

Varieties of Bricolage and the Process of Entrepreneurship

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We offer a theoretical account of how two types of bricolage influence the entrepreneurial process. The first type involves social relationships or physical or functional assets, and thus pertains to an entrepreneur's external resources used in the instantiation of operations of a new venture. The second type pertains to an entrepreneur's internal resources—experiences, credentials, knowledge, and certifications—which the entrepreneur appropriates, assembles, modifies and deploys in the presentation of a narrative about the entrepreneurial process. We argue that both types of bricolage are essential to the success of a venturing attempt.

Keywords: internal bricolage; external bricolage; entrepreneurial process; entrepreneurial opportunity; prior knowledge

Bricolage is a concept first considered by French anthropologist Claude Levi-Strauss (1967) as a part of his exploration of the nature of sensemaking in some societies. This notion has been extended into many other disciplines. Briefly, it is a propensity to rely on resources at hand in accomplishing critical tasks and/or in accomplishing goals (c.f. Duymedjian and Rüling, 2010 for a recent review). We argue here that entrepreneurship is enabled through a variety of types of entrepreneurial bricolage (Baker & Aldrich, 2000), which we hereafter referred to only as “bricolage.” Bricolage is fundamentally important to venturing because venturing is a process of adaptive design (Sarasvathy, Dew, Read and Wiltbank, 2008). Bricolage enables the adaptive design process by making solutions to problems more achievable, by making critical resources more obtainable and by reducing costs. We contribute to efforts to identify further the various forms of bricolage used by entrepreneurs, the strategies by which those forms are employed, the mechanisms through which they are expressed and the ways in which these change during various stages of the entrepreneurial process. We argue that if aspiring entrepreneurs can be given a concisely delineated conceptual framework that identifies methods and approaches for navigating the entrepreneurial process productively, these individuals may have a greater chance of success.

The main purpose of this paper is to address the following research question: *How does bricolage influence the process of entrepreneurship?* We theorize that bricolage makes entrepreneurship viable by providing individuals with the means to progress through the entrepreneurial process. Entrepreneurs utilize the techniques of bricolage to leverage internal and external resources to parse, to re-conceptualize, to appropriate and to assemble resources and to rework and to present narratives about the entrepreneur, venture and/or the process in such a way as to solicit further contributions of resources that can sustain and/or advance the venture. The contributions of such a scheme consist of establishing the importance of bricolage in the entrepreneurial process, incorporating an understanding of the mechanisms and methods by which bricolage is expressed and showing the value of making a contrast between internal and external bricolage to scholars of entrepreneurship.

In reviewing the literature on bricolage, Baker and Nelson (2005) characterize bricolage as a concept having three core elements: making due with what's at hand, taking on diverse or novel tasks, and accumulating and using diverse skills and resources. Baker and Nelson (2005) dealt particularly with conditions of extreme environmental constraint and argued that bricolage enables entrepreneurial activity under conditions where the startup, growth or survival of a venture (and, by implication, the entrepreneur) might not otherwise be possible. Similarly, DiDomenico, Haugh and Tracey (2010) characterize bricolage as making do with available resources, a refusal to be constrained by limitations, and improvisation. These descriptions are not inconsistent with the work of Sarasvathy (2001, 2008) who argues that successful entrepreneurs more skillfully or completely exploit established social relationships, existing knowledge, and claimable identities to reduce the risk of investment loss in a new venture. Sarasvathy examines closely the mental processes of entrepreneurs, and then makes a strong case for using this information to derive theory that elucidates effective practice. The author coins the word *effectuation* to describe the propensity of successful entrepreneurs to rely on controllable resources as a means of limiting the risk of loss of investments in a venture. We argue that one important component of her theory is that successful entrepreneurs make do with

controllable resources at hand, which can be seen as a form of bricolage.

We posit that bricolage takes two distinct forms—internal and external—which serve different functions in the entrepreneurial process under different conditions and at different times. Internal bricolage employs as constituent components the often idiosyncratic predicates associated with specific individuals—life and work experiences, professional and academic certifications, idiosyncratic mental endowments, etc., which constitute unique bundles of resources that can be claimed as a basis for the legitimacy of the entrepreneur to control other resources and to guide the venture through the uncertainties and risks of venture development. Gabriel, Gray and Goregaokar (2010) identify related activity among managers and professionals who become unemployed late in their careers and who must revise, recombine, and redeploy narratives about previous employment experiences in the service of obtaining new positions. This activity is akin to the sense from which the notion of bricolage emerged—as a means for assembling from the typical experiences common to the members of a social group (like a society) the specific stories that provide guidance and a sensemaking framework for the members of that group (Levi-Strauss, 1967).

External bricolage, on the other hand, employs the pool of potential resources available to an entrepreneur in his or her external environment. These resources can be social—comprising a portion or the entirety of the web of social relations in which the entrepreneur is embedded (Baker, Miner & Eesley, 2003). They can also be physical—comprising the collection of tangible inputs like machines, materials, parts, land, by products, waste, etc. We place financial resources in this realm, but note that they have a rather unique character of being relatively easily transformed into other resources. We argue that external bricolage is closer in character to the example of bricolage evoked by Levi-Strauss (1967, 1970) to illustrate the concept—the use of available physical materials to accomplish tasks of construction or repair. We place both network bricolage (such as in the utilization of social capital) and asset bricolage (such as the modification, deployment, assemblage or transformation of physical or financial resources) in the realm of external bricolage. We assert that both internal and external types of bricolage are vital to success in the entrepreneurial process, but for different reasons. We argue that these different forms may cast light on debates regarding the agency of the entrepreneur in the venturing process.

The reason for making this distinction is important. Consistent with the work of Loundsbury and Glynn (2001), we believe that the work of an entrepreneur is not just to create an ongoing enterprise by “assembling a machine” for creating value. To obtain resources, the entrepreneur must engage in rhetorical activity (Zott & Huy, 2007). An entrepreneur

must tell a story that convinces others who command resources to make those resources available (O'Connor, 2004). To do this the entrepreneur needs to describe a future world where the ongoing venture is successful, but also to represent himself or herself as the most appropriate individual to bring the new venture into being.

We also attempt here to continue the tradition of unpacking the entrepreneurial process into its constituent aspects, forms, and phases and to examine how bricolage can apply to the phases of that process. For us it is important to understand how participants locate, delineate, evaluate, assemble, and deploy the constituent inputs to the entrepreneurial process, and how they derive or construe overarching operational or existential principles that can be examined empirically for their relative importance and value in the venturing process. Such an examination has the potential to inform scholars of entrepreneurship by elucidating the means by which individuals who are involved in venturing address and surmount the common, recurring problem of adaptive design of a new venture.

We begin with a detailed explanation of bricolage and discuss how it can inform and advance entrepreneurial research. We then discuss entrepreneurship and the importance of the notion of the “processing of an opportunity” for models of the entrepreneurial process. We provide propositions regarding the importance of bricolage to the process of entrepreneurship and the salutary influence that bricolage exerts on that process. We conclude with a discussion of the implications of our approach.

Literature Review

Bricolage

Bricolage—“local, contextual, and sudden process . . . which cannot be thought of outside the specific situation where it appears” (Cunha, 2005:6)—is a concept that can lend explanatory power to scholars of entrepreneurship. Scholars in a variety of other disciplines have appropriated the notion of bricolage to address a variety of phenomena (Duymedjian & Rüling, 2010). As with many terms in the entrepreneurship field, a consistent definition of bricolage has been elusive. Organizational scholars have defined it loosely as making do with “whatever is at hand” (Miner, Bassoff, & Moorman, 2001; Weick, 1993a: 351). Alternative definitions are “to use whatever resources and repertoire one has to perform whatever task one faces” (Weick, 1993b: 352); “tinkering through the combination of resources at hand” (Ciborra, 2002: 48–49); “the invention of resources from the available materials to solve unanticipated problems” (Cunha, 2005: 6) and “resource cooptation” (DiDomenico, Haugh and Tracey, 2010:683). In their literature review, Baker and Nelson (2005) found the following common themes across definitions of bricolage: (1) active problem-solving and/or opportunity-seeking; (2)

reliance on pre-existing elements at hand; and (3) resource recombination for novel uses.

Duymedjian and Rüling (2010) identify three important components of bricolage: stock or repertoire (the compendium or collection of the elements on which the bricoleur acts), dialogue (the ongoing relationship that the bricoleur maintains with the stock or repertoire), and outcome (the end sought by the bricoleur). The elements of the repertoire can be tools, raw materials, ideas, etc. From our point of view, the adaptive process we identified earlier can easily be seen as containing a dialogue in which the entrepreneur works with ideas, predicates, technology, raw materials, tools, money, relationships, etc. An important consideration about the elements in the repertoire is that the classification or identity of these elements is not fixed. Tools can become raw materials; waste can become tools, etc. For us, the objective would be the presence of a viable new venture.

Scholars have applied bricolage to address various facets of both entrepreneurship and organizational improvisation and transformation (Baker et al., 2003; Baker & Nelson, 2005; Ciborra, 1996; Engelen, et al., 2010; Garud & Karnøe, 2003; Hendry and Harborne, 2011; Miner et al., 2001; Spicer and Sewell, 2010; Weick, 1993a,b). Baker and Nelson (2005) found that bricolage allowed firms to exploit inputs ignored by other firms to render unique services.

Theorists also argue that bricolage is used by individuals for personal benefit as well. For example, Nohria & Berkley (1994) found that bricolage effectively prepared workers for adopting new technology. Gabriel, Gray and Goregaokar (2010) find that bricolage enables unemployed professionals to cope with identity reconstruction.

Sometimes, both the personal and the social are intertwined. For example, Johannisson and Olaison (2007) showed how bricolage enabled individuals and organizations affected by a hurricane to cope with the loss and destruction of a social fabric wrought by the storm. Cabantous et al. (2010) explicate the process whereby the tools of rational decision making are applied by analysts who are responsible for executing the decision-making process. Boxenbaum and Roleau (2010) argue that bricolage enables social theorists to advance the collective theory building process.

While scholars have begun to test the waters of a bricolage \leftrightarrow entrepreneurship relationship, the bricolage literature has yet to address its potential direct influence on the entrepreneurial process.

Entrepreneurship

Some definitions of entrepreneurship focus on individual actions while ignoring the profitable opportunities that must also be present to incite entrepreneurial action. We assert that entrepreneurship pertains to the generation, evaluation and exploitation of market opportunities by locating, obtain-

ing and assembling and deploying resources. Furthermore, it involves the potential sources of opportunities, the activities of opportunity creation and/or discovery, the activities of development of one or more opportunities, the activities of exploitation of one or more opportunities, and the individuals involved in those activities. The entrepreneurial process, then, is activity which “processes” opportunities. This process takes the form of a “dialogue” with these opportunities and other elements of the entrepreneur’s repertoire, with the objective of transforming an opportunity into a viable venture. Thus, understanding the character of opportunities, how they enter the entrepreneurial process and how they move through the entrepreneurial process is critical to understanding how success can be achieved. Recently, a number of theorists have argued for the significance of opportunity as an explanatory concept (Gartner, Carter & Hills, 2003; Shane & Venkataraman, 2000; Venkataraman, 1997).

Opportunity Discovery v. Opportunity Creation

Eckhardt & Shane (2003) define entrepreneurial opportunities as “situations in which new goods, services, raw materials, markets, and organizing methods can be introduced through the formation of new means, ends, or means-ends relationships” (336). For decades, the dominant logic in entrepreneurship theory was a person-centric perspective that disregarded the role of opportunity (Eckhardt & Shane, 2003). However, the examination of how opportunity is now treated by many as critical to understanding the entrepreneurial process. Much debate has centered on this particular issue. An objectivist perspective sees opportunities as objective realities that exist independently of the entrepreneur and thus are discovered by entrepreneurs. In contrast, a subjectivist perspective, sees opportunities as enacted by an entrepreneur and fellow actors through their unique knowledge (e.g., Alvarez & Barney, 2007; Kirzner, 1979; Shane & Venkataraman, 2000; Von Mises, 1949). The more recently developed constructivist perspective sees opportunities as “produced through a process of social construction and cannot exist apart from the entrepreneur” (Wood & McKinley, 2010: 66; see also Mahoney & Michael, 2005; Sarasvathy, 2001). Placing bricolage into the entrepreneurship landscape can be done through any of these three theoretical lenses; whether an entrepreneur discovers, enacts, or socially constructs an opportunity, he or she can subsequently engage in bricolage to navigate through the entrepreneurial process. It is easy to see how the previously discussed, transformative character of bricolage can change elements into an opportunity, but how an opportunity can occur almost of a piece and be “discovered” by the entrepreneur.

A long-standing dispute has developed between those who posit that opportunities exist prior to the entrepreneur-

ial process, and those who posit that opportunities are recognized or discovered by entrepreneurs to start the process (Read, Song, & Smit, 2009). Some scholars of entrepreneurship posit that the entrepreneur is a *sine qua non* in the instantiation and success of new enterprises (Saravathy & Dew, 2005). Others, (Arrow, 1974; Kirzner, 1973, 1979) minimize the creative role of the entrepreneur in the development of new markets. Many models take intermediate positions by incorporating considerations of fundamental limits on human cognition and perception (Knight, 1921; Shackle, 1969; March, 1978) as a way of tempering the agency of the individual in the development of new markets. Still others suggest that entrepreneurship can also be an accidental process (Shah & Tripsas, 2007) emerging out of the interactions between users of products. An issue central to entrepreneurship is identifying the role of individuals in producing important ideas and innovations in today's knowledge-based economy (Sørensen & Stuart, 2000).

We argue that a process approach that is agnostic to the issue of whether an opportunity is created or discovered can still advance theory without becoming entangled in the issue of the origin of an opportunity. This is because we argue that the bricolage process can allow both discovery and creation. This can occur because a collection of elements can be perceived as an opportunity (in some cases because highly specialized knowledge is not necessary) and in other cases specialized or idiosyncratic knowledge, information or entrepreneur characteristics may be necessary for further development to be worthwhile. In fact, a number of "proto-opportunities" may exist in the entrepreneur's repertoire in forms that cause them to be perceived as incomplete, unexploitable or flawed, making the idea generation process incomplete. This can change if the entrepreneur gains access to another new element, the entrepreneur changes his or her perception of some elements or the opportunity, or external conditions change, rendering the "proto-opportunity" into one that is perceived as ready for development by the entrepreneur. We argue that it is at this point that the phase of the entrepreneurial process shifts from idea generation to idea development.

We concentrate our efforts on theorizing about what happens to an opportunity prior to when an entrepreneur decides to develop it as well as after that decision is made. This is consistent with the notion of entrepreneurship as adaptive design (Saravathy et al., 2008) that was presented earlier. We contend that the entrepreneurial process moves from opportunity generation to opportunity development when the entrepreneur makes a decision that an opportunity has reached the point where it deserves special attention, and the entrepreneur decides to change the character of the adaptive process to concentrate in a less tentative way on rendering the opportunity into a viable venture. Many schol-

ars have focused a cognitive lens on the entrepreneurial process in an attempt to isolate the factors that mold the capability to generate new opportunities through superior knowledge (Ardichvili, Cardozo, & Ray, 2003; Gaglio & Katz, 2001; Krueger, 2000; Shane, 2000). Other models take a different approach to this issue, leaving aside more fundamental issues of the entrepreneur's agency and examining the process of venture initiation (c.f. Steyaert, 2007).

An Entrepreneurial Process Model

One way to elucidate the effect of bricolage on the entrepreneurial process is to consider how bricolage enables the progression of opportunities throughout the entrepreneurial process. This begs the question of what model of the entrepreneurial process to use. We draw on an analogous model of the entrepreneurial process posed by Shane (2000) and depicted in Figure 1. Shane (2000) argued that discovering entrepreneurial opportunities hinges on prior knowledge developed through work experiences, personal events, and education. The discovery of entrepreneurial opportunities depends on idiosyncratic prior knowledge, and entrepreneurial opportunities become known to individual entrepreneurs through their recognition of the value of prior knowledge instead of through active search. Shane argued that prior knowledge enables entrepreneurs to imagine the use of a technology in different markets, serving a particular market in different ways, and/or providing solutions to new and different problems. He also argued that prior knowledge influences the relationship between opportunity recognition and opportunity exploitation by influencing the selection of the market, of the way to serve the market, and of the solutions to customer problems.

Galunic and Eisenhardt (1994) found that knowledge is essential to a firm's entrepreneurial ability, and Audretsch and Lehman (2006) found that differential knowledge is a key criterion for success, bestowing a competitive advantage for entrepreneurial firms. Shane and Venkataraman (2000) argued that prior knowledge and the cognitive ability to assess that knowledge are crucial to identifying opportunities. Shane (2000) argued that discovering entrepreneurial opportunities hinges on prior knowledge developed through work experiences, personal events, and education.

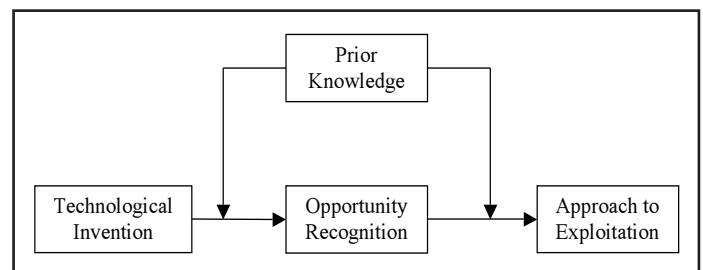


Figure 1. Shane's (2000) Conceptual Model

In this article we take an analogous approach to the entrepreneurial process, conceptualizing entrepreneurship as work on candidate opportunities, and we attempt to outline the ensemble of critical behaviors, practices and principles that are employed by entrepreneurs to navigate this process successfully. Like the activity of obtaining knowledge in Shane's model, the activity of bricolage enables better outcomes of the process (see Figure 2).

We add the phase "opportunity development" prior to opportunity exploitation in order to mimic one established definition of the entrepreneurial process (Shane & Venkataraman, 2000). We have also included feedback loops to imply that the entrepreneurial process is not strictly temporally unidirectional. The testing, modification, evaluation, and/or decision-making activities inherent in the process mean that the activities of a particular phase of the process will often return the entrepreneur to an earlier phase of the process. The cycling of entrepreneurs through the process means that new opportunities and/or resources are acquired and/or created as a result of the process, and these can trigger reinitiation of the cycle.

We also incorporate the distinction between serial and parallel development of new opportunities. This corresponds to a notion of serial and parallel bricolage that is posited by Baker and Nelson (2005). We indicate this by the parallel arrows between phases. For a specific entrepreneur, multiple opportunities may be at various stages of the process, and entrepreneurs may suspend, abandon, or rekindle efforts to bring an opportunity to fruition. So, the progress of the entrepreneur through successive stages of the process requires

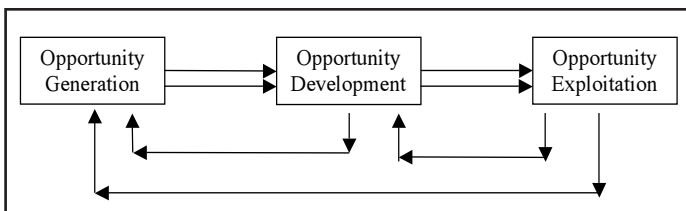


Figure 2. The Entrepreneurial Process

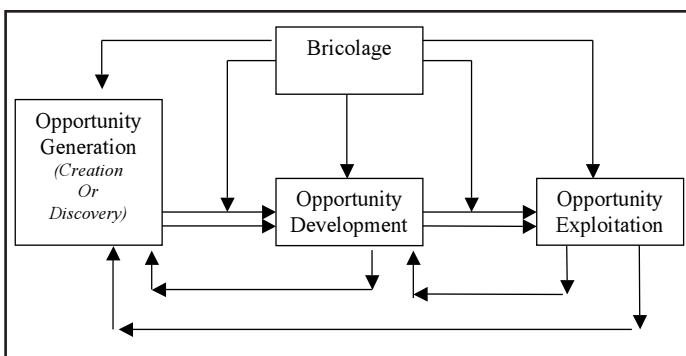


Figure 3. The Potential Effect of Bricolage on the Entrepreneurial Process

neither a strict sequence of transitions through the states we identify nor exclusive attention to a single opportunity.

We further modify and extend the model by incorporating the influence of bricolage and by arguing that, like knowledge, bricolage also enables the entrepreneurship process in the sense that it, by definition, expands the utility of the critical inputs to the process (prior knowledge, idiosyncratic characteristics and existing resources) and the adaptive abilities (improvisation, active engagement, and integrative thinking) of the entrepreneur. These, of course, are fundamental to success within the entrepreneurial process. Entrepreneurs use bricolage to progress from the opportunity discovery to the opportunity exploitation phase of the entrepreneurial process. We introduce bricolage as an enabler of efforts within and between each of the different phases of the process (see Figure 3).

Also, as we argued earlier, we incorporate theoretical approaches that argue that opportunities are discovered as well as those that argue that opportunities are created. We define "opportunity generation" as consisting of both "opportunity discovery" and "opportunity creation," thus obviating the mutual exclusivity of the opposing theoretical perspectives. For our purposes, there is little need to exclude one source of opportunities or another. These changes are depicted in Figure 3 as the modifications of the Opportunity Generation phase.

Theory Building

The Importance of Bricolage in Entrepreneurship

We argue that bricolage is a pattern of behavior—a means for enabling and accomplishing ad hoc responses to unforeseen situations and opportunities—and that it can be an invaluable method in circumstances characterized by fluidity and uncertainty. Bricolage is especially applicable when entrepreneurs face conditions that require rapid action, because in these situations they are more likely to be limited by immediately available resources and the need to balance planning and improvisation without the benefit of time and resources for modifying existing plans or developing new ones (Cunha, 2005). For entrepreneurs to use bricolage successfully in the entrepreneurial process, they must have an intimate knowledge of their available resources, they must be observant, they must trust their ideas, and they must learn and correct through feedback (Weick, 2001).

Successfully navigating the entrepreneurial process requires the following characteristics, all of which are enhanced or activated by bricolage: adaptability, improvisation, active engagement, and integrative thinking. Entrepreneurs must be able to adapt to and exploit circumstances of opportunity. An opportunity holds no value to individuals or organizations unless they possess the knowledge

to recognize the opportunity and the recognized capability to exploit it. If an opportunity is attractive enough, entrepreneurs must adapt their knowledge and other resources at their disposal during the development and exploitation stages of the process. To capitalize on the transformation of an opportunity from generation to exploitation, entrepreneurs must act swiftly. Therefore, they must often fashion a sufficient, instead of a perfect strategy from their prior knowledge and the resources at hand. This urgency drives entrepreneurs to spend their limited time surveying current predicates, knowledge, and resources and developing novel combinations of these to adapt opportunities to the changing environment or to discover new forms of opportunities instead of searching for new, costly and unfamiliar resources to develop opportunities. Another essential task is to convince those who control critical resources to make those resources available to the prospective venture. To secure control of these resources, it is paramount that the entrepreneur represents himself or herself as a responsible, knowledgeable, capable, and credentialed steward of those resources (Loundsbury & Glynn, 2001).

Improvisational scenarios, such as responding to disruptive innovation, generally contain time and uncertainty pressures (Crossan et al., 2005). Consistent with Berliner's definition of jazz improvisation, entrepreneurial improvisation "involves reworking precomposed material and designs in relation to unanticipated ideas conceived, shaped, and transformed under the special conditions of performance, thereby adding unique features to every creation" (1994: 241). Entrepreneurs often engage in a just-in-time strategy and improvise by recombining resources at hand for novel uses, which is bricolage. In time, they develop a practical approach to experimentation by amalgamating their knowledge of available resources and their past experiences.

This prior knowledge allows entrepreneurs to categorize and evaluate information from the environment, which leads directly to the possibility of opportunity creation or recognition. Individual prior knowledge accumulated through life experiences also provides the means to discover and develop entrepreneurial opportunities (Venkataraman, 1997; Shane, 2000). However, because the evidence of this knowledge and experience is often intangible, the entrepreneur must make it salient to others. The integration of prior knowledge and progressive thinking will likely result in a better fit between entrepreneur and opportunity because the resources at hand will become more than just haphazard elements that are aggregated by chance and that lack key features for success.

Cohen and Levinthal (1990) argued that knowledge provides a powerfully predictive tool in terms of environmental change and the suitability of strategic decisions, two areas of significant stress for entrepreneurs. When successful entre-

preneurs harness and apply the appropriate prior knowledge, they increase chances of adapting to environmental change, taking appropriate strategic direction, and building a sustainable competitive advantage through opportunity generation, development, and exploitation. Sometimes this knowledge is present in the entrepreneur; sometimes the entrepreneur must solicit the contributions of others to obtain it. It is not enough that entrepreneurs recognize their prior knowledge; they must be able to harness and apply it to navigate the entrepreneurial process successfully. Finally, as we have argued previously, just having the appropriate knowledge is not enough. Creating persuasive accounts of this knowledge capable of assuaging the inhibitions of potential providers of resources is also necessary. Bricolage is one way entrepreneurs can accomplish these tasks.

As we have shown, bricolage can be an invaluable method for entrepreneurs as they face a changing environment and are required to apply their prior knowledge and existing resources to make quick decisions and to act rapidly to capitalize on opportunities. The above argument leads to the following proposition:

Proposition 1: Bricolage enables entrepreneurs to navigate the stages of the entrepreneurial process successfully.

Internal and External Bricolage

As we argued before, bricolage can be both internal and external. Internal bricolage refers to activities making use of an entrepreneur's idiosyncratic, internal predicates—such as the prior knowledge of markets and ways to serve markets, customer problems, life experiences, educational attainments, professional knowledge, etc. More elaborate combinations of these are likely to be more specific to the entrepreneur's life experience and the unique bundle of claimable sources of legitimacy to which he or she has access. Internal bricolage may enable the construction of arguments about these sources of legitimacy, or may enable the entrepreneur to render the sources of legitimacy perceptible or salient to evaluators. External bricolage refers to activities to exploit the pool of potential resources available to entrepreneurs in the external environment. Entrepreneurs can incorporate resources immediately at hand, can acquire resources from external stakeholders whose contributions are solicited, and can tap into external stakeholders' knowledge and then recombine these resources for their particular novel use. For instance, entrepreneurs might scan their environments for potential strategic alliances or personal contacts necessary to obtain the required manufacturing or marketing capabilities, or to gain quick access to vital markets in which they have no experience. They might have developed viable prototypes but lack the required financial or technological resources to manufacture tangible products.

Bricolage also provides a valuable means to enable application of prior knowledge and experience and to render resources in the external environment readily available for the development and exploitation of an opportunity. Bricolage is not simply environmental scanning. It combines the act of imagining novel combinations of resources in either the internal or external environment in combination with the act of acting on those resource combinations to create, develop or exploit a particular opportunity.

The sense in which bricolage was used by Levi-Strauss (1970) is consistent with this notion. For Levi-Strauss, bricolage is more about constructing narratives out of the fabric of experience to resolve existential contradictions inherent in social milieus. It is in this sense that we evoke internal bricolage as a means for constructing myths to assuage the skepticism of potential resource providers.

Using bricolage, an entrepreneur can generate opportunities, develop and exploit particular opportunities and minimize the onerous and costly work of modifying existing plans or developing entirely new plans. Entrepreneurs can also create convincing stories that enable the acquisition of new resources at low risk and low cost. By implication, internal bricolage enables an entrepreneur to represent to potential resource providers his or her correctness as the unique individual to exploit the opportunity via creative management of identity. Both of these activities lead to what Sarasvathy and Dew (2005) call an “expanding cycle of resources” that are available to the entrepreneur. The expanded pool of resources can be used as a basis for acquiring other resources.

As we discussed earlier there are three critical tasks that must be successfully accomplished to capitalize on entrepreneurial opportunities: generation, development, and exploitation. By generation, we mean the portion of the process by which the possibility to do something novel (e.g., to make a product, to perform a service, or create new ideas) becomes known to an individual. This may not necessarily be by way of conducting a conscious search, but may be a result of a conscious search. It may come from attempts to develop an opportunity and may come from collective attempts to serve the agendas and/or interests of a number of participants (Garud and Karnøe, 2003). After generating opportunities and deciding to develop them, entrepreneurs move into the development phase. While some scholars argue that opportunity development encompasses opportunity generation (Gartner et al., 2003; Sanz-Velasco, 2006), we argue that the generation and the development of opportunities are two distinct activities, the combination of which leads to the possibility of exploitation. While it is true that they can be temporally intertwined (corresponding to the feedback loops in our model), they are distinctly different in terms of how internal and external bricolage can be employed. Generation of

opportunities does not necessarily require physical action (or even extended periods of time) whereas development necessitates some physical action (if only to contact customers) to move an opportunity forward in the process. Entrepreneurs often do not physically search for opportunities, but utilize prior knowledge to fabricate them through recombination of information, a process that lacks visible activity (Shane, 2000). We do not exclude physical search, however.

As we stated previously, development by its definition necessitates both action and visible activity through the utilization of resources and prior knowledge to realize the full potential of an exploitable opportunity. In addition, it is the development phase, in part through tacit knowledge, that is the occasion for formation of strategy in preparation for exploitation of an opportunity. Generation does not necessitate strategy, for it is often an unplanned occurrence or happens through casual environmental scanning. Strategy is necessary to move from generation to exploitation because that transition may require acquisition, evaluation, choice, assembly, modification, and/or disposal of external resources. Thus:

Proposition 2: Opportunity development is a distinct phase of the entrepreneurial process; after perceiving an opportunity, an entrepreneur will decide whether to direct effort to develop that opportunity to exploit it successfully.

From Generation to Development

In this article, we assume that many important behaviors and inputs initiate the activity that results in entrepreneurial opportunity generation. These behaviors can consist of recognition, scanning, search, discovery and/or construction. An opportunity can emerge as a result of accident or systematic effort, or it can be the result of years of painstaking research or a momentary conversation. We are relatively indifferent to the implications of whether this implies that opportunities are created or discovered. Our formulation argues that making do with available resources can serve both of these sources of ideas.

Once entrepreneurs decide to develop an opportunity, they face a risky choice: to commit time and effort toward development and exploitation of the particular opportunity or to forego the chance to do so (in the short term or permanently) and to pass on the prospective benefits the opportunity holds. If they commit to development, entrepreneurs engage in two important activities:

1. Internal search of their web of “knowledge corridors” for information and claimable predicates that are applicable to the particular opportunity.

2. A scan of their surroundings for available resources they can use to further the exploitation of the opportunity.

Due to time and financial constraints that often subtend strategic options, it is most effective for entrepreneurs to first evaluate the applicability of existing resources that are immediately available. In Sarasvathy's (2001) model, when entrepreneurs exploit existing knowledge, credentials and experience to construct compelling narratives that attract the contributions of others, they reduce or obviate demands that arise from the perception of risk on the part of resource provider's outcomes. When entrepreneurs exploit selected, trusted social relationships to form partnerships, they also reduce or obviate demands by partners that arise from the perception of risk.

If entrepreneurs cannot identify appropriate internal resources from the pools available to them, they will have difficulty assuaging the fears of potential resource providers. If these providers of resources increase their demands for concessions, the entrepreneurs must explore their external environments for attainable resources and then use external bricolage to exploit them. The pharmaceutical and biotechnology industries provide good examples of social external bricolage. It is commonplace in these industries to form strategic alliances, joint ventures, or other forms of partnership. These partnerships often center on R&D or manufacturing capabilities. For example, one firm may discover a new drug, but not have the R&D or manufacturing capability to successfully develop the drug. Because the firm does not control these resources, the firm must scan the external environment for firms that possess the necessary resources. The firms then enter into some form of partnership to develop the new drug. Partnerships often grow out of personal relationships gained through family relationships, common education, professional conferences, or social networking events.

Auto salvage yards are good examples of physical external bricolage. Automobiles that are no longer functional end up in salvage yards. The salvage yard can then disassemble the automobiles and sell the salvageable parts to businesses such as auto repair shops. The salvage yards use bricolage to develop these opportunities by identifying the parts from each automobile that are salvageable, and using the machinery they already possess to remove these parts from the automobiles. Identifying appropriate resources—in the case of the salvage yards, the parts and the tools necessary to salvage the parts—will speed the process from discovery to development to exploitation.

Entrepreneurs need a catalyst to facilitate their progress from opportunity generation to opportunity development. Bricolage is that catalyst because it provides the means to apply prior knowledge and combinations of resources at hand to the progression of opportunities; it allows an entre-

preneur to progress from thinking to doing in the rhetorical as well as the executional realm. The above arguments lead to the following proposition:

Proposition 3: Either internal or external bricolage or a combination of the two can facilitate the movement of an opportunity into a subsequent stage of the entrepreneurial process.

Development and the Move to Exploitation

Research has shown that available resources and prior knowledge (particularly of ways to serve markets) shape the development of an opportunity (Sanz-Velasco, 2006). By definition, bricolage is a concept that incorporates the utilization of both available resources and prior knowledge. As the development phase progresses, entrepreneurs begin fashioning strategy in preparation for exploitation of an opportunity. At this point, bricolage helps the entrepreneur to surmount the cognitive impediments to the entrepreneurial process and enables strategy formation by encouraging entrepreneurs to see novel combinations of resources they can immediately and successfully apply to a particular situation. Because it provides for proactive management of the necessary resources and prior knowledge to navigate this phase, and because it aids in vital strategy formation, bricolage can increase an entrepreneur's chances of successfully developing an opportunity and moving a venture to the exploitation phase.

Once an opportunity has been sufficiently developed, entrepreneurs must turn their attention to the exploitation of that opportunity. Knowledge and its application are critical links between development and exploitation because they augment the entrepreneur's intangible ability to predict the suitability of strategic actions more accurately (Cohen & Levinthal, 1990). Prior knowledge of markets, of the ways to serve markets, and of customer needs and problems are indispensable dimensions of knowledge that entrepreneurs must employ to prepare successfully for exploitation. Inventories of existing resources are another critical link between development and exploitation because they provide entrepreneurs with the tangible *means* with which to prepare their developed opportunities for exploitation and to prepare the prospective markets and customers for their new products, services, raw materials or organizing methods. In the case of auto salvage yards, entrepreneurs use physical external bricolage to exploit the opportunity of salvaged automobile parts. In their natural course of business, they maintain relationships with insurance companies and auto repair shops that need parts. They also possess the machinery and trucks necessary to exploit opportunities, which in this case mean delivering the parts. The salvage yards possess the knowledge and resources required to exploit the opportunities. In the

case of the pharmaceutical or biotechnology industries, a given entrepreneur may not possess the resources necessary to exploit the drug he or she has developed, so he or she may use external bricolage to acquire the means to do so. The entrepreneur may not have the financial resources necessary to get the drug approved and may not have the marketing expertise necessary to bring the drug to market. The entrepreneur will therefore scan the external environment for a firm or firms that possess the necessary financial and/or marketing resources and will enter into a partnership of some sort to exploit the opportunity by bringing the drug to market. Because bricolage combines the treatment of both prior knowledge and existing resources, entrepreneurs can use bricolage to progress from the opportunity development to opportunity exploitation.

Entrepreneurs use internal bricolage to serve the rhetorical aspect of the opportunity development activity (such as through elevator pitches or business plans). They construct goals toward which they are best equipped to advance. They craft narratives for which they are uniquely equipped to be the central protagonists and which result in favorable outcomes for contributors. The above arguments lead to the following:

Proposition 4: Internal bricolage, external social bricolage or external physical bricolage, or a combination of the three will help entrepreneurs to exploit a developed opportunity.

Conceptual Model

In this article, we have offered the following refinements and additions to Shane's (2000) model. Our theoretical arguments about bricolage are graphically depicted in a model provided in Figure 4.

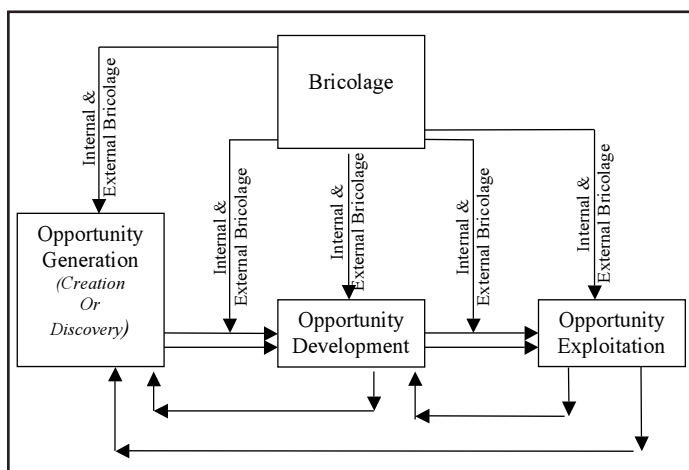


Figure 4. Conceptual Model for the Effect of Bricolage on the Entrepreneurial Process

1. Discovery is not the only source of opportunities. Following from a number of authors cited in this article, we believe that opportunities can be created through the interaction between entrepreneur and an enacted environment.
2. Opportunity discovery and opportunity creation lead to what we term "opportunity generation," which leads to opportunity development which leads to opportunity exploitation.
3. The entrepreneurial process is not strictly temporally unidirectional. An opportunity can be modified, abandoned, rekindled, revised, etc., and this means that it can return to the beginning of the process. This is indicated by the feedback loops at the bottom of Figure 4.
4. The entrepreneurial process may incorporate the development of many opportunities in parallel. These are indicated by parallel lines across the different stages of Figure 4.
5. Bricolage, which incorporates prior knowledge as well as other existing internal and external resources, enables the success of the efforts of entrepreneurs at all phases of the process and it also enables the transition of opportunities from one phase of the process to another.
6. Both internal bricolage and external bricolage have the potential to enhance the efforts of an entrepreneur during all phases of the process.
7. Both internal bricolage and external bricolage have the potential to enhance the efforts of an entrepreneur to move an opportunity across phases of the process. The more skillfully bricolage is applied to developing a generated opportunity, the more likely the entrepreneur will progress to the development phase. The more skillfully bricolage is applied to a developed opportunity, the more likely an entrepreneur will progress to the exploitation phase.

The transitions between phases can certainly be accomplished without the presence of bricolage. Bricolage is not a necessary precondition for moving from generation to development to exploitation. Bricolage does, however, influence the likelihood of traversing these phases successfully and overcoming any hurdles which may inhibit progression through the phases. By persistent and/or skillful use of bricolage, entrepreneurs are much more likely to progress to the final phase of the entrepreneurial process.

Discussion

How does entrepreneurship happen? It happens when entrepreneurs leverage their prior predicates and other existing resources, engage in bricolage and navigate the entrepreneurial process effectively. To navigate this process readily

and easily, entrepreneurs need a competitive edge beyond widely available tools, skills, and knowledge. Competitors with similar tools, characteristics and skills in similar environments, using widely known logic (Kilroy, 1999) are likely to arrive at similar conclusions (Barney, 1986). Bricolage is one of the most valuable techniques that entrepreneurs can use, and is an omnipresent but underappreciated catalyst of venture success.

We have argued for integrating bricolage into models of the entrepreneurial process because it provides entrepreneurs with the wherewithal to make entrepreneurship happen successfully. While our conceptual model is analogous to Shane's (2000), we take a different approach to the entrepreneurial process by adding bricolage as a mechanism with which to apply entrepreneurial predicates and available resources to the opportunity generation → development → exploitation process of entrepreneurship. We also model the entrepreneurial process differently, choosing for this paper to modify the opportunity generation phase to incorporate both discovery and creation, and adding the critical development phase that links discovery to exploitation. While each phase of this process presents unique challenges for the entrepreneur, a bigger challenge is moving from one phase to the next, which is in many ways a leap of faith. To offset the risks of such a move, entrepreneurs need the tools with which to decrease uncertainty and increase the likelihood of a successful transition (Sarasvathy, 2001). Bricolage is such a tool that provides the means with which to bring an opportunity to fruition by applying readily available resources and prior knowledge in a way that is adaptable, improvisational, active, and integrative.

Contributions to Research

This article makes three important contributions to the entrepreneurship literature. First, it more fully articulates the concept of bricolage and highlights its fundamental importance to the entrepreneurial process. The entrepreneurial process is teeming with uncertainty, time pressures, and circumstances that necessitate immediate decisions and action. We argue that by relying on bricolage, entrepreneurs can mitigate uncertainty and time pressures, can make urgent decisions in an informed way, and can take the actions necessary to navigate the entrepreneurial process successfully.

Second, the article develops the concepts of internal and external bricolage. To date, most bricolage research has focused primarily on external social resources or on prior knowledge. While these are critical to the success of any entrepreneurial venture, so are internal resources. Most individuals and firms beginning the entrepreneurial process do not possess all the necessary capabilities and resources to navigate the process, so they must at some point attract resources from their external environment. Internal brico-

lage is an important conduit for this process. The two types of external bricolage are also invaluable to entrepreneurs; social external bricolage enables entrepreneurs to make use of the web of social relations in which they are embedded, and physical external bricolage enables them to creatively deploy social and physical resources.

Third, this article argues that opportunity generation and development are two separate phases of the entrepreneurial process instead of competing conceptualizations of the same process (Sanz-Velasco, 2006), and that opportunity development is a critical mediator between generation and exploitation. We argue that developing an opportunity takes direct action and strategy, and draws a contrast with the passivity inherent in merely discovering an opportunity. We do, however, allow for the discovery of opportunities, and the role of chance, technology or institutional forces as the sources of opportunities. We do not restrict the sources of opportunities to chance, however. We argue that entrepreneurs can play a role in generating opportunities by their own actions to create, evaluate and revise those opportunities. We also argue that entrepreneurs cannot progress from discovering an opportunity to exploiting it without first developing it.

Implications for Research and Practice

The theory as presented addresses many of the primary concerns of entrepreneurs, especially in the areas of managing uncertainty and how to progress effectively from generating an opportunity to exploiting it. In today's rapidly expanding, competitive global economy, entrepreneurs find themselves more frequently engaged in a battle for resources and time. The theory suggests that entrepreneurs can, and should, engage in internal and external bricolage to utilize resources more effectively and to capitalize on an idea more readily.

Possible extensions and empirical testing of this conceptual model could prove interesting. Bricolage enables the transition of opportunities through the entrepreneurial process, and understanding its intricacies and its influence on the various phases of the process will provide scholars of entrepreneurs with a better understanding of this controversial process. We have shown that bricolage is necessary to move rapidly or inexpensively from one phase to another within this process. Bricolage similarly provides the means to obtain the requisite knowledge and other resources necessary to begin developing and exploiting an opportunity. Bricolage increases the chance of success as individuals traverse the entrepreneurial process and reduces the time that required developing an opportunity at each phase of the process. One main question to be answered is whether there is a relatively consistent pattern of behaviors that can be systematically applied during these phases, or whether bricolage is a chaotic response to a specific situation. We would argue that internal bricolage is always in order during the

transition between generation and development and during the development phase.

We would argue that it is also important to consider the entrepreneurial process in a more macro social context as a basis for further modeling of the process of venturing. Garud and Karnøe (2003), for example, assert that bricolage is as much an emergent outcome of collective efforts and activities of individuals in a number of social collectives as it is an individual behavior. Their model argues that the development of an industry is a collective product of bricolage by government functionaries, individual entrepreneurs and providers of resources such as financing. The implication is whether the behaviors prescribed above will enable more successful development of industries, not just individual firms.

Furthermore, we think that it would be interesting to consider the adaptive behaviors that we describe here in a normative as well as a behavioral context. It would be interesting to distinguish between what the best entrepreneurs do and what most entrepreneurs actually do. By establishing a normative theory as well as a theory of variance from the norm, we can generate a more comprehensive theory.

Of course, empirical testing of the model is a logical next step. While Shane's (2000) study found interesting results using a case study method, the model posited here should be tested with robust empirical data across industries, and longitudinally if possible. We hope our theoretical arguments sur-

rounding the entrepreneurial process will spark debate and discovery regarding the entrepreneurial phenomenon.

Conclusion

In the current business environment, examination of the entrepreneurial process is a significant and relevant concern. As new markets are discovered, and existing markets consolidate and show the characteristics of turbulence, it is the enlightened use of entrepreneurial techniques that can lead to success and survival for individuals, organizations, and perhaps societies. Our purpose has been to refine the existing theoretical framework for activities of entrepreneurship and to incorporate the important explanatory mechanism of bricolage into emerging models of the entrepreneurial process. We argue that the use of bricolage as an explanatory concept is an appropriate means to examine entrepreneurship, and that opportunity development is a necessary link between opportunity generation and exploitation. We explain that bricolage is an invaluable means by which entrepreneurs can quickly and successfully move through the process from opportunity generation to exploitation. While our conceptual framework needs the support of subsequent data, we hope we have advanced efforts to create a reasoned model of the entrepreneurial process that will provide valuable insights when tested empirically.

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We dedicate this work to the late Deborah Malewicki, who received her Ph.D. in marketing and entrepreneurship at the University of Illinois at Chicago. She is sorely missed by her colleagues and friends.

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DEBRA MALEWICKI sadly passed away during the review process of this manuscript. We dedicate this work to her.



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