. The individual must decide what mix of tools or techniques are appropriate for the situation.

This phase of active idea development is technically an extension of the previous phase in that it is still focused on understanding the problem but typically involves more formal techniques. Interviewees identified a wide range of tools and techniques used to guide the idea development process. Simple techniques such as scenario planning were used to brainstorm,

plan, and gather data. Other times more structured market research tools and innovation or process improvement activities were leveraged to illuminate complex or ambiguous user problems. Focus groups, benchmarking, competitor landscape studies, Google trend analysis, design thinking, and continuous improvement processes were mentioned. Interviewees demonstrated great flexibility in the process, leaning into different tools depending on the problem and context. One participant summed it up nicely, "...my way into an idea or a project is so different every time depending on what it is. I think one of the things I encourage our creative team to do is like, build your toolbox and let process follow from there." New data collected during this phase usually lead to idea generation and lend support for the next proposition.

Proposition 7c: *Idea generation* occurs throughout the active development process but may take a more prominent role once sufficient data have been collected and the problem is well defined. During this step, the individual seeks inspiration from a variety of sources to generate ideas for a solution to the problem.

Idea generation was discussed by sample members as an ongoing event where ideas were continuously revised using both formal and informal methods. Interviewees did not portray idea generation as a highly creative or imaginative skill. Rather, participants talked at length about borrowing ideas from parallel industries and/or wildly different industries. When describing the idea generation process, several interviewees referred to an old adage adapted from the Book of Ecclesiastes— "There is nothing new under the sun." (English Standard Version Bible, 2001, Ecclesiastes 1:9). In other words, look for opportunities to adapt an innovation from a different industry to the problem you are solving. Participants talked about retrofitting and reformulating what they learned from other industries into their business context. A member of the sample

developing a product in outdoor cooking said, “We would watch Peleton and learn about Peleton in fitness equipment. And the more we learned about them, they really were a content company first and foremost.” Another interviewee said, “We literally went to NASA and said, how do you build rockets? Cause a cylindrical tube going vertical is not really strong.” These examples illustrate how individuals sought inspiration from seemingly different industries and took pieces of their success and applied it to the problems they were facing. This type of crosspollination did not only occur in facets of the product design but across the entire business model design. Other sources of inspiration included tradeshow, global travel, and books. As ideas emerged and were refined, their feasibility was simultaneously evaluated, which leads to the next proposition.

Proposition 7d: *Risk evaluation* is a key step in which the individual considers the parameters the entrepreneurial opportunity must fit within and evaluates the risks associated with various solutions. Significant barriers, real or perceived, are identified and often spark alternative ideas to avoid taking on excessive risk.

Risk evaluation served two purposes related to idea generation in the present study. First, it narrowed the scope of possibilities by identifying resource constraints and considerations regarding market acceptance. Second, it extended the idea generation process and pushed individuals to consider more and different solutions. One interviewee emphasized how the company’s risk profile dictated the time horizon of the innovation and therefore the levels of creativity. “And sometimes you don’t have the luxury of that time, right? ...what are your longer-term horizon ideas that can afford that level of creativity versus, hey...I got to fix this quarter versus, you know, in the next five years.” Another sample member discussed guiding principles that steered the feature development, “...we kept comparing ideas and say, okay, from a simplicity standpoint, is it simple for the customer to do? The guiding principles are simple for

the customer, [and] didn't add work to us on the other end." A third sample member spoke about risk in terms of opportunity cost and said it was a continuous process he thought through. Risks were discussed in the very early stages and were top-of-mind for entrepreneurs and intrapreneurs in the study trying to minimize unnecessary risk. At this point in the active development process, the idea continues to evolve and eventually leads to the test and validate phase, which leads to the next proposition.

Proposition 7e: *Test and validate* involves testing and validating the solution against established success criteria through user feedback, prototyping, and even post commercialization or deployment. Results from this phase either point toward changes to the idea or solution or the need to move through the iterative cycle again. Key insights from the active development process are bounced back to the alertness function through a reframing process.

The test and validate phase of active development was an iterative learning process individuals employed to obtain feedback, often on multiple ideas. Participants emphasized that they did not have the full picture of the opportunity at the beginning and were willing to experience failures on a small scale to learn and improve. As one sample member described it,

...send out things with elements of crappiness and let the consumer tell you what you should go do...And once we hit the consumer's hands for the next six, nine months, we just iterated and we followed it...And we followed the revenue and started to understand. And quite honestly, we didn't think [x] was that big of an idea. We really thought it was going to be [y] related types of things. And [x] just grew like crazy because once it got into the consumer's hands, they took it places that we didn't think we would go to.

Participants talked about the importance of letting go of perfectionism and learning from the

customer's reactions to the product. Getting the product into user's hands added a new dimension of learning that often resulted in significant changes to the individual's original conception of the opportunity, steering it in a new direction. New insights discovered during active development bounced back through to the alertness stage via a reframing process.

The active idea development process noted in this section contains five phases: (1) problem immersion, (2) selecting tools and techniques for gathering data, (3) idea generation, (4) risk evaluation, and (5) test and validation. This process mimics a similar process in the innovation literature known as design thinking. Design thinking is a human-centric methodology that

integrates expertise from design, social sciences, engineering, and business. It blends an end-user focus with multidisciplinary collaboration and iterative improvement to innovative products, systems, and services. Design thinking creates a vibrant interactive environment that promotes learning through rapid conceptual prototyping. (Meinel et al., 2011, p. xiv)

Design thinking is a widely researched topic in the field of innovation and is relevant to well-established organizations, startups, schools, nonprofits, and the government. It is not surprising that the innovation literature would contain a process model and tools for successful innovation because, as Drucker states, "Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service" (Drucker, 2014, p. 19). As previously noted in the Chapter 2 literature review, the entrepreneur is the individual actor (or group of actors), and innovation is a tool (or set of tools) that the individual uses to discover new opportunities.

Meinel et al. (2011) developed a six phase procedural model of design thinking, which includes (1) understanding, (2) observe, (3) point of view, (4) ideate, (5) prototypes, and (6) test. It is apparent how the phases of design thinking closely align with the phases identified in the present study in the active idea development process. The major differences between the two process models is that the design thinking model does not recognize select tools and techniques for gathering data and risk evaluation as distinct steps in the process. While these two concepts are not detailed as discrete steps, they are addressed within the design thinking procedural model in steps 1 and 4—understanding the problem and its environment and ideate: develop, compile, and evaluate solutions phases.

Another similarity between the two process models worth noting is that both are inspired by an initial hunch, or hypothesis, regarding the opportunity to be exploited (Brown, 2008). This hunch occurs in the alertness stage of the present study and continues to be reframed based on insights gained during active idea development. The design thinking methodology supports these findings in that it also acknowledges the fragility of the original idea, which rarely survives first contact with customers. Both models stress the importance of engaging stakeholders in the opportunity recognition process.

However, while design thinking is a valuable tool for innovation, it does not address where or how an individual initially senses a problem or opportunity and perceives a new fit between resources. Design thinking assumes the individual has observed a problem, real or perceived, and can move immediately into active search and development. The present study addresses this gap by identifying how the individual's attention shifts to potential opportunities given environmental stimuli, prior knowledge, and attitudinal traits. The current study presents a more holistic understanding of the process related to opportunity-seeking behaviors, context, and

cognition. Subsequently, it is important to understand the individual's mindset during active idea development, leading to the next proposition.

Proposition 8: An individual's ability to actively develop the idea is influenced by their prior knowledge, attitudes, and mindsets. *Mindsets* refer to a person's assumptions, methods, or notions. Specifically, empathy, open-mindedness, and holistic thinking are three important mindsets that influence active idea development.

While entrepreneurs and intrapreneurs in the study engaged in a well-defined set of behaviors, they also maintained certain mindsets during active idea development. As one interviewee said, "I'd say it's more like a mental state [than] an explicit activity to try to like instigate creativity." The entrepreneurial mindset may be defined as "the ability to sense, act, and mobilize under uncertain conditions" (McGrath & MacMillan, 2000, p. 15). Three mindsets were found to be particularly valuable to the active idea development process, including empathy, open-mindedness, and holistic thinking. Interviewees talked about exercises they would do to put the team in the right mindset and shared techniques for improving ways of thinking and harnessing these mindsets.

Empathy. Empathy was found to enable an individual to consider the feelings, thoughts, and experiences of the user and their problems and to generate solutions that fit the user's world in the active idea development stage. This interpretation of empathy is supported in the literature, "the intellectual or imaginative apprehension of another's condition or state of mind without actually experiencing that person's feelings" (Hogan, 1969, p. 308). Empathy is a complex construct involving both affective and cognitive processes (Davis, 1996). Affective empathy is concerned with the emotional response and identification with the emotional state of others, while cognitive empathy is concerned with perspective taking and ability to take the role of

another person (Kouprie & Visser, 2009). Both types of empathy are important processes involved in entering the user's world and therefore the problem immersion and idea generation phases of active idea development in this study. Furthermore, empathy is a core characteristic of successful design thinkers who employ design thinking methods to unlock innovation as discussed previously in this chapter (Brown, 2008).

Interviewees made numerous statements that demonstrated empathy for the customer's point of view such as, "Nobody cares about the technical details. What they're asking for is will you please help me safeguard these moments?" Another participant working in corporate compliance talked about his frustrations with the whole field of legal design and how inaccessible the language was to anyone in the company who was not an attorney but needed to understand government requirements. Even stories of innovations related to cost-savings confirmed the importance of empathy in achieving positive results. One intrapreneur stated,

How do you deal with inevitable exceptions that occur along the way. Somebody's sick. Somebody had a soccer game, all of those things. So there's a human side of this...I'm a pretty good engineer...the thing that I wanted at [Company X] ... was okay, you have this idea. Can you apply it then? Can you actually change manage people? Enough so that they'll actually adopt the thing that you designed on paper. Can you really have a P and L impact?

These examples reflect a deep understanding of the user's needs and situation, thereby providing deeper insight into a viable solution.

Open-mindedness. A second mindset emerged in the data—open-mindedness. Open-mindedness was found to enable an individual to consider a broader range of problems and solutions and listen to feedback generated during the data collection and testing and validation

phases of active idea development. The literature defines open-mindedness as a characteristic of a person who is “willing and (within limits) able to transcend a default cognitive standpoint in order to take up or take seriously the merits of a distinct cognitive standpoint” (Baehr, 2011, p. 202). It is related to other cognitive virtues and abilities such as intellectual fairness, impartiality, honesty, comprehension, conception, and imagination. This accurately portrays the mindset of sample members in the active idea development stage of this study.

Maintaining an open mind helped to eliminate preconceived notions the individual might have had about the problem or solution as well as perceived constraints. As one sample member stated, “I think some people have these preconceived notions and they go, nope, the product has to be this.” In this study, this type of attachment to the original concept was a great barrier to creativity and opportunity identification. So much so that during team brainstorming sessions, one interviewee said, “[I would] put up ‘can’t’ on the board and draw a big circle with a line through it. Then any time somebody says, ‘can’t’ you call them on it. You just have to shake the mindset. There’s no ‘can’t’, there’s only ‘what if we could?’”

Part of being open-minded included being open to change. Interviewees stressed that change was inevitable in the business world and that those who viewed change as exciting, versus more work, were catalysts of innovation. One sample member emphasized this several times during the interview, “I’m absolutely convinced that if you struggle with change, you’ll struggle with being innovative.” Several interviewees felt people were often afraid of change because they were afraid to look bad and would actively block change for that reason.

Holistic thinking. Finally, holistic thinking was the third mindset found to be influential in the active idea development process. Holistic thinking enables an individual to think outside one’s area of expertise or category and to consider how many different parts contribute to the

greater whole. Holistic thinking is a style of thinking best defined as the tendency to “process information in an intuitive, gestalt-type, synthesized manner” (Zhang, 2002, p. 334). In other words, “the whole is more than the sum of its parts.” Several studies have linked holistic modes of thinking to higher levels of creativity (Harnad, 1972; Kim & Michael, 1995; Okabayashi & Torrance, 1984). Holistic thinking is closely related to integrative thinking, which is another key characteristic of design thinkers noted in the literature (Brown, 2008).

Intrapreneurs and entrepreneurs alike emphasized the need to think outside of “your lane” or “your silo.” An intrapreneur at a Fortune 100 company cited a conversation with the company president who said, “I need to give you full license to look across the entire business and start looking at where there are point solutions that could be better if you could actually be very holistic in the way that you problem solve that.” Another sample member said his job was to be a bridge builder between technologists, engineers, business people, and customers. He described his role in developing the opportunity:

It’s understanding the customer then translating that back to a technologist or an engineer who can help build that vision. And I think through that process, trying to look at different and divergent perspectives to try to plus the idea up and think about it in a unique and novel way, but also in a way that is consumable, if that makes sense, you can have the best technology, but if it takes 25 steps for a customer to adopt, it’s really not gonna go anywhere.

Still, another interviewee demonstrated holistic thinking in his ability to analyze the entire constellation of products his customers were using in a particular setting, not just his direct competitor products. “And so, when you’re learning out of the whole pie, if you will, it starts to

unlock new opportunities.” This type of end-to-end thinking applied externally to understanding the customer’s point of view and internally when looking across all parts of the organization.

All three mindsets were closely linked to the phases of active idea development. The mindsets appeared both in the interviewee’s personal story as well as in response to more structured questions about why some people discover opportunities and not others and again at the close of the interview when given a chance to add anything they thought was important to the opportunity recognition process. Practicing empathy, open-mindedness, and holistic thinking helped to generate a greater number and higher quality of ideas in the active development stage and, in turn, a willingness to reframe the perceived problem and opportunity. This leads to the next proposition.

Proposition 9: Reframing the problem or opportunity is an ongoing process that occurs between the individual’s alertness to the perceived problem or opportunity and the active idea development process. During the reframing process, the individual is able to suspend judgement, draw from different lenses, and generate new insights to better define the problem or opportunity. The individual gains a clear understanding of the “real opportunity,” just below the surface, by dispelling previously held assumptions and seeing the user’s response to the idea in reality and at scale.

The reframing process is the key to unlocking successful opportunity recognition. Participants told stories about multiple “aha moments,” not just one. This demonstrated a willingness to review and reform their original concept of the opportunity and led to better solutions. As one sample member commented,

...all too often, I think we have the “aha” in one meeting and then you spend...tens, if not hundreds of millions of dollars against that decision without really vetting it. So, what I

like to do is kind of have the epiphany, blow it up, ...see if it keeps coming back about four or five times before you commit to it. So often times that's how you get some of the best ideas too. Cause generally it's the best ones I've had have been the craziest one in the beginning to where someone is enabled to kind of take that and shape it into something that none of us really thought was possible.

Suspending judgement, expecting the idea to change, and staying alert to new information were critical to breaking through to the real opportunity.

So, because I'm not under the impression that [my ideas] are going to necessarily end up exactly the way I originally conceived and that's really important...And I 100% expect it to iterate once it's in the market...I'm good at making things work and I'm a big believer in figuring out how to make things work.

As discussed in the introduction to this chapter, participants emphasized that they could not see the whole opportunity in the early stages. Interviewees described opportunity recognition as having a "kernel of truth" or just enough "signs of life" to permit themselves to keep "scratching" at the idea. Reframing the original concept meant updating or rearranging their prior knowledge with insights gained from the active idea development process and adapting their original vision.

Evaluating a negative case or a failed business opportunity proves useful in understanding the importance of iterative learning and reframing the opportunity. One interviewee shared about an application developed for the transportation industry. By all accounts, the founders had identified a valid customer pain point, but the solution introduced new pain points that hindered market adoption. The application lacked the functionality needed to fully integrate into the customer's system and therefore failed to gain traction in the

marketplace. The interviewee said, “We were a little too focused on what we wanted to build versus what the customer needed us to build.” A surface-level understanding of the problem can lead to overconfidence and failure.

The “back and forth” nature of opportunity recognition is represented in the reframing process where the individual takes action and continuously revises their perception of the opportunity, located in the alertness stage. According to the literature, “reframing is the ability to switch attention across multiple perspectives, frames, mental models and paradigms in order to generate new insights and options for actions” (Pisapia et al., 2005, p. 52). Reframing is an accurate description of this cognitive technique because it blends old and new information, not completely abandoning past data points but rather challenging or adding to one’s interpretation of them to make sense of reality. Reframing results in a deeper understanding of what the opportunity is and how to best act on it. As the individual’s alertness to the perceived problem or opportunity is reframed, the individual moves back into the active idea development phase one or more times until successful opportunity recognition is achieved or the project is aborted. This leads to the next proposition.

Proposition 10: After one or more iterations through the active development cycle and reframing process, the opportunity is evaluated in the test and validate phase and results in either successful opportunity recognition or abandonment. A strong problem-solution fit signals successful opportunity recognition. Weak to moderate problem-solution fit signals a need to repeat the active idea development process. No problem-solution fit signals failure to recognize a viable opportunity and the idea should be abandoned.

Interviewees described successful opportunity recognition as a high level of confidence in market acceptance or integration based on results in the testing and validation phase. An

interviewee described evidence of a strong problem-solution fit in the target segment: “So, within a couple of months there was a hundred people. And then three months later I had 15 groups of a hundred people.” Another entrepreneur talked about how his first customer essentially funded the initial phase of his venture after finding him on his blog. He started a Squarespace blog to distill his ideas down, visualize them, and see if it got traction. “And then the Wall Street Journal picked up a couple of them...I started getting a lot of interest...I think that Monday or Tuesday two different people from [Company X] were like, we want to talk. And then a month later they flew me out and I pitched them, and we launched the company, [Company X] basically funded the initial phase.”

Weak to moderate problem-solution fit was still enough for the individual to keep searching. As one participant put it, “It doesn’t necessarily have to be an overwhelming yes to continue. Like it just has to be enough of a yes that we keep scratching at it.” Any response less than this is an indicator that the idea should be abandoned. In summary, opportunity recognition is different from idea generation. It must go beyond sheer novelty and invention and possess attributes that will survive first contact with customers or users in reality and at scale. Until then, the process of opportunity recognition is not finished.

Conclusion

Although scholars agree that opportunity recognition is the first and most critical step in the entrepreneurship and innovation process as well as the most fundamental entrepreneurial behavior (Gabrielsson & Politis, 2012; Kirzner, 1997; Saks & Gaglio, 2002; Shane & Venkataraman, 2000; Venkataraman, 1997; Zacca & Dayan, 2017), the literature is void of a unified theory of opportunity recognition that links the individual to the innovation process (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). Existing models

fail to capture the drivers of opportunity recognition and call for a more holistic focus on the product, person, process, and context surrounding the opportunity (Dimov, 2007; Gabrielsson & Politis, 2012). The aim of this study is to understand how individuals go about identifying new business opportunities and to present a comprehensive and practical representation of the process of opportunity recognition (e.g., Figure 9). The process of how to identify an innovative business opportunity was documented as an opportunity recognition theory and begins to address this gap in the literature.

This chapter is divided into three sections. First, there was an account of how the study was initiated. Second, the researcher provided a detailed description of how the research was conducted. Finally, the study findings from the research were articulated in terms of proposition statements, which were supported by both the sample in the study and relevant literature.

How the study was initiated. To understand how and why some people discover new business opportunities, the researcher conducted in depth interviews with a total of 27 serial entrepreneurs and intrapreneurs. Interview participants were identified through the researcher's personal network as individuals who met the study criterion and possessed expert knowledge on identifying innovation business opportunities. A pilot study, composed of three participants, was conducted prior to the start of the study to ensure the line of inquiry and research protocols were effectively designed. All steps of the research process were adhered to and no changes to process were required; therefore, the results of the pilot study were included in the final analysis. The study continued with the remaining interview participants.

How the grounded theory research was conducted. Grounded theory was the qualitative research method selected for this study. As such, the researcher engaged in theory building through a rigorous process of interviewing expert sample members, examination of relevant

literature, and constant comparative analysis to develop categories and theoretical relationships unique to this research method. Data collection consisted of two rounds of one-on-one interviews—the first to collect data to build the theory and follow up interviews to check that the theory was valid. A total of 27 expert interviewees were selected via convenience, purposeful, and theoretical sampling and invited to participate via email. Data analysis occurred in three phases of coding, including open, axial, and selective coding as prescribed by leading grounded theory experts, Corbin and Strauss (2015).

Success in a grounded theory study is measured in terms of validity, credibility, and applicability (Corbin & Strauss, 2015). Validity is how well the theory describes reality (Hammersley, 1987). Credibility ensures the theory is both trustworthy and believable (Corbin & Strauss, 2015). Applicability refers to the level of “fit” between the data and the context from where they are drawn, how well they are understood by others, their generalizability across diverse situations and populations, and their ability to bring about change (Glaser & Strauss, 1967). From the interview protocols and design to final analysis and documentation of findings, these three evaluation criteria were carefully observed and adhered to.

Relative to validity, the researcher employed additional steps in the data analysis process to ensure the theory explained reality, which included revisiting the raw data to assess the explanatory power of the theory across most cases and conducting follow up interviews with all but two of the 27 interviewees to obtain feedback on the phenomenon. Sample members were asked to share what they would add, remove, or rearrange in the opportunity recognition process model, thereby increasing the theory’s relevance and practicality in the real world. Regarding credibility, expert sample members were carefully vetted according to established criteria, and thick descriptions of their experience were detailed in the research findings. A second reader was

also employed to compare codes, discuss research progress specific to grounded theory, and develop the storyline of the data.

Finally, applicability of the results of this study in terms of “fit” was achieved through careful design and execution of the research method, data analysis, and report of the findings as supported by existing literature and emergent data in the study. Generalizability, another aspect of applicability, presented the greatest challenge. However, generalizability also represented a unique strength of the study. The literature called for a unifying theory with a more holistic focus, bridging the gap between entrepreneurship and innovation; as such, the study included both entrepreneurs and intrapreneurs across a range of industries and types of innovation. The broad participant base increases the generalizability of the results as it captures the entrepreneurial opportunity-seeking behaviors in a variety of settings. Follow up interviews and the feedback loop established between the researcher and the interview participants helped to ensure proper fit of the theory in each context. Feedback indicated strong agreement with the model. The challenge was finding common and inclusive terminology to articulate the concept in each setting. For example, “commercialization” does not resonate with an intrapreneur launching a cost-savings initiative inside the organization. The follow up interviews were critical in helping the researcher wordsmith the final process model of opportunity recognition to ensure it used relevant language to a diverse population and did not overlook important user perspectives. There are two subsets of the population that were purposefully excluded from the sample and therefore a delimitation of the study, that of entrepreneurs launching imitative goods and services as well as novice entrepreneurs or intrapreneurs. The focus of this study was on innovative business opportunities that come about in an entirely different way. Therefore, findings from this study should not be generalized to more traditional, imitative business opportunities. Relative to

novice entrepreneurs, the generalizability of this study may be questioned. However, the results likely still have relevance to this population as seasoned entrepreneurs or intrapreneurs were selected for their ability to provide perspective from multiple starting points and because the data collected included insights into the discovery of the individual's first business as a novice entrepreneur or intrapreneur.

The findings. There were several results from this study. The sample revealed a common set of cognitive and behavioral factors that lead to opportunity recognition, which explain how and why some people discover opportunities and not others. In addition, the findings support a blended, integrative perspective of opportunity recognition in the literature, which involves an iterative, unfolding process rather than a linear path. The highest level of categorization is represented in Figure 8, and a more detailed, elaborate depiction of the opportunity recognition process is provided in Figure 9. The illustrations and final determinations of this exploratory study were codified in 10 proposition statements. A summary of the propositions and all associated subsets of the propositions are provided in Table 1.

While the primary aim of developing an opportunity recognition theory was achieved, the findings of this study present important risks and limitations. The next chapter discusses the identified risks and limitations as well as theoretical and managerial implications along with future research.

Table 1: The Propositions Associated with Opportunity Recognition Theory

Proposition	
<i>Proposition 1:</i>	The process of opportunity recognition is triggered by one or more events or <i>stimuli</i> , which include a.) changes in the internal environment of an existing organization as well as changes in the external environment, b.) one or more pain points and/or c.) an individual's personal desire to be entrepreneurial.
<i>Proposition 2:</i>	An individual's <i>perceptual filter</i> is a cognitive function whereby the individual draws upon knowledge they already possess and uses it to select and evaluate what new information or stimuli is worth their attention.
<i>Proposition 3:</i>	The individual's <i>prior knowledge</i> is composed of formal and informal education, industry experience, social network, special interests, and values. The breadth and depth of the individual's knowledge base affects how they filter new stimuli; how they connect the dots between prior knowledge, stimuli, and the perceived opportunity; and how they actively develop the idea.
<i>Proposition 4:</i>	<i>Alertness</i> is the cognitive function at the center of opportunity recognition, often referred to as the "aha moment" of discovery. If the incoming stimulus is perceived as valuable, this results in a heightened level of alertness as the individual connects the dots between the stimuli, their prior knowledge, and a potential opportunity.
<i>Proposition 5:</i>	<i>Connect the dots</i> is pattern recognition used by an individual to connect seemingly unrelated events or stimuli in their current environment and their

knowledge base to determine if there is a sizeable problem or opportunity and drive alertness to potential solutions.

Proposition 6: An individual's ability to connect the dots and see opportunities is influenced by the knowledge they possess and their *attitude*, or mental and emotional disposition. Specifically, curiosity and passion are two important attitudes that influence one's alertness levels and engagement in active idea development.

Proposition 7: Once an individual becomes alert to an opportunity, and depending on their passion toward solving the problem, he or she will make a decision to invest more resources in developing the idea. In *Active Idea Development*, the individual invests more resources in the idea and engages key stakeholders to better understand the potential of the opportunity and develop a solution to the perceived problem. The active idea development process is extremely fluid; the individual moves in and out of a loop containing the following phases: a.) problem immersion, b.) select tools and techniques to gather data, c.) risk evaluation, and d.) test and validate. At the center of the loop is the idea generation phase, which occurs both simultaneously with the other phases and as a separate step in the process through both formal and informal methods as the individual moves through each phase of the loop. The individual will most likely complete several iterations of the active development cycle and reframing process before achieving successful opportunity recognition.

Proposition 7a: **Problem immersion** is the first phase in the active development process through which the individual engages themselves in the user's world to gain a deeper understanding of the user's problems and point of view. As the individual becomes more well versed in the problems and perspective of the end user, he or she may engage in more active idea generation or advance to gathering more data.

Proposition 7b: Subsequently, the individual **selects tools and techniques to gather data** to better understand the root problem/opportunity, validate the size of the opportunity, and generate solutions. The individual must decide what mix of tools or techniques are appropriate for the situation.

Proposition 7c: **Idea generation** occurs throughout the active development process but may take a more prominent role once sufficient data have been collected and the problem is well defined. During this step, the individual seeks inspiration from a variety of sources to generate ideas for a solution to the problem.

Proposition 7d: **Risk evaluation** is a key step in which the individual considers the parameters the entrepreneurial opportunity must fit within and evaluates the risks associated with various solutions. Significant barriers, real or perceived, are identified and often spark alternative ideas to avoid taking on excessive risk.

Proposition 7e: **Test and validate** involves testing and validating the solution against established success criteria through user feedback, prototyping, and even post commercialization or deployment. Results from this phase either point toward changes to the idea/solution or the need to move through the

iterative cycle again. Key insights from the active development process are bounced back to the alertness function through a reframing process.

Proposition 8: An individual's ability to actively develop the idea is influenced by their prior knowledge, attitudes, and mindsets. **Mindsets** refer to a person's assumptions, methods, or notions. Specifically, empathy, open-mindedness, and holistic thinking are three important mindsets that influence active idea development.

Proposition 9: **Reframing the problem/opportunity** is an ongoing process that occurs between the individual's alertness to the perceived problem/opportunity and the active idea development process. During the reframing process, the individual is able to suspend judgement, draw from different lenses, and generate new insights to better define the problem/opportunity. The individual gains a clear understanding of the "real opportunity," just below the surface, by dispelling previously held assumptions and seeing the user's response to the idea in reality and at scale.

Proposition 10: After one or more iterations through the active development cycle and reframing process, the opportunity is evaluated in the test and validate phase and **results** in either successful opportunity recognition or abandonment. A strong problem-solution fit signals successful opportunity recognition. Weak to moderate problem-solution fit signals a need to repeat the active idea development process. No problem-solution fit signals failure to recognize a viable opportunity and the idea should be abandoned.

Chapter 5 – Discussion

Why, when, and how do some people discover entrepreneurial opportunities and not others? Opportunity recognition is undoubtedly one of the most amorphous processes to capture in the entrepreneurship and innovation literature due to its iterative, non-linear nature (Alvarez & Barney, 2007) and the interaction effects between the product, person, process, and context (Dimov, 2007; Gabrielsson & Politis, 2012). The literature defines “opportunity recognition” in three parts: “(1) sensing or perceiving market needs and/or underemployed resources, (2) recognizing or discovering a ‘fit’ between particular market needs and specified resources, and (3) creating a new ‘fit’ between heretofore separate needs and resources in the form of a business concept” (Ardichvili et al., 2003, p. 109). The process involves aspects of *perception*, *discovery*, and *creation*—a complex set of cognitive and behavioral activities.

To add to the complexity, multiple systematic literature reviews of the definitions and frameworks related to entrepreneurial opportunity and innovation reveal the highly fragmented nature of these fields and the challenges of sharing knowledge across fields (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). Scholars note that the fields are plagued by “insufficient theorizing and fragmentation” (Crossan & Apaydin, 2010, p. 1165). Opportunity-seeking behaviors and thought processes cut across entrepreneurship, innovation, and corporate entrepreneurship and provide a natural starting point for the present study to bridge the gap between these parallel domains of knowledge.

A grounded theory study possesses the unique ability to deliver a substantive theory that is “logical, dense, and innovative” (Corbin & Strauss, 2015, p. 313). This study adds value to the existing body of literature on opportunity recognition by adopting a more holistic focus on the individual agency and the innovation process surrounding opportunity recognition. Past models

have relied on inadequate research methodologies that fail to capture the entire opportunity recognition process and therefore answer the core questions of the field. However, this study was able to demystify the process and provide a unified theory of opportunity recognition that has the potential of informing entrepreneurs and innovators on how to harness the pursuit of new business opportunities for sustained competitive advantage (Antoncic & Hisrich, 2001; Lumpkin & Dess, 1996; Zahra & Dess, 2001).

The core research question used in developing the theory for this manuscript is as follows: How do individuals go about identifying new business opportunities? The sample included 27 expert individuals with experience in launching two or more startup ventures or corporate innovation initiatives. The findings support the inherently messy and iterative nature of opportunity recognition but also affirm that the process can be understood and codified and even recognize it as a skill that can be learned. A rich description of the process and phases involved in successful opportunity recognition is the first step in understanding how entrepreneurs and innovators can build this skill.

Good theory-building produces two types of knowledge—outcome knowledge and process knowledge (Dubin, 1976). Outcome knowledge refers to the desired end goal of the process. This is detailed throughout Chapter 4 and through proposition statements in Table 1 in Appendix C. Process knowledge informs how something works or what it means. Linking the concepts in this way makes grounded theory the most appropriate method for explaining both how opportunity recognition occurs and how the variables influence success. This is illustrated in Figure 8 and Figure 9 of Appendix B and discussed throughout Chapter 4.

The propositions outlined in Chapter 4 add to and extend the literature on opportunity recognition in several ways. The next section explores the theoretical and managerial

implications of this research in greater detail. Together, the propositions and implications of the present study provide the foundation for successful opportunity recognition among aspiring entrepreneurs and intrapreneurs.

Theoretical Implications

The opportunity recognition theory in this study possesses implications related to the current environment in which opportunities emerge along with several highly debated theories in the literature including discovery versus creation theory, opportunity identification theory, alertness theory, and opportunity development theory. Advancing these theories also expands the literature by providing a deeper understanding of contributing factors such as prior knowledge, attitudes, and mindsets and their role in the opportunity recognition process. Combined, there are several managerial or practical implications of the study findings for aspiring entrepreneurs and corporate entrepreneurs. This section discusses theoretical and managerial implications.

An age of uncertainty. Before discussing relevant theories, it is important to address one of the original predictions presented in the Chapter 2 literature review. Prior to this study, the research seemed to indicate that the way in which opportunities are recognized would be different in today's turbulent business environment marked by uncertainty and ambiguity (Bennett & Lemoine, 2014; Blank, 2013; Neck & Greene, 2011; Thurik et al., 2013). Despite increased competition and international trade and the accelerated rate of social, economic, cultural, and political change due to advancements in technology, communication, and transportation (Güven, 2020), most sample members in this study did not think that the fundamental way in which people go about discovering new opportunities has significantly changed. Respondents agreed that the tools and techniques may have shifted and that new tools may have accelerated the opportunity recognition process as well as made it more accessible to a

greater number of individuals but that the core components of the process remain the same. For example, the Internet and social media grant entrepreneurs and intrapreneurs quicker access to obtain customer input and feedback but “knowledge of customer problems” remains an essential component of the process as identified in Ardichvili et al.'s (2003) model of opportunity recognition developed nearly 20 years ago.

Instead of altering the process of opportunity recognition, advancement in technology appears to increase the rate of learning from the market’s response to the original concept, thereby improving efficiency and speed of conceptualization. In addition, new technology may have enabled more people with limited access to resources to test and validate their business concepts, thus inspiring more people to act on opportunities who otherwise would not have done so. Finally, the level of ambiguity surrounding the problem does not necessarily change the core components of the process although it may result in a greater number of iterations in the active development cycle and therefore increase the frequency and intensity of shifts between algorithmic and intuitive modes of thinking. These effects are discussed further in the section on cognition theory.

Discovery versus creation theory. Perhaps the most controversial debate in the literature on opportunity recognition deals with whether opportunities are discovered or created. Alvarez and Barney (2007) describe the difference between these two perspectives using a metaphor. In the metaphor, discovery is portrayed as the entrepreneur “climbing” Mount Everest, whereas creation is portrayed as the entrepreneur “building” Mount Everest where the mountain represents the opportunity to be exploited. The discovery perspective claims opportunities exist independent of the entrepreneur and are merely waiting to be discovered through activities such as environmental scanning and data analysis. In contrast, creation perspective states that

opportunities do not exist and therefore must be created by the entrepreneur through an iterative learning process. According to creation theory, opportunities do not emerge from preexisting industries or markets (Dosi, 1988; Etzioni, 1963) nor from changes in the external environment (Baker & Nelson, 2005; Sarasvathy, 2001). Unlike the discovery theory, the creation theory has not yet been established as a single, coherent theory (Alvarez & Barney, 2007). A third view, an integrated perspective, asserts that both discovery and creation methods are relevant at different points in the development of the opportunity (Sarasvathy et al., 2003).

The findings of this study agree that a single view of entrepreneurial opportunity does not adequately describe the process. Results indicate that elements of both discovery and creation are present in the opportunity recognition process. However, unlike what the integrated perspective suggests, this study found that discovery and creation approaches are complimentary to one another and do not necessarily take place during separate stages of idea development. Different stages of idea development include opportunity identification, evaluation, and development (Ardichvili et al., 2003). While opportunity recognition is an ongoing process that certainly grows and morphs through different cycles, according to the findings in this study, these stages often overlap and draw from discovery and creation approaches simultaneously. The process may begin when an individual notices a change in the environment, becomes alert to a potential opportunity, evaluates the opportunity, acts upon the idea, and reapplies insights gained from active development, which enables the individual to be more sensitive to new information that alters their perception of the opportunity. The individual must remain sensitive and alert to incoming stimuli, even during the active idea development phase, to effectively recognize the opportunity in front of them. The shift back and forth between discovery and creation methods may occur quite rapidly, which may explain why the integrated perspective asserts that the two

methods are relevant at different stages of development. In summary, the present study views creation and discovery methods as complimentary rather than binary approaches to opportunity recognition applied at various stages.

Moreover, a purely creationist perspective fails to explain how an individual chooses where to focus their attention and create an opportunity. However misguided, the original business concept to be exploited must come from some type of stimulus. People are exposed to an overwhelming number of stimuli each day and use filters to decide what to pay attention to and how to spend their time. A discovery perspective explains how individuals' attention begins to shift toward a sizeable opportunity worth exploring. Study findings indicate the process begins with a stimuli, which serves as a boundary spanning activity (DeTienne & Chandler, 2004; Fiet & Patel, 2008; Vaghely & Julien, 2010) that helps the entrepreneur or intrapreneur narrow the scope of the opportunity and channel their resources. Through the enactment process, these boundaries may be redefined or lead to entirely new arenas of opportunity, but human cognition relies on cues in the environment to determine what to act on. The question then becomes where do these cues come from and how do individuals identify them as such. Opportunity identification theory grapples with the source of such stimuli.

Opportunity identification theory: Systematic versus random. Additional divisive viewpoints exist in the literature, more specifically related to the opportunity identification stage of opportunity recognition. DeTienne and Chandler (2004) classify opportunity identification in four categories: active, passive, creation, and fortuitous. These four perspectives exist along a continuum. On one end is systematic search, where opportunities are objective and can be easily recognized. On the other extreme is random search, where opportunities are subjective and constructed as a result of blind luck. A blended approach offers a compromise where

opportunities are both recognized and constructed (Vaghely & Julien, 2010). None of the sample members' origin stories included in this study fit the creation or fortuitous categories as none of the business concepts were based purely on the individual's imagination or identified through a serendipitous encounter. The sample contained nearly equal numbers of active and passive search participants with 15 individuals engaging in active search and 12 engaging in passive search. Therefore, this discussion focuses on the opposing viewpoints between active and passive search theories and considers the relevance of a blended approach.

Active and passive search are similar in that they both view opportunities as objective and systematic (DeTienne & Chandler, 2004). However, these two approaches differ in their interpretation of how individuals go about systematically discovering the opportunity. An active approach asserts that individuals systematically search for markets in disequilibrium through environmental scanning, competitive analysis, and strategic planning. In contrast, a passive approach suggests that the individual cannot clearly define the opportunity prior to the moment of discovery but instead becomes more alert to the opportunity. According to passive search, there are techniques that may improve one's ability to sense changes in the environment and training that enhances one's creativity to make connections between seemingly unrelated things.

The present study found that individuals engage in both active and passive search during the opportunity recognition process. Even individuals who were actively searching for an opportunity to exploit exhibited signs of alertness that is typically associated with passive search. As the active search narrowed, driven either by personal choice or problem identification, there was still a lack of clarity on the opportunity or solution. This missing puzzle piece was not understood until the individual became alert to new pieces of information relative to the problem or focus area. In turn, those engaged in passive search also switched to a more active approach.

Once alerted to a potential opportunity, individuals invested their time and energy in active search and development of the idea. New insights gained from problem immersion and more formal data gathering techniques helped the individual to reframe the opportunity and fully conceptualize a viable opportunity.

A blended approach more accurately describes the unfolding process of opportunity recognition. The proposed model of opportunity recognition illustrates a certain duality of thought, relying on both algorithmic-like processing that is rational and systematic as well as intuitive connections that spark new ways to look at common problems. An individual's intuition appears to be more random than systematic but is shaped by certain biases that exist in their knowledge structures, directing the individual's attention and focus. This duality of entrepreneurial mindsets is supported by Vaghely and Julien's (2010) information processing framework and Baron's (2006) pattern recognition model which demonstrate how “boundary spanners” help to narrow the search for information and how knowledge structures assist in connecting the dots, respectively. The present study presents alertness as a recurring phenomenon in the opportunity recognition process and positions a new concept—“reframing the problem/opportunity”—as the bridge between modes of thinking, resulting in multiple “aha moments” as the entrepreneur or intrapreneur uses feedback loops to connect tacit and archived information. In summary, both modes of thought are critical to successful opportunity recognition. The frequency and intensity with which one switches between modes of thought may differ based on how well-defined the problem is, but both must be present according to the study findings. These modes of thought may be further understood by discussing the underlying constructs of cognition theory relative to the findings.

Cognition theory as pattern recognition.

Prior knowledge. The central importance of human cognition as a lens through which individuals identify new business opportunities was established through Baron's (2006) pattern recognition model. The entrepreneur's cognitive frameworks provide the links between raw data or bits of information to form patterns that lead to new possibilities. Previous life experience enhances the cognitive structures, which compose one's memory and serve as prototypes and exemplars from which to form connections. The individual's experience is one source of knowledge that serves as a "knowledge corridor" to inform entrepreneurs of the value of new information (Hayek, 1945).

One interesting concept that emerged in the data of the present study was the value and the limitations of each source of knowledge an individual possesses. Particularly controversial was that of industry experience. In some instances, the individual's highly specialized expertise was an asset to the opportunity recognition process as it provided a more robust sense of where the industry was going and potential customer problems. In other instances, sample members cited their numerous career moves and breadth of experience as a strength, increasing their ability to perceive the problem through multiple lens and connect the dots across seemingly unrelated data points, resulting in breakthrough solutions. Interviewees emphasized that people with highly specialized skills tend to think more myopically, which is a barrier to innovation. At some level, ignorance can help spark some of the best ideas.

Across the sample, industry experience was still crucial, but the right mix of breadth versus depth of experience was not consistent. It is possible that other variables such as the diversity of one's social network or team could help offset an individual's limited breadth of experience. It is also possible that there is a certain threshold at which experience in one area

begins to bias a person and erode their capacity for innovative thinking, drawing from the same mental scripts and failing to consider new pathways. The current study extends the literature on cognition theory as it relates to pattern recognition by suggesting there may be a threshold at which experience and prior knowledge in one area of expertise is an asset versus a liability in the opportunity recognition process.

Attitudes and mindsets. Though useful in explaining *how* the entrepreneur organizes information that suggest new business opportunities (Baron, 2006), the pattern recognition model does not explain why some individuals discover opportunities and not others. Not all individuals with extensive experience and well-developed cognitive frameworks discover opportunities. The present study suggests that the individual's attitude and mindset play an important role in driving alertness and successful idea development.

Historically, the field of entrepreneurship was focused on the personality traits of the entrepreneur rather than on entrepreneurial behaviors (Venkataraman, 1997). Ardichvili et al.'s (2003) model of opportunity recognition identified two personality traits as drivers of alertness—creativity and optimism. However, the focus on fixed personality traits began to shift with the research of Gartner (1988) and Venkataraman (1997), which pointed to the complexity of new venture creation which a set of fixed traits could not predict and suggested ongoing behaviors lead to the creation of an organization. Nevertheless, researchers still wondered why some people discover opportunities and not others. Scholars turned to research on attitudinal factors, developing the entrepreneurial attitudinal orientation (EAO) framework, which includes items such as achievement, personal control, innovation, self-esteem, opportunism, risk/uncertainty, and autonomy independence (Solymossy, 2000). Further research expanded the field's view of “who” the entrepreneur was by determining that entrepreneurial behavior was not context-

dependent and therefore existed in all types and sizes of organizations including startups, large corporations, and even institutions such as government (Audretsch et al., 2015). The entrepreneurial mindset became a more inclusive term to discuss the phenomenon, defined as a “growth-oriented perspective through which individuals promote flexibility, creativity, continuous innovation and renewal” (Ireland et al., 2003, p. 968).

The present study found the individual’s attitudes and mindsets to be more critical than fixed personality traits to the opportunity recognition process. In addition, attitudinal orientations and mindsets help explain why some people discover opportunities and not others. The dominant attitudes found in this study include curiosity and passion. Curiosity served as a motivational force to connect the dots between seemingly unrelated events as the individual sought out new experiences and attempted to arrange mysterious elements or stimuli in a way that made sense (Maw & Maw, 1968). Passion also functioned as motivation throughout the process, directing one’s time and energy in the work despite setbacks because of the intrinsic enjoyment one received in doing challenging work (Vallerand & Verner-Filion, 2013). Existing models of opportunity recognition elude to the importance of the individual’s curiosity and passion in that higher levels of alertness were achieved when the individual’s industry knowledge intersected with special interests (Ardichvili et al., 2003).

The individual mindsets found in this study—empathy, open-mindedness, and holistic thinking—were particularly valuable in the active idea development process. The common thread across these mindsets is found in their unique capacity for perspective-taking. Empathy is the ability to take on the role of another person and consider their condition or state of mind (Hogan, 1969; Kouprie & Visser, 2009). Open-mindedness is the willingness to consider the merits of distinct cognitive standpoints that are different from one’s own position (Baehr, 2011).

Holistic thinking involves one's ability to perceive objects as part of a greater whole and understand relationships between parts of complex systems (Zhang, 2002). Together, these mindsets enable individuals to see opportunities that may otherwise go unnoticed. Mindsets provide individuals with the perspectives needed to tap into their own cognitive frameworks that are useful and applicable in new situations. This explains why mindsets were linked most closely to the active idea development phase when individuals were exploring the potential of an idea in new contexts or environments.

Opportunity development theory: Entrepreneurial action. Carter et al. (2003) argue that opportunities are the result of what individuals do, not what they see. The present study argues opportunities are a result of seeing, doing, and seeing again. The “seeing” aspect, or cognitive function, of opportunity recognition has already been established in the previous section; therefore, the researcher proceeds to establish the role and importance of entrepreneurial action to the opportunity recognition process relative to the literature and the findings in this study.

Entrepreneurial action is a critical component of opportunity development (Kitching & Rouse, 2017; Snihur et al., 2017) and thus opportunity recognition. Such activities include social interactions with clients, family, potential or existing customers, and suppliers where the entrepreneur acquires feedback on the viability of the offering, challenges one's assumptions relative to the offering, and generates new ideas to improve the original version of the offering or decides to abandon the idea (Dimov, 2020). The behaviors and actions of individuals in the development process create a feedback loop that serves as a source of learning (Politis, 2005; Wang & Chugh, 2014). Entrepreneurial actions are further delineated and supported by the innovation literature. Meinel et al. (2011) developed a six phase procedural model of design

thinking which includes (1) understanding, (2) observe, (3) point of view, (4) ideate, (5) prototypes, and (6) test. Similar to the entrepreneurship literature, the innovation literature recognizes the importance of taking action and testing business concepts in the real world to learn and iterate. The findings in this manuscript support the importance of entrepreneurial action and detail the most critical actions in the active idea development phase of the process model including (1) problem immersion, (2) select tools and techniques to gather data, (3) idea generation, (4) risk assessment, and (5) test and validate.

Past models of opportunity recognition have placed a stronger focus on the “identification” component of the process rather than on the “development” component of the process. This imbalance is most likely because much of the literature subscribes to the discovery perspective and passive search approach to opportunity recognition as they are the most well-researched phenomena and favor cognitive theory. The creation view and active search approach surfaced more recently and took longer to gain acceptance among scholars in the field. The later views align more closely with the enactment view of opportunity recognition. The current study took a holistic approach, including questions in the line of inquiry to explore conditions surrounding each perspective. The model outlined in this study found strong interaction effects between the individual’s cognition and behaviors, resulting in a more accurate representation of the interactive, unfolding process of opportunity recognition.

Study findings repeatedly point to the problematic fragmentation and divisive nature of the existing literature on opportunity recognition. To effectively capture the process that leads to successful opportunity recognition, it is important to understand how individuals think *and* act. Both cognitive and behavioral factors lead individuals to discover and create new business opportunities. Existing studies tend to approach the research with a binary lens, viewing

opportunities from a discovery *or* creation perspective and as active *or* passive search as well as a process that occurs in distinct stages such as opportunity identification *or* opportunity development. This bifurcation of viewpoints overlooks the merits of each as complimentary approaches uniquely positioned to coexist as ways of fully conceptualizing new business opportunities.

The “birth” of an opportunity in the real world contains exceedingly many variables to confine it to a discrete stage (Karlsson, 2001). The discovery of a new opportunity is a complex socio-cognitive process where social and cognitive properties are reciprocally connected (de Koning, 1999; Witt, 2000). The current study examined all perspectives, looking for similarities and differences. The findings suggest that how the individual perceives of and acts on an opportunity are vital to successful opportunity recognition and evolve together in real time. Research shows that action can precede perception because sensemaking and meaning are often derived after the action takes place (Weick, 1979). It is worth stating again that perception and action are reciprocal. Reciprocity is at the heart of the process model presented in this study and depicted in the reframing phase of the model. Initial perceptions of an opportunity may be extremely rudimentary, requiring a great deal of active development to make sense of the opportunity. In this respect, opportunity development is a learning process—one where the opportunity and venture are developed in parallel (Sanz-Velasco & Magnusson, 2004).

Expert sample members in this study emphasized that the opportunity cannot be fully conceptualized in the early stages. Furthermore, participants described successful opportunity recognition in terms of market adoption or system-wide integration. Individuals experienced multiple “aha moments” until this end was achieved. Sanz-Velasco (2006) asserts that an opportunity is only identified once it has recognized the following five elements:

- f.) offer: an opportunity involves a definite offer to the customer
- g.) customer: an opportunity envisages a definite customer segment
- h.) value: an opportunity creates definite value
- i.) revenue model: an opportunity has a definite revenue model
- j.) technology: an opportunity is accomplished through technology. (p. 257)

The interviewees reiterated the importance of not being satisfied with the business concept too soon as the “real opportunity” was often not discovered until farther down the road as the individual connected more dots through the enactment process. Past models are inadequate depictions of the process because they focus more on thinking *or* action instead of the interaction effects between thinking *and* action. In addition, most models are not comprehensive enough to be of practical use in the real world.

Design thinking and innovation. As briefly mentioned in the previous section, the findings in this study compliment the phases of design thinking (Meinel et al., 2011). Design thinking outlines practical steps for learning and iterating one’s way into innovative business concepts, aligning well with the opportunity development and entrepreneurial action theories in the entrepreneurship literature (Kitching & Rouse, 2017; Snihur et al., 2017). The major contribution of this study to design thinking practice is its holistic focus on entrepreneurial behaviors as well as the individual’s context and cognition, placing equal emphasis on the person and the process. As is the case with many popularized innovation tools, individuals and organizations tend to adopt one process and implement it as though it is a “magic bullet” and will produce immediate results. The early developers and distributors of design thinking as a tool most likely did not intend for it to be used as a sequential step-by-step process, but nevertheless, this is what some expert sample members said they have witnessed and site it as a major barrier

to developing the organization's capacity to innovate. Design thinking methods incorporate aspects of the individual such as empathetic and integrative mindsets (Brown, 2008); however, this study takes that knowledge a step farther by understanding the role of the individual's background, or prior knowledge, as well as environmental stimuli, which must integrate with new insights gained through the innovation process. Furthermore, the individual's prior knowledge helps guide the order and sequence of steps in active development and continuously connects new dots or data points between prior knowledge and active development that steer the process.

Strategy and management. This study is of great importance to strategy and management because opportunity recognition allows for the advancement of knowledge (Dess & Picken, 2000; Drucker, 1992), innovation (Audretsch et al., 2015; Crossan & Apaydin, 2010; Dess & Picken, 2000; Dimov, 2007; Drucker, 2014; Gabrielsson & Politis, 2012), and competition in markets (Antoncic & Hisrich, 2001; Ireland & Webb, 2007; Moustaghfir & Schiuma, 2013). Large organizations have sought ways to increase the firm's absorptive capacity or ability to recognize what information is valuable and how to leverage it for the purpose of innovation (Cohen & Levinthal, 1990). The present study reinforces the importance of prior relevant knowledge and diversity of expertise within the organization as strong contributors to developing a firm's absorptive capacity and offers insight into how that knowledge leads to new discoveries and a more sustainable competitive advantage. While techniques such as environmental scanning and data analysis are useful in becoming more alert to sizeable opportunities, it lacks the human insight needed to fully conceptualize the opportunity. The process model developed in this study reflects the value of systematic approaches to opportunity recognition and the significance of changing environmental conditions, but it pairs this approach

with active development and deep customer contact where a unique understanding of the problem and novel solutions are generated. A broader mix of tools and methods help to uncover the core value of the opportunity that is not easily copied by firms who lack this unique customer insight. One interviewee sums up this concept:

Oftentimes the industry research is publicly available information that everyone has access to, and we don't want to build a product that anyone from doing a market analysis could or would try to build. We want to use our relationships with people who are interested in what we're doing to create something unique based on our own insights.

Recommendations. There are several important takeaways for new startups and corporate entrepreneurs that can be drawn from the theoretical implications of this study. Understanding the process and repeatable patterns that lead to successful opportunity recognition may help entrepreneurs and intrapreneurs achieve breakthroughs that lead to stronger competitive advantages. The process is both an art and a science, investing equally in the person and process is essential. Key recommendations include diversifying knowledge sources, diversifying methods and tools, cultivating attitudes and mindsets, and growing skillsets. Each recommendation is discussed in sequence.

Diversify knowledge sources. No two individuals possess the exact same set of information at the same time. Different life experiences, knowledge, and education lead people to discover and create different businesses. Individuals should grow and diversify their information channels to help strengthen their knowledge structures and seize opportunities when exposed to new stimuli. The more diverse knowledge one accumulates, the more diverse portfolio of mental scripts that individual has to draw from when faced with new challenges. To increase the likelihood of successful opportunity recognition, aspiring entrepreneurs should

consider gaining work experience before launching a business. Seasoned entrepreneurs or intrapreneurs should consider changing career tracks or pursuing job opportunities in different departments or industries. Finally, organizations should hire diverse talent and develop “generalists” versus “specialists.” Hiring individuals with a range of backgrounds, industry experience, and skill sets helps to diversify the organization’s knowledge base, thereby enhancing alertness to new opportunities. Furthermore, in an age of specialization, companies need to maintain a balance by developing generalists who are excellent “dot connectors.”

Generalists are people who possess broad knowledge that cuts across the organization and can think outside of their silo. This high-level, holistic thinking affords individuals the vantage point to draw meaningful connections between diverse data points and effectively steer the opportunity development process. In addition, organizations could expand employees’ cognitive frameworks through management techniques such as job rotation or immersive training programs in multiple areas.

Diversify methods and tools. There are multiple, valid pathways into an innovative idea, but the core components of the process remain the same. Flexibility and agility are crucial to navigating the path. Startups and organizations alike should avoid placing too strong an emphasis on a single approach to innovation. The innovation literature mainly deals with the methods and tools of the process at the detriment of understanding the individual’s role in the process. As such, individuals may be tempted to follow a formulaic, step by step process instead of being flexible and willing to leverage a variety of tools that are appropriate for the situation. According to the study findings, individuals should diversify their toolbox and use mixed methods to generate new insights that continuously challenge previously held assumptions. The process is organic and relies on individuals who can methodically follow a process but can also jump

backward and forward as needed and engage a variety of tools and techniques as dictated by the current context.

Cultivate attitudes and mindsets. Individuals can cultivate curiosity and passion by reading, traveling, and exposing themselves to new experiences. The data indicate that curiosity was more free-floating and undirected toward any one topic. Interviewees seemed to digest a massive amount of information from a variety of sources, often completely unrelated to the business or industry in which they worked. In contrast, passion was usually more directed toward specific areas of interest they enjoyed and held a deeper interest.

Developing specific mindsets—including empathy, open-mindedness, and holistic thinking—is another way to foster more successful opportunity recognition. These mindsets are each related to one another in that they require different types of perspective-taking. People who listen, consider alternative points of view, and visualize the big picture are better able to navigate the active development phase of opportunity recognition. Furthermore, screening job candidates for attributes such as curiosity, passion, empathy, open-mindedness, and holistic thinking may also help the organization build more innovative teams.

Grow skillsets. There are multiple pathways for conceptualizing a new business concept. The individual's ability to navigate the pathway is strongly influenced by their ability to connect the dots across their collective experience and continuously reframe the problem or opportunity as new information is learned during active development. Most innovative breakthroughs require multiple “aha moments.” Rarely is the initial concept, typically conceived with a myopic focus on the product or service technology, refined enough to gain market acceptance or system integration. Investing in creativity trainings can increase one's cognitive skills in these areas and

help individuals unlock the core value embedded in the opportunity and ultimately drive a stronger competitive advantage.

Significance of the Study

This study is the first to develop a unified theory of opportunity recognition, effectively mapping out both cognitive and behavioral factors that lead an individual to discover a new business concept. Past models of opportunity recognition used case study analysis or theoretical propositions with too narrow a focus to generate substantive theory. Multiple systematic literature reviews point to the multiplicity, fragmentation, and poorly grounded theories of opportunity recognition and innovation as a process (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). The present study begins to address this void in the literature using a grounded theory approach, linking individual agency, entrepreneurial action, and the innovation process in one comprehensive model. Derived from the expertise of 27 serial entrepreneurs and intrapreneurs, this theory is significant because of its real-world relevance and applicability.

Leaders and consultants could use the opportunity recognition model to better visualize where the organization gets stuck in the recognition process and which factors present the greatest barriers to innovation in their context. In addition, individuals could use the results of this study to guide the development of programs and workshops to enhance the organization's capacity to spot new business opportunities. This study illuminates multiple areas that are key to unlocking new opportunities, including the individual or team's knowledge base, cognitive skillsets, attitudes, mindsets, and active development techniques. Central to the process is equipping the audience with thinking skills to navigate a variety of pathways into innovation and building up the organization's toolbox with a range of methods and approaches to innovation.

Similarly, this study informs entrepreneurship and innovation educators in what and how to go about teaching opportunity recognition. Specifically, a focus on cognitive skills such as connecting the dots and reframing the problem or opportunity are transferrable skills that can be taught to novice entrepreneurs and young students who can later draw upon these skills as they gain more industry experience. To compensate for the student's lack of industry and life experience, schools could encourage greater collaboration with professional advisors and avenues to grow the student's social network. This opportunity recognition theory also has the potential to inform teachers what combination of mindsets and attitudes should be cultivated through the curriculum. For example, approaches that encourage students to think through a variety of lenses—such as design, sales, and engineering—could foster more holistic thinking. Finally, in depth exposure to different markets and their needs along with practice applying a variety of tools have the potential to improve novice entrepreneurs' ability to recognize new business opportunities.

Finally, this study provides valuable insight into the process of opportunity recognition in today's business environment marked by advancements in technology, communication, and transportation. While the current environment does not change the fundamental process of opportunity recognition, it indicates that there are new tools that can increase the speed and efficiency of the conceptualization of new business opportunities. This study emphasizes the importance of leveraging new tools and forms of communication to connect with customers and other stakeholders to increase the rate of learning and therefore innovation, especially those solving complex and ambiguous problems.

While this study begins to fill a void in the literature on opportunity recognition and offers new insight to leaders, consultants, and educators, the research is exploratory in nature and

thus the findings in this theory must be tested through future studies to determine their true value. In addition, the theory and findings are not without risk and limitation.

Risk and Limitations

There were several risks, limitations, and delimitations associated with this study. Grounded theory is a qualitative method that is both an art and a science and requires careful consideration of all potential risks (Corbin & Strauss, 2015). Interviewee recall bias, researcher error and bias, theoretical sensitivity, ethical concerns, and serial entrepreneur or intrapreneur delimitation are each discussed in terms of their potential impact on the study findings.

One of the primary risks of the study is the potential for interviewee recall bias. The study relied on participants to recall early stages of their entrepreneurial journey, which are not usually well documented. Memories are fragile and the participants may have had a hard time generating an accurate account of the events and factors that served as triggers in the recognition of the business opportunity. Another factor that may have interfered with the accuracy of the participant responses is the fact that thriving entrepreneurs and innovators are accustomed to sharing their success stories with the press and other interested parties. To minimize this risk, the researcher conducted a pilot study to test the line of inquiry and research protocols that were intentionally crafted to address this risk. First, interviews were scheduled in large blocks of time to ensure the participant felt they had ample time to dig deep into their memory. Second, prompts were embedded in the introduction and welcome to the interview that directly pointed out the challenge of remembering the early stages of conceptualization and encouraged participants to take their time. Finally, questions and probes were developed to get members of the sample to think critically, such as “when and why did your attention begin to shift toward this idea and how did it begin to gain momentum?” and “tell me about your thought process as the idea was still

forming. How did the idea crystallize in your brain?” Members of the pilot study responded well to the line of inquiry and protocols, pausing and contemplating each question. At times, members even revised their comments in real time, acknowledging the complexity of their experience and surfacing novel thoughts they themselves had not processed until the interview.

Another potential risk of researcher error and its effect on theoretical sensitivity is of concern. In qualitative research, the researcher becomes the instrument (Patton, 1999). To minimize this potential risk, the researcher consulted a second reader to obtain input on the process, compare codes in an effort to reduce bias, refine the storyline of the data, and check for any breaks in logic. In addition, it is critical to understand what perspective and prior knowledge the researcher brings to the research topic and how it may bias the researcher’s interpretation of the data. To mitigate the potential bias and potential projection onto the data, the researcher maintained a journal documenting their personal feelings, impressions, and response to the data as prescribed by the Corbin and Strauss (2015) method. This practice of reflexivity through the memo process helped the researcher hold themselves accountable and maintain an open perspective (Creswell & Poth, 2018). Additionally, follow up interviews were conducted to create a feedback loop between the researcher and participants to improve accuracy of the emergent theory.

The sample is also a risk to the study findings. Using convenience, purposeful, and theoretical sampling, a total of 27 individuals participated in this study. Although criteria were carefully administered for participation, there was a gender bias. Of the 27 sample members, there were 26 men and one female. This is not surprising given the percentage of female, serial entrepreneurs in the United States. Across the adult population, 52% of women own a business, but only 19% of these women entrepreneurs have started two or more business ventures (Kelley

et al., 2020). Additionally, it is not clear what percentage of these businesses would be classified as innovative. This further categorization would likely decrease the number of female, serial entrepreneurs that fit the criteria for this study. In addition to gender bias, it should be noted that only 25 of the 27 interviewees participated in the follow up interview and one of the 25 participants provided feedback via email. Given the robust sample size, the point of data saturation, the high response rate, and strong agreement among the other 25 respondents, the two sample members who could not participate in second round interviews was not a concern.

Ethical issues can arise during any phase of the research, including prior to the start of the study (Creswell & Poth, 2018). Proper approval from the institution's internal review board was obtained to ensure the researcher considered all possible ethical concerns in the study design and took appropriate measures to safeguard the participants in this study. In addition, the researcher secured informed consent from each participant before proceeding. Finally, respect for the privacy of participants is vital in qualitative research. During the data collection and data analysis phase, the researcher assigned pseudonyms to the participants and removed all personal identifying information from the interview transcripts, corresponding memos, and findings.

The sample selected for this study is delimited to individuals responsible for at least two or more innovative revenue-generating projects. During the study, one modification to the sample criteria was made to allow for individuals who had launched a cost-cutting initiative to be included in the sample. Upon reexamination of the literature and consultation with the researcher's committee chair, it was agreed that both revenue-generation and cost-cutting were valid forms of measuring the success of an innovation and both enable a company to achieve a sustainable competitive advantage. In addition, innovations that reduce the cost of operations fit within the study's definition of innovation, which includes any value-added activities such as

new production methods and management systems. Subsequently, participants included founders of small startups as well as innovators in large companies who must have launched more than one idea. This purposefully excluded novice entrepreneurs and one-time innovators. Serial entrepreneurs or intrapreneurs possess more information-rich experiences to pull from and more fully developed cognitive frameworks. One study comparing novice (first-time) entrepreneurs to repeat (experienced) entrepreneurs found that “through their experience in founding new ventures, repeat entrepreneurs acquire cognitive frameworks (e.g., more fully developed prototypes) that are increasingly helpful to them in ‘connecting the dots’ between seemingly unrelated changes or events and in detecting meaningful patterns in these links” (Baron & Ensley, 2006, p. 1341). Limiting the sample to experienced entrepreneurs also increased the likelihood the individual had experience with both successful and failed ideas, thereby increasing the varied types of data and perspectives collected in the study. While the sample was limited to serial entrepreneurs and intrapreneurs, the researcher captured numerous accounts of the individual’s first business venture experience as well as subsequent businesses. Therefore, the study does have implications for novices as well as serial entrepreneurs though this was not the focus of the study, and conclusions regarding this population should be carefully considered.

Finally, another delimitation of the study was that the business opportunity be innovative in nature. The purpose of this study was to understand the complex process entrepreneurs undergo when creating new value in the marketplace, not imitative goods and services such as a hair salon or a restaurant. The literature defines a truly entrepreneurial opportunity as “the chance to introduce innovative (rather than imitative) goods, services, or processes to an industry or economic marketplace” (Gaglio, 2004, p. 534) and represents a type of breakthrough in

addressing a conceptual gap in the marketplace (Sarasvathy et al., 2003). Findings should not be generalized relative to types of businesses that are imitative in nature.

Recommendation for Future Research

Opportunity recognition is one of the most fundamental entrepreneurial behaviors (Dimov, 2007; Gabrielsson & Politis, 2012; Kirzner, 1997; Venkataraman, 1997) and yet remains one of the least understood phenomenon (Baregheh et al., 2009; Crossan & Apaydin, 2010; Mary George et al., 2016). This study is one of the first to develop a unified theory of opportunity recognition and link the individual, entrepreneurial action, and the innovation process. This work lays the foundation for future studies to delve deeper into the relationships and sub dimensions of the categories and concepts presented in this theory. There are certainly limitations to the findings relative to opportunity recognition in this study as well as discoveries, which call for further exploration. As such, recommendations for future research are as follows.

Model testing. The opportunity recognition process model depicted in Figure 9 is the first of its kind to map both cognitive and behavioral concepts and bridge the gap between multiple perspectives of opportunity recognition. Empirical research is needed to quantitatively test the category interrelationships and sub dimensions and their impact on successful opportunity recognition.

Variable relationships. Past literature suggests it is possible that strength in one variable may compensate for weakness in another variable. For example, individuals who possess a strong social network may not need to possess high levels of creativity to successfully recognize new business concepts. More research is needed to understand how the concepts in the present study affect one another, especially relative to industry experience. A comparison study between populations of young, novice entrepreneurs versus experienced, serial entrepreneurs could be

conducted to see how varying levels of industry experience, curiosity, passion, empathy, and open-mindedness affect the process.

Effects of industry experience. Sample members of this study cited highly specialized industry expertise as both an asset and a liability in the opportunity recognition process. In other words, the mental scripts an individual develops as a result of years of experience in a particular career or industry can help one detect unmet needs and solve problems, but it can also erode one's ability to generate new approaches and solutions. Future research could analyze if there are conditions and thresholds at which industry experience becomes a barrier to the opportunity recognition process.

The role of values. The role of values in the opportunity recognition process has been confined to social and sustainable entrepreneurship. The present study suggests values are important in commercial and for-profit entrepreneurship or intrapreneurship. Individuals in these sectors are not purely driven by economic profits, and much more could be learned about how individual beliefs and philosophies affect the discovery process as it relates not just to the product but to the target segment and revenue model.

Holistic thinking. Holistic thinking was a variable that resonated strongly among sample members, and yet this concept attracts little attention in the opportunity recognition and innovation literature. In an increasingly specialized world, individuals who can think more broadly and holistically may be underappreciated when it comes to spotting breakthrough innovations. Further research on this construct as it relates to opportunity recognition would be valuable.

Literature review of innovation methods and tools. One of the key skills in successfully recognizing new business opportunities, as noted by expert sample members in this

study, was navigating active development and selecting the appropriate mix of tools and techniques needed to gather insights on the market. Innovation tools abound, but many tools are merely repackaged for different audiences and purposes. A comprehensive literature review of the most prominent innovation methods and tools along with their unique attributes and applicability to type of problem, innovation, market, and so forth could be quite useful to practitioners.

Opportunity-seeking skill-building techniques. The innovation literature tends to focus on the process and tools over the person. It may be useful to develop training interventions or techniques specifically targeted at improving human cognitive skills such as “connecting the dots” and “reframing the problem/opportunity” to increase one’s alertness levels, especially as the individual’s reframing capabilities appear to be the bridge between one’s internal intuition and prior knowledge and one’s interaction with the external world during active development.

Operationalize the opportunity recognition model. Now that more is understood about the core components of the opportunity recognition process, the entrepreneurs and intrapreneurs in this study asked the following question: “How can I put this into practice in my organization? How do I train my employees to spot opportunities?” Educators and consultants could focus on curriculum development and training to build up individual and organizational capacity for opportunity identification and development. This study suggests a holistic approach that is organic and with equal focus on person and process.

Conclusion

A grounded theory study was conducted to establish a unified opportunity recognition theory derived from interviews with 27 experts for use in new ventures and established organizations. Despite the risks and limitations of this study, the findings in combination with

existing literature are significant. Future research is needed to validate and refine this opportunity recognition theory. In line with the spirit and meaning of the research, more “aha moments” are yet to come as the theory is put into practice. However, this study provides a rich foundation from which to develop the entrepreneurial individual’s opportunity-seeking thought processes and behaviors.

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Appendix A: Operational Definitions

The following terms are used throughout this study. Operational definitions are provided for each term to ensure a shared understanding of their meaning and to establish how they apply to this study.

Act of Insight: An “act of insight” is where an individual perceives a problem or develops a new configuration of thoughts (Ruttan, 1959, p. 600). An “act of insight” is a mental and social process whereby an insight is critically revised until a “new thing” emerges.

Alertness: Alertness refers to the individual’s ability to notice changes in the environment or to see overlooked possibilities (Kirzner, 1973). Alertness may also be called entrepreneurial awareness (EA), which is defined as “a propensity to notice and be sensitive to information about objects, incidents, and patterns of behavior in the environment, with special sensitivity to maker and user problems, unmet needs and interests, and novel combinations of resources” (Ray & Cardozo, 1996).

Coding: Coding is a form of data analysis in qualitative research. Three techniques for coding were used during this study—open, axial, and selective coding. Open coding looks for relationships within and across data sets and categorizes them. Axial coding elaborates on concepts found during the open coding phase and establishes links between emerging categories. Selective coding determines the core category of the phenomena, unifies the categories around it, and validates the relationships.

Corporate Entrepreneurship: “A set of activities, attitudes, and actions that are believed to help large companies regain some of this lost magic” (Thornberry, 2001, p. 526). Corporate entrepreneurship is often used synonymously with “intrapreneurship” (Pinchott, 1985).

Creation: In contrast to the *discovery* approach, a *creation* approach to opportunity recognition suggests that opportunities are subjective and do not exist independent of the entrepreneur who creates them (Baker & Nelson, 2005; Gartner, 1985; Sarasvathy, 2001). Opportunities do not emerge from preexisting industries or markets (Dosi, 1988; Etzioni, 1963) or from changes in the external environment (Baker & Nelson, 2005; Sarasvathy, 2001). Instead, they are constructed through an enactment process—a series of actions and reactions that guide the formation of an opportunity (Aldrich & Kenworthy, 1999).

Data Saturation: “The point in category development at which no new properties, dimensions, or relationships emerge during analysis” (Strauss & Corbin, 1998, p. 143). Saturation is reached when a strong fit between the abstraction and raw data is established and there is no break in logic.

Discovery: In contrast to a *creation* approach, a *discovery* approach to opportunity recognition states that the opportunity presupposes the economic actor who then perceives it as an opportunity; however, the opportunity cannot be enacted without the entrepreneur and has no meaning in the real world until it is acted upon (Sarasvathy et al., 2003; Shane & Venkataraman, 2000).

Entrepreneurial Opportunity: “The chance to introduce innovative (rather than imitative) goods, services, or processes to an industry or economic marketplace” (Gaglio, 2004, p. 534) and a type of breakthrough in addressing a conceptual gap in the marketplace (Sarasvathy et al., 2003). This term also describes opportunities that are “innovative in nature,” a sample criterion in this study.

Entrepreneurship: The study of why, when, and how opportunities to create future goods and services emerge and the process of discovery, evaluation, and exploitation (Venkataraman,

1997). It is worth noting that this study is primarily interested in this first stage of entrepreneurship—discovery, not evaluation or exploitation. However, findings reveal it is impossible to separate elements of evaluation and exploitation from the discovery process.

Grounded Theory: “A general methodology for developing theory that is grounded in data systematically gathered and organized” (Strauss & Corbin, 1994, p. 273). Grounded theory is a qualitative research method concerned with “theory-building,” or construction of knowledge (Corbin & Strauss, 2015) and is known for its explanatory power which shows the relationship between a set of complex concepts and for its practical application in the real world (Lynham, 2002).

Innovation: The “production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems” (Crossan & Apaydin, 2010, p. 1155).

Intrapreneurship: See corporate entrepreneurship. These terms are interchangeable.

Opportunity Recognition: In short, opportunity recognition is “recognition that results in a creation of viable new businesses” (Ardichvili & Cardozo, 2000, p. 105). A more comprehensive definition of opportunity recognition is as follows: “(1) sensing or perceiving market needs and/or underemployed resources, (2) recognizing or discovering a “fit” between particular market needs and specified resources, and (3) creating a new “fit” between heretofore separate needs and resources in the form of a business concept” (Ardichvili et al., 2003, p. 109).

Purposeful Sampling: The process used to “select information-rich cases strategically and purposefully” for a qualitative research study (Patton, 2002, p. 243).

Theoretical Sampling: “Finding manifestations of a theoretical construct of interest so as to elaborate and examine the construct and its variations” (Patton, 2002, p. 243). In other words, theoretical sampling expands as interviews, data collection, and analysis occur simultaneously, and the researcher becomes more sensitive to what data are needed next.

Uncertainty and Ambiguity in the Business Environment: Entrepreneurs today operate in conditions of increasing *uncertainty* and *ambiguity*. Advances in technology, increasing globalization and competition, growing customer sophistication, and the decentralization of communication and information has directly contributed to rapid environmental changes (Blank, 2013; Crossan & Apaydin, 2010; Matthyssens et al., 2006).

Appendix B: Opportunity Recognition Process Model

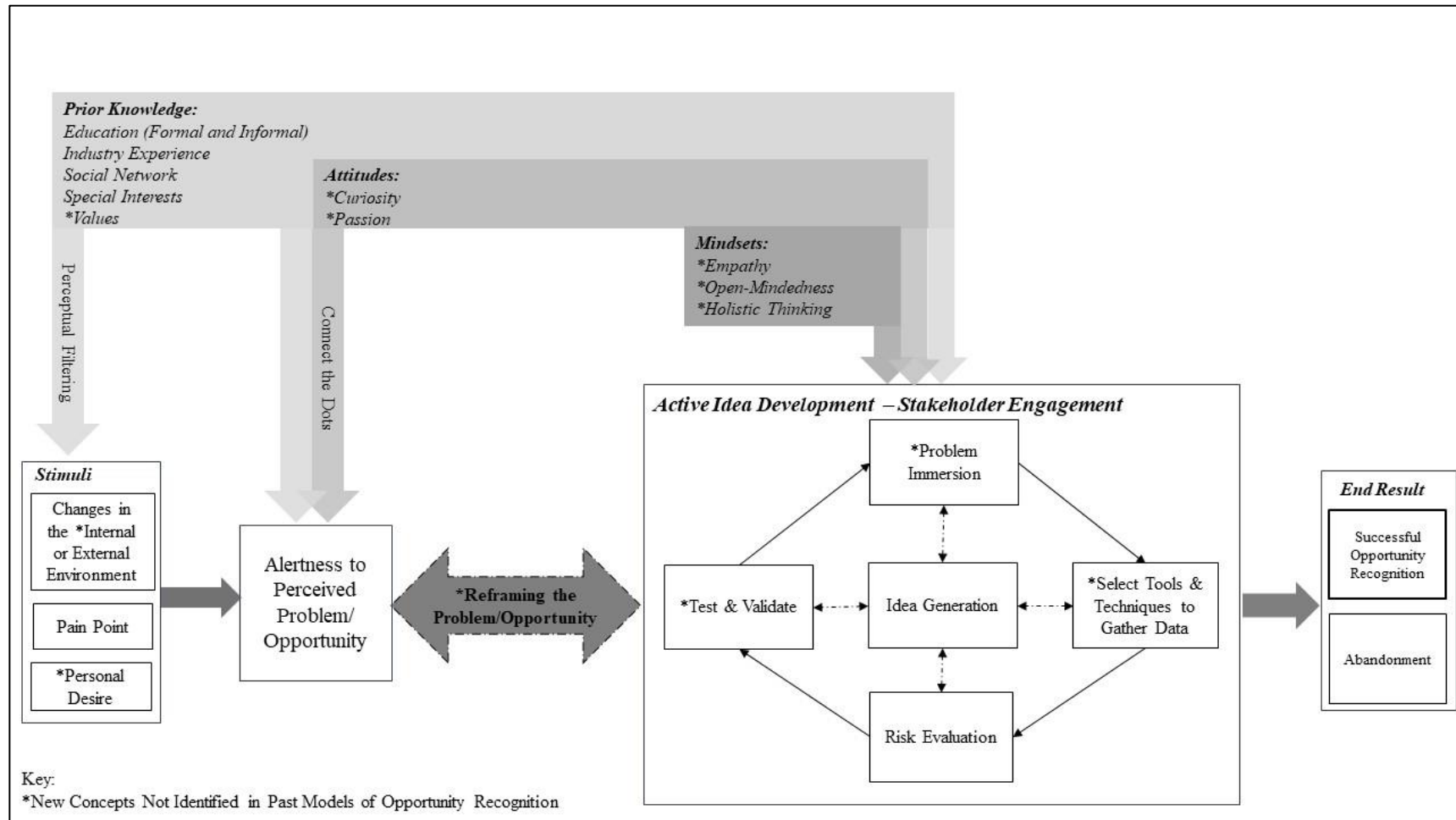


Figure 9. Opportunity recognition process model.

Appendix C: Opportunity Recognition Proposition Statements

Table 1: The Propositions Associated with Opportunity Recognition Theory

Proposition	
<i>Proposition 1:</i>	The process of opportunity recognition is triggered by one or more events or <i>stimuli</i> , which include a.) changes in the internal environment of an existing organization as well as changes in the external environment, b.) one or more pain points and/or c.) an individual's personal desire to be entrepreneurial.
<i>Proposition 2:</i>	An individual's <i>perceptual filter</i> is a cognitive function whereby the individual draws upon knowledge they already possess and uses it to select and evaluate what new information or stimuli is worth their attention.
<i>Proposition 3:</i>	The individual's <i>prior knowledge</i> is composed of formal and informal education, industry experience, social network, special interests, and values. The breadth and depth of the individual's knowledge base affects how they filter new stimuli, how they connect the dots between prior knowledge, stimuli, and the perceived opportunity and how they actively develop the idea.
<i>Proposition 4:</i>	<i>Alertness</i> is the cognitive function at the center of opportunity recognition, often referred to as the "aha moment" of discovery. If the incoming stimuli is perceived as valuable, this results in a heightened level of alertness as the individual connects the dots between the stimuli, their prior knowledge, and a potential opportunity.

Proposition 5: ***Connect the dots*** is pattern recognition used by an individual to connect seemingly unrelated events or stimuli in their current environment and their knowledge base to determine if there is a sizeable problem or opportunity and drive alertness to potential solutions.

Proposition 6: An individual's ability to connect the dots and see opportunities is influenced by the knowledge they possess and their ***attitude*** or mental and emotional disposition. Specifically, curiosity and passion are two important attitudes that influence one's alertness levels and engagement in active idea development.

Proposition 7: Once an individual becomes alert to an opportunity, and depending on their passion towards solving the problem, he or she will make a decision to invest more resources in developing the idea. In ***Active Idea Development***, the individual invests more resources in the idea and engages key stakeholders to better understand the potential of the opportunity and develop a solution to the perceived problem. The active idea development process is extremely fluid; the individual moves in and out of a loop containing the following phases: a.) problem immersion, b.) select tools and techniques to gather data, c.) risk evaluation, and d.) test and validate. At the center of the loop is the idea generation phase, which occurs both simultaneously with the other phases and as a separate step in the process through both formal and informal methods as the individual moves through each phase of the loop. The individual will most likely complete several

iterations of the active development cycle and reframing process before achieving successful opportunity recognition.

Proposition 7a: **Problem immersion** is the first phase in the active development process through which the individual engages themselves in the user's world to gain a deeper understanding of the user's problems and point of view. As the individual becomes more well versed in the problems and perspective of the end user, he or she may engage in more active idea generation or advance to gathering more data.

Proposition 7b: Subsequently, the individual **selects tools and techniques to gather data** to better understand the root problem/opportunity, validate the size of the opportunity, and generate solutions. The individual must decide what mix of tools or techniques are appropriate for the situation.

Proposition 7c: **Idea generation** occurs throughout the active development process but may take a more prominent role once sufficient data have been collected and the problem is well defined. During this step, the individual seeks inspiration from a variety of sources to generate ideas for a solution to the problem.

Proposition 7d: **Risk evaluation** is a key step in which the individual considers the parameters the entrepreneurial opportunity must fit within and evaluates the risks associated with various solutions. Significant barriers, real or perceived, are identified and often spark alternative ideas to avoid taking on excessive risk.

Proposition 7e: **Test and validate** involves testing and validating the solution against established success criteria through user feedback, prototyping, and even

post commercialization or deployment. Results from this phase either point toward changes to the idea/solution or the need to move through the iterative cycle again. Key insights from the active development process are bounced back to the alertness function through a reframing process.

Proposition 8: An individual's ability to actively develop the idea is influenced by their prior knowledge, attitudes, and mindsets. **Mindsets** refer to a person's assumptions, methods, or notions. Specifically, empathy, open-mindedness, and holistic thinking are three important mindsets that influence active idea development.

Proposition 9: **Reframing the problem/opportunity** is an ongoing process that occurs between the individual's alertness to the perceived problem/opportunity and the active idea development process. During the reframing process, the individual is able to suspend judgement, draw from different lenses, and generate new insights to better define the problem/opportunity. The individual gains a clear understanding of the "real opportunity" just below the surface by dispelling previously held assumptions and seeing the user's response to the idea in reality and at scale.

Proposition 10: After one or more iterations through the active development cycle and reframing process, the opportunity is evaluated in the test and validate phase and **results** in either successful opportunity recognition or abandonment. A strong problem-solution fit signals successful opportunity recognition. Weak to moderate problem-solution fit signals a need to repeat

the active idea development process. No problem-solution fit signals failure to recognize a viable opportunity and the idea should be abandoned.

Appendix D: Human Subject Research Review Application Form and Approval

****NOTE:** Review carefully the full text of the Human Subjects Research Committee Policies and Procedures.

Date submitted: 8/21/2020

Date received: _____

GEORGE FOX UNIVERSITY
Human Subjects Research Committee

PROTECTION OF HUMAN SUBJECTS INITIAL REVIEW QUESTIONNAIRE

[Note: Dissertation, or other formal research proposal, need not be submitted with this form. However, relevant section(s) may need to be attached in some cases, in addition to filling out this form completely, but only when it is not possible to answer these questions adequately in this format. Do not submit a proposal in lieu of filling out this form.]

Title of Proposed Research: Dissertation Research - A New Model of Opportunity Recognition

Principal Researcher(s): Eva Fast

Degree Program: Doctorate of Business Administration

Rank/Academic Standing: ABD

Other Responsible Parties (if a student, include faculty sponsor; list other involved parties and their role)

Dissertation Committee Chair - Tim Rahschulte

(Please include identifying information on page 6 also.)**

(1) Characteristics of Subjects (including age range, status, how obtained, etc.)

The research subjects, or participants, in this study will be 18 years or older. In addition participants must meet four criteria: 1) individuals must have successfully launched two or more ideas, 2.) the ideas must have launched within the past 10 years, 3.) the ideas must be innovative in nature, and 4.) the ideas must be revenue-generating.

The sample will be obtained through purposeful sampling, convenience sampling, and theoretical sampling methods. More specifically, the researcher will use contacts in her network in Northwest Arkansas at Fortune 100 and 500 companies as well as thriving entrepreneurs in the region. Then the researcher will ask participants in the initial sample for additional contacts in their respective networks who meet the sampling criteria. These individuals will be contacted through email. In addition, LinkedIn will be used to find additional participants.

(2) Describe Any Risks to the Subjects (physical, psychological, social, economic, or discomfort/ inconvenience):

The possible risks to subjects participating in this study are economic risks if the individual shares proprietary information regarding the innovation(s) and the company owner recognizes that information in a publication whereby the individual's employment may be at risk. The researcher will not report any data with potential to expose trade secrets and/or other proprietary information and will remove personally identifying information from the data findings. At the request of any member of the sample, anonymity and privacy will be provided by coding person, product, and company. Participants will be given the opportunity to review and approve their contributions to the study.

(3) Are the risks to subjects minimized (i) by using procedures that are consistent with sound research design and that do not unnecessarily expose subjects to risk, and (ii) whenever appropriate, by using procedures already being performed on the subjects for diagnostic or treatment purposes? ☒ Yes/☐ No

Degree of risk: 1 (low)

(4) Briefly describe the objectives, methods, and procedures used:

The researcher is conducting a grounded theory study. Specifically, the research aims to understand how individuals go about identifying new business opportunities. A grounded theory approach will generate critical factors and describe their relationship in the opportunity recognition process.

The primary data source will be interviews, either in person or via videoconference technology. Additional supporting artifacts may be requested from the participants. The researcher will use three types of sampling strategies - purposeful, convenience, and theoretical sampling. The initial sample will come from the researcher's personal contacts in the entrepreneurial ecosystem in Northwest Arkansas including Startup Junkie and several accelerator programs as well as large Fortune 100 and 500 companies. The researcher will use email and LinkedIn to communicate with participants. Prior to conducting the interview, the participant will be emailed a survey to an informed consent form requesting that he or she review the information about the study and check a box indicating whether or not they agree to participate in the study. A semi-structured interview design will be administered. A shorter, follow-up interview will be conducted some weeks later to obtain the participants' feedback on the researcher's emerging model. The researcher will show the interviewee a diagram of the proposed model with corresponding definitions of the model factors and ask the interviewee to appraise the model based on how well it depicts his or her experience of the phenomenon. Depending on if any changes are required, the researcher may need to conduct more than one follow-up interview to re-appraise the refined model. The interviewee will also be given the opportunity to revise and/or approve their contributions to the study if desired. Data will be analyzed using three phases of coding - open, axial, and selective as well as memo writing techniques. Temi will be used for transcription services, along with the assistance of a student worker employed by the University. Nvivo computer software will be used to assist with data analysis.

(5) Briefly describe any instruments used in the study (**attach a copy of each**).

A semi-structured interview questionnaire will be administered either in person or via video conference technology. The attached interview guide contains approximately 15 questions to be used during the interview. However, in accordance with grounded theory methodology, the original research questions will likely be slightly modified over the course of the research (Corbin & Strauss, 2015). Constant comparison and emerging theory techniques require the researcher to revise the questions in response to what is being learned and where the data is headed.

The researcher will conduct a pilot study with three sample participants. Upon completion, the researcher will determine if any substantial changes in research protocols and/or modifications to the questionnaire are warranted, especially those that could increase the economic risk to the participant. If so, the researcher will update the HSRC form with these changes and resubmit to the IRB for approval. The researcher will also update the informed consent form so participants have an accurate understanding of the present research situation. Throughout the study, minor adaptations to the line of questioning that do pose a risk, such as conversational probes, will simply be documented in the "memoing process" that is central to the grounded theory methodology with a detailed account of what and why these changes occurred.

(6) How does the research plan make adequate provision for monitoring the data collected so as to ensure the safety, privacy, and confidentiality of subjects?

The researcher will use personal accounts on Temi and Nvivo on a secure network that is password protected to ensure confidentiality. Only myself and the student research assistant will have access to the data. Pseudonyms will be used and personally identifying information will be removed when reporting the findings.

(7) Briefly describe the benefits that may be reasonably expected from the proposed study, both to the subject and to the advancement of scientific knowledge—are the risks to subjects reasonable in relation to anticipated benefits?

Potential benefits to the subject include good will in assisting the researcher with an important and culturally relevant topic. In addition, the researcher will offer participants access to the findings and possible presentation/report delivered to the organization's leadership. The researcher expects the emerging model and theory developed through this study will be of interest to aspiring entrepreneurs, serial entrepreneurs, and corporate innovation teams and assist these stakeholders in their pursuit of future business opportunities. The benefits to the advancement of scientific knowledge is a more robust and up-to-date model of opportunity recognition.

(8) Where some or all the subjects are likely to be vulnerable to coercion or undue influence (such as children, persons with acute or severe physical or mental illness, or persons who are economically or educationally disadvantaged), what appropriate additional safeguards are included in the study to protect the rights and welfare of these individuals?

N/A. However, in response to section (9) below: The researcher will obtain informed consent using the attached informed consent form. This form will be presented to the participant in a survey format, whereby the participant can review the information and choose whether or not to select a box indicating they agree to participate in the study.

(9) Does the research place participants “at risk?” ☒ Yes/☐ No If so, describe the procedures employed for obtaining **informed consent** (*in every case, attach copy of informed consent form; if none, explain*).

COMMITTEE REVIEW

For Committee Use Only

HSRC Member Signature	Recommend Approval	Conditional Approval	Not Recommended
Chair _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Member _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Member _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Member _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Member _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Member _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Member _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments (continue at the back, if necessary; use asterisk to identify):

Title: Dissertation Research - A New Model of Opportunity Recognition

Principal Researcher(s): Eva Fast

Date application completed: 8/21/20

(The researcher needs to complete the above information on this page)

COMMITTEE FINDING:

For Committee Use Only

☐ (1) The proposed research must be approved by the committee, safeguarding the health and dignity of the subjects and is therefore approved.

☐ (2) Due to the assessment of risk being questionable or being subject to change, the research must be periodically reviewed by the **HSRC** on a _____ basis throughout the course of the research or until otherwise notified. This requires resubmission of this form, with updated information, for each periodic review.

☐ (3) The proposed research evidences some unnecessary risk to participants and therefore must be revised to remedy the following specific area(s) on non-compliance:

☐ (4) The proposed research contains serious and potentially damaging risks to subjects and is therefore not approved.

Chair or designated member

Date

2201009

GEORGE FOX UNIVERSITY HSRC INITIAL REVIEW QUESTIONNAIRE

Page 7

Title: Dissertation Research - A New Model of Opportunity Recognition

Principal Researcher(s): Eva Fast

Date application completed: 8/21/20

(The researcher needs to complete the above information on this page)**COMMITTEE FINDING:**

For Committee Use Only

☒ (1) The proposed research makes adequate provision for safeguarding the health and dignity of the subjects and is therefore approved.

☐ (2) Due to the assessment of risk being questionable or being subject to change, the research must be periodically reviewed by the **HSRC** on a _____ basis throughout the course of the research or until otherwise notified. This requires resubmission of this form, with updated information, for each periodic review.

☐ (3) The proposed research evidences some unnecessary risk to participants and therefore must be revised to remedy the following specific area(s) on non-compliance:

☐ (4) The proposed research contains serious and potentially damaging risks to subjects and is therefore not approved.



Chair or designated member

9/4/2020

Date

Appendix E: Data Collection Materials

Email Invitation to Participant:

Hello [Insert participant name]:

[Insert personal greeting.]

I'm reaching out to ask if I could interview you for my doctoral research. I'm working on my dissertation and developing a new model of opportunity recognition—the term in the literature for sensing, perceiving, and creating new market opportunities. Given your experience [launching xyz company or innovation project], I thought you would be a good person to interview.

In short, I'm researching how individuals go about identifying new and innovative business ideas and I need to find interview participants who meet these four criteria:

1. Successfully launched two or more products/services/ideas
2. The ideas must have been innovative in nature
3. The ideas must have generated revenue
4. The ideas must have launched within the past 10 years

I will be sure to use your time efficiently. This type of research will require a couple of hours of your time over the next several months (at your convenience). I expect the first interview would take 1.5 hours and then a shorter, follow up interview to obtain feedback on the model as it emerges.

I know confidentiality may be a concern—I will not collect proprietary information during the interview and will remove all personal identifying information from the results.

Your participation will help me make a substantial contribution to a controversial area of the scholarly literature and establish a model of opportunity recognition that is relevant and valuable to industry leaders. I'd be happy to present my final results to you and/or your organization.

Please let me know if you are willing to participate. I will be happy to hop on a quick phone call to discuss questions/concerns that you may have before committing.

Thank you,

[Researcher's Name]

Email to Participant for Scheduling and Consent:

[Participant's Name]:

Great—thanks for your time and willingness to help me with my dissertation research.

Please select a time that's convenient for you through my Calendly link here. I blocked off Fridays on my calendar to conduct these interviews, but please let me know if that day of the week does not work for you. Once you select a date/time, you will receive a Zoom link for the meeting and an option to add it to your calendar.

Prior to the meeting, could you read this Informed Consent Form and indicate whether you agree to participate in this study by checking the box at the bottom and typing your name.

Thanks again. I look forward to our conversation.

[Researcher's Name]

Interview Introductory Script:

Thank you for agreeing to talk with me today. As I mentioned, I'm doing research on opportunity recognition for my dissertation. What this really means is that I'm trying to understand how you came up with the idea for the products, services, or projects you've launched. It may have been a while since you have thought back to those early stages of the ideation process. I'm hoping we can take our time to dig back and understand the whole story and process of what led you to that idea. The goal is to have a candid conversation, maybe the less glamorous version than what you may pitch to investors or the media when you're retelling your success stories.

I want to take a minute and assure you that your responses today are confidential. I will ensure your name and identity are protected by assigning a pseudonym to you and removing any personally identifiable information you share with me in my data analysis. Do you have any questions about confidentiality?

In addition, is it ok with you if I record our conversation today? This is just so I can focus on listening rather than trying to write down every word you say.

Alright, let's get started. To begin with, I have a few short, rapid-fire questions before we get into the really interesting stuff.