

Information and the Pursuit of Entrepreneurial Opportunities

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Abstract

Information is a critical resource in entrepreneurship and the discovery of new opportunities, venture development and growth. Information research typically assumes that the more information gathered and processed the better and that elements of information, the contextual backdrop associated with information gathering, and factors influencing the search for information are important. This paper questions the applicability of traditional assumptions of information search for the entrepreneur context and presents a model of the behaviors associated with the search for information within the entrepreneurial process.

Keywords: Entrepreneurship, Opportunity, Search

Introduction

Entrepreneurship is about the development of new ideas and the building of those ideas into thriving businesses. At the core of this process is information (Cooper, Folta, & Woo, 1995). In the quest to understand and explain the opportunity discovery process, Kirzner (1973) noted the centrality of information for entrepreneurs. Information has been studied from multiple perspectives including the comparison of information to knowledge (Vaghely & Julien, 2010), how information is processed (Gaglio & Katz), the differences in types of information (Gilad, Kaish, & Ronen, 1988), the role of information in decision making by managers as well as entrepreneurs (Busenitz & Barney, 1996) as well as the role of past experience in finding new information (Cooper, Folta, & Woo, 1995; Kaish & Gilad, 1991). Such studies have contributed to our understanding and importance of information in management research.

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Entrepreneurship research continues to probe and expand our understanding of information within the entrepreneurial process. Kirzner and others have examined the importance of information in the opportunity discovery process, the challenges of information asymmetry in acquiring resources, and the need to gather information to effectively exploit an opportunity. Recent works have examined the factors that influence effective information search such as experience (Cooper, Folta, & Woo, 1995), the ability to learn (Gaglio, 1995), the levels and types of human capital of entrepreneurs (Ucbasaran, Westhead, & Wright, 2001).

Research is also examining the role information search as a part of alertness (Kirzner, 1973; 1999; Tang, Kacmar, & Busenitz, forthcoming) and the importance of information search within entrepreneurship (Fiet, 1996; 2002). This research is starting to uncover the nature of information searches conducted by decision makers. More specifically, we are starting to understand how entrepreneurs engage in information search in the pursuit of new opportunities. The question that this paper asks is "How do entrepreneurs engage in meaningful information searches? In answering earlier calls (Low & MacMillan, 1988; Ucbasaran, Westhead, and Wright, 2001), the purpose of this paper is to explain the process of entrepreneurial search rather than just describe the phenomenon (Ucbasaran, Westhead, & Wright, 2001). In so doing, we develop a model of how entrepreneurs search for information during the entrepreneurial process.

In advancing our understanding of the how entrepreneurs search for information, this paper makes the following contributions. First of all is an initial depiction of the behavior or actions associated with information search. This will build on the work of Busenitz and Barney (1996) and understanding the unique use of heuristics in decision making as well as the work by Tang, Kacmar, and Busenitz (forthcoming) discussing the importance of information search as a key element of alertness. In these works, the search for information is discussed using a cognitive perspective. This paper will expand these studies through an examination of the behaviors associated with heuristics and alertness in an entrepreneur's search for information.

Second, this paper develops the new construct of "dynamic search" within the entrepreneurial process. Recent focus on better understanding various capabilities within entrepreneurship suggests a continued need to delineate what entrepreneurial capabilities are and how they operate.

This construct adds to the entrepreneurial capabilities perspective through the development of the dynamic search construct. Such development is also likely to contribute to the overall information search and processing literature to expand understanding of how information is gathered under specific conditions mirroring those described herein as entrepreneurial.

This paper will proceed as follows: first will be a review of existing understanding of information and information search within entrepreneurship. This will be followed by the development of the dynamic search construct as well as a model of dynamic versus traditional information search. The final portion of this paper will discuss the implications of this model and address potential areas for future research.

Information and Entrepreneurs

As entrepreneurs engage in the process of finding new opportunities and converting those opportunities into new businesses, the role of information is clearly an important contributor. Kirzner (1973, 1999) highlighted this point in his presentation of alertness as a key to entrepreneurial activity. Others have since built on Kirzner's work and have continued to outline the importance of information (Gaglio, 1997; Woo, Folta, & Cooper, 1992; Low & MacMillan, 1988; Westhead, Ucbasaran, & Wright, 2009). Information has been found to affect governance and agency issues (Eisenhardt, 1988), decision making (Busenitz & Barney, 1997), innovation (Leiponen & Helfat, 2010), resource allocation and bundling (Alvarez & Busenitz, 2001), and many other facets of business. However, the traditional assumptions of information and how information is gathered is not sufficient for understanding how entrepreneurs search for information.

Research on information search has tended to focus on concepts such as bounded rationality, experience, problematic needs, human capital, and learning. More specifically, bounded rationality addresses the limits of an individual based on the current level of knowledge or understanding (Simon 1957, 1991). The search for information is therefore limited or bounded by an individual's knowledge base. The bounded rationality assumption is often at the base of much of this discuss and considered to be an influential factor in how and what type of information might be gathered.

The role of experience as a part of the information search has been found to be linked to the levels of search as well as the simplicity of the decision models used to decipher the information. For example, entrepreneurs with experience will be more likely to engage in a wider array of information search using fairly simple models to decipher the information that is gathered (Cooper, Folta, & Woo, 1995; Woo, Folta, & Cooper, 1992). The search for information is also often associated with the rise of problems that need to be solved. Problems lead individuals to search for information necessary to solve the problem (Cyert & March, 1963).

Human capital levels have also been studied in relation to information. For example differences in general versus specific human capital levels will impact the amount of search and type of information retrieved (Ucbasaran, Westhead, & Wright, 2009). An additional concept influencing information search is the role of learning. It is proposed that the ability to learn from various circumstances will influence the need or ability to gather information related to the new learning outcomes (Gaglio, 1997). Each of these streams of research deals with the importance of information, the need to engage in information search, and factors that influence the process of information search as well as the depth or breadth of information gathered.

Information Search

Research on information search has been approached from a variety of perspectives. This work often lays out a process for planning and engaging in searches that enable one to gather as much information as possible, evaluate it objectively, and then use it to make decisions such as the models presented in the marketing or information sciences domains (Kuhlthau, 1994; Schmidt & Spreng, 1996). These models provide an outline for solving a clearly identified problem with a known outcome such as the purchase of a product or the location of a specifically identified resource.

Another perspective that is gaining momentum is the search for information grounded in social capital research. The use of social networks has been identified as a framework within which an individual can engage in myriad search efforts. Granovetter (1973) discussed the structural components of social networks and the benefits and limitations of each. To be able gain a favorable network position as well as navigate effectively through one's network allows access to greater depth and breadth of information.

Inherent in the traditional discussions of information is an assumption that the ability to find and process more information in a shorter amount of time is the ultimate goal. However, within the entrepreneurship domain, it is clear that such assumptions do not hold, and in fact may be counterproductive to the entrepreneurial process (Busenitz & Barney, 1997). The dilemma for entrepreneurs is that in today's business world, there is virtually no limit to the type and amount of information available. Under the assumptions of traditional information search perspectives, this can appear to be a benefit with the main challenge being how to get through more information faster. The reality is that there are huge amounts of information available, and at least access to that data seems to be growing by the day. However, information must be navigated, filtered, and judgments made in moving towards a decision. In the case of evaluating entrepreneurial opportunities and whether or not to move a new venture opportunity forward, the challenge is usually much greater as limited amounts of historical and specific information tend to be available.

The resource-based view of the firm provides the basis for the challenge of entrepreneurs in their search for information. It is not finding and sorting through more information, but accessing the right information able to be considered an important resource for the new venture. The effective search for the right information can be a resource that can prove to be an advantage in a competitive marketplace, especially when trying to evaluate and pursue new venture opportunities (Alvarez & Busenitz, 2001). In order for it to be a source of value creation at any stage of the entrepreneurial process, at least some of the information must be heterogeneous and be imperfectly mobile (Barney, 1991). The challenge is determining how to efficiently gather, from all the available information, only the information that is needed to effectively move an opportunity forward towards new venture creation and beyond. How do entrepreneurs deliberately gather information and constructively move the process forward in the context of the mountains of data available. The ability to acquire viable information can become a skill or resource that differentiates between intention and action within entrepreneurship.

Alertness and Search

Within entrepreneurship, and especially in the early stages of the entrepreneurial process, there is a growing interest in understanding how new opportunities are identified and what leads some individuals to pursue these idiosyncratic opportunities (Shane & Venkataraman, 2000).

A central component to this question evolves from the early work of Schumpeter, Kirzner and others who describe the process of opportunity discovery as an outcome of an individual's level of alertness. Alertness is defined by Kirzner (1979) as one's ability to identify market gaps or opportunities that are overlooked by others in the market. Alertness may involve a state-of-mind (Kirzner, 1973), but it can also involve deliberate scanning to increase alertness (Fiet, 1996; 2002). More recently, Tang, Kacmar, and Busenitz further extend the boundaries of alertness and the focus on the role of information search. They develop three complementary dimensions of alertness: scanning and searching for new information, connecting previously-disparate information, and evaluating whether the new information represents an opportunity (Tang, Kacmar, & Busenitz, forthcoming). This emphasizes the importance of finding information and creating the need to understand how this process takes place within entrepreneurship. In this perspective, entrepreneurs, and especially experienced entrepreneurs, are able to move from general environmental scanning to a focused search for information that may inform future efforts of the entrepreneur (Fiet, 2002, p.139).

The search for information by entrepreneurs has a unique context differing from the search conditions for managers in corporation (Busenitz & Barney, 1997). The uniqueness of the context centers around either the presence or lack of access to historical trends, past performance, historical events, or knowledge of what a solution will entail once identified. In entrepreneurship often times these knowledge bases are not available creating a unique environment in which to solve problems, acquire resources, and make decisions. Therefore, the need to enact different approaches for acquiring information becomes increasingly important. An entrepreneur must face new questions and challenges associated with his or her new venture and are able to navigate the enormous amounts of information available to be able to get to the right information. Entrepreneurs do not necessarily rely on current contacts, traditional sources, or known outcomes when acquiring information. Therefore, it is necessary to examine different behaviors and actions they tend to take for finding information.

Dynamic Search

Research on the search for information by entrepreneurs has started to shed light on the factors that influence the process. Information is understood to be an important part of the process (Kirzner, 1979).

More specifically, differences in potential quality of the search based on experience or background (Cooper, Folta, & Woo, 1995), as well as the differences in the use of heuristics between the way entrepreneurs find and process information in decision making versus approaches used by managers in established corporations (Busenitz & Barney, 1997). This work has started to specify how entrepreneurs find and use information and have contributed to our understanding of the role of information in the entrepreneurial process. In doing so, the current research has created the opportunity to now explore how entrepreneurs conduct their searches for information.

To provide contextual understanding of this problem, consider for a moment conducting research and gathering information 25 years ago. Think about the process and the level of efficiency (or lack of) inherent in that process. The process required fact gathering through sources available within the confines of one's circumstances which may have included encyclopedias, newspapers or other available media sources, and acquaintances usually resulting in a timely and often linear process for developing new knowledge bases. Now imagine sitting down and engaging in a similar search using the technology of today. What are the differences and how does it all work today? Upon typing the desired word or phrase into the search engine, the process of search, sort, and organization begins and ends within a fraction of a second, which yields results that extend far beyond what hours or even days produced in the past.

The "magic" of this focused search lies in the search engine's spider process (Sherman & Price, 2001). Once the search is entered, one or more spiders begin the process of identifying every piece of potentially relevant information on the web that contains the desired words in any part of the text of all possible web documents. There is a complex "spider web" of data from a vast number of information networks that is searched, sorted, and prioritized by potential fit. At that point, the "matching" information is extracted and presented for use. This process is a complex procedure which enables a user to move through thousands of pieces of information per second efficiently yielding the results that then allow the user to move their research to the next level or, if appropriate, to make decisions on potential next steps. The search picks information from a variety of sources so that the right information can be chosen and used by the researcher.

At first glance this may appear as though the goal is more information, but in reality for the researcher, it is about finding only useful information amidst the vast quantities of available information. This example illustrates how the image of an internet search engine is similar to the ways in which entrepreneurs use heuristics and experience to assess identify and gain access to potentially valuable new information needed for their venture.

Once a need for information is present, entrepreneurs immediately send out their "spiders" to cross the web of information available to be able to pick out what they need, from any available source or network. They then move on the next piece of needed information, which I present as the concept of dynamic search. I suggest that the concept of dynamic search involves a dynamic webbing process, similar to the internet search engine spiders, where the entrepreneur is able to identify several different networks or environments rather than only the available resources within their own networks, and then enter as needed to capture a piece of information and exit without disrupting the ties that exist within that network. The use of dynamic search is the ability of the entrepreneur to move outside of his or her own environment as a way to quickly access multiple sources of information.

The entrepreneur then penetrates the network or environment containing needed pieces of information, and exits without necessarily forming traditional ties, bridging networks, or disrupting the equilibrium of the relationships in existing networks. Entrepreneurs need information only at the time it is useful and therefore need to be able to be dynamic in their approach to locating and gathering that information instead of solely establishing permanent contacts or ties and storing information that is not currently needed which is a timely, endeavor. Dynamic search is different from traditional models of search in that the context for the search lacks historical foundation and the process is not necessarily bound by a known desired end result.

In traditional search, managers have the ability in many cases to draw upon the past experiences or performance either of themselves or of others to determine a model for engaging in the search for what is deemed to be the right information, as well as the infrastructure and resources necessary to engage in in-depth searches for information to accomplish their set purposes (Busenitz & Barney, 1997). Traditional search incorporates traditional assumptions of information search, namely creating processes for gathering as much information as possible on a given topic or subject.

On the other hand, entrepreneurs find themselves in a situation where they are not able to draw on historical trends, past performance indicators, and in some cases very little market specific information (Miller & Friesen, 1984). The entrepreneur must engage in a different method for acquiring information. This process is valuable when history, past performance, trends or other baseline data is not available to use as a reference point and when efficiency is an important element. This leads to the following propositions:

Proposition 1: Entrepreneurs will use dynamic search to identify and access new information under conditions where historical trends, past performance or events are unavailable or of little use.

Heuristics and Dynamic Search

The use of heuristics by entrepreneurs to engage in the decision making process is a well-researched and accepted concept (Busenitz & Barney, 1997). Drawing on the ideas that entrepreneurs are faced with unique challenges in finding new opportunities and bringing them to market, the use of heuristics facilitates the gathering and processing of information to make decisions in a context lacking baseline data or experience. In their work, Busenitz and Barney address two heuristics, overconfidence and representativeness. They show that entrepreneurs have higher levels of overconfidence and representativeness than do managers in established organizations and the importance those heuristics play in the entrepreneurial process. Building on this notion of the differences between entrepreneurs and managers, we extend this concept to the search for information and the role that heuristics play in the ability of an entrepreneur to engage in dynamic search.

The use of heuristics by an entrepreneur is manifest in various manners. Heuristics help explain how entrepreneurs are able to make decisions, enter new markets; engage in "risky" behavior, and many other behaviors. The ability to use pieces of information gathered from disparate sources and piece them together to move a venture forward allows an individual to short cut the need to find all and evaluate all available information on a given topic. In the same vein, the ability to operate without base rate information to use as a guide allows entrepreneurs to avoid over analysis and to engage in processes like dynamic search. It follows that the use of heuristics will be highly correlated with the willingness of an entrepreneur to engage in dynamic search.

Proposition 2: The ability of an entrepreneur to engage in dynamic search will be positively related to the focal entrepreneur's use of heuristics in the processing of information.

Experience

One of the aspects of an entrepreneur that may impact the frequency of the use of heuristics in the search for information is experience. Some may argue that the use of heuristics in information search or decision making is simply a form of the use of limited capacity models because they do not know exactly what they are doing (Lord & Maher, 1990). However, Lord and Maher also denote the differences between novices and experts in whether or not limited capacity models are used or some form of higher order model such as heuristics.

Traditional views on information gathering would suggest that the greater the level of experience, the deeper and more expansive the search for information might be and the less experienced the individual the less extensive the search for information. Research by Cooper, Folta, and Woo (1995) found interesting results in testing this relationship. Entrepreneurs with less entrepreneurial experience engaged in higher detailed and more extensive levels of information search and entrepreneurs with higher levels of entrepreneurial experience sought less information. This would suggest that experience leads to apparent "short cuts" for entrepreneurs allowing them to use heuristics to find the right information. Conversely, the lack of experience by an individual entrepreneur may hamper the frequency of the use of heuristics in the search for information resulting in the need to be more sequential in the search process finding as much information as possible and building on information one step at a time. Following this logic, the following is proposed:

Proposition 3: The level of entrepreneurial experience will be positively related to the use of dynamic search by entrepreneurs.

Extending the logic of propositions two and three above, the relationship between experience and entrepreneurial experience should be considered. As shown by Busenitz and Barney (1997) there is a difference in the use of heuristics between managers in large corporations and entrepreneurs. The resulting difference manifests itself in the extensiveness of the decision making process use by both groups.

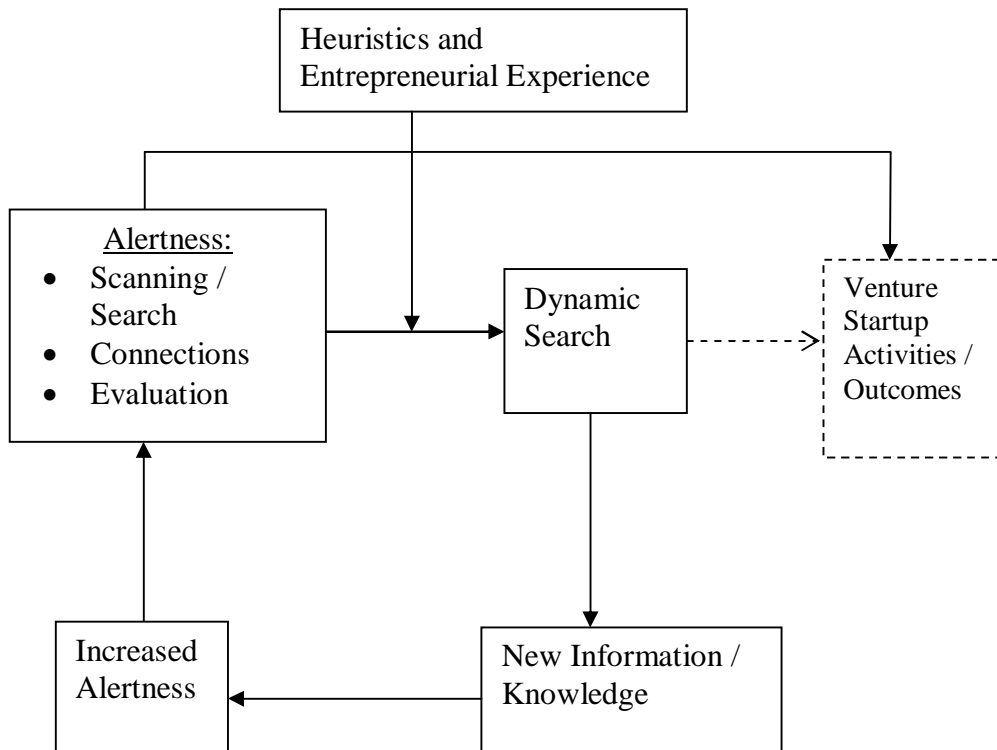
At the same time, experience as discussed by Cooper, Folta, and Woo (1995) impacts the speed and depth of the search for information by individuals. Where Smith, Grimm, Gannon, and Chen (1991) found the domain experience levels of managers resulted in deeper and richer information searches, Cooper et al., found that entrepreneurial experience led to quicker less extensive searches. Therefore, the difference in the type of experience of an entrepreneur is an important distinction to make: domain experience in a corporate managerial setting does not equal entrepreneurial experience as it relates to the impact of experience on information search.

Proposition 4: High levels of recent corporate managerial experience by an entrepreneur will be negatively related to the use of dynamic search during the entrepreneurial process.

Increased Alertness

Previously, we discussed the emergence of the concept of alertness within the entrepreneurial opportunity discovery process. In the Kirzner view of entrepreneurship, alertness is the mechanism employed by entrepreneurs that allows them to discover new opportunities. In this quest for new opportunities and the role of alertness in this process, it is argued that knowledge is the lever that allows for increased alertness and thus the increased ability to find new opportunities (Gimeno, Folta, Cooper, & Woo, 1997; Tang, Kacmar, & Busenitz, forthcoming). Knowledge is defined as “information combined with experience, context, interpretation, and reflection. It is a high-value form of information that can readily be applied to decision making and action (Vaghely & Julien, 2010, p. 74)”

Alertness as developed by Tang et al. (forthcoming) involves searching for information. Entrepreneurs with entrepreneurial experience and comfort with the use of heuristics will engage in effective information search using the dynamic search process. This combination of finding information, using heuristics and experience to interpret it and develop new knowledge is the lever that increases alertness. Thus the model proposed by Tang et al., depicting entrepreneurial alertness can be augmented by adding the cycle nature of dynamic search as a result of alert scanning and search which when combined with heuristics and entrepreneurial experience will yield new knowledge and thus increased alertness. This relationship is displayed in figure 1 below.



This figure shows the integrated relationship between alertness and entrepreneurial information search and the critical role information and how information is gathered plays in the entrepreneurial process. As Tang et al., find, when an entrepreneur has increased experience, they will move from general environmental scanning to focused search. Following the logic presented in this paper, entrepreneurial experience will increase heuristic use and thus increase the ability and willingness to engage in a dynamic search process. The more experienced the entrepreneur, the more dynamic search will be used, the more knowledge will be created, and the more alert the entrepreneur becomes. In this light, the following is proposed:

Proposition 5: The use of dynamic information search will lead to increased alertness by entrepreneurs which will in turn lead to increased use of dynamic search.

Discussion and Conclusion

The role of information in the entrepreneurial process is a critical element impacting the overall success of the entrepreneur's efforts (Galio & Katz, 2001; Fiet, 1996; Kaish & Gilad, 1991).

Traditional research perspectives on information are often built on the assumption that more information is better and that individuals need to develop processes to get to more information quicker. Although this assumption holds for many different contexts, including large corporations, it does not necessarily hold true for entrepreneurship. Within the entrepreneurial process the more information an entrepreneur gathers, the more possible it is to become paralyzed through analysis, and the more likely the entrepreneurial process may stall or stop completely (Busenitz & Barney, 1997). Current research on information within entrepreneurship has helped clarify our understanding of the importance of information for entrepreneurs as well as the factors such as experience impact the amount or levels of information gathered during a search process. Research has stopped short of explaining how entrepreneurs search for information in a way that supports our understanding of the unique environments in which entrepreneurs must operate.

This paper has addressed this opportunity to explain how entrepreneurs search for information through presenting the concept of dynamic search and how it fits into accepted models of alertness. In so doing, several contributions have been made as well as future opportunities for additional research exposed. The first contribution is a needed response to Low and MacMillan's (1988) call to provide research that explains the process of entrepreneurial search rather than just describe the phenomenon. Entrepreneurs operate in environments often devoid of baseline knowledge and previous history upon which to draw.

Busenitz and Barney (1997) discussed this challenge and the use of heuristics by entrepreneurs as a mechanism for overcoming this deficit of information. This paper extends their work and moves beyond the cognitive perspective to explore how heuristics impact an entrepreneur's search for information. This paper presents a model of the behaviors manifest in the entrepreneurial search for information. The purpose of this paper has been to explore how individuals engage in entrepreneurial information search helping to explain the how behind an entrepreneur's search, moving beyond showing the accepted importance of information in the entrepreneurial process. In this light, we expand the recent work of Tang et al., in further developing their proposed model of alertness and the cyclical relationship between dynamic search and alertness. A second key contribution is the development of the construct dynamic search. The assumptions of tradition information theories do not apply to many contexts within the entrepreneurial process.

For an entrepreneur, it is not a question of accessing more information but a question of accessing the right information. In many cases current networks or resources cannot provide the right information and so an entrepreneur will move beyond tradition search means and use a more dynamic approach to searching for information.

An additional contribution is the extension of this work back to the overall information literature. By delineating boundary conditions for search due to the differences between an entrepreneur's search for information and someone in a more developed environment additional clarity is created for the overall understanding of information. The concepts in this paper may be able to be applied to other environments which mirror the entrepreneurial environment where there is a lack of structure, baseline knowledge, or understanding of what a solution may entail.

The concepts explored in this paper also offer additional areas of future research opportunities. First of all the need to test the proposed relationships is a need that will further contribute to our understanding of information within entrepreneurship. The ability to test these relationships will not only add to the concepts in this paper, but will also contribute to the work on alertness, heuristics, and experience overall. An additional opportunity for future research is to apply the concept of dynamic search to areas with entrepreneurship beyond information gathering. It is plausible that dynamic search may help explain how entrepreneurs acquire resources, hire employees, and continue innovation as part of maintaining an entrepreneurial culture. In sum, the contribution of this paper is not only to help explain how entrepreneurs search for the right information, but to open additional avenues for exploring the crux of entrepreneurship and opportunity discovery and exploitation (Shane & Venkataraman, 2000).

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