Creating the Future Together: Toward a Framework for Research Synthesis in Entrepreneurship

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ABSTRACT

To develop a body of evidence-based and actionable knowledge on entrepreneurship, an interface between the positivist, narrative and design research modes is needed. Therefore, we develop a framework for research synthesis based on mechanism-based explanations of outcome patterns, which incorporate social mechanisms and contextual conditions. We illustrate how this framework can be applied by synthesizing the existing body of research findings on entrepreneurial opportunities. Finally, we discuss how this synthetic approach serves to systematically connect the fragmented landscape of entrepreneurship research, and thus gradually build a cumulative and actionable body of knowledge on entrepreneurship.
INTRODUCTION

Broadly defined, entrepreneurship involves efforts to bring about new economic, social, institutional or cultural environments (Rindova, Barry, & Ketchen, 2009). Since Schumpeter’s (1911, 1942) pioneering work, entrepreneurship has become widely acknowledged as the key driver of the market economy. However, entrepreneurship researchers have not yet been able to agree on the definition and domain of entrepreneurship as a distinct field of inquiry. The current landscape of entrepreneurship research is to a large extent multi-paradigmatic in nature, including fundamentally different perspectives on what entrepreneurship is, how entrepreneurial opportunities are formed, what determines the performance of new ventures, and so forth (Ireland, Webb, & Coombs, 2005; Leitch, Hill, & Harrison, 2010; Zahra & Wright, 2011). In this respect, entrepreneurship research as a scholarly discipline is relatively young, and several attempts toward developing a coherent entrepreneurship ‘research paradigm’ have been made (e.g., Davidsson, 2003; Katz & Gartner, 1988; Sarasvathy, 2001; Shane, 2003; Shane & Venkataraman, 2000; Stevenson & Jarillo, 1990).

Nonetheless, there is still widespread confusion and frustration among entrepreneurship researchers regarding the lack of convergence toward a single paradigm and the continuing lack of definitional clarity (Davidsson, 2008; Ireland et al., 2005). Shane’s (2012) and Venkataraman et al.’s (2012) recent reflections on the 2010 AMR decade award for their article “The promise of entrepreneurship as a field of research” (Shane & Venkataraman, 2000) illustrate the disagreement on key paradigmatic issues among prominent entrepreneurship researchers. These paradigmatic differences are not only academic in nature, but have also profound practical implications. For instance, the narrative-constructivist notion of transformation implies that entrepreneurs should focus on acting and experimenting rather than planning and predicting, as
they cannot acquire valid knowledge about uncertain and partly unknowable environments (Sarasvathy, 2001; Venkataraman et al., 2012). By contrast, researchers adopting a more positivist perspective advocate that entrepreneurs engage in planning and prediction before starting their ventures and other entrepreneurial activities (Delmar & Shane, 2003).

Fundamentally different perspectives on the phenomenon of entrepreneurship together may provide a deeper and broader understanding than any single perspective can do. However, different ontological and epistemological points of view are also difficult to reconcile and may have diverging implications (Alvarez & Barney, 2010; Leitch et al., 2010). In this paper, we seek to respect the distinct research paradigms currently existing in the field of entrepreneurship, rather than attempt to reconcile highly different assumptions. We start from the idea that the future development of the field of entrepreneurship as a body of evidence-based and actionable knowledge largely depends on building interfaces for communication and collaboration across different paradigms as well as across the practice-academia divide (cf. Argyris, Putnam, & McLain Smith, 1985; Frese, Bausch, Schmidt, Strauch, & Kabst, 2012; Romme, 2003; Rousseau, 2012). In this paper we propose a mechanism-based framework for research synthesis, in which the notion of causation is not restricted to predictions inferred from data. Drawing on work on social mechanisms and mechanism-based explanation (e.g., Gross, 2009; Hedström & Ylikoski, 2010; Pajunen, 2008), a research synthesis framework is introduced that involves outcome patterns, mechanisms and contextual conditions. Moreover, we illustrate how this framework can be applied to synthesize research findings across different entrepreneurship paradigms.

This paper contributes to the literature on entrepreneurship research methods (e.g., Alvarez & Barney, 2010; Davidsson, 2008; Frese et al., 2012; Ireland et al., 2005) as well as the literature on balancing the scientific and practical utility of research (Corley & Gioia, 2011; Van de Ven,
2007; Van de Ven & Johnson, 2006), by developing a coherent approach that enhances the practical relevance of scholarly work. Defining and developing a research synthesis framework – at the interface of the social sciences, the humanities and design methodology – is essential to this endeavor. This framework serves to depict and contextualize key patterns and outcomes in terms of their mechanisms. As such, this paper may spur a dialogue on the plurality of the field's ontology, epistemology and research methods, and thus advance entrepreneurship as a scholarly discipline and professional practice.

The argument is organized as follows. First, we discuss three modes of studying entrepreneurship that have emerged in the literature: the positivist, narrative and design research mode. Subsequently, a mechanism-based framework for research synthesis across the three research modes is introduced. A synthesis of the fragmented body of literature on opportunity perception, exploration and exploitation then serves to demonstrate how this framework can be applied. Finally, we discuss how the research synthesis framework developed in this paper may serve to connect entrepreneurship theory and practice in a more systematic manner, in order to build a cumulative body of knowledge on entrepreneurship.

THREE FACES OF ENTREPRENEURSHIP RESEARCH

The field of entrepreneurship research is multi-disciplinary and pluralistic in nature. It is multi-disciplinary in terms of the economic, psychological, sociological and other theories and methods it draws upon. More importantly, the pluralistic nature of the current landscape of entrepreneurship research arises from three very different modes of engaging in entrepreneurship research, labeled here as the positivist, narrative and design mode. Table 1 provides a conceptual framework that defines the main differences and complementarities of these research modes. This framework provides the setting for the remainder of this paper.
The logical *positivist* research mode starts from a representational view of knowledge, and looks at entrepreneurial phenomena as (relatively objective) empirical objects with well-defined descriptive properties that are studied from an outsider position (e.g., Davidsson, 2008; Katz & Gartner, 1988). Shane and Venkataraman’s (2000) paper on entrepreneurship as a field of research exemplifies the positivist mode, by staking out a distinctive territory for entrepreneurship (with the opportunity-entrepreneur nexus as a key notion) that essentially draws on mainstream social science. Most entrepreneurship studies published in leading journals draw on positivism, by emphasizing hypothesis testing, inferential statistics and internal validity (e.g., Coviello & Jones, 2004; Haber & Reichel, 2007; Hoskisson, Covin, Volberda, & Johnson, 2011; Welter, 2011).

The *narrative* mode draws on a constructivist view of knowledge, assuming that it is impossible to establish objective knowledge as all knowledge arises from how entrepreneurs and their stakeholders make sense of the world (Cornelissen & Clarke, 2010; Leitch et al., 2010). The nature of scholarly thinking here is imaginative, critical and reflexive, in order to cultivate a critical sensitivity to hidden assumptions (Chia, 1996; Gartner, 2007a, 2007b). Therefore, studies drawing on the narrative mode typically focus on qualitative data collection and analysis procedures, for example in the form of case studies or grounded theory development. Whereas the positivist mode emphasizes processes at the level of either the individual entrepreneur or the configuration of the social context and institutional outcomes (Cornelissen & Clarke, 2010), researchers drawing on the narrative mode acknowledge the complexity of entrepreneurial action and sense-making in its broader context (e.g., Downing, 2005; Garud & Karnøe, 2003; Hjorth & Steyaert, 2005). As such, a key notion in the narrative tradition is the notion of (entrepreneurial) action and sensemaking as genuinely creative acts (e.g., Berglund, 2007; Chiles, Bluedorn, &
Gupta, 2007; Foss, Klein, Kor, & Mahoney, 2008; Sarasvathy & Dew, 2005). Appreciating the authenticity and complexity of these acts is thus given precedence over the goal of achieving general knowledge. An example of this type of work is Garud and Karnøe’s (2003) study of technology entrepreneurship in the area of wind turbines in Denmark and the US.

The design mode draws on Herbert Simon’s (1996) notion of a science of the artificial, implying that entrepreneurial behavior and outcomes are considered as largely artificial (i.e., human made) in nature (Sarasvathy, 2004). As such, entrepreneurial behavior and accomplishments are considered as tangible or intangible artifacts with descriptive as well as imperative (although possibly ill-defined) properties. Consequently, entrepreneurship researchers need to “actually observe experienced entrepreneurs in action, read their diaries, examine their documents and sit in on negotiations” and then “extract and codify the ‘real helps’ of entrepreneurial thought and action” (Sarasvathy & Venkataraman, 2011, p. 130) to develop pragmatic tools and mechanisms that can possibly be refined in experimental work. With the rise of ‘scientific’ positivism, the design mode was almost completely driven from the agenda of business schools in the first few decades after World War II (Simon, 1996). Recently, design thinking and research have regained momentum among entrepreneurship researchers (e.g., Dew, Read, Sarasvathy, & Wiltbank, 2009; Sarasvathy, 2003, 2004; Van Burg, Romme, Gilsing, & Reymen, 2008; Venkataraman et al., 2012). Table 1 provides a more detailed account of each research mode.

As can be inferred from Table 1, each research modes may share characteristics with another mode. For example, studies drawing on the design mode often also draw on constructivist forms of knowledge (e.g., Dew et al., 2009; Van Burg et al., 2008) that are at the center of the narrative.
perspective. However, the overall purpose of design research is a pragmatic one (i.e., to develop actionable knowledge), whereas the main purpose of narrative research is to portray and critically reflect. The overall purpose driving each research mode strongly affects the assumptions made about what scholarly knowledge is, how to engage in research, and so forth (see Table 1).

In this respect, each research mode can be linked to one of the ‘intellectual virtues’ identified by Aristotle: episteme, techne and phronesis. Following Flyvbjerg (2001), the virtue of episteme draws on universal, invariable and context-independent knowledge and seeks to uncover universal truths (e.g., about entrepreneurship). Episteme thus thrives on the positivist idea that knowledge represents reality, and as such, it draws on denotative statements regarding the world as-it-is. Evidently, the mainstream positivist mode in entrepreneurship research largely exploits and advances the intellectual virtue of episteme. By contrast, the narrative mode mainly draws on the virtue of phronesis, which involves discussing and questioning the values and strategies enacted in a particular setting (e.g. the values and strategy that drive a new venture). A key role of phronesis thus is to provide concrete examples and detailed narratives of the ways in which power and values work in organizational settings (Cairns & Śliwa, 2008; Flyvbjerg, 2001).

Finally, techne refers to pragmatic, variable and context-dependent knowledge that is highly instrumental (Flyvbjerg, 2001), for example, in getting a new venture started. This is the kind of virtue that is strongly developed among experienced entrepreneurs who, by leveraging their own expertise and competences, get things done in a pragmatic ‘can-do’ manner (cf. Sarasvathy, 2001).

Aristotle’s three virtues appear to be essential and complementary assets to any attempt to create an integrated body of scholarly and pragmatic knowledge on entrepreneurship. Consequently, the three research modes outlined in Table 1, while highly distinct in their
purposes and assumptions, can be positioned as complementary pathways toward an integrated body of knowledge on entrepreneurship. This raises the question how research findings arising from the positivist, narrative and design modes can together build a cumulative body of knowledge on entrepreneurship.

**MECHANISM-BASED RESEARCH SYNTHESIS**

Each of the three research modes outlined in Table 1 is essential to building a coherent, evidence-based and practically useful body of knowledge on entrepreneurship. The future development of the field of entrepreneurship therefore largely depends on building an interface for communication and collaboration between the three modes, to be able to develop a body of evidence-based and actionable knowledge. In this section, we describe a framework for research synthesis that can act as this interface. In doing so, we seek to respect the uniqueness and integrity of each of the three modes outlined in Table 1, rather than comparing and possibly integrating them.

The literature on evidence-based management, and more recently evidence-based entrepreneurship, has been advocating the adoption of systematic review and research synthesis methods (e.g., Denyer & Tranfield, 2006; Denyer, Tranfield, & Van Aken, 2008; Rousseau, 2006; Rousseau, Manning, & Denyer, 2008) and quantitative meta-analyses (Frese et al., 2012). Briner and Denyer (2012) recently argued that systematic review and research synthesis tools can be distinguished from prevailing practices of reviewing and summarizing existing knowledge in management – such as in textbooks for students, literature review sections in empirical studies, or papers focusing on literature review. The latter practices tend to motivate reviewers to be very selective and emphasize ‘what is known’ rather than ‘what is not known’, thus overemphasizing the more positive findings relevant to a given question; reviewers also tend to cherry-pick
particular findings or observations, possibly producing distorted views about the body of knowledge reviewed (Briner & Denyer, 2012; Geyskens, Krishnan, Steenkamp, & Cunha, 2009). Therefore, systematic review and research synthesis methods should involve the following features: “systematic/organized: systematic reviews are conducted according to a system or method which is designed in relation to and specifically to address the question the review is setting out to answer; transparent/explicit: the method used in the review is explicitly stated; replicable/updatable: (...) the method and the way it is reported should be sufficiently detailed and clear such that other researchers can repeat the review, repeat it with modifications or update it; synthesize/summarize: systematic reviews pull together in a structured and organized way the results of the review in order to summarize the evidence relating to the review question” (Briner & Denyer, 2012: 115).

Quantitative meta-analysis serves to systematically accumulate evidence by establishing the effect that is repeatedly observed and cancelling out weaknesses of individual studies, but there always remains a gap between knowledge and action (Frese et al., 2012). Essentially, a meta-analysis can deliver a well-validated and tested prediction of a deductive model describing a phenomenon as the regular outcome of the presence/absence of a number of antecedents, without explaining why this phenomenon is the case (cf. Hedström & Ylikoski, 2010; Woodward, 2003). Here, qualitative review and research synthesis protocols, as extensively described and discussed elsewhere (e.g., Denyer & Tranfield, 2006; Denyer et al., 2008; Tranfield, Denyer, & Smart, 2003), have a key complementary role in explaining the contextual contingencies and mechanisms through which particular experiences, perceptions, actions or interventions generate regular or irregular outcomes (Briner & Denyer, 2012). Therefore, we draw on mechanism-based
explanation to develop a broadly applicable perspective on research synthesis in entrepreneurship.

A large and growing body of literature in a wide range of disciplines, ranging from biology to sociology and economics, draws on the ‘mechanism’ notion to explain phenomena (Hedström & Ylikoski, 2010). For instance, a well-known mechanism in biology is natural selection, economists often use the market-mechanism to explain price formation and other phenomena (Hedström & Swedberg, 1996), and organization theorists use the escalation of commitment to explain ongoing investments in a failing course of action (Pajunen, 2008). In management studies, mechanism-based explanations have gained some foothold (Anderson et al., 2006; Davis & Marquis, 2005; Durand & Vaara, 2009; Pajunen, 2008; Pentland, 1999). In particular, studies drawing on a critical realist perspective (cf. Bhaskar, 1978; Sayer, 2000) have used the notion of mechanism to bridge and accumulate insights from different philosophical perspectives (Kwan & Tsang, 2001; Miller & Tsang, 2011; Reed, 2008; Tsoukas, 1989). Mechanism-based explanations center on generative processes that operate in certain settings and produce particular outcomes. This focus on abstract mechanisms is relatively agnostic about the nature of social action (Gross, 2009) and thus can steer a path between positivist, narrative and design perspectives on research. In the remainder of this paper, we therefore start from the idea that research synthesis serves to identify mechanisms within different studies and establish the context in which they produce a particular outcome (Briner & Denyer, 2012; Denyer et al., 2008; Tranfield et al., 2003; Rousseau et al., 2008).

Although there is some variety in how mechanisms have been defined, most definitions share the following four elements (Hedström & Ylikoski, 2010; Ylikoski, 2012). First, a mechanism is a mechanism for producing a particular outcome or effect. Second, a mechanism is an irreducible
causal notion, referring to the participating entities (e.g., managers, owners and creditors) of a process (e.g., decision-making) that generate a particular effect (e.g., ongoing investments in a failing course of action). In some cases, this mechanism is not directly observable (e.g., the market mechanism). Third, mechanisms are not a black box, but have a transparent structure or process that makes clear how the participating entities produce the effect. For instance, Pajunen (2008) demonstrates how an escalation of commitment mechanism consists of entities (e.g., decision makers) that jointly do not want to admit the lack of success of prior resource allocations to a particular course of action and therefore decide to continue this course of action. Fourth, mechanisms can form a hierarchy; while parts of the structure of the mechanism can be taken for granted at one level, there may be a lower-level mechanism explaining them. In the escalation of commitment example, Pajunen (2008) identified three underlying mechanisms: (1) managers sell some activities, but assure each other that the past course of action is still the correct one; (2) the owners of the company promote the ongoing course of action and issue bylaws that make divestments more difficult; (3) creditors fund the continuation of the (failing) course of action by granting more loans. In sum, a well-specified mechanism explains why particular actions, beliefs or perceptions in a specific context lead to particular outcomes.

To capture the variety of micro-to-macro levels at which mechanisms can operate in the social sciences, Hedström and Swedberg (1996) and Gross (2009) created three-fold typologies of mechanisms. First, mechanisms can operate at the individual-cognitive level, involving desires, beliefs, or knowledge of opportunities (Hedström & Swedberg, 1996). Second, action-oriented mechanisms deal with the social behavior of individuals. Third, mechanisms at a collective level describe how (groups of) individuals collectively create a particular outcome (Hedström & Swedberg, 1996). Yet, multiple mechanisms can co-produce a particular outcome at a certain
level and in a given context. To identify the correct and most parsimonious mechanisms, counterfactual or rival mechanisms need to be considered (Durand & Vaara, 2009; Woodward, 2003; Ylikoski, 2012). By exploring and/or testing different alternative scenarios, that have varying degrees of similarities with the proposed explanatory mechanism, one can assess and establish to what extent this mechanism is necessary, sufficient, conditional and/or unique. For instance, by explicitly contrasting two rival mechanism-based explanations, Wiklund and Shepherd (2011) established experimentation as the mechanism explaining the relationship between entrepreneurial orientation and firm performance.

Clearly, even a mechanism-based explanation does not resolve the paradigmatic differences outlined in Table 1 (cf. Durand & Vaara, 2009), nor is it entirely ontologically and epistemologically neutral. The framework for research synthesis outlined in the remainder of this section may be somewhat more sympathetic toward representational and pragmatic views than the constructivist-narrative view of knowledge, particularly if the latter rejects every effort at developing general knowledge (Gross, 2009). Our framework, however, does create common ground between all three perspectives on entrepreneurship by focusing on the following three elements: outcome patterns, social mechanisms, and contextual conditions.

**Outcome Patterns**

An idea that cuts across the three literatures outlined in Table 1 is to understand entrepreneurship as a societal phenomenon involving particular effects or *outcome patterns*. That is, merely contemplating radically new ideas or pioneering innovative pathways as such do not constitute ‘entrepreneurship’ (Davidsson, 2003; Garud & Karnøe, 2003; Sarasvathy, Dew, Read, & Wiltbank, 2008). Accordingly, entrepreneurship must also include empirical observable outcome patterns such as, for example ‘wealth or value creation’ (Davidsson, 2003), ‘market creation’
(Sarasvathy et al., 2008), ‘creating new options’ (Garud & Karnøe, 2003), or new social environments (Rindova et al., 2009). A key assumption here is that there are no universal truths or straightforward causalities in the world of entrepreneurship. What works well in a new venture in the professional services industry may not work at all in a high-tech startup. Thus, we need to go beyond a focus on simple outcome regularities, as there might be different possibly unobserved conditions or mechanisms influencing the mechanisms at work (Durand & Vaara, 2009). The aim is to establish causal explanations that have the capacity or power to establish the effect of interest (Woodward, 2003). Therefore, research synthesis focuses on (partly) successful or unsuccessful outcome patterns, rather than outcome regularities (Lawson, 1997; Pawson, 2006).

Social Mechanisms

Social mechanisms are capable of producing particular outcome patterns. The operation of a social mechanism is contingent on contextual influences, and can be influenced by or interact with other mechanisms (Anderson et al., 2006; Gross, 2009). Social mechanisms in the context of entrepreneurship research involve theoretical explanations, for example, learning in the area of opportunity identification (Dimov, 2007), the accumulation of social capital in organizational emergence (Nicolaou & Birley, 2003), fairness perceptions in cooperation processes (e.g., Busenitz, Moesel, Fiet, & Barney, 1997) or effectuation logic in entrepreneurial decision making (Sarasvathy, 2001). Social mechanisms are a pivotal notion in research synthesis because a coherent and integrated body of knowledge can only begin to develop when there is increasing agreement on which mechanisms generate certain outcome patterns in particular contexts.

Contextual Conditions
A key theme in the literature is the heterogeneity and diversity of entrepreneurial practices and phenomena (e.g., Aldrich & Ruef, 2006; Davidsson, 2008; Shane & Venkataraman, 2000). In this respect, Zahra (2007) argues a deeper understanding is needed of the nature, dynamics, uniqueness and limitations of the context of these practices and phenomena. The contextual conditions therefore are a key dimension of the framework for research synthesis proposed here. In this respect, the operation and impact of mechanisms on outcome patterns is contingent on contextual or situational conditions (Durand & Vaara, 2009; Gross, 2009). For example, continental European universities operating in a social market economy offer very different institutional, economic and cultural conditions for academic entrepreneurship than their US counterparts.

Contextual conditions operate by enabling or constraining the choices and behaviors of actors (Anderson et al., 2006; Pentland, 1999). Agents typically do have a choice in the face of particular contextual conditions, even if these conditions bias and restrict the choice. For example, a doctoral student seeking to commercialize her research findings by means of a university spinoff may face more substantial cultural barriers in a European context than in a US context (e.g., her supervisors may find “this is a dumb thing to do for a brilliant researcher”), but she may decide to push through these barriers. Other types of contextual conditions more forcefully restrict the number of options an agent can choose from; for example, particular legal constraints at the national level may prohibit universities to transfer or license their IP to spinoffs, which (for the doctoral student mentioned earlier) eliminates the option of an IP-based startup. In general, the key role of contextual conditions in our research synthesis framework serves to incorporate institutional and structurationist perspectives (DiMaggio & Powell, 1983; Giddens,
1984) that have been widely applied in the entrepreneurship literature (e.g., Aldrich & Fiol, 1994; Battilana, Leca, & Boxenbaum, 2009; Garud, Hardy, & Maguire, 2007).

THE DISCOVERY AND CREATION OF OPPORTUNITIES

We now turn to an example of research synthesis based on this framework. In this section, we synthesize previous research on entrepreneurship drawing on the notion of “opportunity”. This substantial body of literature is highly interesting in the context of research synthesis, because the positivist, narrative and design mode have been used to conduct empirical work in this area. Moreover, Alvarez and colleagues (Alvarez & Barney, 2007, 2010; Alvarez, Barney, & Young, 2010) recently reviewed a sample of both positivist and narrative studies in this area and concluded that these studies draw on epistemological assumptions that are mutually exclusive, which would impede “developing a single integrated theory of opportunities” (Alvarez & Barney, 2010, p. 558). While we agree with Alvarez and Barney that an integrated theory based on a coherent set of epistemological assumptions (cf. Table 1) is not feasible, our argument in the previous sections would imply that key research findings arising from each of the three research modes outlined in Table 1 can be synthesized in a mechanism-based framework.

Review Approach

To make the review evidence-based, only articles containing empirical studies are included. Moreover, we selected articles that explicitly deal with opportunity perception and/or opportunity-based action. We used the ABI/Inform database and searched for articles in which “opportunity” and “entrepreneur*” or “opportunities” and “entrepreneur*” were used in the title, keywords or abstract. To be able to assess the potential consensus and capture the entire scope of epistemological perspectives in the literature, articles were not only selected from first tier entrepreneurship and management journals, but also from some other relevant journals. The

To synthesize the findings, we read each article and coded key relationships between contextual conditions, social mechanisms and outcome patterns. In addition, we coded the theoretical and philosophical perspectives used by the authors, which showed that 51 articles predominantly draw on a positivist mode, 20 articles follow the constructive-narrative mode, whereas 8 articles are within the design mode or are explicitly agnostic or pragmatic (see Table 3). Similar mechanisms, contexts and outcome patterns were subsequently clustered, which resulted in an overview of contextual conditions, social mechanisms and outcome patterns.

**Synthesis Results**
Table 4 provides a summary of frequently observed outcome patterns, social mechanisms and contextual conditions. The outcome patterns are consistently described in the literature as consisting of *opportunity perception* (i.e., opportunity creation, opportunity ‘spark’, opportunity identification, opportunity recognition, and opportunity discovery) and *opportunity exploitation or development* (including opportunity evaluation as the decision to exploit an opportunity or not). Some studies go beyond opportunity perception and exploitation to examine performance outcomes of the exploited opportunities. The theoretical explanations of these outcome patterns, however, demonstrate substantial variation, including various combinations of all the contextual conditions and social mechanisms. Most mechanisms identified in the articles reviewed operate at the individual-cognitive level with regard to the outcome of opportunity identification, while mechanisms explaining opportunity development and exploitation are often action-oriented or less often at the collective level. Contextual conditions enable or constrain social mechanisms to operate, and these mechanisms can also influence each other. In the remainder of this section, we present two clusters of outcome patterns, social mechanisms and contextual conditions identified in our review: the cognitive framing of opportunities at the individual level and the social situatedness of opportunity perception and exploitation.

-------------------Insert Table 4 about here-------------------

*Individual cognitive framing of opportunities*

One of the most discussed mechanisms generating and directing opportunity perception and exploitation (as outcome pattern) is the individual’s framing of the situation at hand, in light of existing knowledge and experience (Short, Ketchen, Shook, & Ireland, 2010). Many studies seek to understand this relationship, providing an in-depth understanding of the underlying social
mechanisms and contextual conditions. Figure 1 summarizes the details of the specific contexts, social mechanisms and outcome patterns.

----------------------Insert Figure 1 about here------------------------

The general mechanism-based explanation here is that if an entrepreneur identifies or constructs an opportunity, (s)he most likely perceives and acts upon this opportunity if it is in line with his/her (perceived) prior experience and knowledge. Thus, an important contextual condition is formed by the amount and type of experience and knowledge. A second generic contextual condition are the external circumstances, such as technological inventions and changes in these circumstances which individuals may frame as opportunities. Within these contextual conditions, a number of different social mechanisms explain the outcome patterns of perceiving one or more opportunities, perceiving particular types of opportunities, the degree of innovativeness and development of these opportunities, and finally whether and how people act upon the perceived opportunity.

Our review identifies three social mechanisms within the individual cognitive framing of opportunities. First, the type and amount of knowledge enables or constrains framing the situation at hand as an opportunity. In general, people with entrepreneurial experience are more likely than non-entrepreneurs to frame something as an opportunity (Palich & Bagby, 1995). Higher levels of education and prior knowledge enhance the likelihood of identifying opportunities (Arenius & De Clercq, 2005; Ramos-Rodríguez, Medina-Garrido, Lorenzo-Gómez, & Ruiz-Navarro, 2010) and lead to identifying more opportunities (Smith, Matthews, & Schenkel, 2008; Ucbasaran, Westhead, & Wright, 2007, 2009; Westhead, Ucbasaran, & Wright, 2009) or more innovative ones (Shepherd & DeTienne, 2005), while industry experience makes it more likely that people act upon opportunities and start a venture (Dimov, 2010). More specifically, Shane (2000)
showed the existing knowledge of entrepreneurs directs the type of opportunity identified for commercializing that specific technology (see also Park, 2005). This mechanism appears to have an optimum level, as too much experience can hinder the entrepreneur in identifying new promising opportunities (Ucbasaran et al., 2009). Beyond perceiving an opportunity, knowledge and experience also appear to direct the way in which opportunities are exploited (Dencker, Gruber, & Shah, 2009). The underlying submechanism – explaining the cognitive framing mechanism – is that prior knowledge and experience facilitate recognizing patterns from snippets of information and ‘connecting the dots’ to ideate, identify and evaluate a meaningful opportunity (Baron & Ensley, 2006; Grégoire, Barr, & Shepherd, 2010; van Gelderen, 2010).

The second social mechanism (see Figure 1) serves to explain that the individual’s perception about his/her knowledge and abilities is also influential, as studies from a more narrative-constructivist mode point out (Gartner, Shaver, & Liao, 2008), thus complementing the first mechanism. The third mechanism says that framing the situation at hand in light of existing knowledge and experience (as a mechanism) does not facilitate the process of identifying an opportunity if the situation does not match the entrepreneur’s learning style (Dimov, 2007); this suggests these mechanisms have to operate together. Evidently, other contextual conditions and mechanisms, such as social network structure, also play a role (Arenius & De Clercq, 2005). In fact, the absence of social network structures can hinder the ‘individual cognitive framing of opportunities’ mechanism, as shown in a study of Finnish entrepreneurs whose perception of internationalization opportunities is hindered by the lack of ties in the foreign market, although they do have specific industry knowledge (Kontinen & Ojala, 2011).

As a next step, we considered whether the social mechanisms identified are dependent on each other (e.g., hierarchical, sequential or parallel), redundant or counterfactual, and whether there
could be unobserved mechanisms (cf. Durand & Vaara, 2009; Hedström & Ylikoski, 2010). With regard to the cluster of mechanisms pertaining to individual cognitive framing of opportunities, Figure 1 lists no counterfactual mechanisms but does display a number of parallel, partly overlapping mechanisms dealing with the amount of knowledge and experience, the perception about this knowledge and experience, and the domain-specificity of that knowledge and experience. As indicated by the underlying studies, however, these mechanisms are not sufficient to produce the outcome patterns, but require other mechanisms, such as social mediation. The ‘perception about one’s abilities’ (Gartner et al., 2008) may be redundant within this cluster of studies because most mechanisms do not require that entrepreneurs are aware of their abilities. Further research has to establish whether this is the case.

Socially situated opportunity perception and exploitation

Many studies show the individual entrepreneur’s social embeddedness in a context of weak and/or strong ties mediates the perception of opportunities. We identified multiple social mechanisms basically implying that people, by being embedded in a context of social ties, get access to new knowledge, ideas and useful contacts (e.g., Arenius & De Clercq, 2005; Bhagavatula, Elfring, van Tilburg, & van de Bunt, 2010; Jack & Anderson, 2002; Ozgen & Baron, 2007). Figure 2 summarizes the details of specific contexts, social mechanisms and outcome patterns. For instance, through the presence of social connections that exert explicit influence, such as in an incubator program, people can blend new and diverse ideas and obtain access to specialized resources, and also get stimulated by others to become more aware of new opportunities, resulting in the perception of one or more opportunities (Cooper & Park, 2008; Stuart & Sorenson, 2003). Uncovering the same social mechanism, a study of how
entrepreneurship emerges in the windmill industry showed that social movements co-shape the perception of opportunities and lead people to imagine opportunities of building and operating windmills (Sine & Lee, 2009). In addition, engaging in social contacts influences opportunity perception; for instance, people interacting with coworkers that can draw on prior entrepreneurial experiences are more likely to perceive entrepreneurial opportunities themselves (Nanda & Sørensen, 2010). Moreover, networking activities of entrepreneurs, in combination with observing and experimenting, enable the mechanism of associational thinking (Dyer, Gregersen, & Christensen, 2008) and serve to jointly construct opportunities by combining and shaping insights, as studies in the narrative research mode particularly emphasize (e.g., Corner & Ho, 2010; Fletcher, 2006). The outcome pattern typically observed here is that (potential) entrepreneurs perceive one of more particular opportunities.

The social network context also affects the outcome pattern of opportunity exploitation. For instance, in a ‘closed network’ involving strong ties, the mechanism of acquiring resources from trusted connections can enable resource acquisition and result in better opportunity exploitation (Bhagavatula et al., 2010). Moreover, such ties can provide a new entrepreneur with the legitimacy of established parties and/or reference customers (Elfring & Hulsink, 2003; Jack & Anderson, 2002). In addition, the support and encouragement of entrepreneurs’ social networks helps entrepreneurs gain more confidence to pursue radically new opportunities (Samuelsson & Davidsson, 2009) or growth opportunities (Tominc & Rebernik, 2007).

However, these mechanisms can also hinder opportunity perceptions when shared ideas and norms constrain people in perceiving and exploiting radically new opportunities – as Zahra, Yavuz and Ucbasaran (2006) showed in a corporate entrepreneurship context. Contextual conditions such as geographic, psychic and linguistic proximity limit a person’s existing network,
which reduces the number and variation of opportunities that can be mediated by these social ties (Ellis, 2010). In addition, observations in the African context suggest strong family ties also bring many social obligations with them, which may hinder opportunity exploitation; being exposed to a diversity of strong community ties can counterbalance this effect (Khavul, Bruton, & Wood, 2009).

As a result, the mechanisms explaining positive effects of network ties (e.g., access to knowledge and resources leading to more opportunities and better exploitation) and those causing negative effects (e.g., cognitive lock-in and limited resource availability) appear to be antagonistic. However, the contexts in which these mechanisms operate may explain the divergent processes and outcomes, as diverse networks provide more and diverse information and resources, while closed networks can create a lock-in effect (see Martinez & Aldrich, 2011). Yet, closed networks may also have positive effects, in particular on opportunity exploitation in a western context, through trust and resource availability. As there is a large body of empirical studies in this domain (Jack, 2010; Martinez & Aldrich, 2011; Stuart & Sorenson, 2007), a systematic evidence-based analysis of the social mechanisms, their conditions and outcomes can be instrumental in explaining the remaining inconsistencies.

Moreover, Figure 2 suggests some overlap and/or redundancy among several mechanisms. In particular, the legitimation and resource- or knowledge-provision mechanisms appear to co-operate, and are thus difficult to disentangle. Possibly, these social mechanisms operate in a sequential manner, when legitimacy of the entrepreneur and/or venture is a necessary condition for building trust with and obtaining access to the connection (e.g., a potential investor).

In sum, this literature synthesis illustrates that the social mechanisms and outcome patterns identified in different streams of literature can be integrated in a mechanism-based framework.
We identified three mechanisms related to the directivity of knowledge and experience in the perception, development and exploitation of opportunities (see Figure 1). With regard to the in-depth review of socially situated opportunity perception and exploitation, we found seven mechanisms, operating in a diversity of contextual conditions (see Figure 2). Table 4 presents an overview of the prevailing contextual conditions, social mechanisms and outcome patterns in the literature on entrepreneurial opportunities. The philosophical perspectives adopted in the articles reviewed range from studying opportunities as actualized by individuals and constructed in social relationships and practices (Fletcher, 2006; Gartner et al., 2008; Hjorth, 2007) to opportunities as found in and shaped by technological inventions (e.g., Clarysse, Tartari, & Salter, 2011; Cooper & Park, 2008; Eckhardt & Shane, 2011; Shane, 2000). Nonetheless, the social mechanisms (e.g., type of existing knowledge or perception about existing knowledge) and outcome patterns (e.g., type of opportunity) are consistent. This suggests the research synthesis framework proposed in this paper is largely agnostic to underlying assumptions, and serves to build a cumulative understanding of contextual conditions, social mechanisms and outcome patterns.

--------Insert Table 4 about here--------

DISCUSSION

Entrepreneurship theorizing currently is subject to a debate between positivism and social constructivism, for instance in the discourse on the ontology of opportunities (Short et al., 2010). To conceptually reconcile the two positions in this debate, McMullen and Shepherd (2006) proposed a focus on entrepreneurial action, which would make ontological assumptions less important. Entrepreneurial action is thus defined as inherently intentional: entrepreneurs decide to bear perceived uncertainty to create newness. Our argument in this paper provides an important complement to McMullen and Shepherd’s proposal. The research synthesis framework developed
in this paper serves to specify patterns of actions and outcomes as well as the social mechanisms and contextual conditions constituting these patterns.

**Research Implications**

An important benefit of the research synthesis framework presented in this paper is that it facilitates the synthesis of dispersed and divergent streams of literature on entrepreneurship. This framework does not imply a particular epistemological stance, such as a narrative or positivist one. If any, then the epistemological perspective we have taken in this paper is rooted in a pragmatic view of the world that acknowledges the complementary nature of narrative, positivist and design knowledge (Gross, 2009; Romme, 2003). This epistemological position embraces the notion of positivist and narrative knowledge as a sound basis of entrepreneurial decisions and actions – while acknowledging that actionable knowledge also draws on local contingencies (e.g., unique competences and experiences of the entrepreneur) that cannot be fully captured in a scientific body of knowledge (Tsoukas, 2005).

Our proposal to develop a professional practice of research synthesis in the field of entrepreneurship may also serve to avoid a stalemate in the current disagreement on key paradigmatic issues among entrepreneurship researchers (Davidsson, 2008; Ireland et al., 2005). Rather than engage in a paradigmatic debate that possibly results in the kind of ‘paradigm wars’ that have raged elsewhere in management studies (e.g., Denison, 1996), a broad framework for research synthesis will be instrumental in spurring and facilitating a discourse on ‘what’, ‘why’, ‘when’ and ‘how’ entrepreneurial ideas, strategies, practices and actions (do not) work. This means that our perspective on the landscape of entrepreneurship research (summarized in Table 1) reflects the widely accepted notion of ‘paradigm incommensurability’ (e.g., Jackson & Carter, 1991) as earlier conceptualized by Burrell and Morgan (1979). However, the mere fact that
entrepreneurship research involves highly different and largely incommensurable foundations and assumptions should not be taken as an excuse to avoid building a shared body of knowledge that can inform and support practitioners and policy makers.

We thus advocate building mechanism-based explanations for entrepreneurship phenomena. Entrepreneurship studies need to go beyond establishing mere relationships, by exploring and uncovering the social mechanisms that explain why variables are related to each other, as recent calls for mechanism-based explanations for entrepreneurship phenomena also argue (Aldrich, 2010; Frese et al., 2012; McKelvie & Wiklund, 2010; Wiklund & Shepherd, 2011). A focus on social mechanisms not only serves to transcend paradigmatic differences, but also creates detailed explanations by identifying mechanisms and contrasting with counterfactuals. For instance, we observed there are similar mechanisms at work in a diversity of contexts in which an entrepreneur’s knowledge and experience affects opportunity identification and exploitation. The literature in this area, although highly diverse in terms of its ontological and epistemological underpinnings, is thus starting to converge toward a common understanding of how particular entrepreneurial contexts through certain social mechanisms generate particular outcome patterns. In a similar way, previous meta-analyses have proven to be effective tools to identify the mechanisms that explain the (contrasting) results of studies on business planning and entrepreneurship (Brinckmann, Grichnik, & Kapsa, 2010; Frese et al., 2012).

Our framework also advances the literature on methods of systematic research synthesis. Early pioneers in this area have argued for a systematic collection of evidence regarding the effect of interventions in particular management contexts (Tranfield et al., 2003). Later work has introduced the notion of mechanisms, as an explanation of the effect of an intervention in a particular context (e.g., Denyer et al., 2008; Rousseau, 2012; Rousseau et al., 2008), mostly
drawing on the critical realist synthesis approach developed by Pawson (2006). Our synthesis framework builds more broadly on mechanism-based work from sociology, using a pragmatic notion of mechanisms (Gross, 2009) and thus avoids the ontological assumptions of critical realism which some have criticized (Hedström & Ylikoski, 2010; Kuorikoski & Pöyhönen, 2012). Moreover, our application to the ‘entrepreneurial opportunity’ literature shows that detailed mechanism-based explanations can be created by qualitative assessments of different types of mechanisms and their hierarchy, dependency and sequence, including an analysis of rival mechanisms or counterfactuals.

**Practical Implications**

The research synthesis perspective developed in this paper serves to bridge the so-called ‘relevance gap’ between mainstream entrepreneurship science and entrepreneurial practice. In search of a research domain and a strong theory, entrepreneurship researchers have increasingly moved away from practically relevant questions (Zahra & Wright, 2011). This has led to an increased awareness of the scientific rationale of entrepreneurship research (Shane & Venkataraman, 2000), but also reinforced the boundaries between the science and practice of entrepreneurship. As our synthesis of the entrepreneurial opportunity literature illustrates, few studies adopt a pragmatic design orientation with a clear focus on practicing entrepreneurs. Meanwhile, policy fashions rather than empirical evidence or well-established theory tend to influence entrepreneurial behavior and public policy (Bower, 2003; Mowery & Ziedonis, 2004; Weick, 2001). Moreover, previous attempts to develop practice-oriented design recommendations from ‘thick’ case descriptions provided only a partial view of policy (actions and interventions) or refrained from specifying the specific contexts of strategy or policy recommendations. This makes it rather difficult to formulate recommendations that bear contextual validity as well as
synthesize scholarly insights (Welter, 2011; Zahra, 2007). In other words, there is a major risk that many entrepreneurs, investors and other stakeholders in entrepreneurial initiatives and processes miss out on key scholarly insights, as a solid basis from which adequate strategies, policies and measures can be developed. In this respect, evidence-based and actionable insights codified in terms of contextual conditions, key social mechanisms and outcome patterns can inform and support entrepreneurs and their stakeholders in the process of designing new ventures and related policies. For instance, the research synthesis conducted in this paper demonstrates legitimacy creation, cognitive lock-in, information and resource gathering as well as social obligations are central mechanisms that explain the highly diverse effects of social ties. Entrepreneurs who know these mechanisms are likely to be more effective in social networking efforts, for example, by searching for variety, engaging in deliberate efforts to establish legitimacy, and so forth.

**Limitations and Further Research**

This paper presents a mechanism-based research synthesis approach, which is briefly illustrated by showing how it can be used to integrate the literature on entrepreneurial opportunity formation, exploration and exploitation. We systematically collected the relevant papers on this topic, but were only able to present a snippet of the synthesis. It is up to future work in this area to develop a full-fledged integration (which may better fit in a book) and to do this exercise for other relevant topics in the entrepreneurship literature as well.

Moreover, we only touched on the analysis of the dependency and redundancy of the social mechanisms identified and illustrated how this could be done. A formal and more detailed analysis of dependency (e.g., hierarchical, sequential or parallel), redundancy, counterfactual and unobserved mechanisms (cf. Durand & Vaara, 2009) is a very promising route for further
research, which may eventually serve to identify potential new mechanisms and areas of research. Finally, future research will need to focus on more systematically distinguishing (based on a complete research synthesis) different types of mechanisms – ranging from micro to macro. For instance, in the Hedström and Swedberg (1996) framework, situational (desire, belief, opportunity), action-formation and transformational mechanisms can be distinguished; or alternatively Gross (2009) distinguishes individual-cognitive, individual-behavioral, and collectively enacted mechanisms. Distinguishing these different types of mechanisms will serve to identify the social levels at which, and contexts in which, practitioners can intervene (e.g., training, actions of individual entrepreneurs, group-level social structures).

CONCLUSION

Stevenson and Jarillo (1990: 21) advocated researching the ‘how’ rather than the ‘why’ and ‘what’ of entrepreneurship. In spite of the impact of this foundational work, most research in entrepreneurship remains focused on the ‘why’ and ‘what’. Many researchers acknowledge the relevance of ‘how’ questions, but run into major difficulties when they try to provide answers to the practical challenges faced by entrepreneurs, investors and other stakeholders (Bygrave, 2007). We have argued positivist knowledge (on why and what issues) can be complementary to narrative and actionable knowledge (on how issues), but only if an interface between three highly different kinds of knowledge and research (outlined in Table 1) is developed and sustained. Drawing on the literature on systematic review and evidence-based research synthesis, we have presented a framework for mechanism-based research synthesis that can act as this interface. This framework serves to synthesize research findings in terms of their outcome patterns, contextual conditions and social mechanisms. Subsequently, research findings on opportunity discovery and creation were reviewed and synthesized. This example demonstrates that research synthesis does
not substitute theory development within the positivist, narrative or design modes of engaging in entrepreneurship research, it merely provides a framework to develop a systematic and actionable overview of what we know about entrepreneurship.

REFERENCES


<table>
<thead>
<tr>
<th>Purpose</th>
<th>Positivist Mode</th>
<th>Narrative Mode</th>
<th>Design Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand entrepreneurship on the basis of consensual objectivity, by uncovering general conditions and patterns from empirical data (cf. Aristotle’s virtue of <em>episteme</em>).</td>
<td>Portray, understand and critically reflect on the values, experience and imagination of entrepreneurs, also in relation to the economic, social and cultural environments they operate in (cf. Aristotle’s virtue of <em>phronesis</em>).</td>
<td>Train, advice and help entrepreneurs and their stakeholders in their endeavor to create value and newness (Aristotle’s virtue of <em>techne</em>).</td>
<td></td>
</tr>
<tr>
<td>Role Model</td>
<td>Natural sciences (e.g., physics) and other disciplines that have adopted the positivist approach (e.g., economics).</td>
<td>Humanities (e.g., aesthetics, hermeneutics, cultural studies, literature, philosophy) and arts (e.g., sculpture, painting, languages)</td>
<td>Design and engineering disciplines (e.g., architecture, aeronautical engineering, computer science).</td>
</tr>
<tr>
<td>View of Knowledge</td>
<td>Representational: knowledge represents the world as it is.</td>
<td>Constructivist and narrative: all knowledge arises from what entrepreneurs and their stakeholders think and say about the world.</td>
<td>Pragmatic: knowledge is primarily developed to serve (creative) action by entrepreneurs and their stakeholders.</td>
</tr>
<tr>
<td>Nature of Thinking</td>
<td>Descriptive and analytic - driven by a search for general and valid knowledge.</td>
<td>Imaginative, critical and reflexive - appreciating complexity is given precedence over the goal of achieving general knowledge.</td>
<td>Normative and synthetic - driven by intentions and purposes and inspired by ideal solutions (ideation).</td>
</tr>
<tr>
<td>Research Focus</td>
<td>Entrepreneurial phenomena as empirical objects (cf. facts) with well-defined descriptive properties that can be observed from an outsider position.</td>
<td>Entrepreneurial action and sensemaking (in their broader contexts) as genuinely creative acts.</td>
<td>Entrepreneurial processes and outcomes as artifacts with descriptive as well as imperative (possibly ill-defined) properties.</td>
</tr>
<tr>
<td></td>
<td>Describe and explain these empirical objects in terms of general causal relationships among variables (hypotheses); collect quantitative data and use inferential statistics to test hypotheses. Conclusions stay within the boundaries of the analysis.</td>
<td>Interpret and assess particular entrepreneurship narratives in their specific contexts: do they involve radical shifts in thinking, legitimacy problems, fair outcomes, and so forth? Conclusions may move outside the boundaries of the study.</td>
<td>Develop principles (‘real helps’ for entrepreneurs) by observing experienced entrepreneurs in action, reading their diaries, etc.; then extract and codify principles to develop pragmatic tools and mechanisms that can possibly be refined in the laboratory or classroom.</td>
</tr>
</tbody>
</table>
TABLE 2: Selection of Articles Reviewed

<table>
<thead>
<tr>
<th>Initial Search Results</th>
<th>Selected Empirical Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical</td>
<td>Academy of Management Journal 2</td>
</tr>
<tr>
<td>Empirical</td>
<td>Administrative Science Quarterly 2</td>
</tr>
<tr>
<td>Not relevant</td>
<td>Entrepreneurship and Regional Development 2</td>
</tr>
<tr>
<td>Total</td>
<td>Entrepreneurship Theory and Practice 16</td>
</tr>
<tr>
<td></td>
<td>International Small Business Journal 3</td>
</tr>
<tr>
<td></td>
<td>Journal of Business Venturing 16</td>
</tr>
<tr>
<td></td>
<td>Journal of Enterprising Culture 6</td>
</tr>
<tr>
<td></td>
<td>Journal of International Business Studies 1</td>
</tr>
<tr>
<td></td>
<td>Journal of Management 1</td>
</tr>
<tr>
<td></td>
<td>Journal of Management Studies 2</td>
</tr>
<tr>
<td></td>
<td>Journal of Small Business Management 2</td>
</tr>
<tr>
<td></td>
<td>Management Science 4</td>
</tr>
<tr>
<td></td>
<td>Organization Science 2</td>
</tr>
<tr>
<td></td>
<td>Organizational Behavior and Human Decision Processes 1</td>
</tr>
<tr>
<td></td>
<td>Research Policy 2</td>
</tr>
<tr>
<td></td>
<td>Small Business Economics 8</td>
</tr>
<tr>
<td></td>
<td>Strategic Entrepreneurship Journal 7</td>
</tr>
<tr>
<td></td>
<td>Technovation 2</td>
</tr>
<tr>
<td>Total</td>
<td>79</td>
</tr>
</tbody>
</table>

TABLE 3: Articles from Different Research Modes

<table>
<thead>
<tr>
<th>Positivist Mode</th>
<th>Narrative Mode</th>
<th>Design Mode (including ‘agnostic’ articles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>51 articles</td>
<td>20 articles</td>
<td>8 articles</td>
</tr>
</tbody>
</table>

**Example**
Shane (2001) analyzes 1,397 patents assigned to MIT and examines which of the patented technological inventions were commercialized through firm formation. Results show that the invention’s importance, radicalness and patent scope influence the extent to which the invention provides entrepreneurial opportunities.

**Example**
Hjorth (2007) draws on a narrative approach to explore the commonalities between entrepreneurial characters in the ‘Toy Story’ of Terry Allen’s, the Marvel Mustang story and a passage from Shakespeare's Othello. He shows the importance of the temporal aspects, events, ‘fires’ and practices with regard to opportunity creation.

**Example**
Berglund (2007) draws on a phenomenological examination of the opportunities of 19 Swedish Mobile Internet entrepreneurs. Berglund concludes that the opportunities are a set of perceptions and projections “that provide the cognitive and practical drivers needed to guide entrepreneurial action” (p. 243).
<table>
<thead>
<tr>
<th>Contextual Conditions</th>
<th>Social Mechanisms</th>
<th>Outcome Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational structures (e.g., corporate and academic contexts).</td>
<td>Individual cognitive framing of opportunities, including biases and heuristics,</td>
<td>Perceiving opportunities (number of opportunities, type of opportunities and</td>
</tr>
<tr>
<td></td>
<td>influenced by prior knowledge and experience.</td>
<td>size of opportunities).</td>
</tr>
<tr>
<td>Economic, institutional and industry structures. Underprivileged situations</td>
<td>Social mediation: influence of social ties by providing information, resources and</td>
<td>Exploiting and/or developing opportunities (including the decision to exploit, the</td>
</tr>
<tr>
<td>(e.g., rural areas in Africa).</td>
<td>steering decisions.</td>
<td>creation of new ventures).</td>
</tr>
<tr>
<td>Social network structures (e.g., network density, structural holes, clusters).</td>
<td>Social interaction: seeking feedback, combining information, and co-creating with</td>
<td>Performance of exploitation and development of opportunities (e.g., growth, survival).</td>
</tr>
<tr>
<td>Facilitation structures (e.g., business incubators) or movements that exert influence.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External circumstances (e.g., inventions) and changes in these circumstances.</td>
<td>Self-image: entrepreneur’s perceived identity and capabilities.</td>
<td></td>
</tr>
<tr>
<td>Person and capabilities of the entrepreneur (including gender, genetic make-up, prior</td>
<td>Searching, scanning and selecting ideas.</td>
<td></td>
</tr>
<tr>
<td>experience).</td>
<td></td>
<td></td>
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<tr>
<td>Belief structures (including culture).</td>
<td></td>
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</tbody>
</table>
FIGURE 1
Research Synthesis Example 1: Individual Cognitive Framing of Opportunities

**Contextual Conditions**
Constraining and/or enabling industry, technology, personal and/or geographical context.

- External circumstances (e.g., inventions) and changes in these circumstances (e.g., Shane, 2000).
- Amount and type of knowledge and experience an individual possesses (e.g., Shepherd & DeTienne, 2005).

**Social Mechanisms**
Individual cognitive framing of the situation, through available knowledge and experience.

- Knowledge and experience cognitively frame the situation at hand (e.g., Ucbasaran et al., 2007, 2009).
- Perception about abilities frames circumstances as opportunity or not (e.g., Gartner et al., 2008).
- When domain specific knowledge matches with learning style this leads to action (e.g., Dimov, 2007).

**Outcome Patterns**
Perceiving a particular opportunity and acting on this opportunity.

- Perceiving one of more opportunities (e.g., Arenius & De Clercq, 2005).
- Perception of particular type of opportunity (e.g., Park, 2005).
- Degree of innovativeness and development of an opportunity (e.g., Gregoire et al., 2010).
- Acting on, and way of acting on, a perceived opportunity (e.g., Levie and Autio 2008).

Perception about abilities frames circumstances as opportunity or not (e.g., Gartner et al., 2008).
FIGURE 2

Contextual Conditions
Context of strong and/or weak ties, and pressures and/or stimuli from the social connections.

Presence of connections that exert explicit influence (e.g., social movements, incubators) (e.g., Sin & Lee, 2009).

The whole of human relations and their social context (Jack & Anderson, 2002).

Networking (creating strong ties), combined with observing and experimenting activities (e.g., Dyer et al., 2008).

Network of weak ties; with structural holes; diverse, urban areas (e.g., Elfring & Hulsink, 2003).

Shared ideas and norms in a close network of strong ties (Zahra et al., 2006). Geographic, psychic and linguistic proximity of social ties (Ellis, 2010).

Strong family ties with high degrees of reciprocity, e.g., in clan relationships (e.g., Khavul et al., 2009).

Social Mechanisms
Access through and influence of social ties.

Pressure or stimulus from social relationships, jointly constructing and shaping ideas (Nanda & Sørensen, 2010).

Combining different information/resources through associational thinking (e.g., Corner & Ho, 2010).

Limits the access to (unique) knowledge and useful contacts, constrains divergent thinking (e.g., Zahra et al., 2006).

Social relationships provide access to (unique) knowledge and resources (e.g., Arenius & De Clercq, 2005).

Gaining legitimacy by having many connections (e.g., Jack and Anderson, 2002).

Gaining legitimacy by having well-established connections (e.g., Bhagavatula et al., 2010).

Social support and encouragement to do new things (Samuelsson & Davidsson, 2009).

Many social obligations, which consume time and resources (e.g., Khavul et al., 2009).

Outcome Patterns
Perceiving a particular opportunity and acting on this opportunity.

Perceiving one or more particular opportunities (e.g., Fletcher, 2006).

Perceiving fewer and less innovative opportunities (e.g., Ellis, 2010).

More successful opportunity exploitation areas (e.g., Elfring & Hulsink, 2003).

Exploiting more innovative, high-potential opportunities (e.g., Tominc & Rebernik, 2007).

Less successful opportunity exploitation (e.g., Khavul et al., 2009).