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SUSTAINING ACTOR ENGAGEMENT DURING THE OPPORTUNITY DEVELOPMENT PROCESS

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Research summary: *Recent entrepreneurship research has examined how opportunities are developed, highlighting the engagement of external actors. However, we know little about how entrepreneurs should interact with external actors to sustain their engagement. Since opportunity development is a process that unfolds over time, sustaining actor engagement is critical because it enables continued feedback and access to actors' resources. We present a process model that explains how entrepreneurs can sustain external actor engagement through two iterative phases: translation and transformation. We also propose that entrepreneurs can sustain actor engagement by structuring the timing of interactions and by modifying actors' perceptions of the time available for novel opportunity development. We conclude with an agenda for future research on actor engagement and entrepreneurs' temporal capabilities.*

Managerial summary: *To develop business opportunities, entrepreneurs require support, feedback, and other resources from different groups of individuals (actors), such as customers, business partners, investors, and regulators. We explain how entrepreneurs should continue to interact with these actors throughout the development period to secure sustained access to resources. Entrepreneurs need to present the business opportunity to actors in an engaging way, and subsequently integrate the feedback received during development of the project. Sustaining engagement from actors involves an iterative process through which the business opportunity is communicated and transformed. Entrepreneurs can influence actors' engagement by choosing how and when to interact with them. We highlight time and actor feedback as important resources that can be used by skillful entrepreneurs to increase the odds of opportunity development success.*

INTRODUCTION

In recent years, there has been growing interest in better understanding the process through which entrepreneurs develop opportunities (Dimov, 2007; Venkataraman *et al.*, 2012; Wright and Marlow, 2012), that is, actionable ideas for value creation. The opportunity development process, understood as the nexus of opportunities and individuals (Shane and Venkataraman, 2000), lies at the heart of entrepreneurship research. Scholars have begun to study the process from different perspectives, looking at the engagement of actors other than the entrepreneur (customers, business partners, investors, or regulators). They have highlighted the importance of external actors in providing entrepreneurs with resources, including money, expertise, network connections, and legitimacy (Dimov, 2007, 2011; Hallen and Eisenhardt, 2012).

Keywords: opportunity development; sustaining actor engagement; translation; transformation; process model; temporal capabilities
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Specifically, studies examining opportunity development as instituted in market structures (e.g., Aldrich and Fiol, 1994; Dimov, 2011; Lounsbury and Glynn, 2001) suggest that entrepreneurs elaborate particular strategies to obtain actor engagement and mobilize feedback and resources for opportunity development (Clarke, 2011; Santos and Eisenhardt, 2009; Zott and Huy, 2007). For example, scholars have argued that entrepreneurs use metaphors and analogies to describe and justify an opportunity to external actors (e.g., Cornelissen and Clarke, 2010). However, when opportunity development is considered as an entrepreneurial journey (Garud and Karnøe, 2003; Selden and Fletcher, 2015; Venkataraman *et al*., 2012), that is, a process that unfolds over time, it becomes important for entrepreneurs not only to gain initial actor engagement but also *to sustain* this engagement to secure continued access to feedback and resources. This journey of opportunity development, and the social learning that accompanies it (Dimov, 2007; Dutta and Crossan, 2005), imply continued interactions with external actors.

To explain how entrepreneurs can sustain actor engagement, we conceptualize the process of opportunity development as an iteration of two phases: translation, during which the entrepreneur presents and adapts the opportunity to external actors, and transformation, during which the entrepreneur integrates actors' feedback in the opportunity. Following the extant literature, the initial translation phase is aimed at eliciting engagement from actors. We argue that it is the subsequent transformation and ongoing iterations between translation and transformation that ensure actors' sustained engagement, as actors learn and become committed to the opportunity. Further, focusing on the timing of this iterative process, we suggest that entrepreneurs can sustain external actor engagement by modifying both external actors' *subjective* perceptions of time (as experienced and interpreted by these individuals) and the *objective* (linear and measurable) timing of the opportunity development process.

We offer two contributions to the literature on opportunity development. First, we contribute to an emergence-based theory of entrepreneurship (Garud and Karnøe, 2003; Phan, 2004) by providing conceptual clarity about how entrepreneurs can sustain the generative role of external actors in the opportunity development process through iterations of translation and transformation. This is important because so far the literature has remained silent about how entrepreneurs can continue to leverage external actors during the opportunity development process. In doing so, we move beyond the recognition that external actors are important providers of resources (Dimov, 2007; Maguire, Hardy, and Lawrence, 2004) to outline the specific process through which entrepreneurs sustain actor engagement in order to access these resources. We also provide a discussion of the boundary conditions under which external actors can be constructively engaged.

Second, we add to our knowledge of the range of influencing skills that entrepreneurs can use during the opportunity development process (Clarke, 2011; Zott and Huy, 2007). Existing research acknowledges the dynamic nature of opportunity development (e.g., O'Connor, 2004; Selden and Fletcher, 2015) and the importance of the entrepreneur's temporal capabilities, such as the pacing of strategic events (e.g., Gersick, 1994). Temporal capabilities are important because time can be a critical resource for entrepreneurs during actor engagement. We specify how entrepreneurs can use their temporal capabilities in order to sustain actor engagement by purposefully structuring the timing of interactions with actors and modifying actors' subjective perception of time. Specifically, entrepreneurs can adjust the duration of the translation and transformation phases by choosing when and how often to interact with external actors and by outlining the implementation of the opportunity as more or less distant in time—for example, in the form of an imminent or more distant new product launch. By specifying how entrepreneurs can use their temporal capabilities as a strategic resource during opportunity development, we add substance to Orlikowski and Yates' (2002: 690) notion that 'if the time is not ripe, then it should be your purpose to ripen the time.'

OPPORTUNITY DEVELOPMENT IN ENTREPRENEURSHIP RESEARCH

Since Shane and Venkataraman (2000), the conversation in the entrepreneurship literature has turned to the nature of opportunities and the characteristics of entrepreneurs. While the discussion about the nature of opportunities continues (Davidsson, 2015; McMullen and Shepherd, 2006), several researchers (Cornelissen and Clarke, 2010; Garud and Giuliani, 2013; McMullen and Dimov, 2013) suggest that the field could move forward by

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examining the opportunity development *process*, paying closer attention to 'what aspiring entrepreneurs do' (Dimov, 2011: 75).

Opportunities materialize when entrepreneurs exploit existing products, services, or business models or introduce novel ones. Prior research suggests that a relatively small proportion of entrepreneurs start their ventures based on novel opportunities because imitation facilitates opportunity development (Amason, Shrader, and Tompson, 2006; Bhide, 2000). We concentrate on opportunities involving *novel* products, services, or business models, because this subset of available opportunities is the hardest to develop, due to legitimacy deficits (Aldrich and Fiol, 1994; Zimmerman and Zeitz, 2002).

Three recent perspectives have focused on the opportunity development process and the important role of external actors, studying opportunity development as instituted in market structures, as artifact creation during the entrepreneurial journey, and as a social learning process.[1] Taken together, these three perspectives highlight the need for entrepreneurs to engage external actors in opportunity development to acquire resources and gain valuable feedback. Yet, in each of these perspectives, the opportunity, the process, and the interactions between entrepreneurs, actors, and the opportunity are conceived in slightly different ways, as we will explain.

Opportunity development as instituted in market structures

In this perspective, opportunities have to adhere to societal standards, at least to some extent (Welter, 2011; Zahra and Wright, 2011). This means that when entrepreneurs introduce novel products, services, or business models, they have to undertake the difficult task of acquiring legitimacy (Aldrich and Fiol, 1994; Suchman, 1995; Tost, 2011). In order to do this, entrepreneurs present the opportunity to actors using linguistic tools such as analogies and metaphors (Cornelissen and Clarke, 2010; Snihur, 2016), storytelling (Lounsbury and Glynn, 2001), or visual symbols (Clarke, 2011).

Gaining legitimacy is not only a goal for the entrepreneur, but also the means by which actor engagement is initially obtained. Following Polanyi (2001), Dimov (2011) suggests that 'a vital part of opportunity pursuits is *the engagement of other market actors* as customers, suppliers, investors, employees, advisors, etc.' (Dimov, 2011: 74, emphasis added). In other words, securing the participation of external actors is critical to opportunity development. As external actors make legitimacy judgments about the new venture, they become engaged in opportunity development, providing entrepreneurs with much-needed feedback and resources (Lounsbury and Glynn, 2001; Zott and Huy, 2007).

The literature suggests that in order to obtain engagement, entrepreneurs may need to adjust the way they present the opportunity to actors by changing its image. For example, Cornelissen and Clarke (2010: 549) claim that entrepreneurs need to 'reinforce, adapt, or replace the initially induced image or scene of the venture, depending on the feedback of others' in order to legitimize the opportunity. This notion that the opportunity needs to be adjusted for external actors is central to translation theory (Callon, 1986; Czarniawska and Sevón, 1996; Sahlin-Andersson and Engwall, 2002),[2] which posits that ideas change in content and meaning through collective exposure as they travel from one actor to another. This implies that the content of the opportunity can be *intentionally* adapted to specific actors: the entrepreneur can translate the same opportunity differently for different actors, depending on their characteristics. Thus, translation theory makes the editing of the opportunity itself (rather than its image) more explicit during interactions with actors.

Scholars following this line of research have examined various presentation strategies entrepreneurs use when communicating with external actors and the potential subsequent changes to the opportunity. However, the microprocesses of actor engagement, in particular how engagement might be *sustained*, have not been identified. Further, while these interactions take place over time, there are few indications about how the entrepreneur might modify temporal aspects of the process.

[1] We are indebted to an anonymous reviewer for suggesting this classification.

[2] This theory has been used to explain the transmission of ideas in organizations (Ansari, Fiss, and Zajac, 2010; Czarniawska and Joerges, 1996) or in societies at large (Zilber, 2006) and typically focuses on the adoption and transmission of ideas in established organizations (Sahlin and Wedlin, 2008) rather than on the creation of new ventures. For a recent review, please see Waeraas and Nielsen (2016).

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Opportunity development as artifact creation during the entrepreneurial journey

When opportunity development is considered from this perspective, a slightly different view emerges. First, in line with translation theory, the creation of an artifact implies an actual development of the opportunity over time, not just modification of the way it is presented. An artifact is defined as something made or shaped through the 'actions and interactions of stakeholders' (Venkataraman *et al*., 2012: 26) that is not limited to physical objects (e.g., a wind turbine) but can also include a service, firm capability, or business model (Selden and Fletcher, 2015). For example, in their comparative study of the development of wind turbines in the United States and Denmark, Garud and Karnøe (2003: 295) show that the creation of innovative (technological) artifacts involves multiple actors who 'gradually transformed the emerging path to higher functionalities.'

Second, this stream focuses closely on the notion of an opportunity development *process*. For example, Selden and Fletcher (2015) examine opportunity development from the initial business idea all the way to the formation of technological clusters. They view the entrepreneurial journey as the entire sequence of events when 'artifacts created at lower levels are designed as contextual to the emergence of more tangible artifacts at higher levels' (Selden and Fletcher, 2015: 604). Other authors have examined the timing of various business-building activities, such as hiring employees or completing an initial public offering (IPO) (Gersick, 1994; Lichtenstein *et al*., 2007).

Opportunity development seen from this perspective involves interactions with external actors over time, leading to the evolution of an opportunity. One important implication of this is that entrepreneurs not only need to gain actor engagement at a certain point in time, but also have to sustain it over the duration of the entrepreneurial journey. This argument has received only scant attention so far.

Opportunity development as a social learning process

Finally, the social learning perspective conceptualizes opportunity development as a process that involves external actors and emphasizes the entrepreneurial learning that takes place within it. Dutta and Crossan (2005) apply the organizational learning framework developed by Crossan, Lane, and White (1999) to characterize opportunity development through four mechanisms: intuiting, interpreting, integrating, and institutionalizing. While intuiting is an intra-individual process, interpreting and integrating imply language-based interactions with other actors, building shared understanding that is later institutionalized in organizational routines. Extending this work, Dimov's (2007) conceptualization of opportunity development involves the elaboration, refinement, change, or even discarding of initial ideas through social exchanges with external actors who contribute valuable information and feedback.

The social learning approach expands the process view of opportunity development by suggesting that learning occurs throughout the opportunity life cycle (Cope, 2005; Ravasi and Turati, 2005). It also emphasizes the multilevel and dynamic nature of learning as it moves between individual, group, and organizational levels through feedback loops (Crossan *et al*., 1999). One important implication of this literature is that the entrepreneur learns from interactions with external actors throughout the development process (Harrison and Leitch, 2005; Minniti and Bygrave, 2001; Ravasi and Turati, 2005) and, as a consequence, also learns to interact with actors over time (Cope, 2005).

Integration of the three perspectives

We integrate the insights provided by these three perspectives to propose a process model of opportunity development that focuses on how to *sustain the engagement of external actors*. Specifically, we build our model on three main premises derived from the literature. First, to initiate actor engagement, entrepreneurs need to intentionally adapt the opportunity when presenting it to external actors. Second, opportunity development unfolds over time. It benefits from continuous access to external actors' feedback and resources, but this requires the entrepreneur to sustain actor engagement. Third, both entrepreneurs and external actors learn from their interactions throughout the opportunity development process, which helps sustain the engagement of external actors.

Next, we present our model of opportunity development (Figure 1), develop the links between the translation and transformation phases and sustained actor engagement, and discuss the iterative nature of the process (indicated by the iterative loop). Subsequently, we examine the constructs related to

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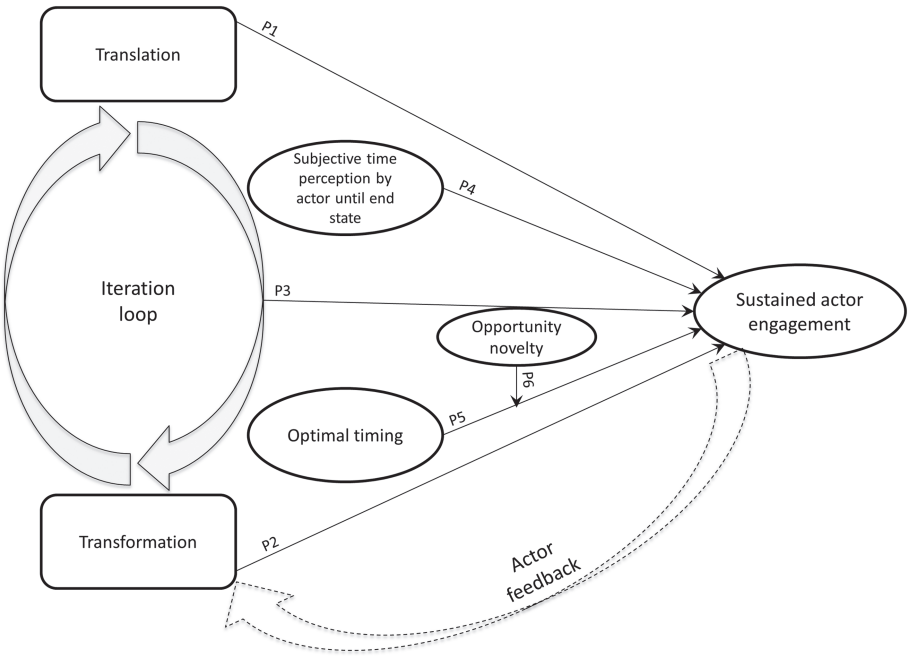

Figure 1. A process model of sustaining actor engagement during opportunity development

process timing, which we claim the entrepreneur can modify to influence actor engagement, as indicated in the central part of Figure 1.

SUSTAINING ACTOR ENGAGEMENT DURING OPPORTUNITY DEVELOPMENT

Opportunity development begins when an opportunity is exposed to others, often through a search for resources (Zott and Huy, 2007), and continues through the entrepreneur's iterative engagement with external actors during phases of translation and transformation.

Translation: gaining actor engagement

We argue that translation (when the entrepreneur presents and adapts an opportunity to external actors) is a prerequisite for actor engagement.

First, to initiate engagement, entrepreneurs make an opportunity more comprehensible by relating it to existing content and cultural artifacts relevant to the actors. The environment into which an entrepreneur aims to introduce an opportunity is typically made up of norms, approaches, and solutions that are invested with social significance and that might differ from those the opportunity entails (Aldrich and Fiol, 1994; Hargadon and Douglas, 2001). As a result, there can be incongruities between an opportunity and external actors' expectations of what is considered acceptable. To achieve engagement, the entrepreneur has to sell an opportunity to actors by translating it, which involves describing it in and adapting it to local terms (Czarniawska and Sevón, 1996), establishing a connection between the opportunity and what actors consider appropriate.

Second, translation helps actors change their expectations of an opportunity. Translation involves describing possible future versions of an opportunity (i.e., novel products, services, business models, etc.). This allows actors to imagine their local context in a different way and to formulate and reflect on their beliefs and expectations. Translation also helps actors assess an opportunity vis-à-vis existing standards and practices (Seo and Creed, 2002) and think about the context to which the opportunity will be introduced (Tost, 2011), which may alter their frames of reference and foster engagement.

Translation is a time- and effort-dependent process (Zilber, 2006), requiring attention from the entrepreneur. Entrepreneurs need to carefully craft representations of the opportunity to match actors' expectations and to convey the opportunity in a way that is consistent with their frames of reference. This is particularly the case when the entrepreneur needs

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to develop multiple strategies for translating the opportunity (Suddaby and Greenwood, 2005; Zott and Huy, 2007). For example, the existence of multiple external actors with different expectations may require entrepreneurs to tailor individual representations of the opportunity for each actor. In sum, producing rich forms of translation that enable actors to form and/or change their expectations about an opportunity is crucial to initiate actor engagement. We, therefore, formulate the following baseline proposition:

Proposition 1: The entrepreneur is likely to gain actor engagement in the opportunity development process through translation of the opportunity.

Transformation: sustaining actor engagement

Entrepreneurs gain actor engagement during translation; sustaining actor engagement is contingent on transforming the opportunity as a result of actor feedback. If actor feedback is ignored, actors are more likely to disengage from opportunity development. Transformation is the process through which entrepreneurs combine (positive or negative) actor feedback with the existing features of an opportunity, developing it further. In line with the learning perspective on opportunity development (Dimov, 2007; Dutta and Crossan, 2005), transformation is initiated by the entrepreneur to reflect the learning and new ideas obtained through previous actor engagement. For instance, PayPal was originally developing security software for handheld devices when eBay users started to use its software as a payment method on eBay (Jackson, 2006). Based on interactions with these external actors, PayPal transformed its business model to focus on payment processing.

Entrepreneurs can use transformation in two ways to nudge an opportunity closer to what actors' feedback reveals as appropriate and viable: by incorporating feedback and by further developing actors' beliefs in an opportunity and their interpretations of it.

First, the process of incorporating feedback from external actors involves reducing incongruities in the opportunity, which may imply reducing or making its original novelty less visible in relation to the perceptions of the actors. The development of an opportunity is likely to be influenced by the interpretative schemas, attributions, interests, and needs of those who assess it (Mandler, 1982), as well as by the norms and rules of the context in which actors are embedded (Scott, 2008). An opportunity might appear more novel to some actors (e.g., regulators) than to others (e.g., software programmers). Transformation, therefore, aims to reduce the incongruity between an opportunity's novelty and the expectations of external actors, revealed through their feedback. For example, Hargadon and Douglas (2001) describe how Edison embedded a novel product and business model for electric lighting in a familiar design (gas lighting) in order to tap into existing customer perceptions. In this way, Edison facilitated the understanding of a new technology by making it analogous with the older and more familiar gas distribution system.

The feedback actors provide will include specific knowledge or expertise (Zott and Huy, 2007), social cues, and cultural or industry norms (Rindova and Petkova, 2007). This will help the entrepreneur determine which features of the opportunity to maintain, transform, or drop. Transformation makes an opportunity appear more understandable and similar to existing content that is familiar to the actors, reducing or making some, but not necessarily all, novel features of the opportunity less visible.

Second, actors are influenced by transformation and learn from it. If they actively provide feedback, they will have a greater sense of involvement, commitment, and ownership of the process (see Lawrence, Hardy, and Phillips, 2002), becoming more engaged. Their involvement may also lead them to reflect on the contradictions inherent in the current product, service, or business model. This can increase their belief in the opportunity and the form it takes (Emirbayer and Mische, 1998; Seo and Creed, 2002). Through repeated engagement, actors increasingly share cognitive representations with the entrepreneur (Trope and Liberman, 2010), while learning more about the opportunity.

Transformation also demands time and effort. An entrepreneur who develops an opportunity in more nuanced ways that match actors' expectations will be able to sustain their engagement in the opportunity development process. We propose:

Proposition 2: The entrepreneur is likely to sustain actor engagement in the opportunity development process through transformation of the opportunity.

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Sustaining actor engagement through the iteration of translation and transformation

While it is possible for an opportunity to be developed through a single cycle of translation and transformation, in most cases, both occur iteratively, often in a nonlinear way over time. Consecutive cycles of translation and transformation (for instance with venture capitalists or customers) not only help refine the opportunity based on actor feedback, but also help sustain actor engagement. Through repeated iterations, an opportunity can be nudged closer to what the actors consider appropriate by reducing the relative novelty of the opportunity with regard to the actors and by developing, or even altering, actors' beliefs in and interpretations of the opportunity. Repeated contact with the opportunity reduces the likelihood that actors will perceive an opportunity as illegitimate due to its novelty. For example, in their study of the development of the safety bicycle, Pinch and Bijker (1984) show how continuing interactions between producers, customers, and other relevant actors led to a commonly understood and expected configuration of the safety bicycle's attributes.

Translation and transformation will also have a positive impact on actor engagement by demonstrating the entrepreneur's openness to feedback. This process does not have to be progressive and linear, as the entrepreneur might decide to revert to an earlier version of the opportunity. Integrating and reconciling diverse feedback within the opportunity produces a substantiated version that only *partially* reflects the feedback provided by each set of actors. This triggers the need to translate the opportunity back to actors, leading to additional rounds of translation and transformation. The development of this process over time is likely to keep external actors engaged.

For example, Kiva, an online microfinance lending start-up founded by Matt Flannery and Jessica Jackley in 2005, has been developing the opportunity to connect small, low-income entrepreneurs around the world with lenders in developed countries (Moss, Neubaum, and Meyskens, 2015). In 2005, this was a highly novel opportunity, combining a relatively new technology (the internet), anticipated online social networking between borrowers and lenders (influenced by Web 2.0), and a complex and novel business model. Although Kiva displayed entrepreneurs' photos and stories prominently on its website, the entrepreneurs worked with local microfinance institutions (MFIs) to receive and repay loans, rather than directly with Kiva. Kiva engaged in iterative translation and transformation with customers, volunteers, MFIs, and regulators. Flannery (2007: 41) described one cycle in which entrepreneurs transformed the original business model by eliminating interest rates on Kiva loans after (informal) negative feedback from the U.S.'s Securities and Exchange Commission (SEC), which queried the legality of charging interest rates on entrepreneurial financing. Transformation (respect for financial regulations) was necessary to continue operating and to sustain the engagement of the SEC (a highly relevant external actor).

In another cycle, Kiva was transformed into a 'technology platform for microfinance institutions alleviating poverty' (Flannery, 2007: 50) through the development of a risk-rating system for the MFIs. This resulted in Kiva becoming 'an eBay for microfinance institutions' (Rockrohr, 2008). This transformation was due to the feedback from MFIs about the high costs of reaching additional entrepreneurs. Scaling became much easier when Kiva developed a platform for MFIs instead of working directly with entrepreneurs. This transformation also helped Kiva to sustain the engagement of MFIs, whose interest in such a platform was high, as it allowed them to be rated and helped raise additional funds (Aaker, Chang, and Jackley, 2010). The shape of Kiva's business model 10 years on differs in several ways from its original idea for direct peer-to-peer lending (Flannery, 2007, 2009). This example shows that transformations were necessary to keep the actors central to Kiva's operation (the SEC, MFIs) continuously engaged.

Based on our arguments about how the iteration of translation and transformation affects actor engagement, we propose:

> *Proposition 3: The entrepreneur is likely to sustain actor engagement in the opportunity development process through iterations of translation and transformation of the opportunity over time.*

TEMPORAL STRUCTURING OF THE OPPORTUNITY DEVELOPMENT PROCESS

While scholars acknowledge the dynamic nature of opportunity development, few studies have examined how entrepreneurs might use time purposefully as a

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resource to sustain actor engagement. Management scholars have introduced the concept of temporal capability, defined as 'the ability to comprehend various temporal conceptions about change (e.g., clock, inner, social times) and dimensions (e.g., sequencing, timing, pacing), to discriminate against them, and to use this information to guide thinking and action' (Huy, 2001: 610). Temporal capabilities may involve the pacing of strategic events (Gersick, 1994) or viewing present and future events with different mind-sets (Miller and Sardais, 2015). We examine how an entrepreneur can use temporal capabilities to facilitate external actor engagement over time.

Research commonly differentiates between objective and subjective conceptualizations of time (Ancona, Okhuysen, and Perlow, 2001b; Crossan *et al*., 2005). Specifically, while time can be 'objectively portrayed and interpreted based on the measured, linear, forward-moving, and exact clock time' (Ancona *et al*., 2001a: 646), it can also reflect the subjective experience of each individual (Staudenmayer, Tyre, and Perlow, 2002). The objective timing of entrepreneurial activities has been explored in the entrepreneurship literature (e.g., Delmar and Shane, 2004; Lichtenstein *et al*., 2007), but only a few studies examine how entrepreneurs experience and interpret time (Fischer *et al*., 1997; Miller and Sardais, 2015; Morris *et al*., 2012). We explain how entrepreneurs can influence both the *subjective* perception of time by external actors and the *objective* time of the opportunity development process to sustain actor engagement.

Subjective perception of time and actor engagement

We argue that entrepreneurs can change actors' perception of the time remaining (long or short) until opportunity implementation, such as the manufacturing of a new product or the launch of a new business model, in order to foster continued engagement. That is, they can use actors' subjective perceptions of time as a strategic resource to acquire valuable feedback and engage actors' interest, and, in the best case, generate actors' commitment to an opportunity.

The subjective experience of time is likely to vary across situations and actors (Ancona *et al*., 2001b). A common way to conceptualize subjective perceptions of time is through temporal construal theory (Liberman and Trope, 1998), which suggests that cognition is affected by the perceived proximity of an event in time, or temporal distance (Forster, Friedman, and Liberman, 2004). Temporal construal theory posits that while individuals are likely to use abstract features in construing distant-future events, they will draw on more concrete features in construing near-future events (Liberman and Trope, 1998). As a result, actors may alter their judgments about an opportunity depending on their perceptions of the temporal distance until the end of the development process, represented by the launch of a new product, service, or business model. During translation, entrepreneurs communicate a representation of an opportunity that will be implemented either in the near or a more distant future. If the entrepreneur represents a concrete opportunity that is achievable in the short term, temporal construal theory predicts that actors are more likely to focus on the *negative* aspects of the opportunity rather than on its desirable aspects (Alexander, Lynch, and Wang, 2008; Liberman and Trope, 1998). This is because actors will be more pessimistic about the likelihood that the novel opportunity will succeed in substituting a prevailing product, service, or business model in the short term and will be less willing to commit time and effort that will be taken away from other activities. As a result, the incongruity between the opportunity and actors' beliefs is less likely to be reduced, the opportunity may not be sufficiently understood, and actors might be less interested in engaging with it.

In contrast, when entrepreneurs represent an opportunity achievable in a more distant future, temporal construal theory predicts that actors will focus less on feasibility issues and concentrate instead on the desirability and ultimate value of the opportunity (Alexander *et al*., 2008; Liberman and Trope, 1998). Therefore, actors will more likely engage with the development of the opportunity when they perceive a long, rather than short, temporal distance until the end state of the process. Following this logic, we propose:

> *Proposition 4: Increasing actors' subjective perceptions of the time available until the end state of the development (e.g., the launch of the new product, service, or business model) increases the likelihood of sustaining actor engagement with the opportunity development process.*

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Objective time and actor engagement

Entrepreneurs can also influence objective (clock) time to sustain actor engagement. We argued earlier that translation and transformation are both time- and effort-sensitive processes. The timing of these phases with different external actors will be important to sustain actor engagement.

Optimal pacing

Pacing refers to 'how quickly an event unfolds during a series of events or density of events per unit of time' (Huy, 2001: 605). It has been used to discuss the temporal structuring of interim evaluation instances that divide innovation projects (Sheremata, 2000); for example, in the case of the Stage-Gate development model (Cooper, Edgett, and Kleinschmidt, 2002). Pacing can be abrupt and rapid, moderately fast, or gradual, depending on how deadlines are set and managed.

Interacting regularly with external actors should increase actor engagement, as it keeps actors involved and develops their sense of commitment and ownership of the opportunity development process (Lawrence *et al*., 2002). For instance, Hallen and Eisenhardt (2012) describe how *casual dating* (informal but deliberate repeated meetings with a few potential partners) improves entrepreneurs' efficiency in acquiring funding. But what is the optimal pacing for these interactions?

A long time lag between instances of actor engagement may have negative implications for opportunity development because actors' frames of reference are more likely to change as the time since their introduction to the opportunity increases (Bitektine, 2011). Also, actors who have not been involved with an opportunity or consulted about it for a long time are more likely to lose interest in it (Child, Lua, and Tsai, 2007).

However, a shorter time lag between instances of engagement might prevent the entrepreneur from using multiple strategies to translate and/or transform the opportunity (Zimmerman and Zeitz, 2002). As Hallen and Eisenhardt (2012: 46) comment, short time lags make 'communication less productive, familiarity more difficult to gain, and positive affect less likely' during actor interactions. Similarly, a shorter time lag will limit the entrepreneur's ability to transform the opportunity by integrating and reconciling actor feedback.

We suggest that there is an optimal length of time for managing actor engagement during the translation and transformation cycles. If the time taken by the entrepreneur to interact with the actors is too long, actors might become less engaged in the process, losing interest because the opportunity becomes less relevant and salient to them. Conversely, if the entrepreneur takes too little time to translate and transform the opportunity, actors are more likely to disengage because they will perceive that the entrepreneur has made insufficient effort to incorporate their feedback. Therefore, we propose:

> *Proposition 5: The time taken by the entrepreneur to complete a cycle of translation and transformation follows an inverted U-shaped relationship with the likelihood of sustained actor engagement in the opportunity development process such that too little or too much time spent in each instance leads to actor disengagement.*

Optimal pacing and opportunity novelty

The timing of engagement events will also depend on the degree of opportunity novelty; more novel opportunities require more development to reduce incongruities with actors. Note that while our model focuses on novel opportunities, some opportunities can be perceived as more novel than others (see, for example, the classic distinction between radical and incremental innovations, e.g., Damanpour, 1991). Further, the perception of novelty can differ across distinct groups of actors. For instance, in our Kiva example, the platform to provide peer-to-peer financing was not radically new to the software engineers; however, the business model was very difficult to reconcile with the existing financial regulations of the SEC. Opportunity novelty is also contingent upon the context of the actors to whom it is introduced (Birkinshaw, Hamel, and Mol, 2008). While knowledge, expertise, and technical know-how facilitate the understanding of an opportunity, cognitive, social, cultural, and institutional factors also play an important role in enabling or constraining this understanding. Specifically, the more novel an opportunity is to a given set of actors and a specific context, the greater the incongruities will be between the opportunity and actors' prevailing beliefs and frames of reference.

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Because of these incongruities, it will be more difficult and time consuming for actors to assess the potential value of more novel opportunities. As a result, the entrepreneur will have to make greater efforts to translate the opportunity by appealing to a wider variety of shared meanings, symbols, and conventions. Incongruities will also make it more difficult for actors to form a clear understanding and straightforward expectations of their role (Bitektine, 2011), making entrepreneur-actor interactions more uncertain (Birkinshaw *et al*., 2008). While actors' expectations will evolve as they gain a better understanding of the opportunity, their reactions and feedback are more likely to be equivocal, confusing, and potentially contradictory and will need to be reconciled through additional development, increasing the time needed for transformation. For instance, Ansari, Garud, and Kumaraswamy (2016) describe how TiVo, a start-up that pioneered digital video recording in the U.S., reconciled the feedback from diverse actors, including advertisers and cable manufacturers; however, this took a great deal of time, according to a TiVo executive cited in the text.

A higher degree of novelty leads to greater incongruities between the opportunity and actors, which implies that more time and effort are necessary for the opportunity to be understood and accepted by actors. Hence, entrepreneurs should be prepared to devote more time to each phase of the process. We propose:

> *Proposition 6: Opportunity novelty moderates the inverted U-shaped relationship between pacing and sustained actor engagement such that opportunities with higher novelty will require a slower pace of translation and transformation to sustain actor engagement.*

DISCUSSION

To address the gap in the literature on opportunity development, we conceptualize a process model that explicitly considers how to sustain the engagement of external actors. A better understanding of the *how* and *when* of entrepreneur-actor interactions during opportunity development is essential to more contextualized entrepreneurship research (Davidsson and Wiklund, 2001; Dimov, 2007, 2011; Zahra and Wright, 2011). To that end, we provide testable propositions about the factors that influence how entrepreneurs can sustain actor engagement, focusing on the process structure (i.e., translation, transformation, and their iterations) and the temporal structure (i.e., subjective and objective timing). Our conceptualization has several implications for entrepreneurship research, emphasizing the importance of: (1) the iterative nature of the opportunity development process, which enables the generative role of external actors; and (2) the timing of actor engagement.

Opportunity development process and the generative role of external actors

The entrepreneurship literature tends to assume that the intrinsic value of an opportunity is the most important predictor of its success (e.g., Ardichvili, Cardozo, and Ray, 2003; Gruber, MacMillan, and Thompson, 2013). However, given recent social constructivist arguments about how opportunities might be created by entrepreneurs (Alvarez and Barney, 2007; Sarason, Dean, and Dillard, 2006), it remains difficult, if not impossible, to determine this intrinsic value *ex ante* (Davidsson, 2015). Consequently, we emphasize that the development *process* itself can have a strong impact not only on the ultimate success of an opportunity, but also on its ultimate form.

Specifically, we highlight the role of *actors*, who affect opportunity development by providing resources and positive or negative feedback during their engagement with the process. Wood and McKinley (2010: 72) argue that the 'cognitions and beliefs of outside actors are influenced by the entrepreneur,' while Denrell, Fang, and Winter (2003) suggest that serendipity and mistakes produce novelty. Our process model details the role of external actors during opportunity development, adding to the recent literature examining entrepreneurship as a coevolutionary, collective process (Clarke, Holt, and Blundel, 2014). We maintain that external actors play a *generative* role in the opportunity development process; our model assumes that actor engagement is useful and necessary for opportunity development because it provides entrepreneurs with resources and positive or negative feedback. By contrast, actor disengagement would prevent entrepreneurs from receiving enough feedback and stymie or slow down the opportunity development process: for instance, Garud and Karnøe (2003: 289) explain how the

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reduced feedback from (disengaged) users had a negative impact on the U.S. wind turbine industry because new firms rushed to commercialize 'an immature and untested technology.'

However, the sustained engagement of some actors may be more beneficial than others, demonstrating the need for entrepreneurs to engage actors selectively. Some actors might also be less forthcoming with feedback. Specifically, not all actors will react positively to an opportunity—some might be unenthusiastic or even unwilling to engage. However, entrepreneurs can learn from actor resistance and negative feedback. Hargadon and Douglas (2001: 493) explain, for instance, how Edison's first attempt to commercialize his invention of the phonograph was unsuccessful; he promoted it to business people as a device to 'take dictation without a stenographer.' After a decade of repeated negative feedback from customers, Edison succeeded in developing the opportunity offered by the new product by transforming the phonograph into a device to reproduce music. Thus, entrepreneurs have to be attentive to actor resistance during opportunity development, as it might signal a need for a more radical opportunity transformation. We encourage future research to examine further the conditions under which opportunity development could continue despite the resistance or even disengagement of some actors.

Further, it is possible that a certain threshold of actor agreement needs to be achieved for opportunities to be exploited, meaning that entrepreneurs have to sustain the engagement of at least some relevant actors to continue the development. Some actors will be strategic or critical to the development of the opportunity, as the SEC was in the Kiva example. Entrepreneurs might decide not to engage certain actors or to engage them at different stages of the opportunity development process. For example, engaging actors who could become potential competitors could be dangerous at an early stage of development, as entrepreneurs have to protect their ideas from imitation.

Timing of actor engagement

Our theorizing emphasizes an agentic notion of time, which serves as a strategic resource for often resource-poor entrepreneurs. For example, we argue that temporal construal theory, which has been tested for consumer purchasing behavior (Alexander *et al*., 2008) or the entrepreneurial evaluation of opportunities (Tumasjan, Welpe, and Spörrle, 2013) can be applied to assess the likelihood of sustaining actor engagement, depending on how actors perceive the time lag (long or short) until the end state of the development. Thus, we initiate a discussion about how entrepreneurs can time their interactions with external actors, pacing actor engagement to balance the tension between introducing novelty and mobilizing resources and feedback.

There is evidence that learning and innovation may not fit easily with imposed timelines and timetables that consist of discrete, measurable activities with predictable durations and interactions (Garud, Gehman, and Kumaraswamy, 2011). While we agree that the overall opportunity development process is often nonlinear, iterative, and emergent, our conceptualization highlights that an entrepreneur's pacing of the overall *process* (rather than timing every actor interaction) is a precondition to continued engagement.

By adding a temporal lens (Ancona *et al*., 2001b) to the understanding of sustained actor engagement, we also offer new dependent and independent variables for entrepreneurship research (e.g., optimal pacing of actor engagement, entrepreneur's temporal capabilities). While studies have hinted at the importance of temporal capabilities for managers in general (Huy, 2001; Reinecke and Ansari, 2015), entrepreneurship scholars have been relatively silent on this issue (for exceptions, see Gersick, 1994; Lichtenstein *et al*., 2007; Miller and Sardais, 2015). Our arguments suggest that examining the influence of timing—and, by extension, entrepreneurs' temporal capabilities—is not only useful when establishing a legal entity or writing a business plan (Delmar and Shane, 2004), but also when interacting, often iteratively, with a variety of actors.

Future research agenda

Through our work, we push entrepreneurship researchers to ask new questions and reformulate existing ones, focusing in particular on sustained actor engagement during opportunity development and entrepreneurs' temporal capabilities. While we agree with McMullen and Dimov (2013), who stipulate that researchers should examine the entrepreneurial journey in its entirety, process research could be complemented by examining the sequencing and pacing of *interactions* between the entrepreneur and

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other actors. We suggest three promising directions for future research based on our work: (1) further integrating the entrepreneurial learning perspective with an actor engagement view; (2) examining more thoroughly the characteristics that can lead to sustained actor engagement (or disengagement); and (3) testing our model at different levels of analysis to determine how it could be integrated into the holistic examination of the entrepreneurial journey.

First, an interesting extension of our work would be to combine the sustained actor engagement view and the entrepreneurial learning perspective (Dimov, 2007; Dutta and Crossan, 2005). While we know more about how entrepreneurs learn, our article focuses on external actors and the importance of considering their expectations and feedback over time, especially in the case of highly novel opportunities. Future research could examine if and how entrepreneurs can influence or generate *actor* learning. We expect that this would be more challenging for actors who are embedded in a highly institutionalized field characterized by rigid norms and regulations. It would also be interesting to understand better how an entrepreneur learns as a result of the opportunity development process, which might influence subsequent actor engagement tactics. For instance, how can entrepreneurs learn from actor disengagement or resistance to a given opportunity?

These questions are particularly relevant for habitual entrepreneurs or entrepreneurs involved in more than one venture (Westhead and Wright, 1998). Are habitual entrepreneurs better able to sustain actor engagement through the use of temporal capabilities than novice (first-time) entrepreneurs? Is it easier to develop temporal capabilities for entrepreneurs managing several ventures concurrently (i.e., portfolio entrepreneurs) than for entrepreneurs engaged in developing only one venture at a time? What is the influence of business failure (e.g., Ucbasaran *et al.*, 2010) on developing temporal capabilities? And more generally, how are temporal capabilities developed? Recent evidence suggests that habitual entrepreneurs engage in complex patterns of resource orchestration in their portfolios of ventures (Baert *et al.*,), but we know little about how habitual entrepreneurs manage time as a strategic resource and how entrepreneurs develop or improve the extent of their temporal capabilities.

Second, another promising direction would be to apply Suchman's (1995) classification of legitimacy (cognitive, moral, and pragmatic) to distinct groups of actors embedded in different contexts. As Garud and Karnøe (2003: 281) put it, entrepreneurship is 'a process of mindful deviation,' during which entrepreneurs have to engage external actors and often moderate the novelty of opportunities to fit better with their varied expectations. From a theoretical point of view, a more detailed examination of the types of legitimacies that are more important to specific types of actors could be warranted. For instance, would providing proof of the moral legitimacy of a new product help sustain the engagement of a regulatory agency? More generally, which actors should be engaged first—those who are likely to react positively or negatively to the opportunity? Our model does not explicitly consider when entrepreneurs should give up on engaging a given group of actors and start engaging another. The decision about when to end engagement will depend on factors such as the criticality of a particular set of actors for the continued development process or the accessibility of another more relevant set. From a research perspective, these questions are best explored empirically through case studies or ethnographic research, as context is critical in making these decisions.

Third, future research could examine how our model applies to different levels of analysis and test it empirically (McMullen and Dimov, 2013). For instance, translation and transformation can occur within a new venture among *individual* members of the founding team, at the *organizational* level between the firm and external actors, and at the *industry* level, where translation and transformation could be useful to understand nascent industries. It would be interesting to examine whether our model could be applied at different hierarchical levels, as suggested by Selden and Fletcher (2015: 606, Figure 1), extending beyond the development of a new business model to the emergence of new industries. To which extent do our propositions hold at different levels? For instance, our model highlights the additional complexity that greater degrees of novelty (relative to different actors) bring to opportunity development, which may require collaboration among multiple entrepreneurs in nascent industries (Aldrich and Fiol, 1994; Navis and Glynn, 2010). Extending our model to different levels of analysis (e.g., founding team, nascent industry) might be both interesting and challenging.

Finally, we note some implications related to the empirical testing of our model. Given the complex interrelations during the opportunity development

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process between opportunity, entrepreneur, and actors over time, our arguments call for a longitudinal or experimental design. An in-depth study of a particular industry could provide a useful context, offering the possibility to contrast variations of the development process. Such a study could look, for instance, at the ongoing changes to an opportunity introduced by entrepreneurs who innovate business models within the peer-to-peer lending or music industries or track novel product introductions over time in the mobile phone or automobile industries. Experiments have been used repeatedly to test temporal construal theory (Liberman and Trope, 1998; Tumasjan *et al*., 2013) and could also help test our propositions about timing.

Table 1 summarizes a set of sample questions to guide future research.

Implications for entrepreneurial practice

We suggest that entrepreneurs can recognize and act upon different actors' expectations; this is particularly relevant in cases of novel opportunity development, where misalignments between actors and entrepreneurs are more likely. Entrepreneurs can

Table 1. Actor engagement view of opportunity development: questions for future research

Entrepreneur's temporal capabilities: objective timing and the subjective perception of temporal distance

- What reaction can entrepreneurs expect from actors when engaging in repeated cycles of translation and transformation? For instance, would repeated interactions reduce the optimal pacing for actor engagement?
- Are habitual entrepreneurs better able to sustain actor engagement through the use of temporal capabilities than novice (first-time) entrepreneurs? Is it easier to develop temporal capabilities for entrepreneurs managing several ventures concurrently (portfolio entrepreneurs) than for entrepreneurs developing one venture at a time? How are temporal capabilities developed? Can temporal capabilities be taught?
- To what extent does the strategic management of temporal distance during actor engagement by the entrepreneur impact the success and speed of the opportunity development process?
- How would the importance of temporal distance change when considering different levels of analysis, such as the interaction between entrepreneurs within a team, opportunity development by a single firm, or market creation by a group of firms?
- How should temporal distance be operationalized in empirical research: as an objective measure (i.e., useful in experiments); as a subjective time perception (i.e., used in a survey); or as a combination of both?
- How can the existence of optimal pacing be empirically established and compared across different actors (e.g., customers, partners, investors, regulators)? To what extent can entrepreneurs with previous knowledge about optimal pacing increase the success rate of opportunity development?

Actor characteristics

- Which types of legitimacy concerns are more important for which group of actors? How can entrepreneurs deal with the legitimacy concerns of different types of actors? How can these be operationalized and tested empirically?
- How and to what extent can entrepreneurs influence or generate actor learning during the opportunity development process?
- Under what conditions can opportunity development continue despite resistance from some actors or even disengagement?
- How are disagreements and discrepancies between different actors' beliefs and expectations resolved by the entrepreneur?
- How would the importance of actor characteristics change when considering different levels of analysis, such as the interaction between entrepreneurs within a team, opportunity development by a single firm, or market creation by a group of firms?

Opportunity novelty

- What kind of learning can be generated by entrepreneurs engaged in highly novel opportunity development? Is this learning transferable to developing less novel opportunities?
- How much iteration of translation and transformation of more or less novel opportunities is necessary in different industries?
- How would the importance of opportunity novelty change when considering different levels of analysis, such as the interaction between entrepreneurs within a team, opportunity development by a single firm, or market creation by a group of firms?
- How should the degree of opportunity novelty be operationalized in empirical research?

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exercise agency when choosing *how* and *when* to engage actors by explicitly adjusting the structure and timing of opportunity development, being mindful of subjective perceptions of time as well as the objective (clock) time the process takes. For example, we can speculate that entrepreneurs might want to start the process by translating an opportunity only to actors who are more favorable toward it, in order to address initial problems before engaging other actors. Further, entrepreneurs can extend the time lag actors perceive until the end of the development process, depending on the expected level of actor resistance (i.e., increase the time lag for higher levels of resistance). At the same time, entrepreneurs have to be careful not to prolong opportunity development beyond the optimal timing threshold of particular actors to avoid their becoming disengaged. Additionally, entrepreneurs have to consider actor feedback seriously in order to sustain actor engagement, and this might involve additional cycles of translation and transformation. In sum, we emphasize the role of time and actor feedback as important resources that can be used by skillful entrepreneurs to increase the odds of opportunity development success.

CONCLUSION

Our aim in this article has been to clarify how entrepreneurs can sustain actor engagement during the opportunity development process. We propose a process model of opportunity development composed of two iterative phases of translation and transformation that foster sustained actor engagement. We also theorize about the role of subjective and objective timing in facilitating sustained actor engagement during opportunity development. We conclude by discussing the future research agenda to understand, explain, and test how the process and timing of opportunity development affect actor engagement, as well as the role of entrepreneurs' temporal capabilities.

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AFTER THE VENTURE: THE REPRODUCTION AND DESTRUCTION OF ENTREPRENEURIAL OPPORTUNITY

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Research summary: *The endogenous formation of entrepreneurial opportunity has become an important theoretical perspective. Research to date focuses on initial opportunity creation dynamics leading to venture formation. This excludes the ongoing enactment of opportunity that takes place after venture founding. We focus on this phenomenon, arguing that opportunities must be continually reproduced through maintenance of consensus among stakeholders about their viability. If consensus fails, the objectivity of the opportunity is 'destroyed' in a process we label 'opportunity de-objectification.' We identify predictors of opportunity de-objectification and summarize their effects in propositions suitable for future empirical testing. Implications for future theory and research are also discussed.*

Managerial summary: *Previous entrepreneurship research has focused attention on the process through which opportunity ideas become objectified and perceived as external facts by entrepreneurs and their stakeholders during venture formation. While such attention is critical, we argue that venture founding marks the beginning, rather than the end, of a dynamic process in which the fact-like status of opportunities is maintained. If stakeholder consensus about opportunity viability is disrupted, it raises questions about this factual status and opens up the possibility that the opportunity is a subjective cognition of the entrepreneur rather than an objective reality. We call this phenomenon 'opportunity de-objectification,' and we identify a number of factors that precipitate it. We also suggest that entrepreneurs may reduce the likelihood of this phenomenon by managing some of the factors that induce it.*

INTRODUCTION

Researchers have devoted considerable scholarly attention to understanding the origins of entrepreneurial opportunities. Early investigations conceptualized opportunities as exogenous phenomena available for 'discovery' by enterprising individuals (Gaglio and Katz, 2001; Kirzner, 1979; Shane, 2003). However, a number of recent formulations, collectively labeled 'creation theory' (Alvarez and Barney, 2007), have distanced themselves from the discovery approach by advancing that opportunities emerge endogenously from the interplay between entrepreneurs and their environments (Alvarez and Barney, 2010; Felin and Zenger, 2009; Foss *et al.*, 2008; Klein, 2008).[1] This conceptualization represents an

Keywords: entrepreneurial opportunity; social constructivist; enactment; destruction; venture
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important shift, because instead of viewing opportunity as an *ex ante* outcropping of economic discontinuity, creation theory involves the notion that opportunities 'are enacted in an iterative process of action and reaction' (Alvarez and Barney, 2007: 15). In that way, opportunities are the product of a construction process that involves stakeholders, whose collective action builds markets (Alvarez, Barney, and Anderson, 2013; Mitchell *et al*., 2012) and market niches (Luksha, 2008).

While the creation approach to entrepreneurial opportunities has evolved considerably, many aspects remain undeveloped. Indeed, recent literature has drawn attention to conceptual weaknesses of theories using opportunity enactment as a core construct (cf. Welter, Mauer, and Wuebker, 2016; Arend, Sarooghi, and Burkemper, 2015; Ramoglou and Tsang, 2016). This article responds to these discussions and strengthens the foundations of the constructivist perspective on the nature of opportunity by focusing on the period after initial opportunity enactment. In this period, entrepreneurs' actions not only bring opportunities into existence and set them in motion, but subsequently maintain the credibility of opportunities among diverse sets of stakeholders. This is important because one crucial overlooked aspect of the creation approach concerns the fact that the construction of opportunity is an ongoing endeavor even after a venture has been formed and an economic exchange initiated. In other words, initial opportunity enactment has traditionally been the focus of opportunity creation research; but the ongoing, iterative, and dynamic processes that sustain enacted opportunities after venture establishment have been neglected.

Accordingly, we seek to understand more completely the maintenance of constructed entrepreneurial opportunities, and we are principally concerned with the circumstances under which such opportunities may cease to exist as sensed realities for the entrepreneur. In this investigation, we draw on the logic in social constructionism (Gergen, 1985; 1994) and the social construction of reality (e.g., Berger and Luckmann, 1966; Raskin, 2002) to build on Alvarez and Barney's (2007) notion that opportunities are socially constructed enactments. From this base, we then draw on Wood and McKinley's (2010) assertion that opportunity enactments are the product of 'objectification' in which opportunity ideas are externalized by the entrepreneur and sensed as objective realities. However, we uniquely emphasize that after a venture is established, objectification must be maintained in the face of feedback from the venture's stakeholders. If stakeholder consensus about opportunity viability is disrupted, it begins to 'destroy' the objectivity of the opportunity, as the entrepreneur starts to attribute the opportunity to his/her internal psychological states rather than an objective phenomenon. In other words, eroding consensus raises questions about the existence of an external reality that transcends the subjectivity of the entrepreneur.

This is a process we label 'opportunity de-objectification,' and we posit that factors that produce dissensus about opportunity viability can initiate opportunity de-objectification. Such factors include the decline of a venture (Whetten, 1987), a rise in the death rates of similar ventures, or a decline in the birth rates of similar ventures. We develop propositions about the effects of these factors on opportunity de-objectification, as mediated by erosion of consensus about opportunity viability. We also discuss methods by which these propositions could be tested, in order to stimulate future empirical research based on our theory.

It should be noted that opportunity de-objectification is not experienced by the entrepreneur as a mistake in detection. Rather, opportunity de-objectification is a growing awareness of the subjectivity of sense data about the opportunity. This can be disconcerting for the entrepreneur, because the target the entrepreneur has been striving for is no longer perceived as existing outside the entrepreneur's mind. This, in turn, raises questions about the mission of the venture. In extreme cases, the outcome of opportunity de-objectification may be 'cosmology episodes' similar to those discussed by Weick (1993) in his paper about smokejumpers. Because of the disruptive cognitive effects of opportunity de-objectification, we feel it is an interesting focus for study.

The major contributions of this article are, therefore, the introduction and clarification of the concepts of opportunity propagation and opportunity de-objectification, with a central focus

[1] For a thorough discussion of the ontological and epistemological differences between the creation and discovery perspectives, see the debate in the January 2013 issue of *Academy of Management Review*.

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on developing a conceptual model of opportunity de-objectification. The introduction of these concepts has broad implications for conversations about the endogenous formation of opportunity because they emphasize the dynamism of opportunities after the enactment stage. The various enactment perspectives such as creation (Alvarez and Barney, 2007) and effectuation (Sarasvathy, 2001) share assumptions of dynamic and iterative opportunities, but do not explore how these assumptions play out in the period following initial opportunity enactment and venture formation. This is an important gap because it ignores the principle that the social construction of reality (e.g., opportunities) is a continuous, never-ending process (Berger and Luckmann, 1966). Our model begins to fill this gap by extending constructivist logic in entrepreneurship theory into the post-venture enactment stage. This extension has the potential to energize theoretical and empirical research that will clarify how opportunities are propagated, and sometimes become de-objectified, well after venture establishment.

THE SOCIAL CONSTRUCTIVIST PERSPECTIVE

Social science research makes assumptions about the nature of the social world (Hudson and Ozanne, 1988). These assumptions reflect the scholar's ontological position and, in the range of positions, constructivism has become an important perspective explaining the emergence of entrepreneurial opportunity. There are several variants of constructivist ontology. At one end of the spectrum, scholars advance a view that suppresses notions of reality and objectivity (Bhaskar, 1978), while at the other end, theorists argue that humans do indeed experience a reality that is largely a product of collective agreement (Searle, 1995). We are inspired by the interpretive approach that falls in between these perspectives but resonates most closely with the latter. Specifically, we adopt the logic embedded in the social construction of reality paradigm (e.g., Berger and Luckmann, 1966; Shotter, 1993, 2005; Weick, 1985, 1995) that acknowledges objectively real physical objects, but argues that those objects take on meaning only in relation to the constructs imposed on them. A tire iron is a tool when it is conceptualized as a means to fix a flat tire, but it can also be a deadly weapon when conceptualized as such. The mass of rock composing a mountain is only a 'mountain' when conceptualized in terms of that construct. Hence, from a constructivist perspective, individuals do not discover the inevitability of an objective reality (Weick, 1985), but instead experience a social universe that is a product of reifications and typifications of objects and actions into social facts (Berger and Luckmann, 1966; Shotter, 2005). These social facts have no material status apart from the individuals and structured behavior patterns that sustain them (Von Glasersfeld, 1995).

Utilizing this approach, it is helpful to consider two concepts developed by constructivist scholars: objectification and enactment. *Objectification* is defined as 'social phenomena attaining, over time, the status of things' (McKinley, 2011: 809). Thus, objectification parallels the concept of 'reification' (Berger and Luckmann, 1966) mentioned earlier. Objectification is also similar to Weick's (1979) concept of 'efferent sensemaking'—sensemaking that is conducted internally, but projected into the world. The essence of objectification is that it is a modality of consciousness where products of human activity are apprehended as if they were something other than human, 'such as facts of nature' (Berger and Luckmann, 1966: 89). Thus, objectification is realized when a perceiver loses awareness that a socially constructed entity is human authored, instead viewing it as detached from human origins.

Closely related to objectification is the constructivist concept of *enactment*, defined by Weick (1979) as the process by which individuals act and, in doing so, create the conditions that become the constraints and opportunities they face. In other words, enactment describes situations where people bring events and structures into existence and set them in motion. It has been well documented that human actions produce structures, constraints, and opportunities that did not exist before the actions occurred (cf. Shrivastava, 1987). In that way, 'people produce part of the environment they face' (Weick, 1995: 30). An example of an enacted environment would be the infrastructure of video stores built by Blockbuster, which eventually constrained their strategy in competition with Netflix and other video-streaming services.

The concepts of objectification and enactment have been used widely to explain the actions of

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corporate managers as they construct environmental states and then react to them (cf. Barley and Tolbert, 1997; McKinley, 2011). In entrepreneurship, the concepts have received less attention, but as far back as Shaver and Scott (1991), scholars have acknowledged the enacted aspects of entrepreneurship. More recently, Wood and McKinley (2010) advanced a model in which individuals produce opportunities when ideas become objectified and emerge into the center of attention for entrepreneurs, thereby attracting resources to organize business ventures to pursue these enacted opportunities. Likewise, Alvarez *et al.* (2013) and Mitchell *et al.* (2012) see opportunities as enactments. Alvarez *et al.* (2013) conceptualize entrepreneurial action as a source of competitive market imperfections, while Mitchell *et al*. (2012) view initiation of economic exchange as the origin of opportunity. The net effect is a growing scholarly awareness that entrepreneurial opportunities can be understood as products of the objectification and enactment processes that are central to constructivist theory. For reference, we provide definitions of opportunity objectification and enactment, along with other constructs central to the theory developed in this article, in Table 1.

OPPORTUNITY AS ENACTMENT

As one begins to consider the idea that opportunities are created via entrepreneurs' and stakeholders' actions, the notion that entrepreneurs must be detectors of economic discontinuities gives way to the assertion that they instead must be meaning makers and consensus builders (Burns *et al*., 2016; Sarasvathy, 2004; Wood *et al*., 2014b). The important shift here is a greater focus on the social realm and how people participate in, interpret, and react to social discourse. Wood and McKinley (2010) built on this logic to argue that opportunities begin with ideas that develop in the minds of entrepreneurs through exposure to information about the environment. Entrepreneurs who experience such cognitions seek input from knowledgeable peers about the viability of the opportunity idea. If the entrepreneur sees other people converging around the opinion that the idea is viable, the possibility that the idea reflects his/her own idiosyncratic psychological state becomes less feasible. In other words, a consensus on positive viability judgments serves as a target for stakeholder bonds (Burns *et al.,* 2016), and makes it harder to attribute the idea to subjective internal psychology on the part of the entrepreneur. In this way, the opportunity becomes objectified for the entrepreneur.

Given consensus, it is also harder for any external observer to question the emerging reality of the opportunity, because the deviant observer faces potential disapproval or even ostracism from colleagues if he/she exhibits such behavior. In these ways, a consensus on viability objectifies an opportunity for the entrepreneur, separating it from his/her mind and externalizing it as a seemingly objective phenomenon. Practically speaking, opportunity objectification is evidenced, for instance, by the language entrepreneurs use when talking with others as they switch from using the phrase 'this is my idea for a potential business' (i.e., internal attribution) to the phrase 'this is the business opportunity I am pursuing' (i.e., external attribution).

According to Wood and McKinley (2010), objectified opportunities become the focus of intense attention by entrepreneurs and serve as an impetus for action—forming a venture through which the opportunity can be exploited. The venture, if successfully formed, serves as the visible carrier of the objectified opportunity, the public forum by which others interact with it, and the vehicle for organizing physical objects (e.g., plant, equipment, computers, and so on) needed to facilitate social and economic exchanges. In that way, establishment of the venture serves as a marker of objectified opportunity, but it does not mean the end of enactment, as some models have implied (e.g., the creation process unfolds until it reaches the 'end' (Alvarez *et al.,* 2013: 308). Rather, the venture serves as an indicator that an *ongoing* enactment process is underway. Thus, the specification of first sale or venture formation as end points of enactment in prior research is conceptually problematic.

Ongoing enactment rests critically on entrainment, defined as the synchronic adjustment of an individual's beliefs and behaviors in rhythm with the beliefs and behaviors of others (Ancona and Chong, 1996; Standifer and Bluedorn, 2006; see Table 1). According to Wood and McKinley (2010), entrainment activities occur prior to venture launch via interactions between the entrepreneur and his/her peers and also between the entrepreneur and initial resource providers. However, once the venture is established, we assert that entrainment efforts

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Table 1. Definitional summary of key constructs and processes

Construct	Definition	Conceptual base
Opportunity objectification	• A modality of consciousness where one loses awareness of the human-authored nature of opportunity and, thus, imparts external status to an opportunity idea so that the idea is seen as an entity outside the entrepreneur's mind.	McKinley (2011) Wood and McKinley (2010)
Entrainment	• Entrepreneurs' efforts toward synchronic adjustment of stakeholders' beliefs and behaviors in rhythm with the beliefs and behaviors of the entrepreneur, thereby producing support for the venture.	Ancona and Chong (1996) Burns *et al.* (2016) Standifer and Bluedorn (2006)
Opportunity enactment	• Situations where entrepreneurs produce part of the environment by acting to bring opportunities into existence and set them in motion; manifest as market imperfections resulting in economic exchanges.	Alvarez and Barney (2010) Alvarez *et al.* (2013) Mitchell *et al.* (2012)
Opportunity propagation	• Continuous, routine entrainment of stakeholders such that a positive consensus around the target of the venture's value proposition is maintained or bolstered, fostering an expectation of future economic exchanges.	Berger and Luckmann (1966) Weick (1979)
Opportunity de-objectification	• A shift in the entrepreneur's modality of consciousness such that he/she begins to attribute sense data about the opportunity to internal psychological states rather than to an external phenomenon. The opportunity previously externalized as reality becomes increasingly subjective.	Berger and Luckmann (1966)

continue and incorporate a much larger set of stakeholders (e.g., investors, customers, and employees) in hopes that mutually beneficial linkages will be maintained between 'persons, organizations and things' (Letiche and Hagemeijer, 2004: 368). The entrepreneur engages important others in his/her venture to generate 'a consensually constructed coordinated system of action' (Taylor and Van Every, 2000: 275). This parallels Burns *et al.*'s (2016) notion of 'stakeholder enrollment' and highlights entrainment as a critical stage in the process. If investors are not entrained to provide capital or customers are not entrained to buy the product or service, then economic exchanges do not materialize and opportunity enactment cannot continue.

Social constructionists such as Berger and Luckmann (1966) and Shotter (1993) draw our attention to the fact that enacted subuniverses must be 'carried' by the collective through continuous production of the meanings that underpin enactment. This suggests that the enactment of opportunity must be sustained through ongoing social processes, such as persuasion, consensus, and the like. In other words, enacted opportunities must be actively and continually reproduced (Weick, 1995) by entrepreneurs such that opportunity objectification and

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stakeholder entrainment is at a minimum preserved, or more optimistically strengthened, as the venture ages. This is a phenomenon we call *opportunity propagation* (see Figure 1).

It is important to note that we conceptualize opportunity propagation as an extension of the enactment process articulated by Wood and McKinley (2010), with propagation involving the cognitions and behaviors of a wide range of participants. A key distinction between opportunity enactment and opportunity propagation is that propagation narrows the entrepreneur's field of vision to the routines that emerge in support of the continuous entrainment of stakeholders. Routines such as product promotion, customer ordering processes, and the like become a daily set of constraints that keep the entrepreneur and stakeholders focused on the objectified opportunity. Alvarez, Young, and Woolley's (2015) story of king crab entrepreneur Lowell Wakefield illustrates this, as Wakefield initiated routines around innovative crab processing and quality control that facilitated stakeholder entrainment during the co-creation of the king crab industry. Essentially, habitualized entrainment activities become what Berger and Luckmann (1966) called the 'self-evident routines of everyday life' that transform opportunity enactment into a long-term maintenance process that supports the venture and its opportunity.

Routines, however, are collective phenomena that involve interactions between multiple actors (Becker, 2004) and are subject to potential disruption when some participants begin to act in a divergent manner (Weick, 1993). Routines that propagate the opportunity are embedded in collective understanding and, as the number of dissenters grows, a threat to the taken-for-granted nature of the opportunity may begin to crystallize. Returning to the king crab example (Alvarez *et al.*, 2015), Wakefield experienced this dynamic when public objections surfaced over the utilization of trawling methods and the extensive use of crab pots, resulting in a temporary ban on trawling and limits on the number of crab pots per boat. These disruptions in crab harvesting routines created an environment conducive to the de-objectification of the market opportunity for king crab. Building on this example, we now present a formal theory of opportunity de-objectification and the factors that precipitate it.

OPPORTUNITY DE-OBJECTIFICATION

We have just argued that the propagation of opportunity rests on continual objectification and entrainment of stakeholders; however, sometimes this propagation is threatened by the de-objectification of a previously objectified opportunity. Opportunity

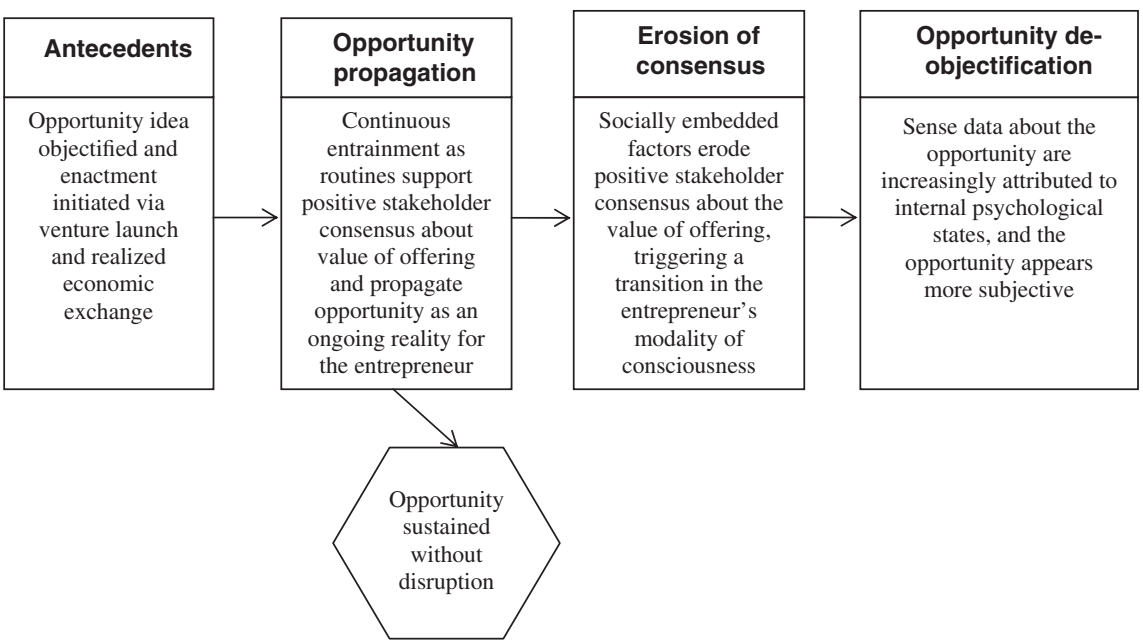

Figure 1. Opportunity propagation and de-objectification processes

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de-objectification is a shift in the entrepreneur's modality of consciousness such that he/she begins to attribute sense data about the opportunity to his/her internal psychological states rather than to an external phenomenon. In this way, the opportunity he/she has been pursuing becomes increasingly subjective, and the entrepreneur becomes doubtful that the opportunity exists as an external reality outside his/her mind. We emphasize that opportunity de-objectification is not the same thing as acknowledging a mistake in detection, a cognition that is consistent with the discovery perspective (Shane and Venkataraman, 2000). If an entrepreneur realizes that he/she has made a mistake in detection, his/her uncertainty decreases; while opportunity de-objectification increases uncertainty because it changes the locus of attribution to idiosyncratic internal psychology, rather than an external reality. In opportunity de-objectification, the opportunity is experienced as 'imaginary combinations' (Davidsson, 2015: 675) that occur in the mind.

We also stress that opportunity de-objectification is not just a reversal of opportunity propagation. Instead, it is a much more restricted phenomenon, since propagation involves the coordinated behavior of many actors, as well as the promulgation of routines that underpin extended enactments; while de-objectification includes only the cognitions of the entrepreneur. Opportunity de-objectification might eventually cause an interruption or reversal of propagation, but it is also possible that de-objectification occurs but propagation routines continue because of the entrepreneur's unwillingness to respond to de-objectification. Opportunity de-objectification is more akin to a failure of sensemaking (Weick, 1995) than to an admission of inadequacy in venture management or the acknowledgement that an existing opportunity is not an opportunity 'for me' (McMullen and Shepherd, 2006). Opportunity de-objectification entails a sense of ontological collapse that is not present in admission of failure to adequately exploit an exogenous opportunity. Thus, opportunity de-objectification is expected to be emotionally traumatic for the entrepreneurs who experience it.

Dissensus as the trigger

We argue that opportunity de-objectification is triggered by erosion of consensus among a venture's stakeholders about the viability of the opportunity. If stakeholders begin to disagree about the viability of an opportunity after initial objectification and venture formation, it becomes easier for the entrepreneur to attribute sense data about the opportunity to his/her internal psychological states rather than to an objective opportunity. In other words, cognitions that were previously externalized now begin to appear more subjective. As dissensus spreads and those who believe in the viability of the opportunity become more isolated, it becomes more and more credible that their belief is impelled by idiosyncratic internal psychology rather than an objective opportunity. This process de-objectifies the opportunity for the entrepreneur, leading to uncertainty on his/her part about the external status of the opportunity.

An important aspect of this process is that dissensus can be self-reinforcing. As dissensus develops, it becomes easier for individual stakeholders to question the viability of the opportunity, and dissensus is likely to spread even more widely. The fear of ostracism and critique directed at any stakeholder questioning the viability of the opportunity lessens as dissensus expands and there are more like-minded stakeholders with whom a critical evaluator can align. This self-reinforcing dynamic accelerates opportunity de-objectification and can precipitate an ontological collapse through a transition in the entrepreneur's modality of consciousness from experiencing the opportunity as an objective reality to experiencing it as a subjective cognition.

Based on this reasoning, we can state the following proposition that marks the first step in our development of a theory of the determinants of opportunity de-objectification:

> *Proposition 1: Erosion of stakeholder consensus about the viability of a previously objectified opportunity precipitates opportunity de-objectification.*

The social context of opportunity de-objectification

The implication of our first proposition is that maintenance of stakeholder consensus about the viability of an opportunity is critical for preserving opportunity objectification. However, the degree of consensus experienced by stakeholders is a function of the social context in which they find themselves. By 'social

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context,' we mean the venture itself and the competing organizations operating in the same market niche, as well as the general market environment. Aspects of this social context, such as growth in venture revenues or an increase in the birth rate of competitors seeking to tap the same market, can solidify consensus about opportunity viability. On the other hand, decline in venture revenues, a decrease in the birth rate of similar ventures, or unfavorable developments in the general economic environment can erode consensus about opportunity viability. The degree of collective agreement is exogenous to the entrepreneur, yet if it dissipates, it can become the impetus for an endogenous shift in the entrepreneur's conceptualization of opportunity. This is consistent with a long line of research that links exogenous data (in this case, about the level of consensus) with changes in cognitions, where mental constructions are molded by sensemaking processes (Kosslyn, Thompson, and Ganis, 2006; Weick, 1995).

In discussing the social context of opportunity de-objectification, it is important to maintain a sharp distinction between ventures and stakeholders. Ventures are the organizations formed by entrepreneurs to initiate and continuously reproduce the enacted opportunity (cf. Alvarez *et al.*, 2015). Specifically, ventures are what constructivists consider a 'way station on the road to a consensually constructed coordinated system of action' (Taylor and Van Every, 2000: 275). Because enactments rest on social processes such as rhetoric, negotiation, and complicit cooperation (Pearce and Cronen, 1980), ventures are the mechanisms by which entrepreneurs and stakeholders interact to those ends. Stakeholders, though, are individuals such as investors and customers who interact through the medium of the venture but remain separate from it. It is their behavior and their expressed consensus/dissensus manifest in the interactions and communications that occur through the venture that are critical for the entrepreneur's experience of the opportunity as objective or subjective.

Individual predictors of opportunity de-objectification

Having established a general conceptual foundation for our theory of opportunity de-objectification, we now move forward to consider individual predictors of this phenomenon. These are the attributes of the social context we have just described, and they operate through the changes in stakeholder consensus that they generate. One such factor is a prolonged period of decline in the sales of the venture organized to pursue an objectified opportunity. There has been extensive research on the phenomenon of organizational decline (e.g., Mone, McKinley, and Barker, 1998; McKinley, Latham, and Braun, 2014; Zammuto and Cameron, 1985), but no one, to our knowledge, has discussed the effect of venture decline on entrepreneurs' modalities of consciousness about opportunities. We maintain here that if a venture formed to pursue an objectified opportunity experiences a long period of decline in sales, the consensus among stakeholders about the viability of the opportunity will begin to erode. Brief episodes of decline can be explained away by temporary mismanagement or transitory environmental shifts, but as an episode of decline becomes prolonged, venture managers, investors, and other stakeholders will begin to question the viability of the opportunity itself.

If decline continues and this erosion of consensus increases, it becomes easier to attribute sense data about the opportunity to the idiosyncratic traits of the remaining believers, rather than an objective reality. This de-objectifies the opportunity for the entrepreneur, leading to a change in his/her modality of consciousness about the opportunity. The opportunity now appears more subjective, and the entrepreneur is no longer certain that it constitutes an entity external to his/her own mind. Further prolongation of organizational decline and further erosion of consensus about viability may eventually cause the founding entrepreneur to attribute his/her sense data about the opportunity to his/her own subjectivity, and the ontological status of the opportunity will be transformed. Based on this logic, we specify a proposition about the effect of prolonged organizational decline on opportunity de-objectification:

> *Proposition 2: The longer the period of decline experienced by a venture formed to pursue an objectified opportunity, the more likely the de-objectification of that opportunity.*

The ontological collapse that we argue entrepreneurs experience as a result of long periods of venture decline is likely to be personally threatening to the entrepreneur, and he/she is likely to centralize

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control of the venture in an effort to deal with this threat. This is consistent with Staw, Sandelands, and Dutton's (1981) argument that organizational decline leads to a threat-rigidity response in which managers centralize decision making and increase formalization. To the extent that this reaction feeds back to promote further decline (McKinley, *et al.*, 2014), organizational decline, opportunity de-objectification, and the threat it produces will evolve in a series of self-reinforcing loops. The result will be a cascade of negative affect for an entrepreneur caught in an extensive period of decline.

Figure 2 shows the effect of prolonged venture decline on opportunity de-objectification, as mediated by increasing stakeholder dissensus.

As suggested earlier, stakeholders may take cues about the viability of a previously objectified opportunity not only from the decline of the venture formed to exploit it, but also from the rate of formation (birth) of similar ventures. Population ecologists (e.g., Hannan and Freeman, 1984; Hannan and Carroll, 1992) have conducted extensive research on organizational birth rates and have studied how those rates vary over time with conditions of the organizational population or the environment. The effect of birth rates on the cognitions of entrepreneurs or venture stakeholders has received very little attention; but, Wood, McKelvie, and Haynie (2014) recently reported a positive relationship between industry founding rate and entrepreneurs' impressions of opportunities within the industry. Hence, we argue that if the birth rate of ventures in a focal venture's market niche begins to decline, stakeholders of the focal organization will begin to infer that the window of opportunity that once existed for such ventures is closing. This will foster dissensus among the stakeholders about the viability of the focal venture's opportunity and this will, in turn, facilitate attribution of sense data about the opportunity to subjective psychological states. The consensus that sustains the objectified opportunity will be disrupted, and the opportunity will become de-objectified.

For example, if stakeholders of a marijuana retail outlet in a Colorado city notice a declining birth rate of similar stores, they may begin to discuss the meaning of this decline. If some stakeholders attribute it to a shrinking opportunity and begin to argue about it, that very disagreement undercuts the entrepreneur's sense of the opportunity as an external reality that exists beyond individual subjectivity. As stakeholder dissensus emerges and the entrepreneur begins to question the existence of an opportunity that he/she once

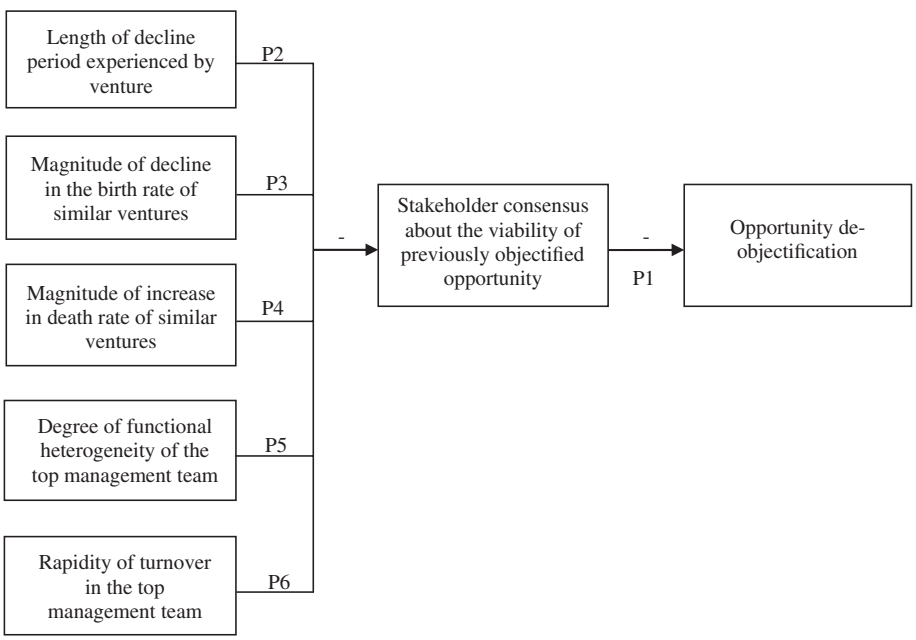

Figure 2. Individual predictors of opportunity de-objectification

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thought was solidly real, he/she will pay increased attention to the declining birth rates and the dissensus they are causing. If declining birth rates continue and dissensus among stakeholders expands, the entrepreneur's modality of consciousness will be transformed and opportunity de-objectification will occur. This suggests a third proposition:

Proposition 3: The greater the decline in the birth rate of ventures similar to a focal venture, the more likely the de-objectification of a previously objectified opportunity.

We think that rising death rates of similar ventures will also carry meaning for a focal venture's stakeholders and will trigger dissensus about viability that can lead to opportunity de-objectification. Like birth rates, organizational death rates have been of great interest to population ecology researchers, and many studies have been devoted to identifying the predictors of death rates (see, for example, Bruderl and Schussler, 1990; Hannan and Carroll, 1992; Singh, Tucker, and House, 1986). Here we are concerned with the inferences that stakeholders of a focal venture will make if they observe rising organizational death rates in the venture's market niche. We think that such increases will lead to a belief by some stakeholders that the opportunity the venture was formed to pursue is disappearing. This will trigger discussion and disagreement among stakeholders, as some claim that the opportunity is eroding and some defend its continued existence. This dissensus will, in turn, raise the possibility that remaining believers are being influenced by subjective psychological states, initiating opportunity de-objectification and corresponding ontological inversion for the entrepreneur. This logic can be summarized in a fourth proposition:

Proposition 4: The greater the increase in the death rate of ventures similar to a focal venture, the more likely the de-objectification of a previously objectified opportunity.

In Propositions 2 to 4, we have concentrated on variables related to the entrepreneur's venture and market niche as exogenous factors that trigger stakeholder dissensus and then opportunity de-objectification. However, there are other potential determinants of opportunity de-objectification that are part of the entrepreneur's social context but reside at the top management team level. One such factor, which can trigger opportunity de-objectification through the erosion of consensus, is increasing heterogeneity in the functional backgrounds of the venture's top management team. If an entrepreneur successfully presides over objectification of an opportunity and attracts enough resources to launch a venture to pursue it (Wood and McKinley, 2010), a top management team is typically formed to administer the venture. Much prior theory and research has been devoted to top management teams (e.g., Hambrick, Cho, and Chen, 1996; Hambrick and Mason, 1984; Simons, Pelled, and Smith, 1999), but most of it has focused on corporations, rather than entrepreneurial ventures. We argue here that as the functional heterogeneity of a venture's top management team increases, the number of different criteria used to evaluate the viability of the opportunity being pursued will also expand.

In other words, heterogeneity in the top management team introduces a diversity of interpretive frames (Barreto, 2012). For example, managers with accounting or operations backgrounds may assess an opportunity as viable only when the venture is profitable, while managers with marketing backgrounds may base their evaluations on market potential, as measured by focus groups or customer surveys. This suggests that in functionally diverse top management teams, interpretive frames are less likely to converge. When this occurs, there will be dissensus among top management team members about the viability of the opportunity, and this dissensus will initiate opportunity de-objectification. The consensus that transcends subjectivity will be disrupted, and the opportunity will become de-objectified for the entrepreneur. This is particularly likely if divergent viability criteria isolate the believers in the opportunity into a restricted group that is surrounded by nonbelievers. Based on this logic, we can articulate a fifth proposition:

Proposition 5: The greater the functional heterogeneity of the top management team of a venture formed to pursue an objectified opportunity, the more likely the de-objectification of that opportunity.

Yet another attribute of the top management team that may cause opportunity de-objectification

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is rapid turnover. The topic of turnover has received considerable attention in organizational behavior research (e.g., Griffeth, Hom, and Gaertner, 2000; Huselid, 1995), but most of this work has focused on rank and file employees and has examined turnover as a dependent variable. Here we consider turnover as a predictor, and we argue that rapid turnover in a venture's top management team increases the chances that divergent opinions on opportunity viability will be incorporated into the team. Rapid turnover also means that many members of the top management team will not have been present at the founding of the venture, making it easier for them to dissent about opportunity viability. Therefore, rapid turnover, or 'churn,' is corrosive to consensus about opportunity viability, a consensus that is instrumental in maintaining the entrepreneur's sense of an objective opportunity. This logic suggests a sixth proposition:

Proposition 6: The more rapid the turnover in the top management team of a venture formed to pursue an objectified opportunity, the more likely the de-objectification of that opportunity.

In summary, we have argued that consensus about the viability of a previously objectified opportunity is necessary to maintain the objective status of the opportunity for the entrepreneur. The entrepreneur judges the existence of the opportunity not by seeing it in the same way he/she would see a stone or a tree, but by observing how much consensus peers and stakeholders have about its viability. The existence of consensus reinforces the sense of an external reality that transcends individual subjectivity, just as the existence of consensus about a scientific phenomenon (e.g., a quark) solidifies the reality of the phenomenon for a scientific observer. If consensus is disrupted, by whatever means, the sense of external reality begins to erode, and it is easier to question that reality. This is true for a previously objectified entrepreneurial opportunity as well as for quarks, so we argue that eroding consensus among venture stakeholders is the key precipitator of opportunity de-objectification. Also, we have identified several exogenous factors that can undercut such consensus and summarized their effects in a series of propositions emphasizing the ontological inversion associated with opportunity de-objectification. These propositions will hopefully stimulate future empirical research, and to increase the likelihood of such research, we now consider methods for testing the propositions.

TESTING THE PROPOSITIONS

In order to test the propositions we have specified, one would first need to select a sample of new ventures that had been through the opportunity objectification and enactment processes described by Wood and McKinley (2010). In other words, these would be ventures in which the founding entrepreneur had started with an opportunity idea, the idea had become objectified through consensus of a peer group, and the objectified opportunity had become the focus of attention by the entrepreneur, who had assembled resources to pursue the opportunity. It would be easier to identify such a sample if one had detailed histories of a group of start-up companies, but that seems unlikely since entrepreneurs do not tend to write down what is happening as they form their ventures. However, one might be able to utilize web logs as a source of such histories (Autio, Dahlander, and Frederiksen, 2013). An alternative would be to select a sample of ventures working on innovative, cutting-edge projects that are likely to have originated with an opportunity idea, rather than an opportunity that preexisted the entrepreneur. Here we are thinking of ventures such as Airbnb or Youtube, which probably grew from entrepreneurial cognitions about what could be (Dimov, 2011), rather than opportunities that were present before the entrepreneur came on the scene. Of course, the ideas that these companies started with have now been objectified, so the companies appear to be responding to real market imperfections, but it is doubtful that these market gaps originated from exogenous sources that were there before the founders acted. Given selection of such a sample, which would have to range beyond the well-known names we listed (to avoid success bias), one could then proceed to measure the extent to which their objectified opportunities have become de-objectified and to what extent any de-objectification is attributable to the independent variables in our propositions.

The dependent variable, opportunity de-objectification, refers to a transition from sensed external reality to sensed subjectivity. This transition could

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be assessed by surveying the founding entrepreneurs in the study sample and asking them to what extent the opportunity they are pursuing is an objective reality outside their minds. Such items as 'Please assess the extent to which the opportunity you are targeting is outside your mind and in the world' might serve to tap the dimension of opportunity de-objectification. One might also add items such as 'To what extent do you attribute the perception of opportunity to your internal psychology rather than an objective phenomenon?' This would measure the displacement of attribution for sense data about the opportunity toward subjective psychological states. An average of scores on items such as these could provide an aggregate index of the extent of opportunity de-objectification for each of the sampled founding entrepreneurs.

Given measures such as those described in the preceding paragraph, one could then set out to examine whether the independent variables in our propositions are associated with the degree of opportunity de-objectification experienced by each founding entrepreneur. In order to test Proposition 1, one could identify those ventures in the sample that are undergoing erosion in stakeholder consensus about the viability of the opportunity and see whether the degree of dissensus is associated with opportunity de-objectification for the entrepreneur. The answer is not obvious because some entrepreneurs who are confident in their ability to assess opportunities might ignore erosion of consensus about opportunity viability. However, if our reasoning is correct and most entrepreneurs do not, Proposition 1 would be supported.

In order to test Proposition 2, one could identify those ventures in the sample that have declining sales and see whether the duration of those declines is correlated with the degree of opportunity de-objectification experienced by the founding entrepreneur. If greater duration of decline is positively correlated with the extent of opportunity de-objectification, under controls for possible confounding variables, there would be support for Proposition 2.

Propositions 3 and 4 suggest that declining birth rates and rising death rates of similar ventures send a signal to stakeholders of a focal venture that opportunity may be fading, and this disrupts their consensus about opportunity viability. Disruption of this consensus in turn triggers opportunity de-objectification for the founding entrepreneur. Population ecologists (e.g., Hannan and Freeman, 1987) have developed standard measures that can be used to assess organizational birth and death rates in populations, and these measures could be used to derive difference scores that capture the change in birth or death rates over a specified period of time. These difference scores could be calculated for the local market niche of each venture in the sample. If greater declines in birth rates and greater increases in death rates were positively associated with greater opportunity de-objectification, Propositions 3 and 4 would be confirmed.

Finally, Propositions 5 and 6 have independent predictors at the top management team level of analysis. Standard indices of heterogeneity (e.g., Hambrick *et al.,* 1996) could be used to measure the functional heterogeneity of each venture's top management team, and these heterogeneity indices could be related to the opportunity de-objectification measures described earlier. If, under appropriate controls, more functionally heterogeneous top management teams were associated with greater opportunity de-objectification for the founding entrepreneur, Proposition 5 would be supported. The rapidity of executive turnover in top management teams could also be measured, and if ventures with more rapid turnover exhibited higher opportunity de-objectification scores for the founding entrepreneur, Proposition 6 would also be supported.

DISCUSSION

This article has contributed to the current discussion of the ontological status of entrepreneurial opportunities (e.g., Alvarez and Barney, 2007, 2010) by emphasizing the fluid nature of constructed opportunities in the post-venture establishment era. The opportunity objectification described by Wood and McKinley (2010) is not necessarily permanent, and a number of factors can intervene to disrupt the stakeholder consensus that maintains this objectification. If these factors undercut consensus deeply enough, the founding entrepreneur becomes increasingly aware of the possibility that the perceived opportunity may be subjective. This can be thought of as inversion of the 'efferent' process (Weick, 1995) that originally pushed the entrepreneur's opportunity idea out into the world (Wood and McKinley, 2010). In the same way that individuals sometimes come to realize that

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institutions are human made (Munir, 2005) or that management action portrayed as inevitable (McKinley, Zhao, and Rust, 2000) is actually under management control, the veil is ripped away from objectified opportunities, and their subjectivity becomes manifest.

Implications for entrepreneurship theory

Our framework has a number of important implications for entrepreneurship theory. First, our approach opens the black box of dynamic processes that underpin the endogenous formation of opportunity. While prior work in the area has advanced the idea that created opportunities incorporate the views of multiple stakeholders (Welter and Alvarez, 2015), who sometimes become strongly enrolled in the entrepreneur's project (Burns *et al.,* 2016), it fails to address the reality that understanding opportunity enactment is incomplete without grasping the ongoing, iterative processes that sustain enacted opportunities. We provide a detailed conceptual treatment of these considerations by emphasizing that the perceived objective status of entrepreneurial opportunities is a function of the communal behavior of stakeholders via their ongoing positive consensus. This has significant implications for research on entrepreneurial search because it suggests that is not developing alert antennae (Kirzner, 1979), engaging in comprehensive planning (Schoemaker, 1995), or conducting market research (Collinson and Shaw, 2001) that are the essential elements of opportunity pursuit, but rather whether stakeholder consensus is, and continues to be, achieved.[2] This is the heart of the social constructivist perspective, and evoking it shifts the focus away from the 'hero-individual' who uniquely recognizes market imperfections to the social collective where generating and maintaining positive stakeholder agreement is what really matters.

A second implication flows from our conceptualization of opportunity propagation as an extension of the enactment processes articulated by Wood and McKinley (2010). Our model is based on the premise that the prelaunch dynamics that Alvarez and Barney (2007) discuss and that Wood and McKinley (2010) describe in the production of opportunity do not cease once the venture is up and running. Rather, these dynamics remain in play with a continued focus on co-creation (Alvarez *et al*., 2015) through consensus building and maintenance. Our model highlights how the conceptualization the entrepreneur experienced as a result of the initial enactment may reverse into subjectivity in the post-enactment period if positive consensus begins to break down. We have developed the construct of opportunity de-objectification to represent this reversal, and the consequent emotional fallout from it may provide an explanation for why individuals make erratic strategic decisions (Mitchell *et al.,* 2012) or why people fail to react in productive ways to organizational decline (Cameron, Whetten, and Kim, 1987).

Third, critics of the constructivist view of entrepreneurial opportunities have argued that the opportunity enactment or creation perspective is largely linguistic innovation, and what is created are 'not opportunities but organizations, institutions, products, services, and so on' (Ramoglou and Zyglidopoulos, 2015: 74). This critique has greater force to the extent that enactment scholars confine their attention to the pre-venture launch period. Given such a restricted focus, it is easy to miss the ongoing co-creation of opportunities that characterizes the social context surrounding the entrepreneur after venture launch. As such, an implication of our theory is the realization that propagation of opportunities must be continuous and may be interrupted by de-objectification. This extends the range of enactment theory in ways that respond to the critiques cited earlier. Specifically, it highlights the point that the construction and deconstruction of opportunities is an ongoing process that parallels (and is embedded in) the construction of organizations and institutions that Ramoglou and Zyglidopoulos (2015) describe.

A final implication of our theoretical framework is that opportunity de-objectification can be expected to engender emotional and behavioral responses as well as ontological transformation. These responses can be manifested as frustration, discouragement, or stress (Shepherd, Patzelt, and Wolfe, 2011) and may lead to strategic change (Zajac, Kraatz, and Bresser, 2000). One possible strategic change may be abandonment of the venture formed to pursue the previously objectified opportunity. This might involve actually closing the business because the increasing subjectivity of

[2] We are indebted to an anonymous reviewer for this insight.

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the opportunity does not seem to warrant keeping it running. However, new ventures represent considerable sunk costs (Garland and Newport, 1991), and these costs may motivate the entrepreneur to try (consciously or intuitively) to objectify new opportunities that the existing venture could pursue. This resembles the 'effectuation' process discussed by Sarasvathy (2001), in which entrepreneurs have a set of resources and effectuate opportunities that can be successfully pursued with those assets. The development of theory about the emotional and behavioral effects of opportunity de-objectification could draw on recent research using sensemaking to explain the entrepreneurship process (Pryor *et al*., 2016). Such theoretical work could enhance our knowledge of how entrepreneurs and their ventures behave in the aftermath of opportunity de-objectification.

Implications for empirical research

In addition to tests of the propositions, this article has other interesting implications for future empirical research. Specifically, the extant research has centered on entrepreneurs' interactions with their environments in the prelaunch stage, focusing on phenomena like entrepreneurial action (McMullen and Dimov, 2013) or entrepreneurial judgment (Foss and Klein, 2012). Our theory suggests the possibility of a broader empirical research program that would investigate how entrepreneurs interact with their environments after venture establishment. In our framework, we have focused on interactions between the entrepreneur and the microenvironment composed of the firm's stakeholders. However, one could also study exchanges between the entrepreneur and the macro-environment. For example, would changes in the macro-environment, such as broad technological transformations, be sufficient to de-objectify a previously objectified opportunity? Here one thinks of companies like Blockbuster, in which technological transformations in video streaming may have de-objectified the opportunity produced earlier by the firm through creation of a chain of video stores where customers could come to check out videos. By making films instantly available to customers in their homes, video streaming may have eliminated Blockbuster managers' sense of an external opportunity constituted by attracting customers into bricks and mortar stores. Such dynamics suggest that studies of interactions between humans who have produced and/or maintained opportunities and the wider macro-environment would be a worthy target of future empirical research.

Empirical researchers could also move to the other extreme and study the effects of the entrepreneur's personal history on the propagation and de-objectification of opportunities. For example, it is possible that serial entrepreneurs (those with a series of past ventures to their credit) may be less threatened by a particular episode of opportunity de-objectification than first-time entrepreneurs. Ucbasaran *et al.* (2010) find that serial entrepreneurs who experience failure do not make downward adjustments to their comparative optimism, and this suggests that the serial entrepreneurs might be more inclined to resist de-objectification. In what other ways does an entrepreneur's past history affect his/her capacity to propagate opportunity, resist de-objectification, and react proactively to de-objectification if it does occur? Does the entrepreneur's reputation in the entrepreneurial community (Shane and Cable, 2002) have any influence on these phenomena? Does the extent to which a past entrepreneurial career has been a function of push versus pull forces (Schjoedt and Shaver, 2007) have an effect? Attention to such questions would provide an important focus for empirical research on the process of opportunity de-objectification.

Also, one wonders about the personal histories of the *stakeholders* who play a mediating role in the propositions we have articulated. How do the personal histories of these stakeholders influence the extent of consensus in the face of factors like organizational decline, rising death rates of similar ventures, or falling birth rates of similar ventures? Do those stakeholders who have more experience with the vicissitudes of entrepreneurship have a greater capacity to maintain consensus about opportunity viability in the face of de-objectification stimuli? Are more seasoned stakeholders more or less likely to contribute to the eroding consensus about viability that can be triggered by top management team heterogeneity? Future investigators could explore such possibilities, and we anticipate that the results of such research would contribute to a better understanding of the maintenance and possible destruction of entrepreneurial opportunities.

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Implications for entrepreneurial practice

Our theory also provides insights for practicing entrepreneurs by highlighting the value of interpretive framing (Weick, 1995; Barreto, 2012) for entrepreneurs who wish to propagate opportunities. For example, though the entrepreneur cannot directly control birth and death rates of other ventures in the same population, he/she can interpret those rates in ways that are conducive to the maintenance of the sense of an objective opportunity. Increasing death rates and falling birth rates are normally seen as negative signs, but if the entrepreneur can frame these conditions as niche-clearing events (reducing competition), he/she might be able to argue that they actually enhance external opportunity. Customers who become available through the demise of other ventures, for example, can be interpreted as evidence that the focal firm has gained competitive advantage (Rindova and Fombrun, 1999). This would reverse the dynamic predicted in Proposition 4, but it would require extensive effort by the entrepreneur to change the meaning of the signals that rising death rates normally send and limit the dissensus they can cause. The entrepreneur would have to be entrepreneurial not only in creating ideas for the business and organizing consensus to support them, but in developing interpretive frames that would modify processes that could be destructive to an objectified opportunity.

Further, our framework suggests that entrepreneurs could develop some control over opportunity de-objectification by manipulating some of the factors that instigate it. There is little evidence that an entrepreneur can control rates of birth or death of other ventures in the same population (Hannan and Freeman, 1987), but the entrepreneur can exert influence over things like the composition of the top management team. In that vein, an entrepreneur seeking to avoid opportunity de-objectification might establish limits to the functional heterogeneity of the top management team, lest excessive heterogeneity trigger stakeholder dissent about opportunity viability and, therefore, opportunity de-objectification. The paradox is that heterogeneous teams exhibit a greater propensity for action (Hambrick *et al.*, 1996). Therefore, if de-objectification does occur, top management team heterogeneity may be of value in the aftermath when the continuity of the venture is supported by actions leading to objectification of new opportunity ideas. Entrepreneurs aware of this dynamic could expand the heterogeneity of the top management team after an episode of opportunity de-objectification by bringing in diverse experts to enact new opportunity ideas. If consensus on the viability of one of these ideas were established, that could be the foundation for renewed opportunity objectification and provide the rationale for the acquisition of new resources. The overall implication is that entrepreneurs may seek to actively manage opportunity de-objectification through activities such as varying the heterogeneity of their top management teams to account for the ongoing and dynamic nature of enacted opportunities.

CONCLUSION

We hope this article highlights the fact that enacted opportunity must be continually maintained via positive consensus among stakeholders. If consensus fails, the objectivity of the opportunity is undercut in a process we have called opportunity de-objectification. As suggested by the high death rate of new firms (Stubbart and Knight, 2006), many ventures do not last much beyond the very early enactment stage, and the theory developed in this article may clarify some of the reasons why. Most entrepreneurs are not cognitive or administrative heroes and, therefore, they will have difficulty continually entraining stakeholders in support of the entrepreneurial project. Much of the research on opportunities is retrospective and focuses on successful firms (Denrell, 2003; Dimov, 2011), and this obscures all the contingencies that can derail the movement toward success. By outlining post-venture enactment processes in the life of entrepreneurial firms, with emphasis on possible opportunity de-objectification, we hope to highlight the vulnerability of opportunities as social constructions.

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ARE FORMAL PLANNERS MORE LIKELY TO ACHIEVE NEW VENTURE VIABILITY? A COUNTERFACTUAL MODEL AND ANALYSIS

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Research summary: *This study develops and tests a counterfactual model of the relationship between formal written business plans and the achievement of new venture viability. This is important because extant theory remains oppositional, and there is a practical need to provide guidance to founders on the utility of formal plans. To test our model, we use propensity score matching to identify the impact that founder, venture, and environmental factors have on the decision to write a formal plan (selection effects). Having isolated these selection effects, we test whether or not these plans help founders achieve venture viability (performance effects). Our results, using data on 1,088 founders, identify two key results: (1) selection effects matter in the decision to plan; and (2) it pays to plan.*

Managerial summary: *This study assesses whether founders who write formal plans are more likely to achieve new venture viability. This is important because, despite its popularity, there is considerable debate about the value of plans. One root reason for this is that what prompts a founder to plan also impacts his/her chances of creating a viable new venture. The study's novelty is to separate out influences on the decision to plan from the plan-venture viability relationship. Our results show that better-educated founders, those wanting to grow and innovate, and those needing external finance are more likely to plan. Subsequently, having isolated what prompts planning, we assess if writing a plan actually promotes venture viability. We find that it pays to plan.*

INTRODUCTION

A long-standing debate in the strategy and entrepreneurship literatures is whether or not a formal written business plan helps the nascent founder achieve venture viability (Bhide, 2000; Delmar, 2015; Delmar and Shane, 2004; Honig and Samuelsson, 2014). Formal plans—here defined as written scripts that detail markets to be served, proposed products/services, required resources, and the anticipated growth and profitability of the new venture (Stevenson and Van Slyke, 1985)—are central to this debate. Some scholars argue that written plans provide a rational synopsis of the steps necessary to develop a viable venture (Delmar and Shane, 2004). Other scholars, however, argue that formal plans add little value and that founders are better off without a formal plan (Carter, Gartner, and Reynolds, 2014; Lange *et al.,* 2007; Mintzberg and Waters, 1985). Given that the extant literature remains oppositional, the empirical evidence on the efficacy of formal plans has also remained contradictory,

Keywords: nascent venturing; business plans; formal planning; counterfactual modelling; propensity score matching; PSED II

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making it difficult to substantiate whether plans help nascent founders achieve venture viability.

In this study, we argue that a principal reason for these gaps is that few studies have taken account of what prompts a founder to plan formally (selection effects). Selection effects are important because the founder's prior education and experience, the type of venture he/she is seeking to create, and differences in the environment he/she faces are likely to impact both on the likelihood of formal planning and on the chances of achieving venture viability. Indeed, conflating selection and performance effects lead to biased estimates of the plan-performance relationship (Burke, Fraser, and Greene, 2010).

This article's primary contribution is to develop and test a counterfactual model that explicitly isolates selection effects from the plan-viability relationship. To do so, we focus on key founder, venture, and environmental antecedents that affect the decision to formally plan. We focus on the founder's educational attainment and prior sectoral and entrepreneurial experience because they are important determinants of both plan and venture outcomes (Burke *et al.,* 2010; Dencker, Gruber, and Shah, 2009a). Similarly, we examine venture characteristics such as innovation, growth orientation, product complexity, the competitive nature of the external environment, and the need for external finance because, again, they are key determinants of the choice to plan (Honig and Karlsson, 2004; Kim, Longest, and Lippmann, 2015). Finally, we focus on venture viability because, as McMullen and Dimov (2013) suggest, it is the conclusion of the nascent phase of the "entrepreneurial journey."

To investigate our model, we use propensity score matching. This allows us to "net out" selection effects, thereby reducing "the problem of unfair comparison" (Li, 2013: 214). Subsequently, we isolate the impact of the plan on venture viability. This is a novel contribution because we estimate what would have happened if the planning founder had instead decided not to plan. Modelling this counterfactual state is important because, as Chwolka and Raith (2012) point out, key to understanding the value of a plan is to comprehend what is *not* chosen, rather than just measuring what turns out to be chosen.

Empirically, we use Panel Study of Entrepreneurial Dynamics (PSED II) data on 1,088 nascent founders. These data allow us to address issues of reverse causality and draw stronger causal inferences about the plan-viability relationship. In summary, the key advantage of our approach—for both plan advocates and skeptics—is that we take explicit account of selection biases, develop a counterfactual model that separates out plan selection from performance effects, and use large-scale longitudinal data to assess if founders who write plans are more likely to achieve new venture viability.

Our key results are twofold. First, selection effects matter: better-educated individuals, those seeking finance, innovators, and those with complex products/services are more likely to plan. Second, it pays to plan: founders who formally plan are more likely to achieve venture viability. These findings contribute to resolving the ongoing debate about the value of formal plans. Such findings are also of practical importance. Despite improvisational logics such as effectuation (Sarasvathy, 2001), bricolage (Baker and Nelson, 2005), and lean start up (Ries, 2011) being increasingly taught in our universities and being promoted as more reliable mechanisms for founders to achieve venture viability, our results suggest that the writing of formal plans is a useful way for actually helping founders and students orchestrate their fledgling business propositions. Moreover, our findings have importance to financiers, who use plans to help allocate start-up finance, and the millions of nascent founders who choose to write formal plans (Gumpert, 2002).

Next, we review the extant business plan literature. Subsequently, we develop our hypotheses, explain our methodology, and detail our results. We conclude by reflecting on the implications for both theory and practice.

LITERATURE REVIEW

We now examine the strategy and entrepreneurship literatures on formal written plans. The strategy literature from early conceptual and empirical studies (Thune and House, 1970) through more recent studies (Andersen, 2004; Greenley, 1994; Rudd *et al.,* 2008; Wolf and Floyd, forthcoming) has focused on whether plans aid performance of large firms. By comparison, relatively few entrepreneurship studies have examined the plan-performance relationship for emerging ventures (Dencker *et al.,* 2009a; Gruber,

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2007). Both research streams agree, however, that the experiences of the planner and the context in which they write a plan are important in shaping the plan-performance relationship (Brinckmann, Grichnik, and Kapsa, 2010; Wolf and Floyd, forthcoming).

Formal plans in strategy research

In the strategy literature, the impact of a plan on performance has been marked by a theoretical divide between those who champion an improvisational and emergent approach (Mintzberg and Waters, 1985) and those who see the merits of formal rational plans (Ansoff, 1991). The rationalist synoptic paradigm posits that plans are intrinsic to the development of systematic goals and concrete steps that allow the business to effectively coordinate and integrate activities (Locke and Latham, 1990, 2002; Miller and Cardinal, 1994; Wolf and Floyd, forthcoming). Plans aid the development of a framework for adaptive thinking (Andersen, 2004; Ansoff, 1991)—even when uncertainty is high (Armstrong, 1982)—and help anticipate the timing of resource flows and ease impediments in the matching of resource supply and demand. Further, plans help managers build confidence in their actions; communicate goals, strategies, and operational tasks; and build traction, both internally and externally, for their plans (Falshaw, Glaister, and Tatoglu, 2006). Finally, plans provide opportunities to improve decision making prior to investing resources, both in terms of identifying missing information and examining the implicit assumptions inherent in the business (Boyd, 1991).

In contrast, researchers from the improvisational paradigm have emphasized that plans introduce rigidities that can impede innovation and lead to excessive bureaucracy (Bresser and Bishop, 1983; Miller and Cardinal, 1994). Consequently, plans may retard the speed of decision making, bias decision making toward the status quo, and mistake strategic programming for strategic thinking (Mintzberg, 1994).

Successive empirical reviews of formal planning, however, have produced equivocal findings that, at best, show a weakly positive plan-performance relationship (Armstrong, 1982; Boyd, 1991; Brews and Hunt, 1999; Grant, 2003; Greenley, 1994; Miller and Cardinal, 1994; Pearce, Freeman, and Robinson, 1987; Rue and Ibrahim, 1998; Schwenk and Shrader, 1993).

Formal plans in entrepreneurship research

Although the theoretical debate evident above is also present in the entrepreneurship literature, what is axiomatically different about entrepreneurial ventures is that they are not scaled-down versions of large firms (Robinson and Pearce, 1983; Storey and Greene, 2010). Illustrative of this is that, on average, founders have greater latitude in how they translate the vision for their businesses into reality. Consequently, founders' education and experiences inform how they devise and execute the strategy for their businesses. However, in envisioning their new ventures, founders are also faced with a dynamic and uncertain task environment that can complicate decision making about, among other things, operations, competitive positioning, and venture financing.

The presence of heightened uncertainty, though, has not lessened the debate about the efficacy of formal plans. Plan proponents such as Delmar and Shane (2004) argue that plans are a tool for delineating goals and actions necessary for launching a venture. A plan can also spur start-up motivations and promote self-efficacy (Bandura, 1997; Krueger and Brazeal, 1994), thereby reinforcing goal commitment and persistence (Liao and Gartner, 2006). Plans may also promote adaptive thinking and learning about how to achieve age-old questions such as: (1) "where is the business now?"; (2) "where does it want to be?;" and (3) "how is it going to get there?" (Ansoff, 1991; Miller and Cardinal, 1994). Indeed, as a boundary-spanning device, plans may help the founder select, evaluate, and fine-tune nascent activities and, in the process, reduce mistakes and help avoid hazards that derail the nascent venture (Delmar and Shane, 2004). Moreover, plans may play an important communicative role in convincing (potential) employees of the founder's strategic intent and building legitimacy with outside financiers. If so, plans may help overcome liabilities of newness (Stinchcombe and March, 1965) and aid in leveraging external finance (Honig and Karlsson, 2004).

In contrast, plan critics have provided a number of reasons why plans are not beneficial. Honig and Karlsson (2004) argue that outside of building legitimacy with external funders, plans offer little intrinsic value to founders in directing their activities: plans are ceremonial devices that divert founders away from significant organizational tasks

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(Kirsch, Goldfarb, and Gera, 2009). Echoing this are studies emphasizing that founders are better off enacting nascent activities than writing plans (Carter *et al.,* 2014; Lange *et al.,* 2007). This may be because some business concepts do not require a plan: they are either really simple to execute without a plan or, if they are more elaborate, the written plan may bear little relation to the actual progress of the venture (Carter *et al.,* 2014; Lange *et al.,* 2007), particularly when product/service adaptations are common, distribution channels opaque, and market needs ill defined (Andries and Debackere, 2007; Drucker, 1985). Plans also sit uneasily with Schumpeterian notions of the entrepreneur (Bhide, 2000). They may involve incremental adjustments and conformity, whereas some founders may seek to develop radical and innovative solutions to problems. Besides stifling improvisation and constraining flexibility, plans may further provide pseudo-exact estimates that enhance a false illusion of control (Dencker *et al.,* 2009a).

The identification of the potential benefits and costs of plans has not led, however, to the empirical resolution of whether writing a formal plan facilitates better performance. Prior results have reflected the oppositional nature of the extant debate: some studies find that formal plans lead to performance benefits (Delmar and Shane, 2004, 2004; Gibson and Cassar, 2005; Gruber, 2007; Lumpkin, Shrader, and Hills, 1998; Perry, 2001), while others point to the costs of such plans (Allinson, Chell, and Hayes, 2000; Bhide, 2000; Dencker *et al.,* 2009a; Honig and Karlsson, 2004; Karlsson and Honig, 2009; Lange *et al.,* 2007; Robinson and Pearce, 1983).

Preliminary conclusions and implications for this study

Our review reveals that the business plan literature and the consequent empirical evidence remain conflicting and oppositional. This reflects an assumption that the characteristics of planners and their emerging ventures differ little from those of entrepreneurs who elect not to plan. However, this neglects that founders are heterogeneous in their background experiences and education and that the characteristics of the fledgling venture are likely to shape the decision to plan. A central motivation for our study, therefore, is that this lack of focus on who writes a plan and under what circumstances it is written (selection effects) stymies the comprehension of plan effects on performance. Hence, prior to the assessment of plan-performance effects, it is important to isolate heterogeneity in the decision to plan. Accordingly, drawing on the extant evidence, we first develop arguments about how important founder, venture, and environmental antecedents affect the decision to write a plan. Subsequently, we examine the impact a plan has on the likelihood of achieving venture viability.

HYPOTHESES

The effects of founder characteristics on the decision to plan

Our first argument is that better-educated founders are more likely to write plans. This reflects that the better educated are more likely to recognize that a plan provides learning benefits (Dencker *et al.,* 2009a). Consequently, these founders may be more likely to perceive that a plan can detect and identify patterns and allow for meaningful conclusions to be drawn. They may also be more comfortable with scanning the external environment to identify external knowledge, have greater levels of absorptive capacity, and be better able to transform new knowledge into actions (Cohen and Levinthal, 1990; Zahra and George, 2002). Moreover, they may be socialized by higher levels of education into thinking that a plan is important and relevant (Honig, 2004). Hence, while the better educated may navigate the vicissitudes of nascent venturing without a plan (Burke *et al.,* 2010), our contention is that the better educated are more comfortable with collating, coordinating, and analyzing the information involved in writing a plan (Robinson and Pearce, 1983) and are more likely to envisage that a plan aids task comprehension and guides the identification of the customer/supplier requirements (Dencker *et al.,* 2009a). Hence, we argue that:

Hypotheses 1a (H1a): Better-educated founders are more likely to formally plan.

In general, studies show that prior sectoral and entrepreneurial experience provides tacit knowledge on markets and valuable start-up task comprehension (Davidsson and Honig, 2003; Haynie,

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Shepherd, and McMullen, 2009; Shane, 2004). We see that such experiences are likely to lower the propensity of such founders to write a plan. Prior repetition of nascent venturing aids tacit start-up and industry comprehension (Cassar, 2014; Dimov, 2010), increasing the prospect that those with repositories of pre-entry experience know what questions to ask and how to interpret the findings to derive appropriate actions without having to plan (Baron and Ensley, 2006). Further, although experienced founders may recognize that each business opportunity is idiosyncratic (Frankish *et al.,* 2012), they may believe that there are few upsides from writing a plan (Dencker *et al.,* 2009a), particularly as it is both difficult and costly to collect information for a plan (Cooper, Folta, and Woo, 1995). Hence, we argue that:

Hypotheses 1b (H1b): Founders with relevant sectoral experience are less likely to formally plan.

Hypotheses 1c (H1c): Entrepreneurially experienced founders are less likely to formally plan.

The effect of venture characteristics on the decision to plan

Other key determinants of the decision to plan are the internal task environment conditions (Ensley, Carland, and Carland, 2003). In settings in which the product/service is complex, there are heightened expectations of growth, and the venture provides innovation in the marketplace, we argue that founders are more likely to write formal plans. Armstrong (1982) finds that a plan is actually most likely to be beneficial when the challenges facing the venture are high. Plans help resolve organizational conflicts and provide a vision for how to review strategic options, thus reducing the chances of mistakes or wasteful activities (Brown and Eisenhardt, 1995). A plan may also distinguish between transient and intransient challenges (Glick, Miller, and Huber, 1993) and prompt a careful review of internal factors (Miller and Cardinal, 1994). Evaluating progress against key targets is particularly important when faced with crucial decisions such as the deployment of capital equipment (Grinyer, Al-Bazzaz, and Yasai-Ardekani, 1986) or the opportune time for employing staff (Dencker, Gruber, and Shah, 2009b). Miller and Cardinal (1994) suggest that these decisions should be planned rather than left to chance, particularly if the aspiration is to grow the venture. Indeed, Bhide (2000) suggests that if the estimated potential market is large, there may be a greater justification for a plan since it helps coordinate resource flows necessary for achieving growth and helps identify new directions and opportunities (Moorman and Miner, 1997). Consequently, although during growth and in innovative and complex task settings the assumption-to-knowledge ratio is higher (Gruber, 2007), we contend that plans clarify the opportunity, set out the means by which ends can be achieved, and help coordinate nascent activities. Hence, we suggest that:

Hypotheses 2a (H2a): Growth-oriented founders are more likely to formally plan.

Hypotheses 2b (H2b): Founders with more complex products/services are more likely to formally plan.

Hypotheses 2c (H2c): Innovative founders are more likely to formally plan.

The impact of environmental factors on the plan decision

Although competitor actions and motivations can be difficult to discern if information is costly and difficult to find (Fredrickson, 1984; Fredrickson and Iaquinto, 1989), we also argue that planning is more likely to occur when the competitive environment (i.e., the factors beyond the control of the founder (Shrader, Taylor, and Dalton, 1984)) is more rivalrous. In an environment where competition is intense, we see that writing a plan is more likely because it promotes a comprehension of the salience of competitive pressures, the importance of not being caught off guard by competitors and, crucially, plays a role in identifying the market entry strategy to compete effectively with existing incumbents. Hence, plans may provide competitor information that allows founders to predict competitor actions. Therefore, we suggest that:

Hypotheses 3a (H3a): Founders faced with heightened competitive environments are more likely to formally plan.

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Studies also indicate that founders seeking external finance often write plans because they recognize that outside financiers use plans to estimate and value their nascent venture. For example, Kuratko and Hodgetts (2004: 289) state "the business plan is the minimum document required by any financial source." This is supported by Honig and Karlsson (2004). Their research demonstrates that there is a shared expectation among both founders and external financiers that writing a formal plan is a prerequisite for gaining external funding. A formal plan is seen as likely to stimulate such funding because it serves as an legitimation device that demonstrates to external audiences that the nascent venture will overcome its liability of newness (Stinchcombe and March, 1965) and go on to achieve viability. Consequently, we argue that:

Hypotheses 3b (H3b): Founders seeking external finance are more likely to formally plan.

The impact of plans on achieving new venture viability

Central to our approach is that the principal reason why there is conflicting evidence about the efficacy of plans is that prior studies have conflated selection with performance effects. Burke *et al.* (2010) is one of the few studies to isolate the plan-performance relationship: they show that formal plans helped existing small firms grow. However, no prior studies disentangle plan selection and performance effects in a nascent venture setting. There are also conflicting theoretical accounts of the plan-performance relationship. Improvisationalist-based accounts of formal plans tend to argue that "setting oneself on a predetermined course in unknown waters is the perfect way to sail straight into an iceberg," (Mintzberg, 1987: 26) while plan proponents argue that the only way to avoid the iceberg is to have a map (Matthews and Scott, 1995; Zollo and Winter, 2002). Chandler *et al.* (2011: 376) have suggested that these differences have led to "a dichotomous war between the need to develop a full-blown business and marketing plan" and the need to "just get started." Faced with conflicting theoretical claims and divergent empirical evidence, for our final crucial argument, we consequently use a competing hypothesis approach. This is valuable since "testing competing hypotheses is an effective way to determine the relative merits of alternative theories" (Miller and Tsang, 2011: 114), particularly "where prior knowledge leads to two or more reasonable explanations" (Armstrong, Brodie, and Parsons, 2001: 4). Hence, we contrast rational and improvisational approaches. Improvisational-oriented approaches suggest that there are often no benefits to a plan, only costs (Lange *et al.,* 2007). By not formally planning, it allows founders to focus on leveraging their strategic resources to embrace contingencies (Bhide, 2000; Fisher, 2012; Sarasvathy, 2001) and, by enacting rather than evaluating the opportunity, it promotes the chances of achieving new venture viability. In contrast, rationalist purposive plan scholars appear to admit no costs to plans, only benefits. This reflects three key advantages: (1) that a plan is a boundary-spanning goal statement that equips founders with an understanding of required activities and resources (Delmar and Shane, 2004); (2) that plans promote goal attainment, particularly in "stretch" environments such as nascent venturing, because goal setting directs attention, energizes individuals, and promotes task persistence (Locke and Latham, 2002); and (3) plans enhance reflective and active learning (Chwolka and Raith, 2012). Hence, like other studies faced with two competing but viable alternatives (Ebben and Johnson, 2005; Goerzen, 2007), we suggest the following:

Hypotheses 4a (H4a) (Improvisationalist): There is a negative relationship between formal plans and achieving venture viability.

Hypotheses 4b (H4b) (Purposive planning): There is a positive relationship between formal plans and achieving venture viability.

METHODS

Data

Our data are from the Panel Study of Entrepreneurial Dynamics (PSED II). This is a representative survey of nascent entrepreneurial activities in the United States, covering founder characteristics, venture creation activities, venture characteristics, and venture outcomes (Reynolds and Curtin,

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2009). PSED II initially involved early-stage screening interviews with 31,845 individuals (late 2005/early 2006) to ensure the data were representative and potential survivorship biases were minimized. The initial 1,214 nascent founders who were identified (i.e., those intending to start a new venture, had previously carried out at least one start-up activity, expected to own part of the venture, and did not have an existing operational business) were followed over five subsequent annual waves (2007–2011). This longitudinal design—with monthly indications of activities started and finished—allows for inferences on the process of organizing activities and facilitates causal inferences among dependent and independent variables.

Subsequent to initial interviews with the 1,214 founders (Wave A), the number of respondents fell over successive waves: 972 for Wave B and 746, 526, 435, and 375 for Waves C to F, respectively. At Wave A, some founders may have already completed one or several gestation activities prior to their first interview. Hence, like Yang and Aldrich (2012), we truncated the sample to founders whose gestation activities began 10 years prior to Wave A, reasoning that those who spent more than 10 years on a new venture are unlikely to be serious about venture creation (Mueller, 2006). This reduced our sample from 1,214 to 1,106, for which we have missing data for 18 observations (i.e., the total sample is 1,088). Second, and similar again to Yang and Aldrich (2012), we controlled for the time that founders had spent on gestation activities prior to Wave A. Following on from the list of gestation activities identified by Reynolds (2011: 36), we took the earliest activity undertaken as the starting point of the organizing sequence and calculated the time span (in months) until the interview date (see Appendix for details of all variables used in this study).

Analysis

Aguinis and Edwards (2013) argue that three conditions need to be satisfied before appropriate causal inferences can be drawn from an analysis: (1) an association between cause and effect; (2) cause precedes effect; and (3) alternative explanations for the causal effect are ruled out. If cause differs from effect, this satisfies condition 1. Condition 2 can be controlled for by using longitudinal samples such as ours that avoid issues of reverse causality since the decision to plan, like our measures of founder, internal, and environmental factors, precede venture viability. Condition 3, however, is trickier: in order to arrive at the effect of a treatment (the business plan) on an outcome (venture viability), two groups must be created—one that gets the treatment and one that is the control group—that are as similar as possible.[1] For example, suppose genetically identical twins each seek to set up new businesses, with one deciding to plan (treatment group) and the other choosing not to plan (control group). Subsequently, we observe that the planning twin achieves new venture viability while the other twin disbands his/her venture. Since these twins are identical, it is plausible that viability is due to the treatment effect (the business plan). However, the challenge often, particularly in observational data such as ours, is to create "statistical twins" that are matched in terms of their observable characteristics. This is important because if the treatment and control groups do not resemble each other, it is likely that the relationship between a treatment and an outcome will be misspecified, since it is difficult to disentangle whether the impact on an outcome (venture viability) is due to the treatment effect (the plan) or selection effects.

One established way of creating a treatment group alongside a counterfactual control group using data such as ours is to use propensity score matching (Kaiser and Malchow-Møller, 2011; Li, 2013; Rosenbaum and Rubin, 1983). The logic of this approach is to match the characteristics of a treatment group (planners) with a control group (non-planners) so that their characteristics are observationally equivalent except for one crucial difference: one group decides to plan and the other group decides not to. Subsequently, if a planner achieves venture viability, this can be attributed to the treatment effect (the plan) rather than his/her characteristics (selection effects). In using propensity score matching, we follow Li (2013) and adopt his four-stage protocol.

The first stage involves an assessment of endogeneity. Hence, "before matching," we assess

[1] In more technical terms, the aim is that the treatment (business plan) is exogenous such that the difference in outcomes between the treatment and control groups corresponds to the effect of the treatment.

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whether there are systematic differences between the treatment and control groups in terms of differences in founder, venture, and external characteristics that may impact both on the decision to plan and, subsequently, on the chances of achieving venture viability (see Table 2). If endogeneity exists, unadjusted results will be biased and lead to facile inferences (Hamilton and Nickerson, 2003). This justifies using the estimation of the propensity score (i.e., the conditional probability of receiving the treatment (formal plan)). The second stage involves assessing the quality of this matching to identify unresolved sources of endogeneity. Hence, there is a need, "after matching," to see if differences in the mean values of individual and venture characteristics persist or are successfully removed through matching (Table 3). Conditional on the matching being balanced such that the treatment and control groups are "statistical twins," the third step is to analyze treatment effects by estimating the causality between the treatment effect (the plan) and the outcome (venture viability) (Leuven and Sianesi, 2014). These estimates, conditional on the propensity score, are the sample average treatment effects on the treated (ATTs). These ATTs are the average effects from the treatment (formal plans) for those who actually were treated (planners). The ATTs answer the question: what would have happened if the planner had decided not to write a formal plan?

The fourth and final stage is to conduct sensitivity analyses. These are vital because estimates of, in our case, plan effects on venture viability, are sensitive to the use of predictor variables and matching estimators. Li (2013) advocates calculating the sensitivity of the sample ATT estimates to the matching algorithms used and examining the existence of potential distortions by unobserved variables. This is what we do: we provide sample ATT estimates based on different distributional assumptions (Table 4), dependent variable characterizations (Table 5), matching techniques (Table 6), and control group compositions (Table 7) and use Rosenbaum bounds to test for potential unobserved heterogeneity (Table 8). We also provide population average treatment effects (ATEs) estimates (i.e., the expected effects from a randomly selected unit of the population). Population ATEs are important because there are those in the wider population who do not formally plan because, for example, they may be simply unaware of the option to plan. Examining population ATEs allows us to assess for the presence of unobservable heterogeneity and provides further wider external, population-based, validity for our sample ATTs. To achieve this, we compare our estimates for the ATT and ATE and test if there are material differences between the matched sample and the non-matched units.[2]

Overall, propensity score matching means we can estimate the probability of formally planning conditional on matched characteristics. Besides being robust, propensity score matching does not rely upon instruments that are difficult to find (i.e., a variable that is related to writing a plan but not performance) and explicitly allows for covariate imbalance adjustments between non-/formal planners. Matching is also advantageous because rather than focusing on one mediator, it controls for a set of variables at the same time. This is important because there are a number of factors that are likely to simultaneously influence the decision and utility of a plan. Hence, by focusing on the predicted probability of formal plans, we can derive the counterfactual based on several theoretical antecedents simultaneously (Kaiser and Malchow-Møller, 2011; Rosenbaum and Rubin, 1983).[3]

Dependent variable: venture viability

McMullen and Dimov (2013: 1496) theorize that "the entrepreneurial journey concludes for the firm once that venture definitively realizes a profit or loss from activities related to that product." Hence, as with Kim *et al.* (2015) and Yang and Aldrich (2012), we use: "when monthly revenues exceed monthly expenses for six out of 12 months; including salaries for the managers" (PSED II: A35) as our

[2] This is possible because the randomized sampling procedure of the PSED (in terms of participants, not planning) means that the sample ATTs from the PSED II data are also an estimate of the population ATEs.

[3] Matching is also arguably superior to that of a moderation approach. Moderation implies that a predictor variable has a differential effect on an outcome variable conditional on the base level of another variable. Hence, moderation analyses typically involve a multiplicative interaction of two variables so that what is tested is whether the slope coefficient of an X-Y relationship differs for varying values of a moderator Z. Moderation, therefore, derives the non-planning effect directly from the control group. Hence, it does not estimate the counterfactual, obfuscates the direct effect of business planning on venture creation by omitting the counterfactual argument, and may bias the results in favor of antecedents causing the decision to plan in the first place.

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dependent variable (1 = if the monthly revenues exceed monthly expenses for six out of 12 months; including salaries for the managers; 0 = otherwise). In our main analysis, we report ongoing activities as per Wave F and compare founders that achieved venture viability (A35) against those who disbanded their venture (A42, E51: 1 = founders stop their venture activities and no one else is working on the venture; 0 = otherwise) and those who are "still trying" to prosecute their ventures (Davidsson and Gordon, 2012; Dimov, 2010). To complement this binary variable (venture viability versus disbandment/still trying), in our robustness tests, we use three alternative dependent variables: (1) the founder's self-reported assessment of achieving venture viability (A41: 1 = self-report venture viability; 0 = otherwise); (2) sustained viability (A35 and no venture disbandment (A42) until Wave F); and (3) achieved first sale (E14: 1 = first revenue has been received from the sale of goods or services for this new business; 0 = otherwise). We also extend this binary dependent variable by testing multinomial models (Table 4, row 4; Table 5, rows 3 and 6) which, following on from Davidsson and Gordon (2012), assess the relationship between formal plans and three outcomes—viability (A35), disbandment (A42, E51), and "still trying."

Formal planners

As with other studies, our focus is on formal written plans (Delmar and Shane, 2004; Lange *et al.,* 2007). To identify formal planners, we used two PSED II questions (D1 and D2: 1 = formal planners; 0 = otherwise).[4] Table 1 show that the treatment group consists of 269 (24%) founders.[5] The control group is made up of the remaining 819 founders.[6] To test whether the composition of the control group makes any difference to the plan-performance relationship, Table 7 provides robustness tests of alternative control group compositions.

Predictor covariates: individual founder, venture characteristics, and environmental factors

In terms of founder characteristics, we follow Davidsson and Honig (2003) and Iacus, King, and Porro (2011) and measure educational attainment in terms of years of schooling (H6); number of years of sectoral experience in the same industry as the venture (H11); and entrepreneurial experience with other ventures (H13). To assess the innovativeness of the venture, we follow Dahlqvist and Wiklund (2012) and assess innovation by using a three-point scale (S1: 3 = all, 2 = some, 1 = no customers…are unfamiliar with the new product/service). We follow Kim *et al.* (2015) to assess the expectations about venture growth (T1:1 = "I want this new business to be as large as possible"; 0 = otherwise) and to examine product/service complexity through a composite measure of the level of novelty and technical expertise required to compete successfully (F4, F5, F8–10; scales inverted; Cronbach's alpha of 0.72). To measure the need for external finance, we use a binary measure—if founders were actually seeking financial capital (E2: 1 = yes; 0 = otherwise) (Reynolds, 2011)—and assess competitive pressures by using S2 (3 = there are many; 2 = there are some; 1 = there are no…other businesses offering the same product/service).

Control variables

We control for a wide range of other variables that may influence the decision to plan: to complement the need for external finance, we assess the amount of personal resources used in the venture (Q4–10:

[4] The corresponding PSED question defines the business plan for the respondents as "A business plan usually outlines the markets to be served, the products or services to be provided, the resources required—including money—and the expected growth and profit for the new business." Given the inherent difficulties in assessing the quality of the plan with this measure, we corroborated whether or not nascents had completed other activities usually related to business planning, such as financial planning (Burke *et al.,* 2010), marketing (Gruber, 2007), or general prediction activities (Sarasvathy, 2001). Those who formally plan are also more likely to do financial projections ($ß = 0.27$, $p < 0.01$), engage in marketing activities ($ß = 0.12$, $p < 0.05$), define their market opportunity ($ß = 0.114$, $p < 0.05$), and collect information about competitors ($ß = 0.088$, $p < 0.1$).

[5] Studies by Pearce *et al.* (1987), Bhide (2000), Sarasvathy (2001), and Burke *et al.* (2010) also show that formal planners are in the minority.

[6] In particular, the group consist of different types of non-formal planners based on the planning status reported up to and including Wave F: 385 "informal" planners; 159 "unwritten" and "in their head" planners; 224 who consider a plan irrelevant; and 51 who consider a plan relevant but never complete any plan activities up to and including Wave F. See Appendix for further information.

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total dollar amount invested of personal savings and other sources); time spent on the nascent venture (H16:1 = 35 hours or greater; 0 = otherwise); team size (AG2: number of founders: Colombo and Grilli, 2005); the founder's ability expectations (Q. AY4–AY8; scales inverted so that higher values indicate higher levels of ability expectations; Cronbach's alpha: 0.68; Townsend, Busenitz, and Arthurs, 2010); and their start-up commitment (AY9 and AY10; inverted scales; Cronbach's alpha: 0.71; Dimov, 2010). We also control for work experience (H20: years), the time elapsed between the first gestation activity and Wave A (Yang and Aldrich, 2012), and sector (B1: dummies of service, retail, and other industries (base category)).

RESULTS

We organize our results in eight tables. Table 1 presents summary statistics and correlations. Table 2 presents our "before" propensity score matching results. Table 3 presents our "after" matching results. Table 4 presents the sample ATT results, while Tables 5–8 present robustness checks for these ATTs. The notes in Tables 4–7 report the population ATEs.

Table 1 shows that 22 percent of founders had created a viable venture (237 observations), with 38 percent "still trying" and 40 percent having disbanded their attempt (418 and 433 observations, respectively). These outcomes are similar to other new venture studies (Reynolds, 2011; Spletzer *et al.,* 2004). Table 1 also shows that founders typically have at least a high school qualification, that the average sectoral experience is eight years, and that one-in-three have prior entrepreneurial experience. About a quarter of founders indicate high growth aspirations, while Table 1 also shows that levels of product complexity, competition, and innovation were modest. Finally, about one-third of founders were seeking external finance.

Table 2 reports our "before matching" results. Although the tests for mean differences (t-tests) and the distributions of variables (Kolmogorov-Smirnov test) reported in columns 1 and 2 of Table 2 provide useful information, we focus our tests of H1a–H3b on the probit regression results (dependent variable: non-/formal planners) reported in column 3. The additional probit regression reported in column 4 is used to ascertain if founder and venture antecedents also impact venture viability. In sum, the aim of Table 2 is to assess if there are selection effects in the decision to plan (column 3) and if these are endogenous to the achievement of venture viability (column 4).

Column 3 of Table 2 shows support for H1a: an additional two years of education increases the chances of formal planning by five percentage points ($ß = 0.026$, $p < 0.01$). We do not find support for H1b (sectoral experience) or H1c (entrepreneurial experience). Column 4 does, however, show that an extra year of education ($ß = 0.012$, $p < 0.1$) and sectoral experience ($ß = 0.030$, $p < 0.05$) increase the chances of achieving venture viability by one and three percentage points, respectively. This shows that founder characteristics are likely to bias, if not controlled for, the plan-performance relationship.

In terms of venture characteristics, we find support for H2a ($ß = 0.072$, $p < 0.1$) (growth orientation) and H2c ($ß = 0.046$, $p < 0.05$) (innovation). We do not find support for H2b (product/service complexity) or for H3a (competitive pressures). However, we find strong support for H3b ($ß = 0.194$; $p < 0.01$) (external finance). This is the largest coefficient in Table 2, indicating that founders seeking finance are 19 percentage points more likely to plan. The need for external finance is also related positively to venture viability (column 4).

Table 2 also identifies that founders with greater levels of private savings are less likely to plan, but those who have bigger teams and spend more time on their ventures are more likely to plan. In summary, in terms of our hypothesized relationships, Column 3 shows that the better educated, innovators, and those seeking finance and growth were more likely to formally plan. In contrast, sectoral and entrepreneurial experience, competition, and product complexity all appear to have no discernible impact on plan propensity. Column 4 shows that education, sectoral experience, and the need for external finance influence the venture viability prospects, indicating clear evidence of a strong and severe endogeneity problem obfuscating the causal effect of plans on venture viability.

Because of this endogeneity, we conducted propensity score matching to level out differences between the treatment and control groups. Table 3 reports the subsequent "after matching" results in terms of mean (t-test results) (column 1) and

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Table 1. Summary statistics and correlation matrix

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 Venture viability	0.22	0.41																					
2 Disbandment	0.40	0.49	−0.43																				
3 Still trying	0.38	0.49	−0.42	−0.64																			
4 Formal planners	0.25	0.43	0.15	−0.12	−0.01																		
5 Education	14.48	2.11	0.08	0.00	−0.07	0.13																	
6 Sectoral experience	8.37	9.09	0.12	−0.16	0.05	0.03	0.09																
7 Entrepreneurial experience	0.33	0.71	0.01	−0.03	0.02	0.08	0.15	0.00															
8 Innovative product/services	1.64	0.74	−0.07	0.02	0.03	0.11	0.05	−0.10	0.07														
9 Growth aspirations	0.26	0.44	−0.03	−0.12	0.14	0.13	0.03	−0.05	0.11	0.12													
10 Product complexity	3.84	0.96	−0.02	−0.04	0.05	0.09	0.01	0.08	0.01	0.15	0.14												
11 Competitive pressures	1.32	0.77	0.03	0.01	−0.04	−0.06	0.00	0.01	−0.05	−0.27	−0.13	−0.11											
12 Seeking external finance (d)	0.28	0.45	0.12	−0.10	0.00	0.23	0.07	0.05	0.07	−0.02	0.12	−0.04	0.06										
13 Private savings	4.42	4.27	0.06	−0.08	0.03	−0.09	0.03	0.01	−0.01	−0.08	−0.07	−0.05	0.13	0.00									
14 35 hours on venture (d)	0.30	0.46	0.15	−0.16	0.04	0.13	−0.04	0.07	−0.01	−0.01	0.05	0.01	0.01	0.10	0.07								
15 Team size	1.81	1.55	0.01	−0.02	0.01	0.10	0.08	0.01	0.15	0.01	0.09	0.00	−0.05	0.16	−0.05	0.00							
16 Ability expectation	4.35	0.51	0.07	−0.09	0.04	0.11	−0.03	0.21	0.00	0.03	0.07	0.19	−0.05	0.06	0.00	0.14	−0.06						
17 Start-up commitment	4.10	0.86	0.02	−0.07	0.06	0.10	−0.19	0.08	−0.08	0.03	0.12	0.17	−0.01	0.05	0.02	0.13	−0.06	0.46					
18 Work experience	20.55	11.33	0.02	0.00	−0.03	0.02	0.18	0.23	0.12	−0.03	−0.05	0.02	0.02	0.01	0.02	0.02	0.04	0.01	0.00				
19 Time elapsed	21.07	23.51	0.06	−0.10	0.05	0.06	0.06	0.18	0.04	0.01	0.04	0.05	0.00	0.04	0.03	0.06	0.02	0.04	0.04	0.02			
20 Retail (d)	0.19	0.39	−0.05	0.05	−0.01	0.03	−0.06	−0.11	0.02	0.06	0.05	0.05	−0.06	−0.02	−0.09	0.00	−0.02	−0.02	0.02	0.01	−0.07		
21 Services (d)	0.64	0.48	0.07	−0.02	−0.04	0.02	0.10	0.00	−0.04	0.01	0.00	0.01	0.03	−0.03	0.04	−0.02	−0.04	0.02	−0.04	−0.05	0.03	−0.64	
22 Other industries (d)	0.16	0.37	−0.01	0.00	0.00	0.02	−0.05	0.01	0.03	−0.03	−0.01	0.00	0.04	0.08	0.00	0.01	0.04	−0.05	0.02	0.01	0.00	0.18	−0.22

Summary statistics and correlation matrix are based on 1,088 observations. All correlations above 0.1 are significant at least at the 10% level. Variables denoted with (d) are dummy variables.

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Table 2. Probit regression antecedents of business planning and test for differences in distributions—before matching

	(1) Differences in mean: T-test	(2) Differences in distribution: Kolmogorov-Smirnov (p-values)	(3) Binary regression: DV - (1 = formal planner; 0 = non-formal planners (informal, non-, and unwritten planners))	(4) Binary regression: DV - (1 = venture viability; 0 = nonviable ventures (disbanded/still trying))
Founder characteristics				
Education	–0.636***	0.00***	0.026***	0.012*
	(0.000)		(0.001)	(0.087)
Sectoral experience	–0.0651	0.35	–0.010	0.030**
	(0.405)		(0.534)	(0.037)
Entrepreneurial experience	–0.0639**	0.54	0.016	–0.012
	(0.011)		(0.723)	(0.775)
Venture characteristics				
Growth aspirations (d)	–0.131***	0.000***	0.072*	–0.062**
	(0.000)		(0.071)	(0.044)
Product complexity	–0.208***	0.06*	0.027	–0.002
	(0.002)		(0.115)	(0.900)
Innovative product/services	–0.189***	0.01**	0.046**	–0.030
	(0.000)		(0.043)	(0.170)
External environment				
Competitive pressures	0.106*	0.35	0.001	–0.019
	(0.051)		(0.967)	(0.304)
Seeking external finance (d)	–0.244***	0.00***	0.194***	0.082**
	(0.000)		(0.000)	(0.012)
Controls				
Private savings	0.846***	0.00***	–0.009**	0.006*
	(0.005)		(0.025)	(0.078)
35 hours on venture (d)	–0.141***	0.00***	0.097**	0.110***
	(0.000)		(0.013)	(0.001)
Team size	–0.367***	0.07*	0.023**	–0.002
	(0.001)		(0.047)	(0.798)
Ability expectation	–0.127***	0.04*	0.028	0.005
	(0.000)		(0.453)	(0.881)
Start-up commitment	–0.191***	0.01**	0.012	0.004
	(0.001)		(0.627)	(0.812)
Work experience	–0.0283	0.47	0.009	–0.015
	(0.603)		(0.710)	(0.464)
Time elapsed	–3.452**	0.04*	0.001	0.000
	(0.037)		(0.212)	(0.405)
Retail (d)	–0.0312	0.99	0.135**	0.057
	(0.257)		(0.034)	(0.312)
Services (d)	–0.0231	1.00	0.077*	0.070*
	(0.494)		(0.082)	(0.065)
Chi-square			90.34	45.77
P > chi-square			0.000	0.000
Treatment group - planners	269	269	269	269
Control group	819	819	819	819

*p < 0.1; **p < 0.05; ***p < 0.01.

Column 1 reports differences in mean values between the control group and the formal planners, p-values are reported in parentheses. Column 2 reports p-values from Kolmogorov-Smirnov tests. Coefficients in column 3 and 4 correspond to the marginal effects from a logit regression for the independent variables calculated at the mean levels of the remaining variables. Variables denoted with (d) are dummy variables. P-values for columns 3 and 4 are shown in parentheses. The number of observations is equal to 1,088 in all four columns. T-tests are carried out only for observations included in the binary regressions to allow for comparability.

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Table 3. Test for differences in distributions—after matching

	(1) Differences in mean: t-test	(2) Differences in distribution: Kolmogorov-Smirnov (p-values)
Dependent variable		
Venture viability (d)	–0.161	0.02**
	(0.000)	
Founder characteristics		
Education	0.0543	0.99
	(0.790)	
Sectoral experience	–0.0111	0.92
	(0.924)	
Entrepreneurial experience	0.0309	0.77
	(0.447)	
Venture characteristics		
Growth aspirations (d)	–0.0211	1.00
	(0.668)	
Product complexity	–0.0279	0.29
	(0.779)	
Innovative product/services	–0.0504	1.00
	(0.535)	
External environment		
Competitive pressures	–0.0134	0.99
	(0.878)	
Seeking external finance (d)	0.0187	1.00
	(0.718)	
Controls		
Private savings	–0.132	0.81
	(0.776)	
35 h on venture (d)	–0.0125	1.00
	(0.805)	
Team size	0.0806	0.99
	(0.716)	
Ability expectation	0.0125	1.00
	(0.792)	
Start-up commitment	0.0181	0.95
	(0.824)	
Work experience	0.0402	0.50
	(0.595)	
Time elapsed	1.569	0.31
	(0.566)	
Retail (d)	0.0351	0.95
	(0.434)	
Services (d)	–0.00102	1.00
	(0.984)	
Treatment group - planners	184	184
Control group	170	170

*p < 0.1; **p < 0.05; ***p < 0.01.
Column 1 reports differences in mean values between the control group and the formal planners, p-values are reported in parentheses. Variables denoted with (d) are dummy variables. Column 2 reports p-values from Kolmogorov-Smirnov tests.

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distributional (Kolmogorov-Smirnov test) (column 2) differences. These reveal that there are no differences in the core mean values for either planners or non-planners (i.e., differences have been levelled out).[7] Moreover, the p-values in column 2 ($p > 0.1$) show that the distributional overlap has been achieved through matching. Crucially, however, the differences in venture viability/disbandment probabilities are still significant (ß = 0.161, $p < 0.01$).[8]

We now turn to the impact of formal plans on new venture viability. Table 4 presents the sample ATT results. We present four variants of these results. First, we present results from the propensity score (Psmatch2): formal planners are more likely to achieve viability (ß = 0.160, $p < 0.01$). To check whether this result is biased by model uncertainty (due to differential distributions in our propensity score matching), we also report a linear probability model (row 2) and a probit model (row 3) allowing for nonlinear effects in the distribution of variables: coefficients for these models are slightly higher, but remain significant (ß = 0.193, $p < 0.01$ and ß = 0.194, $p < 0.01$, respectively). Finally, row 4 shows the results for a multinomial probit comparing three outcomes (venture viability/disbandment/still trying): these again are significant (ß = 0.206, $p < 0.01$). These results support H4b.

Table 4. Average treatment effect on the treated (ATTs)

Estimation model	Outcome: venture viability	
	ATTs	
	Coefficient	S.E.
Propensity score (Psmatch2)	0.160***	0.045
Linear probability model	0.193***	0.034
Probit model	0.194***	0.031
Multinomial probit	0.206***	0.035

*p < 0.1; **p < 0.05; ***p < 0.01.
The corresponding population average treatment effects (ATEs) are (ß = 0.173, SE = 0.048), (ß = 0.167, SE = 0.034), (ß = 0.162, SE = 0.043), and (ß = 0.192, SE = 0.060). Sample size is equal to 354 (184 treatment group; 170 control group).

Robustness checks

To check the robustness of these results, Table 5 provides ATT results for three alternative dependent variables: self-reported venture viability (rows 1–3); sustained viability (rows 4–6); and achievement of first sale (rows 7–9). Again, as with Table 4, we report Psmatch2, probit and multinomial model results. Although the plan-achieving first sale relationship is much weaker, Table 5 confirms that formal planners are more likely to achieve both self-assessed (Psmatch2: ß = 0.144, $p < 0.01$; probit ß = 0.158, $p < 0.01$; and multinomial ß = 0.169, $p < 0.01$) and sustained viability (Psmatch2: ß = 0.135, $p < 0.01$; probit ß = 0.103, $p < 0.01$; and multinomial ß = 0.112, $p < 0.01$). Table 5 also examines right censoring issues. These may be an issue because some founders who report they had a viable venture may subsequently disband their venture. To assess this, we examined Wave F information. This revealed that out the 237 viable ventures in Wave E, only 186 reported venture viability in Wave F. To see if this impacted on our ATT results, we reclassified and reestimated our results to take account of these issues (Table 5, rows 4–6). This made little difference in terms of the Psmatch2 model (ß = 0.135, $p < 0.01$), but had smaller effects for both the probit and multinomial models (ß = 0.103, and ß = 0.112).[9]

Another source of potential bias may be due to the matching method employed. Following Li (2013), Table 6 provides estimates from nearest neighbor, kernel, and radius matching. For nearest neighbor, we compute the ATTs using only one single neighbor to provide a more conservative

[7] Whenever differences in mean values existed after propensity score matching, the CEM procedure suggested in Iacus *et al.* (2011) has been applied to this variable to level out differences.

[8] This is not due to differences in the general distribution of predictor variables. The p-values from the Kolmogorov-Smirnov test are insignificant after matching for any predictor variable. However, the distributional difference remains for venture viability. This is important, as it represents our dependent variable. We also conducted a subsample analysis according to the propensity blocks (psmatch procedure). Only two variables are significant at the five percent level (i.e., two out of 68 models (3%), which is expected at the 5 % level), and only one variable was significant at the one percent level (i.e., one out of 68 models (1.4%), which again is expected at the 1% level).

[9] We also tested whether the proportional odds/parallel lines assumption in the multinomial model is met. The insignificant test statistic indicates that the final model does not violate this assumption and that the findings from the multinomial model are robust.

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Table 5. ATTs for alternative dependent variables

Matching estimator name	Outcome: variants of venture viability	
	ATTs	
	Coefficient	S.E.
Self-assessed viability (Psmatch2)	0.144***	0.044
Self-assessed viability (probit)	0.158***	0.030
Self-assessed viability (multinomial)	0.169***	0.034
Sustained viability (Psmatch2)	0.135***	0.040
Sustained viability (probit)	0.103***	0.026
Sustained viability (multinomial)	0.112***	0.031
Achieved first sale (Psmatch2)	0.053	0.051
Achieved first sale (probit)	0.063*	0.035
Achieved first sale (logit)	0.063*	0.034

*p < 0.1; ** p < 0.05; ***p < 0.01.
The corresponding population ATEs are (ß = 0.15, SE = 0.049), (ß = 0.106, SE = 0.034), (ß = 0.133, SE = 0.047) for the self-assessed viability measures; (ß = 0.091, SE = 0.043), (ß = 0.071, SE = 0.031), (ß = 0.099, SE = 0.047) for the sustained viability measures; and (ß = 0.071, SE = 0.044), ß = (0.048, SE = 0.036), (ß = 0.046, SE = 0.036) for the achieved first sale measures.

estimate (more matching partners increase a potential bias: Abadie *et al.,* 2004). For radius matching, controls are matched to treated units when the propensity score falls into a predefined range of the treated unit (Huber, Lechner, and Steinmayr, 2015). Finally, to provide non-parametric ATTs, we use kernel matching (all treated units are matched with a weighted average of the controls: Becker and Ichino, 2002). Table 6 shows that all ATTs are positive and significant (nearest neighbor: ß = 0.108, p < 0.05; radius: ß = 0.110, p < 0.05; and kernel: ß = 0.117, p < 0.01).[10]

We also analyzed whether control group composition affects our results. Table 7 shows that formal planners are more likely to achieve venture viability than either non-planners (ß = 0.130, p < 0.01) or informal planners (ß = 0.167, p < 0.01), although the comparison between planners and those who see planning as irrelevant is somewhat

Table 6. ATTs for matching variants

Matching estimator name	Outcome: venture viability	
	ATTs	
	Coefficient	S.E.
Nearest neighbor matching	0.108***	0.041
Radius matching	0.110**	0.048
Kernel matching	0.117***	0.035

*p < 0.1; **p < 0.05; ***p < 0.01.
The corresponding population ATEs are (ß = 0.104, SE = 0.038), (ß = 0.099, SE = 0.039), (ß = 0.123, SE = 0.036).

weaker (ß = 0.082, p < 0.1). All in all, the results are invariant to the composition of the control group: formal planners are more likely to achieve venture viability. Finally, to assess the robustness of these ATTs to unobserved heterogeneity, we calculated Rosenbaum bounds to check the sensitivity of our estimates. Table 8 shows that the results were insensitive to deviations from the unconfoundedness assumption, as large deviations (increasing the odds of formal planning and venture viability at the same time by more than 90%) would render the results insignificant.[11]

Finally, we consider potential differences between sample ATTs and population ATEs.[12] In Table 4, the ATEs (expected mean difference in viability for an individual selected randomly from the sample) are similar to the baseline coefficients, with ATEs remaining significant (and economically sizeable), albeit one to three percentage points

[10] One consequence of matching is that it reduces sample size (Dehejia and Wahba, 2002; Guo and Fraser, 2014). Hence, although we found matches for 70 percent of the initial formal planners, we also tested how the relaxation of the matching assumption affects the results, and we allow for five neighbors in the matching. This resulted in 243 planning and 657 non-planning observations. The ATT is smaller (ß = 0.099, p < 0.01) but within the bounds reported previously.

[11] The bounds indicate that the confidence interval for the estimated treatment effects would widen (and include zero) if there are unobserved variables that can cause the odds ratio of treatment assignment to differ between the treatment and comparison groups by the calculated values of the test statistic.

[12] To estimate the ATEs, we used the same estimation strategy as was used for our core ATT results (Table 4). Hence, we began by examining if there were differences in mean values and distributions between the matched and non-matched. There were slight differences in terms of mean values for seeking external financing (ß = 0.14, KS p-value < 0.01), start-up motivations (ß = 0.26, KS p-value < 0.01), and ability expectations (ß = 0.18, KS p-value < 0.01). However, no other variables differed in means, and there were no differences between planners and non-planners upon being matched. Distributional differences were also slight (full results available on request from authors), indicating that the wider population ATEs are reflected in the sample ATTs. Hence, we generally find that our sample is reflective of a random draw from the population and are subsequently confident that our sample average treatment effect also represents evidence on the population average treatment effect.

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Table 7. ATTs for alternative control groups

Control group variations	Outcome: venture viability	
	ATTs	
	Coefficient	S.E.
Formal planners vs. non-formal planners (unwritten, informal plan and planning irrelevant)	0.130***	0.031
Formal planners vs. informal planners (unwritten and informal plan only)	0.167***	0.033
Formal planners vs. non-planners (consider planning irrelevant)	0.082*	0.043

*p < 0.1; **p < 0.05; ***p < 0.01.
The control group in row 1 comprises all non-formal planners except for 51 observations that considered a plan as relevant (D1 = 2, "No, not yet; will in the future") but never complete any planning activities up to and including Wave F. The control group in row 2 comprises 385 "informal" planners (coded as 1 if D1 = 1, and D2 = 2; 0 = otherwise) and 159 "unwritten" and "in their head" planners (coded as 1 if D1 = 1 and D 2 = 1; 0 = otherwise. The control group in row 3 comprises 224 observations that consider planning irrelevant (D1 = 5, "No, not relevant." Population ATEs are (ß = 0.133, SE = 0.036), (ß = 0.151, SE = 0.042) and (ß = 0.106, SE = 0.068).

lower. In Table 5, ATEs again are highly significant, but again, some three percentage points lower on average for self-assessed viability, sustained viability, and first sales. Each of these ATEs, however, remains significant. The ATEs in Table 6 show similar positive effects for the differing matching estimators, while Table 7 shows for the different control group compositions slightly higher ATEs. Taken together, these corroborating ATEs provide further support for the ATT results.

In summary, our core ATT results (Table 4)—confirmed in subsequent robustness tests that examined an alternative dependent variable specification, controlled for right censoring biases, matching variants, the robustness of our treatment effects, and in ATE estimates—show support for the plan-venture viability relationship (H4b).

Table 8. Rosenbaum bounds of ATTs (see Li, 2013)

Gamma	Formal plan p-critical
1.1	**0.001**
1.2	**0.002**
1.3	**0.005**
1.4	**0.011**
1.5	**0.022**
1.6	**0.037**
1.7	**0.058**
1.8	**0.086**
1.9	0.121
2	0.162

Gamma = The odds ratio that individuals will receive treatment. P-values in bold highlight significant net business planning effects in the presence of unobservable variables causing higher treatment probabilities.

DISCUSSION

As the literature review highlighted, there persist divergent and contradictory interpretations of the role formal plans play in achieving venture viability. The aim of this study was to offer fresh insights by developing and testing a counterfactual model of the plan-performance relationship. Our findings have important implications for scholars, educators, and aspiring founders interested in better understanding what shapes the decision to formally plan and the consequences of writing a formal plan.

Implications

For strategy and entrepreneurship scholars, our key finding is that it pays to plan. Our ATT results show a positive impact of planning on venture viability for those who actually planned, that ranges from a lower bound of 10 to an upper bound of 15 percentage points. Similarly, our ATE estimates show that also a randomly chosen individual would have benefited from planning, though the effect is slightly (3% points) smaller. This is similar to other studies that examine plan-viability outcomes but do not adjust for endogeneity (0.11 marginal effect of plans on survival: Honig and Karlsson (2004); 0.09 marginal effect of plans on marketing objectives: Gruber (2007); and 0.11 correlational coefficient between plans and survival: Shane and Delmar (2004)). These effects sizes are also in line with Brinckmann *et al.* (2010), whose meta-analysis of planning studies found a 13 percentage point effect size for growing new ventures that planned. They, however, are lower than that of Burke *et al.* (2010) who found, after controlling for endogeneity, a

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23 percentage point effect of plans on sales growth for existing small ventures.

Overall, we see that the reason why plans promote venture viability is that they help to pierce the "fog of futurity" (Kirzner, 2009) by identifying, orchestrating, and promoting goal attainment (Locke and Latham, 1990, 2002). We also see that formal plans are advantageous because they appear to promote better entrepreneurial decision making about the allocation and coordination of resources.

Such findings may offset the anti-planning bias in parts of the normative business plan literature which draws on emergent, improvisational logics to argue that founders are better off using trial-and-error learning to achieve viability. Theoretical approaches such as effectuation or bricolage have come to the fore because they suggest that emergent improvisational logics better support nascent venture outcomes. These logics have led to practitioner-based approaches that suggest nascent founders should eschew formal plans and focus on experimental learning (Ries, 2011; Schlesinger and Kiefer, 2012). We recognize that these experimental logics are appealing because a central issue in nascent venturing is envisioning "what is unknown, uncertain, and not yet obvious to the competition" (McGrath and MacMillan, 2000: 44). While our study does not explicitly test these particular logics, we do note, however, that we separate out selection and performance effects, use appropriate longitudinal data, and conduct an extensive battery of tests. Counterfactual approaches such as ours, however, are largely absent from much of the improvisational business plan literature. This is surprising because logics such as effectuation and bricolage are predicated on how individual founders are able to leverage their personal resources for achieving venture outcomes. This endogeneity, however, is rarely examined in these studies. This presents a challenge to plan skeptics: before the efficacy of an emergent approach to creating a viable venture can be readily assessed, there is a need to disentangle the improvisational activities from the (experienced) improvisational actor.

Our current results, however, do not offer much succor to plan skeptics. Despite providing three variants of venture viability (self-assessed viability, sustained viability, and achieved first sale), three different control group variations, and population-based ATEs, our results all point to the value of formal plans. By implication, they also suggest that contingency-based leveraging actions and experimentation appear to be more likely to lead to suboptimal "groping along" attempts to achieve venture viability (Dimov, 2010). Therefore, while our findings tacitly question the utility of effectuation, bricolage, and particular plan methodologies (e.g., lean start up or the business model canvas), we, however, stress that our results should not be overinterpreted. One reason for this is that founders rarely start with the simple stark question of: to plan or not to plan. Rather, as Baum, Locke, and Kirkpatrick (1998) suggest, they begin with a goal or a vision. One expression of this vision may be a formal business plan, but, as Hmieleski and Corbett (2008) point out, this vision is likely to have to adapt to changing circumstances. Consequently, a formal plan may be valuable because it helps orchestrate improvisational activities and, thereby, improves entrepreneurial decision making (Chwolka and Raith, 2012).

One further contribution of this study is that we show that the founding environment plays an important role in specifying the boundary conditions around the decision to plan. In particular, by examining founder, venture, and external characteristics, we join with Gruber (2007), Dencker *et al.* (2009a), and Burke *et al.* (2010), who all argue for a more nuanced interpretation of plan contexts and effects than is provided by guides that advocate that *all* ventures should either always plan or, alternatively, espouse the view that formal plans should be avoided at *all* costs. Illustrative of this is the impact of finance. Our findings show that founders with private savings are less likely to plan, bolstering Bhide's (2000) suggestion that there is little impetus to plan when there are few outside downside risks to venture creation. Our results also support Honig and Karlsson (2004): the decision to plan is responsive to the need for external finance, indicating that plans are devices that help externally legitimate the nascent venture. However, our findings also show that formal plans are not just ceremonial cues because once the need for external finance is controlled for, a formal written plan still has a positive impact on achieving venture viability.

Our study also has important implications for strategy scholars. It confirms that formal plans are valuable, even in innovative and growth-oriented contexts. It also shows the importance of developing an understanding of contextual environments that

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shape subsequent outcomes. Better understanding contexts is valuable because counterfactual models such as ours can help stimulate better theorizing about phenomena and improve the practical validity of results (Johns, 2006). In seeking to discover context-free regularities, we see implications for other middle-range situation-specific theorizing about entrepreneurial and managerial phenomena. In particular, our study resonates with other strategy-based research that demonstrates that a failure to account for endogeneity leads to biased estimates (Shaver, 1998; Villas-Boas and Winer, 1999). It also has implications for entrepreneurship research. For example, taking account of endogeneity may provide new insights into how founders draw on their social capital to leverage venture outcomes. While some researchers highlights the generic benefits of social capital (Davidsson and Honig, 2003), others point out that founders' social capital and their ability to form network ties are specifically shaped by their skills and occupational backgrounds (Kim and Longest, 2014; Mosey and Wright, 2007; Stam, 2010). Similar selection effects are also likely to influence how founders use finance (Parker and Van Praag, 2006), hire staff (Hayton, 2003), or conduct innovative activity (Redding, 1996). Consequently, developing and testing counterfactual models can help develop a more contextualized perspective on entrepreneurial, managerial, and organizational behaviors (Langley *et al.,* 2013).

This study has further practical implications for educators, financiers, support providers, and aspiring founders. In specific, both the sample ATTs and the wider population ATEs results show that it pays to plan. This gives validation to the teaching of entrepreneurship through vehicles such as a formal business plan. It further gives support to the use of plans by start-up programs and competitions and external financiers to judge start-ups. For aspiring founders, our results clearly show that business plans help achieve venture viability, but also that they have to carefully reflect on factors in their founding environment that impact their decision to plan (Gruber, 2007).

Limitations and future directions

Although our findings are robust to different versions of our main dependent variable, control groups, and sensitivity analyses (including the appraisal of Rosenbaum bounds and population based ATEs), we cannot fully discount that our results are impacted by unobserved heterogeneity. Another limitation is that the PSED II measure of formal planning is crude. In this study, we have, as with the wider strategic and entrepreneurship literature, focused on plan formality. One downside of this is that it does not allow researchers, for example, to distinguish between a comprehensive plan that fully details the opportunity and a simple two-page document that provides an overview of the opportunity. Founders may recognize both of these as business plans. The PSED II plan measures also do not allow us to focus on other dimensions of a plan, such as its flexibility (Capon, Farley, and Hulbert, 1994; Rudd *et al.,* 2008). Hence, there is a need for follow-up PSED II style studies to consider the comprehensiveness, quality, and sophistication of the plans produced by nascent founders. One way of achieving this is to complement such data by collecting and independently analyzing the planning materials of founders (including any associated activity and planning diaries) and by conducting in-depth periodic and regular interviews with founders. Equally, although the PSED II data allows us to control for differences between formal planners and other groups of planners, these more mixed methods approaches could allow researchers to examine how a plan is used to reflect, rehearse, and provide feedback on reaching venture viability as well as investigating how founders draw together formal plans and use plans to counter cognitive biases such as overoptimism or an unwarranted escalation of commitment. One further extension of this research agenda could be to consider dimensions of plan participation either by those around the founder or from external stakeholders. For example, although we find that business plans reflect finance requirements, we are unable to distinguish if this is due to external pressures from financiers seeking to distinguish between good and bad business propositions or if it reflects isomorphic pressures felt by the nascent founders to legitimate their ventures (Honig and Karlsson, 2004).

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Conclusions

Understanding the context and outcomes of formal plans is clearly an important topic for scholars interested in offering insights and guidance to nascent founders on achieving venture viability. Much of the previous research has led to divergent appraisals of the value of formal plans because they have conflated selection with performance effects. Our contribution has been to develop and test a counterfactual model that explicitly disentangles what prompts the plan from its impact on new venture viability. This provides fresh insights into the contextual nature of the decision to plan. Notably, we found that founders were more likely to plan if they were seeking external finance, better educated, more innovative, and growth oriented. The key advantage of our counterfactual approach, however, is that it uncovers, after a range of robustness checks, that founders are more likely to achieve viability if they formally plan. Finding that it pays to plan is valuable because it helps resolve the extant debate about the value of business plans and provides practical guidance on the utility of formal plans to nascent founders.

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APPENDIX

LIST OF VARIABLES

A.1. New venture viability (binary dependent variable)

A 35: What was the first month and year in which monthly revenue was greater than all monthly expenses, including salaries for the owners active in managing the business? Coded as 1 if revenues were greater than all monthly expenses (including salaries for the owners active in managing the business); 0 otherwise.

A.2. Alternative dependent variable coding (used for robustness check)

Self-reported assessment of achieving venture viability (A41): It would appear that you are managing an operating business—one with sales and revenue greater than the ongoing expenses including salaries. Coded as 1 if respondent agreed to the statement; 0 otherwise.

Sustained viability (A35): Coded as 1 if revenues were greater than all monthly expenses (including salaries for the owners active in managing the business) and no venture disbandment (A42) up to and including Wave F was reported; 0 otherwise. In contrast to the coding of new venture viability based on A 35, if venture viability and disbandment were reported, the dependent variable is coded as 0.

Achieved first sale (E14): Coded as 1 if first revenue has been received from the sale of goods or services for this new business; 0 otherwise.

Multinomial outcome variable: Coded as 1 if revenues were greater than all monthly expenses (including salaries for the owners active in managing the business); coded as 2 if disbandment has been reported up to and including Wave F; 3 otherwise.

A.3. Formal business plan

D1: Have you already begun preparation of a business plan for this new business, will you prepare one in the future, or is a business plan not relevant for this new business? AD2: What is the current form of your business plan—is it unwritten or in your head, informally written, or formally prepared? Coded as 1 (AD1 = Yes); D2 = 3 (formally prepared); 0 otherwise.

Control Group: (1) "informal" planners (coded as 1 if D1 = 1, and D2 = 2); (2) "unwritten" and "in their head" planners (coded as 1 if D1 = 1 and D 2 = 1); (3) planning is irrelevant (D1 = 5, "No, not relevant"); (4) plan is relevant (D1 = 2, "No, not yet; will in the future") but has not been completed up to and including Wave F.

A.4. Education

H6: What is the highest level of education you have completed? Coded: 8 (up to eighth grade), 10 (some high school), 12 (high school degree), 14 (some college), 16 (bachelor degree), 18 (Master's degree), 20 (PhD degree).

A.5. Sectoral experience

H 11: How many years of work experience have you had in the industry where this new business will compete? Coded as number of years.

A.6. Entrepreneurial experience

H 13: Besides the new business discussed in this interview, how many other businesses do you own? Coded as number of other businesses.

A.7. Growth aspirations

T1: Which of the following two statements best describes your preference for the future size of this new business: I want this new business to be as large as possible or I want a size I can manage myself or with a few key employees? Coded 1 (want to be as large as possible), 0 (want a size to manage by self or with key employees).

A.8. Product complexity (Cronbach's alpha 0.72)

F4: Being first to market a new product or service (is important for this new business to be an

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effective competitor). F 5: Doing a better job of marketing and promotion (is important for this new business to be an effective competitor). F 8: The technical and scientific expertise of the start-up team (is important for this new business to be an effective competitor). F 9: Developing new or advanced product technology or process technology for creating goods and services (is important for this new business to be an effective competitor). F 10: Development of intellectual property such as a patent, copyright, or trademark (is important for this new business to be an effective competitor). Likert scale 1 (strongly agree), 2 (agree), 3 (neither), 4 (disagree), 5 (strongly disagree). Reverse coded for sake of easier interpretation. Previously employed, Kim *et al.* (2015).

A.9. Innovative product/services

S1: Will all, some, or none of your potential customers consider this product or service new and unfamiliar?

Coded: 1 (all), 2 (some), 3 (none).

A.10. Competitive pressures

S 2: Right now, are there many, few, or no other businesses offering the same products or services to your potential customers? Coded: 1 (many), 2 (few), 3 (no other).

A.11. Seeking external finance

E 1: Have financial institutions or other people been asked for funds for this new business, do you expect to ask for funds in the future, or is outside financial support not relevant for this new business (before your involvement ended)? Coded 1 (yes), 0 (no, not yet; expect to ask; no, not relevant).

A.12. Private savings

What is the total dollar amount provided by you that came from personal savings and other personal sources (Q4), personal loans received by you from your family members or relatives (Q5), personal loans received by you from your friends, employers, or work colleagues (Q6), from credit card loans (Q7), personal loans from a bank or some other type of financial institution (Q8), from an asset-backed loan like a second mortgage or car loan (Q9), from other sources (Q10). Coded as the total sum of question Q4-Q10. Enters regression as the natural logarithm.

A.13. 35 hours on venture

H 17: Have you begun to work 35 hours or more per week on this new business?

Coded 1 (yes), 0 (no).

A.14. Team size

G 2: How many total people or other businesses or financial institutions will share ownership of the new business? Coded as number of owners.

A.15. Ability expectation (Cronbach's alpha: 0.68)

Y4 Starting this new business is much more desirable than other career opportunities I have. Y5: If I start this new business, it will help me achieve other important goals in my life. AY6: Overall, my skills and abilities will help me start this new business. AY7: My past experience will be very valuable in starting this new business.

AY8: I am confident I can put in the effort needed to start a business. Likert scale 1 (strongly agree), 2 (agree), 3 (neither), 4 (disagree), 5 (strongly disagree). Reverse coded for sake of easier interpretation. Previously employed in Dimov (2010).

A.16. Start-up commitment (Cronbach's alpha: 0.71)

AY9: There is no limit as to how long I would give maximum effort to establish this new business. AY10: My personal philosophy is to "do whatever it takes" to establish my own business. Likert scale 1 (strongly agree), 2 (agree), 3 (neither), 4 (disagree), 5 (strongly disagree). Reverse coded for sake of easier interpretation. Previously employed in Townsend *et al.* (2010).

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A.17. Work experience

H 20: How many years of full-time, paid work experience have you had? Coded as number of years (enters regression as natural logarithm).

A.18. Time elapsed

Difference in months between very first activity and date when first interview takes place. First activity based on Reynolds (2011: 36), Kim *et al.* (2015), and previously employed in Yang and Aldrich (2012).

A.19. Industry

B 1: Which of the following best describes this new business? Would you say it is a retail store, a restaurant, tavern, bar, or nightclub, customer or consumer service, health, education or social service, manufacturing, construction, agriculture, mining, wholesale distribution, transportation, utilities, communications, finance, insurance, real estate, some type of business consulting or service, or something else? Retail coded as 1 if B1 = 1/19, services coded as 1 if B1 = 2/3/4/13/14/15/16; 0 otherwise. Previously employed in Renko (2013).

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ENTREPRENEURS' SOCIAL CAPITAL AND THE ECONOMIC PERFORMANCE OF SMALL BUSINESSES: THE MODERATING ROLE OF COMPETITIVE INTENSITY AND ENTREPRENEURS' EXPERIENCE

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Research summary: *This article analyzes the personal, professional, associative, and institutional relationship networks in which the entrepreneur is involved and the resources embedded therein, and it proposes that an entrepreneur's social capital resources are determinants of his/her business' economic performance. The effect of social capital resources is moderated by competitive intensity in the industry and the entrepreneur's experience. A questionnaire survey and a sample of 951 small- and medium-sized firms were used to test the proposed hypotheses. Results show that economic performance is influenced more by professional and institutional network resources than by the other network resources. However, competitive intensity reduces the effect of institutional resources and increases the relevance of personal resources, whereas the entrepreneur's experience in the sector reinforces the impact of professional and institutional resources.*

Managerial summary: *Insofar as small business entrepreneurs lack sufficient resources of their own to ensure the growth of their businesses, entrepreneurs' relationship networks can provide them with access to strategic resources. Hence, small business entrepreneurs must place all their own networks at the service of their firms. However, networks are not all equally advantageous, and each network does not prove equally advantageous in all situations. Our results show that professional and institutional networks generally contribute more to improving performance than do associative and personal networks. Moreover, as an entrepreneur's experience in the sector increases, so does the ability to exploit the advantages afforded by professional and institutional networks. In contrast, as industrial competitive intensity increases, so does the relevance of personal networks at the expense of institutional networks.* *Copyright © 2016 Strategic Management Society*

INTRODUCTION

In the current business arena, small firms face difficulties gaining access to resources. The problem of accessing financial resources has always posed a major threat to the development of small firms (Carter and Van Auken, 2006; Jansen *et al.*, 2011), with the lack of technological capabilities also tending to limit their competitive success (Arinaitwe, 2006). Moreover, if the business is new, it will be confronted by a lack of organizational capabilities, such as coordination and communication systems, management skills, etc. (Bamford, Bruton, and Hinson, 2006).

In this context, the entrepreneur's network of relationships becomes a source of strategic resources on which to build competitive advantages (Aldrich and Kim, 2007). This is referred to as social capital, that is, the value embedded in the social relationships of individuals or groups (Gedajlovic *et al.*, 2013).

Keywords: social capital; networks; entrepreneur; competitive intensity; experience
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This notion proves particularly relevant in the case of a small firm in which an entrepreneur both owns and manages the small business. In such instances, entrepreneurs, their traits, resources, relations, and even spirit, are inseparable from the firm itself. Such entrepreneurs could access technological resources (e.g., an online buying platform) through membership of professional and business associations (Teckchandani, 2014). Their business capabilities (e.g., quality management and competitive pricing) will benefit from establishing close relationships with suppliers (Sherry and Stubberud, 2013). A rich social life involving many informal contacts (with relatives, friends, and acquaintances) emerges as a source of innovation if said contacts are with people who have new and different ideas (Komulainen, Mainela, and Tahtinen, 2006). Finally, entrepreneurs' relationships with local institutions (public authorities, banks, or the media) might provide them with access to financial resources (loans, support, or subsidies, as well as access to private investors).

The present work seeks to analyze to what extent the social capital resources (resources accessed through relationship networks) of small firms in which the managers are the owners can become a source of competitive advantage. To achieve this aim, we adopt an integrative approach that simultaneously considers the resource-based view of competitive advantage, social capital theory, and relationship marketing to explain the effect of social capital resources on the performance of these small firms.

Several studies address the repercussions of entrepreneurs' social capital on the performance of small firms (Baron and Markman, 2003; Chen and Wang, 2008; Davidsson and Honig, 2003; Liao and Welsch, 2003). Specifically, these studies explore entrepreneurs' social competence (Baron and Markman, 2003) and to what degree certain network characteristics (e.g., whether they are based on strong or weak ties) impact the performance of nascent entrepreneurs (Batjargal and Liu, 2004; Davidsson and Honig, 2003; Pirolo and Presutti, 2010). Many studies do not directly measure social capital, but analyze its sources (Payne *et al.*, 2011).

Our work's first contribution is to measure social capital as the resources embedded in the network of relationships. The basic definition of social capital states that social capital is defined as 'networks of relationships and assets located in these networks' (Batjargal, 2003: 535). It is precisely these resources that endow such networks with value and make them 'capital' in the sense that they may ultimately lead to future benefits in business. In this line, Lin (1999: 35) defines social capital as 'resources embedded in a social structure which are accessed and/or mobilized in purposive actions.' However, as pointed out by Gedajlovic *et al*. (2013), a common practice is to refer to social capital in terms of the characteristics of the relationships through which resources are expected to be derived, but not the embedded resources. We assume that both the networks of relationships themselves and the resources embedded within them constitute social capital (Batjargal, 2003; Batjargal and Liu, 2004) and that the characteristics of these networks of relationships are the conditions required to access the embedded resources (Casson and Della Giusta, 2007; Davidsson and Honig, 2003; Lin, 1999; Tsai and Ghoshal, 1998). Regardless of how strong, close-knit, and tight the relations within a network are, the social capital of these networks lies in their ability to provide entrepreneurs with resources (Adler and Kwon, 2002). In consequence, the present work attaches greater importance to embedded resources in networks than to the actual features of the networks. In fact, we do not focus on the network features, but on the resources networks provide entrepreneurs with. These resources embedded in the entrepreneur's relationship networks involve financial resources (funds or credits), technology and innovation resources (technologies, patents, etc.), commercial and business capabilities (communication skills, sales, and access to market information), human resources (qualification, motivation, etc.), resources related to quality management, and organizational capabilities (management skills in terms of the ability to coordinate all these resources).

On another front, Payne *et al*. (2011) classify research on social capital (depending on the level of analysis) into individual social capital and collective social capital. In the current study, we focus on the outcomes of individual social capital, that is, the entrepreneur's social capital. In fact, in small firms and small ventures, the concept of individual social capital is particularly pertinent. In these cases, personal and social aspects merge with others of an economic and entrepreneurial nature, and the individual's social capital represents much of the organization's social capital. As entrepreneurs embed

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their business decisions in social structures (Greve and Salaff, 2003), they place their own personal networks at the service of their firms (Pirolo and Presutti, 2010). Social capital, thus, lends itself to the aims of the organization. This particular aspect is what clearly distinguishes social capital in the case of small ventures from that of large firms. In larger firms, there is a major difference between collective social capital (available to the organization) and individual social capital (belonging to each board member). In small firms, by contrast, there is a certain correspondence between the entrepreneur's social capital and the organization's social capital.

The work's second contribution is to conduct a comparison-oriented joint and simultaneous analysis of all the generic types of relationship networks the entrepreneur is involved in: namely, personal, professional, associational, and institutional networks. In our framework, social capital is seen as a resource located in an actor's internal ties (associated with bonding social capital) and external ties (associated with bridging and linking social capital) (Payne *et al*., 2011), such that the type and content of these linkages determine access to other embedded resources (Casson and Della Giusta, 2007; Bourdieu, 1986; Davidsson and Honig, 2003; Lin, 1999; Nahapiet and Ghoshal, 1998). Thus, social capital's sources lie in the social structure within which the actor is located (Adler and Kwon, 2002). The extent to which entrepreneurs maintain frequent links in their personal private circles (family, friends), in their professional circle (current business as well as previous businesses or jobs), with a range of agencies (volunteers, cultural or sports associations, political parties, trade unions, neighbors' associations, religious groups, etc.), or with public or private institutions will determine how much access they will have to financial, technological, commercial, and organizational resources (Davidsson and Honig, 2003; Komulainen *et al*., 2006; Sherry and Stubberud, 2013; Teckchandani, 2014). Although prior research has explored the impact of personal and professional networks on entrepreneurs' success (Baron and Markman, 2003; Bosma *et al.*, 2004; Pirolo and Presutti, 2010), no works have thus far adopted a joint and comparative approach to exploring the influence of these four networks on entrepreneurs' access to resources and business performance.

From a theoretical point of view, this study's third contribution is that it provides insights regarding two boundary conditions of social capital in entrepreneurship research: industry competitive intensity and entrepreneurs' experience. Although the four types of relationship networks allow entrepreneurs to access resources, we maintain that, in general, business performance is more influenced by professional and institutional networks' resources than by resources gleaned from personal and associative networks. However, each type of relationship network is not equally advantageous in all contexts. Since the resources provided by professional and institutional networks are more valuable than the resources provided by personal networks, in highly competitive contexts, all competitors will try to access professional and institutional networks. Therefore, entrepreneurs will seek inimitable networks in order to achieve competitive advantage. Thus, we propose they will be able to derive particular benefit from the resources provided by more personal and private networks (those hardest to imitate) in order to find new ways of improving market positioning and innovation. In contrast, the greater the entrepreneur's experience in the industry, the more relevant the professional and institutional networks will be to the firm's economic performance, since an experienced entrepreneur will be able to access more specific and business-oriented resources provided by professional and institutional networks.

In the following section, we present the theoretical framework on which the proposals are based. We first examine the resource-based view as well as the social capital approach, and we conclude with the importance of social capital as an entrepreneurial strategic resource. From the focus of the relationship marketing, network marketing, and social capital approaches, we go on to analyze those networks that generate social capital and facilitate access to valuable resources. Grounded on these theoretical foundations, and through three different sections, we successively present and argue the hypotheses, which outline the effects of social capital resources on economic performance and the moderating effects of an industry's competitive intensity and entrepreneurial experience. We then set out the methodological aspects and the findings of the empirical study. The work closes with comments on the principal conclusions and implications of interest to business practice.

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THEORETICAL BACKGROUND

The resource-based view

For Grant (1991: 118), resources 'are the inputs of the productive process of a firm' and 'the basic unit of analysis of the theory of resources and capabilities.' The resource-based view theory starts from market imperfection and states that owning valuable, rare, inimitable, and non-substitutable (VRIN) business resources is a source of sustainable competitive advantage and the source of differences in the financial performance of firms competing in a similar industrial environment (Barney, 1991; Black and Boal, 1994; Dierickx and Cool, 1989). Resources are valuable when they enable firms to conceive or implement strategies that improve their efficiency and effectiveness. Rare resources are those not simultaneously possessed by many other firms. Resources are inimitable (or imperfectly imitable) if firms that do not possess them are unable to obtain them. Finally, resources are non-substitutable if there are no strategically equivalent resources (Barney, 1991).

In this way, the role of resources (particularly intangible ones) is vindicated by the generation of value, and the existence of a positive association between managed resources and the firm's economic performance is defended (Hitt *et al.*, 2001). Yet, the firm should not be restricted to merely using said resources, but must also find the best way of combining them so as to create knowledge and capabilities within the company (Helfat *et al.*, 2007; Helfat and Peteraf, 2009). These are the capabilities that will ultimately endow the firm with a sustainable competitive advantage.

Various works have attempted to identify these assets and their link to generating competitive advantage (Ancori, Bureth, and Cohendet, 2000; Lavie, 2006; Zott, 2003). Yet, the ability to innovate and adapt to changes obviously does not depend exclusively on internal factors (such as human capital or technological capabilities within the firm). Indeed, the company will develop this capability only insofar as it manages to connect with the external environment and captures these new tendencies and ideas, which might inspire them to improve their processes and products (Chen and Wang, 2008; Liao and Welsch, 2003). Other organizational capabilities based on intangible assets that have a strong impact on innovation and other economic results must, thus, be identified. Along these lines, certain studies consider the firm's relationships and social capital as strategic resources that, if correctly managed, lead to innovation and success (Auh and Menguc, 2005; Nahapiet and Ghoshal, 1998; Simon and Tellier, 2011).

The social capital approach

The social capital approach represents an emerging theoretical trend that recognizes the inherent value of social structures. Nahapiet and Ghoshal (1998) define social capital as networks of relationships that allow their members to exchange and access the different assets available in these networks. In line with Burt (2000: 348), literature on social capital agrees on 'a social capital metaphor in which social structure is a kind of capital that can create a competitive advantage for certain individuals or groups when pursuing their ends,' so that socially better-connected individuals will also be in a better position to achieve the desired results. Adler and Kwon (2002: 23) stress that the effects of the structure and content of the actor's social relations 'flow from the information, influence, and solidarity it makes available to the actor.' Social capital arises, therefore, because sufficiently stable and continuous conditions exist between groups of individuals. In fact, what distinguishes social capital from other types of capital is that it resides in relationship networks and exists only if shared between network members (Narayan and Cassidy, 2001). Since relationships between individuals are framed within networks, social capital is associated with two elements (Batjargal, 2003; Batjargal and Liu, 2004; Nahapiet and Ghoshal, 1998): (1) network characteristics; and (2) network content (embedded resources that may be mobilized through the networks).

With regard to network characteristics, the most common and popular distinction is between 'bonding' and 'bridging' social capital (Gittell and Vidal, 1998; Portes, 1998; Putnam, 1995). Bonding social capital refers to relationships between people in a group who know each other well (i.e., family members and close friends). Such networks are associated with strong ties, cohesiveness, trust, and reciprocity, which allow exchange of resources between members (Davidsson and Honig, 2003). Bonding social capital may facilitate the pursuit of collective goals, and it is available and exclusive to the members of a group (Adler and Kwon, 2002). Bridging social capital refers to horizontal ties shaping more diverse groups

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of people with different backgrounds, like volunteer groups or professional networks (Davidsson and Honig, 2003). As these networks are more diverse, they can provide members with valuable resources and explain the differential success of individuals and firms in their competitive rivalry (Adler and Kwon, 2002). Bridging social capital is closely related to the concepts of weak ties (Granovetter, 1973; Burt, 2000) and structural holes (Burt, 1992, 2000). A third concept is so-called linking social capital, which refers to vertical relationships with powerful groups and institutions (Sabatini, 2009; Woolcock, 2001). Linking social capital is often characterized by weak ties. The scarcity of these types of relationships implies that linking social capital is often a powerful source of distinctive and valuable resources for individuals.

In regard to network content, the embedded resources in a network of relationships are a core concept of social capital (Batjargal, 2003). Lin's (1982) social resources theory proposed that access to resources embedded in social networks can lead to better socioeconomic status. Access to and use of social resources is determined by the position in the hierarchical structure and the strength of the ties. In fact, Nahapiet and Ghoshal (1998) define social capital as the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships an individual has. In line with Lin (1982), Nahapiet and Ghoshal (1998), and Tsai and Ghoshal (1998), the information and resources individuals have access to through their relationship networks (social capital resources) are a consequence both of the type of networks and of the individual's position therein (structural social capital), as well as the ease and willingness of members to cooperate and exchange resources (relational social capital).

Several authors (Bourdieu, 1986; Lin, 1999; Lin, Fu, and Hsung, 2001; Nahapiet and Ghoshal, 1998; Van der Gaag and Snijders, 2005) describe a network's social capital as the set of current and potential resources derived from the relationships that make up a network. Early studies addressing networks (e.g., Granovetter, 1973) identified the resources embedded in relationship networks as information-type resources (access to valuable information and new ideas). Social capital has subsequently been related to resources of a very different nature, ranging from the purely economic to those of a social and emotional nature (Van der Gaag and Snijders, 2005). Yet, it is important to underscore that the main aspect of social capital resources is not their mere existence, but the fact that they may be accessed and/or mobilized in purposive actions (Lin *et al*., 2001). Social capital facilitates acquisition of resources by promoting a flow of information and funds from diverse sources, and it drives the creation of intellectual capital by establishing the conditions for exchange or aiding the development of new resources. However, Payne *et al.* (2011) find few studies that measure the effect of network connections with outcomes.

As Gedajlovic *et al.* (2013) state, despite the importance of such an approach (Batjargal, 2003; Batjargal and Liu, 2004; Davidsson and Honig, 2003; Klyver, Hindle, and Meyer, 2008; Lin, 1999), little attention has been paid to measuring the actual resources accrued from social networks. There are, however, certain notable exceptions. Some authors refer to social capital resources as the benefits gained from social capital (relationship networks), mainly knowledge sharing and knowledge acquisition (Belliveau, O'Reilly, and Wade, 1996; Seevers, Skinner, and Dahlstrom, 2010; Wickramasinghe and Weliwitigoda, 2011; Yli-Renko, Autio, and Sapienza, 2001).

Relationships as sources of social capital

Analyzing relationship networks constitutes a nexus between social capital and the relationship marketing approach. As has been observed, social capital derives from an individual's relationship networks (the entrepreneur in our case) and from the assets located therein. For its part, the relationship marketing literature has underlined that strategic outcomes, such as relationships with customers and channel members, often become 'market-based assets' that add to the firm's existing resource stock (Srivastava, Shervani, and Fahey, 1998). Entrepreneurs' relationship networks become a business asset since they afford a competitive advantage by providing access to, processing, and distributing more information and resources (Greve and Salaff, 2003). Entrepreneurs can incorporate the potential resources provided by these relational assets to build core competencies. Moreover, stocks of these assets can be developed, augmented, leveraged, and valued (Srivastava *et al*., 1998). Such relational assets are primarily external to the firm and are largely intangible. Indeed, from a resource-view perspective, a firm's most important

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strategic assets are those based on intangible assets (Grant, 1991; Hall, 1993; Hitt *et al*., 2001).

Greene and Brown (1997) specifically include social resources (i.e., the network of relationships) as strategic resources for innovation and growth, inasmuch as they allow access to other physical, human, financial, and organizational resources. Viedma Marti (2004) indicates that social capital is an intangible resource—a kind of intellectual capital—that is primarily external and of a relational nature. Social capital, thus, becomes a source of sustainable competitive advantage, as it is valuable, rare or scarce, inimitable, and a non-substitutable resource. Although social capital can, in general, be imitated (individuals can have relationships with similar associations or institutions), each individual has access to separate social networks and develops different kinds of relationships within these networks—and this is the inimitable aspect of social capital.

In his analysis of business activity in the contexts of local and regional development, Johannisson (2008) states the importance of business, professional, and friendship ties as well as institutional and associational links with the local community. In our study, we echo the proposals of Stone and Hughes (2002) and Johannisson (2008) and group entrepreneur networks of relationships into four categories depending on the personal (informal), professional, associative, or institutional nature predominant in the relationships:

(1) *Personal networks of relationships* with relatives, friends, and neighbors are normally symmetrical (without hierarchies) and voluntary relationships, seen among individuals sharing common characteristics and interests. Literature on social capital often considers these relationships to be related to bonding social capital (Arregle *et al.*, 2007: Davidsson and Honig, 2003; Sharma, 2008).
(2) *Associative networks of relationships* with other members of the volunteer associations to which the entrepreneur belongs (such as business, professional, civic, labor, political, religious, cultural, social advocacy, or sports associations). They are usually formal in nature, given that on many occasions these groups are governed by explicit rules that regulate membership, commitments, and departure of members as well as how they relate to each other (internal relationships) and with other groups (external relationships) (Putnam, Leonardi, and Nanetti, 1993). These relationships are rather in-between bonding and bridging social capital, as they can involve both weak and strong ties and both vertical and horizontal relationships (Sabatini, 2009; Teorell, 2003) in addition to mixing formal and informal mechanisms of governance (Casson and Della Giusta, 2007).
(3) *Professional networks of relationships* with partners, workers, suppliers, customers, and colleagues. Since they are related to the entrepreneur's past and present professional activities, they occur in more formal contexts than the previous ones and have been considered as a source of bridging social capital (Davidsson and Honig, 2003; Sharma, 2008). This type of business network is usually oriented toward acquiring business-related resources (Casson and Della Giusta, 2007).
(4) *Institutional networks of relationships* with representatives or members of different public and private institutions. In the case of entrepreneurs, these relationships refer to direct contacts with government officials, public authorities, the media, financial bodies, or large companies, among others. These institutional relationships are not usually voluntary in nature and are normally regulated by very specific rules. They are generally asymmetrical (vertical or hierarchical) and their quality depends, to a large extent, on how well the institutional and legal environment in which the business activity is performed is able to function (Woolcock, 2001). These relationships have been related to linking social capital (Sabatini, 2009; Woolcock, 2001).

HYPOTHESES

The effect of entrepreneurs' social capital resources on economic performance

Social network theory (Granovetter, 1973) states that certain characteristics of an individual's network may shape access to new ideas that enhance an individual's ability to innovate. Moreover, as already observed, a resource is more likely to generate competitive advantage if it is accessible to the enterprise, is idiosyncratic, scarce, and difficult to substitute, complements other resources of the firm, is consistent with the firm's strategies and with the characteristics of the industry or sector, and proves difficult to imitate

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and transfer to other companies (Amit and Schoemaker, 1993; Barney, 1991; Dierickx and Cool, 1989). Entrepreneurs' social capital specifically merges all these characteristics and, thus, it can be concluded that the capabilities based on entrepreneurs' social capital may generate competitive advantage and, therefore, enhance performance. In this line, the positive effect of networks on business results has been highlighted in several contexts: industrial districts (Saxenian, 1994), industrial networks (Andersson, Blankenburg-Holm, and Johanson, 2007), the launch of new products (Hsieh and Tsai, 2007), or internationalization strategies (Coviello and Munro, 1997).

In the current work, we contend that social capital resources contribute to improving small firms' economic performance in terms of sales growth, market share, and success in launching new products or services. In the case of entrepreneurs, accessing new ideas and products may not only derive from exchanging information with suppliers, customers, and members of the associations to which the entrepreneur belongs, but also from the fact that entrepreneurs' personal relationships include people from different educational backgrounds, cultures, or nationalities. The resources provided by networks help the entrepreneur achieve business success. Access to advice, funding, technology, human resources, or information may favor innovation (Andersson *et al*., 2007), launch of new products (Hsieh and Tsai, 2007; Simon and Tellier, 2011), or entry into new markets (Coviello and Munro, 1997). Involvement in associations improves a community's level of social capital (Putnam *et al*., 1993; Wollebaek and Selle, 2002), thus benefitting all its members. For example, professional associations often provide entrepreneurs with advice and help when negotiating with banks and suppliers. But, nonprofessional associations are more diverse and allow local entrepreneurs to access new business opportunities (Teckchandani, 2014). This training in negotiation proves key to securing funding and, consequently, sources of future investment. Thanks to their institutional contacts, entrepreneurs may gain access to public aid programs for the technological and commercial modernization of their businesses. Personal and professional networks allow entrepreneurs to recruit reliable workers or harness new ideas for their businesses, which can lead to new products or open up new markets. Therefore, we propose that:

Hypothesis 1 (H1): The social capital resources of personal (H1a), associative (H1b), professional (H1c), and institutional (H1d) networks of small firms have positive effects on their economic performance.

Even if all networks may provide resources that enhance economic performance, their effect will differ depending on the specific characteristics of each. Indeed, from a resource-based view, we can characterize each network in terms of the value of the resources provided and depending on the degree to which these networks are imitable and substitutable (see Table 1). These characteristics will impact business performance in different ways, as we aim to show in our next three hypotheses.

A network's embedded resources value and economic performance

As explained earlier, resources are valuable when they enable firms to conceive or implement strategies that improve their efficiency and effectiveness. Although all kinds of networks can provide valuable resources, certain networks are more likely to offer resources adapted to entrepreneurs' business needs (Casson and Della Giusta, 2007). Characterizing the resources

Table 1. Characteristics of entrepreneurs' networks

	Network characteristics		
	Embedded resources value	**Network inimitability**	**Network substitutability over time**
Personal networks	*Low*	*High*	*High*
Associative networks	*Medium*	*Medium*	*Medium*
Professional networks	*High*	*Low*	*Low*
Institutional networks	*High*	*Low*	*Low*

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provided by social networks is supported by the social capital literature, which links the nature of the networks to various types of social capital, that is, different types of resources. Table 1 (first column) describes networks by their embedded resources value.

As already pointed out, professional and institutional relationships are linked to bridging (or even linking) social capital and weak ties (Davidsson and Honig, 2003; Sabatini, 2009). Bridging social capital is characterized by connecting individuals with a wider range of agents that can provide them with a broader and, therefore, more valuable array of resources (Burt, 2004; Granovetter, 2005). In fact, professional and institutional networks may offer more specific (industry-specific and entrepreneurship-specific) resources and, therefore, more valuable resources since they are directly related to the entrepreneur's business (e.g., technological or commercial resources) or to the institutional and legal environment in which the business operates. In other words, they offer high embedded resource value. For instance, a good relationship with suppliers may offer access to a wide range of markets in geographical terms or to new clients, which would never otherwise be possible through solely personal relationships. Relationships with professional colleagues may provide specific information concerning a particular sector (technologies, tools, prospects, forecasts, and so on) which would be difficult to secure through other means. Institutional relationships with the media, for example, would aid the task of marketing or promoting a product. A further example is the link with universities or technology centres that could supply the human resources or specialized technology a small firm would otherwise find it difficult to access through other personal or associative networks.

By contrast, personal relationships tend to be associated with so-called bonding social capital and strong ties. Although bonding social capital provides cohesion within a group (Adler and Kwon, 2002), it leads to homogeneous groups. Therefore, the likelihood of it providing diverse and valuable resources is less than with bridging social capital. Personal networks offer more generic resources (i.e., personal loans, emotional support, daily life resources, etc.) that are less adapted to the particular business in question (Bosma *et al.*, 2004). This is low embedded resource value.

The nature of associative networks places them between personal (civic, religious, social, advocacy associations, etc.) and professional or institutional (professional colleges, labor unions, political parties, etc.) networks. Thus, they can provide both non-business-related as well as business-related resources. As Teckchandani (2014) points out, business and professional associations contribute to entrepreneurial activity more than other association types. Moreover, and regardless of type, associations can be based on strong ties and provide high cohesiveness and scarce access to diverse resources; or they can be based on weak ties, with higher access to diversity. Thus, we place them in the position of low-high (medium) valuable resources.

In sum, we propose that the resources afforded by professional and institutional networks will have greater value than networks based on strong ties and horizontal relationships (Burt, 2004; Granovetter, 1973; Pirolo and Presutti, 2010). Professional and institutional networks should, therefore, be expected to have a greater impact on business performance than personal (and even associative) networks, since the resources the former provide are more valuable (more diverse and less redundant) and are more directly linked to the firm's business activity (Teckchandani, 2014). Thus, we propose that:

Hypothesis 2 (H2): The positive effect of social capital resources on economic performance will be greater in professional and institutional networks than in personal and associative networks.

Network inimitability and the moderating role of competitive intensity

Inimitable resources are those that cannot be obtained by firms that do not possess them. In the context of entrepreneurs' social capital, each network displays varying degrees of inimitability (second column in Table 1). Arregle *et al.* (2007) hold that while family social capital is a resource that is specific to an individual and remains fairly stable over time, organizational social capital may be extended and geared toward the firm's needs.

Professional and institutional networks are of a public and market nature and are equally detected by all competitors. Any firm could identify and contact a network of professional and institutional contacts similar to its competitors. Institutions (government, justice, media, etc.) and professional networks (suppliers, clients, distributors) are both easy to

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identify and to contact (in theory, they are available to everyone). Evidently, the nature and content of an entrepreneur's relationship with a supplier or institution may differ and, as a result, so may the resources they can obtain from professional and institutional networks. However, our point is that all competitors can access these networks. Such networks might be said to be imitable, which we label as low network inimitability.

By contrast, the private nature of an entrepreneur's personal networks makes them difficult to replicate in terms of accessing them (Arregle *et al*., 2007). In other words, they are characterized by high network inimitability. It is virtually impossible to imitate a competitor's relatives, friends, or acquaintances, and it is extremely difficult to belong to the same associations, since some may be highly exclusive. Furthermore, personal networks are characterized by aspects such as mutual trust, long-term cooperation, or group culture (Arregle *et al*., 2007; Davidsson and Honig, 2003), which are particularly difficult for other firms to replicate. Since associative networks swing between private and public, we typify them as having low-high network inimitability. While participation in professional associations is more imitable to entrepreneurs from the same industry, involvement in social or cultural associations is more difficult to detect and imitate.

In line with the resource-based view of competitive advantage, the competitive environment must be taken into account when explaining the economic performance of small firms (Arando-Lasagabaster and Peña-Legazkue, 2006; Lukas, 1999; Miller, 1988; Slater and Olson, 2000). More specifically, we should consider competitive intensity (i.e., degree of rivalry) in the sector in which the entrepreneur operates. The aggressiveness of commercial practice (in pricing, special offers, etc.), swiftness in imitating new products or services, or the ease with which new competitors may enter the fray are factors that reflect strong competitive pressure within a particular industry (Jaworski and Kohli, 1993).

When competitive intensity increases, social capital becomes a more valuable strategic resource. In this respect, Adjei, Griffith, and Noble (2009) indicate that when the sector is characterized by aggressive business practices, price rivalry, or the continual coming and going of competitors, small firms' relationships with their customers and suppliers provide them with a greater ability to adapt to market changes. In general, the greater the competitive intensity within a sector, the bigger the need to achieve competitive advantage and the more relevant inimitable networks and resources prove.

In highly competitive contexts, a network's inimitability plays a vital role when obtaining a competitive resource. In instances of highly competitive markets, all participants are familiar with existing public organizations and can access them. Thus, this information is public, imitable, and shared by all competitors, and it affords no differentiation. By contrast, personal networks are private and inimitable, and they may provide a source for ideas or contacts that are not accessible to others involved in the sector; ultimately they are the source of advantage. In highly competitive contexts, small firms are likely to seek the variety of resources afforded by more personal and accessible networks in order to find new ways of improving market positioning and innovation. A rich and varied personal network yields a truly 'defendable' competitive advantage over the competition and, as a result, its link to economic performance will be greater. Strong ties deriving from personal relationships (bonding social capital) provide entrepreneurs with secure and consistent access to resources (Davidsson and Honig, 2003; Liao and Welsch, 2003) and allow entrepreneurs to reduce uncertainties by gathering information from trustworthy networks (Lee, 2007). In this regard, empirical evidence from transition economies indicates that personal and social networks may replace nonexistent institutional or market structures (Acquaah, 2007; Batjargal, 2003; Batjargal and Liu, 2004; Butler and Purchase, 2008).

Although, as pointed out, professional or institutional networks may offer entrepreneurs more valuable resources, in times of high competitive intensity, all competitors would identify and try to access said resources. Any entrepreneur may gain access to institutional and professional networks and to some of the public resources these afford (such as training courses, premises for starting a business, or local development agency advice). In such instances, the most inimitable networks are those that mark the difference and enable entrepreneurs to obtain a competitive advantage in the market. For instance, if an entrepreneur is looking for new distribution agents or new retailers in a highly competitive context, the advice provided by institutional and professional networks will also be obtained by other competitors. Therefore, it is not surprising that entrepreneurs seek more original, different, and inimitable advice, information, or contacts with distribution agents or

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retailers in their personal sphere (family and friends). Similarly, entrepreneurs could rely on their personal networks to find ideas for new ventures or improvements in business. According to Stam, Arzlanian, and Elfring (2014), in fast-moving environments, small firms perform better when entrepreneurs have personal networks that facilitate alertness to emerging threats and opportunities.

In cases of high competitive intensity, new, different, and sound ideas are also more likely to be found in private associative networks than in professional networks. Previous research has emphasized the economic resources individuals can access as a result of their involvement in associations (Paik and Navarre-Jackson, 2001; Teckchandani, 2014). Specifically, Teckchandani (2014) finds that civic and social associations, the most private and inimitable ones, are more correlated with the presence of new local business than are business, professional, and labor associations.

Therefore:

Hypothesis 3 (H3): The greater the competitive intensity within the sector, the greater the positive influence of social capital resources of personal (H3a) and associative (H3b) networks on economic performance and the lower the positive influence of social capital resources of professional (H3c) and institutional (H3d) networks.

Network substitutability over time and the moderating role of the entrepreneur's experience

We have seen that an entrepreneur's relationship networks offer a competitive advantage if the resources provided are valuable and hard to replicate. A third source of competitive advantage for an asset is that it should be difficult to substitute. Resources are non-substitutable if there are no strategically equivalent resources (Barney, 1991). As shown in Table 1, some networks can be substituted over time, whereas others are hard to substitute. Even if all the relationship networks may provide the entrepreneur with resources, preferential use of one kind of network is related with the firm's age or the entrepreneur's experience in the sector. Batjargal (2007) proposes that entrepreneurs' experience enhances the positive effects of their networks on firm performance. Sasi and Arenius (2008) explain that in the early stages of a new venture, entrepreneurs rely on family and friends to obtain the information, physical and capital resources, and social support needed to turn an idea into a business reality. In other words, the entrepreneur's personal networks usually provide the initial resources needed to successfully launch a business, when it is not yet possible to develop rich enough professional and institutional networks (Bennett and Robson, 1999; Davidsson and Honig, 2003). Entrepreneurs subsequently increase their internal and external networks with business acquaintances (employees, suppliers, partnerships, etc.) that prove more important in key market areas. They, therefore, replace resources accessed through personal networks, which are more generic and less adapted to business, with resources provided by professional and institutional networks, which are more specific and business-oriented and allow firms to grow (Chen and Wang, 2008; Sasi and Arenius, 2008). In sum, personal and associative networks are characterized by a high degree of substitutability, whereas professional and institutional networks are hard to substitute.

Most of the works cited address the firm's age or the business life cycle as a variable engendering greater development of professional and institutional networks. Our contribution to these works is to underpin the entrepreneur's experience in the particular sector in which he/she is involved, rather than his/her overall experience in the business world. Yet, in the case of an entrepreneur, not only should the firm's age be considered, but also the entrepreneur's whole professional career within an industry (including his/her prior experience in other firms). This professional experience will enable an entrepreneur to establish professional and institutional contacts that will prove useful to his/her new venture. In this sense, we feel that over time entrepreneurs will tend to replace resources drawn from personal networks with embedded resources gained from professional and institutional networks as the latter gradually consolidate. Consequently, the longer an entrepreneur has been working in a sector, the more relevant the professional and institutional networks will prove to the firm's economic performance.

Hypothesis 4 (H4): The lower the entrepreneur's experience in the sector, the greater the positive influence of social capital resources of personal networks on economic performance (H4a). The greater the entrepreneur's experience in the sector, the greater the positive influence of social capital

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resources of professional (H4b) and institutional (H4c) networks on economic performance.

The proposed hypotheses are summarized in Figure 1.

METHODOLOGY

Sample selection

The target population of the study is small entrepreneurs in Spain, that is, businesspeople who are at the same time owner and manager of a small business (50 or fewer employees). Since there is no sampling framework available for our target population, the study drew on cooperation with local Spanish development agencies to distribute the questionnaires. The primary aim of these agencies is to promote economic development in the areas where they are located (EURADA, 1996). Thus, they fully understand the reality of each area and can identify its key players, including local entrepreneurs (Corrales-Leal, 2003; Halkier and Danson, 1998). Although not strictly probabilistic in nature, this method is suitable when no sampling framework is available, as in our case. The main risk of non-probability samples is that there is no clear or specific sampling frame that can reliably represent the population. Therefore, the sample might not prove representative. Researchers have no accurate estimates to gauge whether the sample is representative of the population or not. Despite this, in judgment-based sampling, if the experts know the population well enough (in our case, development agencies are very familiar with the entrepreneurs in each area), results may prove more accurate than those obtained from probabilistic sampling (Parasuraman, Grewal, and Krishnan, 2004). Coviello and Jones (2004) indicate that judgment-based or purposive sampling dominates in international entrepreneurship studies.

Data was gathered from January to December 2009, and the development agents themselves were in charge of contacting the entrepreneurs and distributing and collecting the questionnaires. Following the procedure indicated, and after eliminating some incomplete questionnaires and those of firms with more than 50 employees, a useful sample of 958 entrepreneurs was obtained. Of those surveyed, 62.6 percent of the respondents belong to rural areas and 37.4 percent to urban areas. In terms of business size, in 30.1 percent of the cases, only the entrepreneurs themselves work in the firm; in 41.9 percent of the cases, there are two to four people; in 23.5 percent of the cases, there are five to 15 workers; and in 4.5 percent of the cases, there are 16 to 49 workers. Finally, the type of businesses in the sample is quite varied vis-à-vis the main activity: manufacturing (26.3%), retailing (27.6%), tourism, hotels, and restaurants (16.3%), and other services (29.9%).

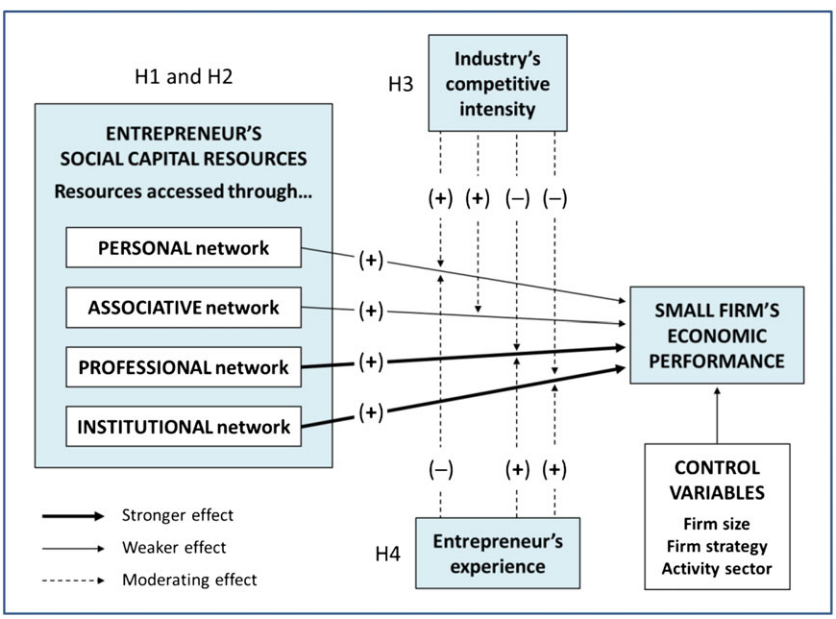

Figure 1. Proposed model

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Measurement of the variables

The most widely embraced methodological proposals for measuring embedded resources in individuals' networks are the so-called Position Generator (Lin and Dumin, 1986) and Resource Generator (Van der Gaag and Snijders, 2005). The Position Generator has been applied successfully in social science studies (Belliveau *et al*., 1996; Lin, 1999; Lin *et al*., 2001). It is based on the idea that social capital can be measured by the occupational or positional characteristics of network members as a proxy variable indicating the social resource collections embedded in an individual's social network. Based on the Position Generator, Van der Gaag and Snijders (2005) developed the Resource Generator. The Resource Generator is also a survey tool for measuring individual social capital. Unlike the Position Generator, however, Resource Generator information directly refers to accessed social resources rather than occupational prestige. This proposal heralds a step forward in the attempt to measure social capital resources since it avoids using a proxy variable (position of network members) to gauge the resources obtained, and it focuses directly on the resources provided by the individuals involved in the network, irrespective of the position they occupy.

The Resource Generator proposed by Van der Gaaj and Snijders (2005) aims to measure, from a sociological perspective, the social capital resources of individuals as a whole, not just of entrepreneurs in particular. Thus, it includes resources that are useful for daily life (i.e., 'personal support' resources). However, since our study aims to measure the impact of social capital on firms' economic performance, we focus on resources of a business nature considered to be strategic in the resource-based view literature. To do so, based on the resources classification proposed by Rubio-Bañón and Aragón-Sánchez (2009), we develop four formative scales to measure the social capital resources of personal, professional, associative, and institutional networks. In all cases, five-point Likert scales were used, referring to the degree to which entrepreneurs consider that each type of network afforded them the chance to acquire financial resources, technology and innovation capabilities, marketing resources, quality management capabilities, human resources, and organizational capabilities. Moreover, we repeated each question addressing access to resources for each of the entrepreneur's relationship networks as suggested by Stone and Hughes (2002). The questionnaire includes a brief description of what we understand to be personal, professional, associative, and institutional networks (see Appendix).

Entrepreneurs' experience was measured as the number of years entrepreneurs had been working in the industry. To measure competitive intensity, we employed a five-item scale developed by Jaworski and Kohli (1993) and later used by Slater and Olson (2000) to study the moderating effect of the environment on the relationship between the relational orientation of the firms and their strategic results. Finally, the four items of the reflective scale of economic performance refer to two dimensions of the strategic results proposed by Walker and Ruekert (1987): market results (market share, positioning, sales) and innovation results (new products and new ventures).

We performed Harman's single-factor test to assess the possible impact of common method variance. Evidence for common method bias exists when a single factor emerges from the factor analysis or when one general factor accounts for the majority of the covariance among the measures. Exploratory factor analysis with all the indicators gave eight factors with an eigenvalue of greater than 1.0 (total variance explained was 83%), with a first factor explaining only 24 percent of the variance. While we are unable to completely rule out the possibility that common method bias affected our findings, results from the mentioned test suggest the possible impact was minimal at most.

Control variables

In order to achieve a strong competitive position in a market, access to suitable resources is not enough. Firms must also adopt the right strategy. Thus, as a first control variable, we introduce entrepreneurs' strategies or strategic profiles into our study. The literature offers a wide range of classifications of a firm's competitive strategies. We consider that the hybrid typology, which results from integrating the proposals of Miles and Snow (1978) and Porter (1980), proves particularly interesting due to its close relationship with the organization's marketing activities (McDaniel and Kolari, 1987; Slater and Olson, 2000). Moreover, the hybrid classification can be used to characterize not only the firm's strategy, but also the entrepreneur's strategic profile. In line with this classification, the entrepreneur's strategic profile can be placed in one of the following categories:

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(1) Prospector strategy. This places the emphasis on the search for new business opportunities starting from the development of new products or entry into a new market. The prospector is usually associated with the pioneering launch of innovations adapted to the changing needs of the market.
(2) Analyzer strategy. As well as working closely with customers, firms that embark on this follower strategy analyze competitors who use prospector strategies to identify their successes and failures and subsequently develop new versions of the product or service that enhance the good qualities and redress the faults.
(3) Low-cost defender strategy. This strategy's principal competitive tool is price. Thus, a considerable effort is required to reduce costs and foster economic efficiency to develop this strategy.
(4) Differentiated defender strategy. Like the previous one, this strategy seeks to defend the firm's target and to retain present customers by offering a product or service that provides a greater added value or any other distinguishing feature.
(5) A fifth strategy, the reactor strategy, should be added to the previous four, although certain authors (Matsuno and Mentzer, 2000; McDaniel and Kolari, 1987; Shortell and Zajac, 1990) omit it since they do not believe it is a strategy in the strict sense, rather a non-strategy, given that reactor organizations do not plan their actions and display no common behavior patterns. In addition, their passive attitude is not normally the result of any deliberate intention on the part of the firm's managers.

Several works have established relationships between strategies and economic results, concluding that each kind of strategy pursues a different type of result (Conant, Mokwa, and Varadarajan, 1990; Hambrick, 1983; McDaniel and Kolari, 1987). Our aim, however, is not to evaluate the differential effect of each type of strategy. We confine ourselves to suggesting that firms who adopt a well-defined strategy (whatever that might be) obtain better results than those who maintain a reactor strategy.

The competitive strategy adopted by the entrepreneur was measured by means of a self-typing scale constructed around the hybrid typology proposed by Slater and Olson (2000). For this, five descriptions of the strategic profile of the business were presented, and participants were asked to situate their enterprise in the one that best described it. This kind of self-typing scale has been used widely in previous studies (Matsuno and Mentzer, 2000; Slater and Olson, 2000). Thus, we obtained five dummy variables: prospector, analyzer, low-cost, differentiated, and reactor. The definitions used in the questionnaire for each strategy are shown in the Appendix.

Although our study focuses on small firms, the size of small firms has been considered a determinant variable of business performance (Orser, Hogarth-Scott, and Riding, 2000). We, therefore, include it as a control variable. A firm's size was measured as the log transformation of the number of employees (logsize) rather than as a raw measure of size, as suggested in previous works (Camisón-Zornoza *et al.*, 2004). We also include the sector of activity as a control variable in order to remove possible effects on business performance. The sector was measured as four dummy variables: manufacturing, commerce-retailing, tourism-restaurant, and other services). Table 2 shows the variables used in the study, their measurement indicators, and the corresponding descriptive statistics (mean and standard deviation).

ANALYSIS AND RESULTS

In order to test the proposed hypotheses, we used moderated hierarchical regression, previously reducing the scales to a single index. As for the formative constructs, we used the partial least squares approach (PLS), an analytical technique that makes it possible to estimate models with formative constructs and can work with nonmetric variables and data that present non-normal distributions. Specifically, *SmartPLS* software (Ringle, Wende, and Will, 2005) was used. PLS estimation comprises estimating both the measurement and the structural models. The measurement model can involve variables measured with formative indicators and variables measured with reflective indicators. Reflective indicators are functions of the latent variable. Therefore, changes in the variable are reflected in changes in the observable indicators. Contrastingly, formative indicators are specific components of the general construct they collectively constitute. In these cases, changes in the indicators determine changes in the value of the variable (Diamantopoulos and Siguaw, 2006).

We estimated the direct effect of resources provided by personal, professional, associative, and

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Table 2. Descriptive statistics: means, standard deviations, weights, and loadings

Variables	Items	Mean	S.T.	VIF	PLS outer weights	PLS outer loadings	Factor loadings[a]
Personal network's social capital resources (personal NR): *Contribution of the personal network to achieving…*	Financial resources	2.61	1.34	1.53	0.155	0.677	
	Technological resources and innovation capabilities	2.43	1.27	1.62	0.536***	0.877	
	Commercial and business capabilities	3.00	1.31	1.55	0.238*	0.701	
	Quality management capabilities	2.66	1.31	2.02	0.118	0.718	
	Human resources	3.02	1.29	1.64	0.064	0.599	
	Organizational capabilities	2.64	1.28	2.07	0.190	0.745	
Professional network's social capital resources (professional NR): *Contribution of the professional network to achieving…*	Financial resources	3.22	1.32	1.45	−0.049	0.476	
	Technological resources and innovation capabilities	3.36	1.25	1.56	0.345***	0.720	
	Commercial and business capabilities	3.69	1.13	1.59	0.323***	0.769	
	Quality management capabilities	3.73	1.14	1.49	0.190*	0.684	
	Human resources	3.64	1.21	1.50	0.232*	0.752	
	Organizational capabilities	3.59	1.19	1.61	0.326***	0.766	
Associative network's social capital resources (associative NR): *Contribution of the associative network to achieving…*	Financial resources	2.21	1.25	1.87	0.176	0.690	
	Technological resources and innovation capabilities	2.33	1.28	2.26	0.093	0.730	
	Commercial and business capabilities	2.72	1.32	2.16	0.614***	0.950	
	Quality management capabilities	2.58	1.31	2.24	0.259*	0.828	
	Human resources	2.53	1.29	2.00	0.004	0.674	
	Organizational capabilities	2.52	1.27	1.11	0.004	0.674	
Institutional network's social capital resources (institutional NR): *Contribution of the institutional network to achieving…*	Financial resources	3.14	1.32	1.47	0.380***	0.754	
	Technological resources and innovation capabilities	2.93	1.30	2.12	−0.062	0.669	
	Commercial and business capabilities	2.95	1.29	2.41	0.318*	0.820	
	Quality management capabilities	2.89	1.31	2.37	0.232	0.785	
	Human resources	2.82	1.33	2.01	0.243*	0.873	
	Organizational capabilities	2.79	1.30	2.21	0.175	0.757	
Competitive intensity *Cronbach's alpha = 0.786% of variance extracted = 54.1%*	In this sector						
	There is a lot of competition among firms	3.97	1.06				0.722

(Continues)

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Table 2. *(Continued)*

Variables	Items	Mean	S.T.	VIF	PLS outer weights	PLS outer loadings	Factor loadings[a]
	Aggressive business practices are normal (price wars, special offers, etc.)	3.46	1.23				0.829
	When a firm introduces an innovation the rest quickly copy the idea	3.41	1.09				0.694
	Price competition is a hallmark of our industry	3.02	1.25				0.687
	There are many competitors who enter and leave the sector or who introduce innovations	3.16	1.20				0.735
Economic performance *Cronbach's alpha = 0.790% of variance extracted = 62.1%*	In recent years our sales have increased	3.28	1.11				0.807
	In recent years our positioning has improved	3.52	0.95				0.825
	We have successfully introduced new products or services in our business	3.39	1.11				0.782
	We have been successful in entering new business areas	3.01	1.19				0.731
Entrepreneur's experience	Number of years of entrepreneur's experience in this industry	11.71	9.47				
Competitive strategy:	Dichotomous scale of self-typing in a profile of…						
Prospector	prospector strategy	0.25	0.43				
Analyzer	analyzer strategy	0.13	0.34				
Low-cost defender	low-cost defender strategy	0.35	0.48				
Differentiated defender	differentiated defender strategy	0.17	0.38				
Reactor	reactor strategy	0.10	0.30				
Size	Number of employees	4.62	6.18				

[a]We performed a confirmatory factor analysis (CFA) for the reflective scales, the goodness of fit indexes being: $X^2(27) = 177.89$ ($p = 0.000$); GFI = 0.961; AGFI = 0.935; RMSEA = 0.076; CFI = 0.940; NFI = 0.931.
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$ (one-tailed test).

institutional networks on economic performance. The coefficients' level of statistical significance (both of the measurement and the structural model) was calculated by means of a bootstrapping procedure with 500 subsamples randomly extracted from the original sample. Given that the scales employed to measure the social capital resources of the various networks are formative, we previously tested for the nonexistence of multicollinearity between the indicators that make up each scale. In Table 2, presented previously, the values of the variance inflation factor (VIF) are also shown, as are the outer

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weights of each indicator. We observe that collinearity is not at a critical level. As for the significance of the formative indicators, Hair, Hult, Ringle, and Sarstedt (2014) explain that nonsignificant indicator weights should not be interpreted as indicative of poor model quality measurement. When an indicator's outer weight is nonsignificant but its outer loading is high (above 0.50), the indicator should be interpreted as absolutely important but not as relatively important. We have included the outer loadings in Table 2, the lowest being 0.476. The absolute contribution of the indicators can, thus, be interpreted as relevant.

In order to evaluate convergent validity in formative measurement models, testing whether the formatively measured construct is highly correlated with a reflective measure of the same construct is recommended (Hair *et al*., 2014). In our research, in order to limit the length of the questionnaire, we did not include reflective scales for network resources, so we were unable to test convergent validity. Finally, discriminant validity was established since the item-to-construct correlations were higher with each other than with other construct measures.

At this stage of the analysis, structural model estimation is not relevant, as the purpose was to estimate factorial weights. This estimation allowed us to reduce items to the latent variable scores provided by PLS for each construct and, thus, maintain the formative weighting scheme. In the case of competitive intensity and performance, measurement indicators were grouped using principal component factor analysis (Table 2). Reliability is shown to be acceptable (Cronbach alpha above 0.7). We then multiplied the factors measuring the networks' social capital resources by competitive intensity and by the entrepreneur's experience so as to calculate the interaction variables. Independent variables were previously mean centered in order to reduce multicollinearity between the interaction terms and their constituent variables (Aiken and West, 1993). A correlation analysis was carried out prior to the regression analysis (Table 3). The highest correlation between the independent variables and the interaction terms was 0.61. Past studies suggest that correlations at this level might not pose a serious multicollinearity issue for the interaction results generated (Erramilli and Rao, 1993).

Our four hypotheses were tested using hierarchical moderated regression. This method allows us to sequentially introduce different blocks of variables and to check their respective explanatory capacities. Four steps of regression analysis were conducted in this analysis. First, we introduced the control variables (prospector, analyzer, low-cost, differentiated, manufacturing, commerce, tourism, and logsize). Second, in order to verify H1 and H2, we included the block corresponding to the main and direct effects of the various network resources (NR): resources provided by personal, associative, professional, and institutional networks. Third, the direct effects of industry competitive intensity and entrepreneur experience were added. Finally, to estimate the moderating effects suggested in H3 and H4, we incorporated a block with all the interaction terms among the variables in the last two blocks (of personal, associative, professional, and institutional

Table 3. Correlation matrix

	Personal NR	**Professional NR**	**Associative NR**	**Institutional NR**	**Competitive intensity**	**Entrepreneur's experience**	**Size (log)**	**Economic performance**
Personal NR	1							
Professional NR	0.392**	1						
Associative NR	0.579**	0.383**	1					
Institutional NR	0.469**	0.400**	0.571**	1				
Competitive intensity	0.117**	0.134**	0.118**	0.114**	1			
Entrepreneur's experience	−0.038	0.040	0.042	0.004	0.060	1		
Size (log)	−0.079*	0.146**	0.069*	0.123**	0.102**	0.362**	1	
Economic performance	0.199**	0.277**	0.202**	0.242**	0.185**	-0.073*	0.079*	1

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$ (two tailed).

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Table 4. Moderated hierarchical regression

	Step 1			*Step 2*			*Step 3*			*Step 4*[1]		
	β no standard.	S.E.	Sig.	β no standard.	S.E.	Sig.	β no standard.	S.E.	Sig.	β no standard.	S.E.	Sig.
Constant	−0.513	0.122	***	−0.463	0.117	***	−0.334	0.119	**	−0.340	0.120	**
Prospector (strategy)	0.759	0.125	***	0.694	0.120	***	0.651	0.119	***	0.655	0.119	***
Analyzer (strategy)	0.598	0.140	***	0.515	0.134	***	0.467	0.133	***	0.473	0.133	***
Low-cost (strategy)	0.414	0.120	***	0.370	0.114	***	0.340	0.113	**	0.354	0.114	**
Differentiated (strategy)	0.382	0.132	**	0.354	0.126	**	0.331	0.124	**	0.335	0.125	**
Manufacturing (industry)	−0.186	0.093	*	−0.212	0.089	*	−0.194	0.089	*	−0.195	0.089	*
Commerce (industry)	−0.052	0.089	n.s.	0.033	0.086	n.s.	0.006	0.085	n.s.	0.011	0.085	n.s.
Tourism (industry)	−0.037	0.102	n.s.	−0.004	0.098	n.s.	0.006	0.097	n.s.	−0.012	0.096	n.s.
LogSize	0.096	0.039	*	0.072	0.038	*	0.091	0.039	*	0.091	0.039	*
Personal network's resources (personal NR)				0.061	0.042	n.s.	0.051	0.041	n.s.	0.051	0.041	n.s.
Associative network's resources (associative NR)				0.015	0.044	n.s.	0.017	0.044	n.s.	0.022	0.043	n.s.
Professional network's resources (professional NR)				0.174	0.037	***	0.165	0.036	***	0.169	0.036	***
Institutional network's resources (institutional NR)				0.134	0.041	***	0.123	0.040	**	0.106	0.041	**
Competitive intensity							0.127	0.032	**	0.121	0.032	***
Entrepreneur's experience							−0.010	0.004	***	−0.010	0.004	**
Personal NR*Competitive intensity										0.063	0.038	(+)
Associative NR*Competitive intensity										0.012	0.042	n.s.
Professional NR*Competitive intensity										0.004	0.034	n.s.
Institutional NR*Competitive intensity										−0.094	0.039	*
Personal NR*Entrepreneur's experience										−0.006	0.004	n.s.
Associative NR*Entrepreneur's experience										0.001	0.004	n.s.
Professional NR*Entrepreneur's experience										0.008	0.003	*

(Continues)

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Table 4. *(Continued)*

	Step 1			*Step 2*			*Step 3*			*Step 4*[l]		
	β no standard.	S.E.	Sig.	β no standard.	S.E.	Sig.	β no standard.	S.E.	Sig.	β no standard.	S.E.	Sig.
Institutional NR*Entrepreneur's experience										0.010	0.004	*
R^2 / R^2 adjusted		0.061 / 0.053			0.150 / 0.138		0.172 / 0.159				0.193 / 0.172	
F (sig.)		7.10 ***			12.75 ***		12.83***				9.30 ***	
Change statistics	**R^2 change**	0.061			0.089		0.022				0.021	
	F change (sig.)	7.10***			22.64***		11.49***				2.76**	

+ $p < 0.10$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$
(n.s.) nonsignificant.
[l] With regard to step 3, including the moderating effects of competitive intensity individually yields the following changes: R^2 change = 0.006; F change = 1.68 (0.152).
[l] With regard to step 3, including the moderating effects of entrepreneur's experience individually yields the following changes: R^2 change = 0.013; F change = 3.51 (0.007).

NR with competitive intensity and entrepreneur experience). Results are shown in Table 4.

As can be observed, the explanatory capacity of the model is limited (low R^2 values), which should not concern us since our goal was not to explain entrepreneurs' economic performance, but to test the existence of the foreseen effect of social capital resources on performance. Nevertheless, Table 4 (step 2) shows the positive and significant effects of the social capital resources of the professional ($\beta = 0.174$; $p < 0.001$) and institutional ($\beta = 0.134$; $p < 0.001$) networks and the nonsignificant effects corresponding to personal and associative networks. As a result, we can accept H1c and H1d, but must reject H1a and H1b.

Resources obtained through entrepreneurs' professional and institutional networks significantly contribute to improving their results, while resources derived from associative and personal networks do not appear to be relevant, which seems to point in the direction indicated by H2. In order to test that the standardized beta coefficients of professional and institutional NR were significantly higher than the coefficients of personal and associative NR, we performed a t-test for mean differences (Table 5). Moreover, we estimated 95 percent confidence intervals (Figure 2). According to Cumming and Finch's (2005) rule, two estimates can be considered as statistically significantly different from each other when the corresponding 95 percent confidence intervals overlap by no more than 50 percent. As can be seen in Table 5 and Figure 2, the coefficient of professional NR can be considered significantly higher than the coefficients of personal ($p = 0.06$) and associative ($p = 0.005$) NR. Put differently, the effect of social capital resources on economic performance is greater in the case of professional networks than in the case of personal and associative networks. Similarly, the effect of institutional NR can be considered significantly higher than the effect of associative NR ($p = 0.03$). However, the effect of institutional NR is not significantly higher than the effect of personal NR. Hence, with this sole exception, we can (at least partly) accept H2.

In regard to the moderating effects of the competitive environment (H3) and the entrepreneur's experience (H4), we observe that the change in the F-statistic caused by adding the interaction effects is significant. Therefore, the interaction effects improve the explanation of economic performance. Step 4 confirms there are some significant interactions between competitive intensity and social capital

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Table 5. Comparison of estimates: t-test for mean differences (95%)

	Estimate	S.E.	Difference	t-statistic	p-value
Personal NR → Performance	0.061	0.041	−0.113	1.879	0.060
Professional NR → Performance	0.174	0.044			
Personal NR → Performance	0.061	0.041	−0.073	1.259	0.208
Institutional NR → Performance	0.134	0.041			
Associative NR → Performance	0.015	0.036	−0.159	2.797	0.005
Professional NR → Performance	0.174	0.044			
Associative NR → Performance	0.015	0.036	−0.119	2.181	0.029
Institutional NR → Performance	0.134	0.041			

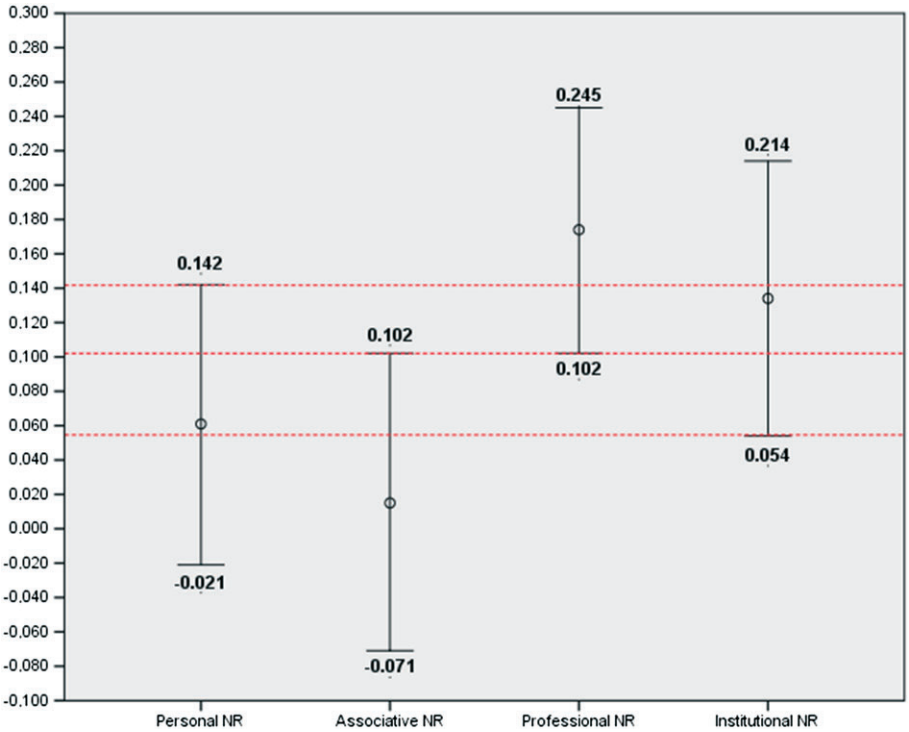

Figure 2. Confidence intervals to test H2*

(*) The dashed horizontal lines indicate confidence interval overlap.

Overlap of confidence intervals of personal NR and professional NR à (0.142−0.102)/(0.142+0.021) = 24.5%

Overlap or confidence intervals of personal NR and institutional NR à (0.142−0.054)/(0.142+0.021) = 54%

Overlap of confidence intervals of associative NR and professional NR à 0%

Overlap of confidence intervals of associative NR and institutional NR à (0.102−0.054)/(0.102+0.071) = 27.7%

resources in small firms. In the case of personal NR, the interaction effect is not very significant, but is positive ($\beta = 0.063$; $p < 0.10$). In the case of institutional NR, the interaction is significant and negative ($\beta = -0.094$; $p < 0.05$). The interaction effects of associative and professional NR with competitive intensity are nonsignificant. This leads us to accept H3a and H3d and reject H3b and H3c. Moreover, interactions between the entrepreneur's experience and professional ($\beta = 0.08$; $p < 0.05$) and institutional ($\beta = 0.010$; $p < 0.05$) NR are significant and positive, but nonsignificant in the case of personal NR. We, therefore, find support for H4b and H4c (not for H4a).

To better understand the significant interactions, we used simple slope analysis as recommended by Aiken and West (1993). Each interaction effect was analyzed considering three conditional values of the moderator variable: the mean, one standard deviation below, and one standard deviation above the mean.

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This generates three alternative β values in each case, which appear in Table 6. The interaction effects are represented in Figure 3.

H3 posits the moderating effect of competitive intensity. The model estimation (Table 6) reveals that when competitive intensity is high, the impact of personal NR on economic performance is significant ($\beta = 0.104$; $p < 0.05$), although they have no effect in low rivalry situations. In parallel, Figure 3a shows that the slope of the relationship between personal NR and performance is greater in situations of high competitive intensity. Confirming H3a, as competitive intensity increases, the resources the entrepreneur obtains from this personal network acquire more value (i.e., prove more effective). Contrastingly, in highly competitive intensity situations, institutional NR have no effect on performance, whereas the effect is significant and positive ($\beta = 0.144$; $p < 0.01$) when competitive intensity is low. In addition, as shown in Figure 3b,

Table 6. Simple slope analysis: β values conditioned by moderator variable values

Moderator variable	Predictor variable	Moderator variable value		
		One standard deviation below	**Mean**	**One standard deviation above**
Competitive intensity	Personal NR	−0.015	0.051	0.104*
	Institutional NR	0.144**	0.106**	0.006
Entrepreneur's experience	Professional NR	0.104*	0.169***	0.238***
	Institutional NR	0.012	0.106**	0.185***

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$ (two tailed).

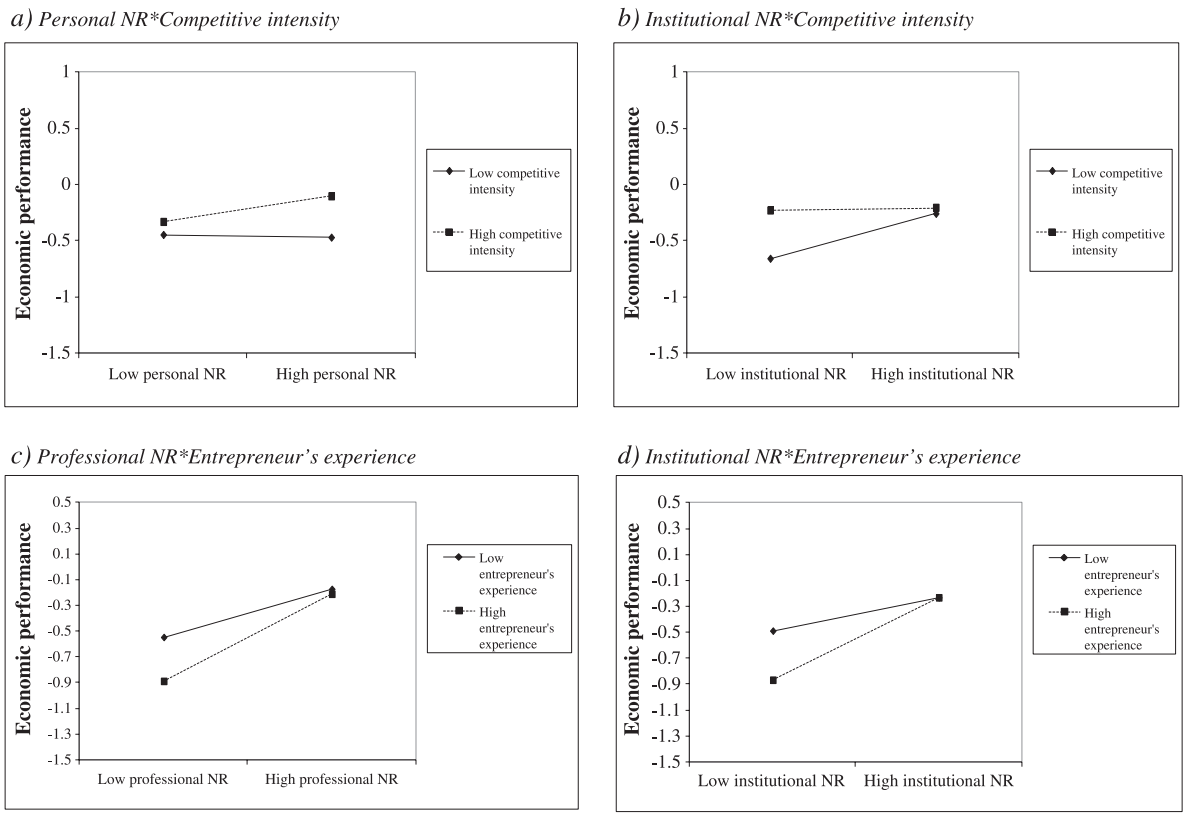

Figure 3. Interaction plots

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the slope corresponding to institutional NR is higher in situations of low competitive intensity. Supporting H3d, it can be concluded that the influence of resources accessed through the institutional network on economic performance decreases as competitive intensity increases. In the remaining cases, the interactions are not statistically significant. Thus, we reject H3b and H3c.

As for H4 (the moderating effect of entrepreneur experience), the influence of professional NR on economic performance is higher when entrepreneurs have more years of experience in the industry ($\beta = 0.238$; $p < 0.001$) than when their experience is limited ($\beta = 0.104$; $p < 0.05$). Similarly, the influence of institutional NR on economic performance is significant when the entrepreneur has more years of experience in the industry ($\beta = 0.185$; $p < 0.001$), yet is nonsignificant when experience is limited. Furthermore, Figsure 3c,d show that the positive slopes corresponding to professional and institutional NR are steeper when entrepreneurs' experience is greater, thus leading us to accept H4b and H4c. The impact of personal NR does not vary for the different degrees of business experience, thereby leading us to reject H4a.

With regard to the control variables, some interesting results emerge. First, small firms' strategies impact economic performance. Although any strategy the firm actively embarks upon should be better than the reactor strategy, it seems that their impacts on performance differ. We conducted an ANOVA and a Tukey test to evaluate the different effects of strategies, with the relation between strategy and economic performance proving to be significant ($F = 12.478$; $p < 0.001$). These analyzes indicate that the prospector and analyzer strategies contribute most to improving the firm's results. Compared to the reactor strategy (or non-strategy), the analyzer, low-cost defender, and differentiated defender strategies also improve firms' performance, although we found no differences among the effects of these three strategies.

Second, the effect of size is significant and positive, indicating that larger firms obtain better economic performance than smaller firms. As we measure firms' size as the logarithm of the number of employees, this means that performance increases with size at a declining rate. Finally, only in the case of the manufacturing sector do we find a negative and significant effect, showing that economic performance in the manufacturing sector is lower than in the 'other services' sector.

DISCUSSION

Increasingly, small firms need to discover how to forge a competitive opening in a market dominated by large firms. This is why the current work merges both the business-based and the sociological-based views of relationship networks in an attempt to consider all the relationships open to entrepreneurs as true strategic resources and as one of their potential sources of competitive advantage.

The main theoretical implication of this study is that it furthers the role of small entrepreneurs' social capital resources in a firm's performance. In a small business context, certain resources must be sought in entrepreneurs' relationship networks themselves. The present study bears out the relevance of so-called social capital resources vis-à-vis obtaining enhanced economic performance in terms of market and innovation results. Moreover, not all networks allow entrepreneurs to access relevant resources, with only some of the resources provided by each network actually proving valid from the business standpoint.

Results from the analysis show that entrepreneurs' various relationship networks are not all equally advantageous. We find that economic performance is boosted by the resources entrepreneurs obtain via their professional and institutional networks (traditionally associated to bridging and linking social capital, respectively). However, personal and associative networks do not appear to be so relevant. Yet, even though the resources afforded by personal and associative relations do not seem to impact entrepreneurial performance, this might be qualified if the industry's competitive intensity and entrepreneurs' experience are taken into account.

When competitive intensity in the sector is high, the resources entrepreneurs acquire through personal networks gain in relevance as an element for improving their economic performance, while resources obtained via institutional networks become less relevant. One explanation for this may be the private and highly idiosyncratic nature of personal network resources compared to other networks. In high competitive intensity, entrepreneurs' personal relationships (personal networks) will offer secure support, which is more difficult to find in other networks. This result is similar to that reported by Lahiri *et al.*, (2009), who find that the internal resources (human and organizational) of firms who face high levels of rivalry had a greater impact on performance than those anticipating low rivalry. They

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indicate that executives probably feel they need to deploy internal resources better to counter the moves of rival firms. However, external or relational resources, specifically business relationships with clients, enhance performance levels when anticipated rivalry is low.

According to our results, although institutional networks provide more valuable resources and even though entrepreneurs will try to improve these relationships, in high competitive intensity situations, personal networks could spell the difference between one competitor and another, since these are private and accessible networks. Two businesspeople may draw on extremely differing personal networks and, thus, be able to access very different resources through them. Consequently, the resources accessed via these personal networks could account for the difference in the results of small firms. Strangely enough, competitive rivalry does not moderate the effect of resources provided by associative and professional networks on performance. The former will continue to have little relevance vis-à-vis performance compared to the latter, i.e., the high value of professional network resources remains unchanged with the level of competitive intensity.

Entrepreneurs' business experience also helps explain the effect of the different networks' social capital on performance. As experience in the sector increases, so does the influence of professional and institutional network social capital resources on economic performance. Experience contributes to developing wider and more diverse professional and institutional networks whose influence on economic performance proves more relevant.

Prior literature on social capital (Putnam, 1995; Sabatini, 2009) has tended to link the nature of relations (personal, associative, professional, and institutional) to various types of social capital in terms of the value of embedded resources (bonding, bridging, and linking). Our study shows that when there are no external determining factors, such a link proves to be true. As assumed, professional networks (bridging social capital) and institutional networks (linking social capital) offer entrepreneurs valuable resources. By contrast, in personal networks (bonding social capital), entrepreneurs have greater difficulty finding valuable resources. It is difficult to ascertain what kind of social capital associative networks are able to provide in terms of accessing resources. Surprisingly, in no instances do the resources afforded by such networks provide any competitive advantage. Our research shows that this link between the kind of network and the nature of the social capital can be either broken or strengthened depending on certain external factors. Specifically, entrepreneurs' experience in the sector enhances the social capital bridging of professional networks and the social capital linking of institutional networks.

Contrastingly, in high competitive intensity contexts, the relationship posited in the literature does not hold: institutional networks lose their role of social capital linking (the resources they provide cease to be a source of competitive advantage), professional networks maintain their role of social capital bridging (they continue to be the main source of resources shaping business success and performance), and the role of personal networks changes from one of social capital bonding to that of social capital bridging. Put differently, entrepreneurs' personal relations are able to 'free themselves' from perfect competition and provide access to ideas and resources that differ from those of others who are involved in their particular area of business.

Whatever the case, we must clearly bear in mind that only certain resources are significant in each type of network. Resources to which entrepreneurs have access through their personal networks (relationships with family relatives and friends) and contribute to economic performance (in the case of major competitive rivalry) are those related to technology, innovation, and marketing capabilities. In professional networks (relationships with partners, workers, suppliers, and customers), relevant resources for economic performance are technological, commercial (marketing), quality management, human, and organizational. Finally, the resources obtained via entrepreneurs' institutional networks (relationships with institutions or public authorities) that contribute to boosting the results of the small firm are financial, commercial (marketing), and human resources. These results are aligned with the propositions of Shipilov and Danis (2006), who suggest that a good fit between the managerial team's type of social capital, the company's strategic profile, and environmental stability, enhances organizational performance.

Managerial implications

In terms of the implications for small business management, integrating entrepreneurs in the relationship networks that afford them access to

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certain resources is clearly a key factor in their business's future. It is, therefore, important that entrepreneurs evaluate what type of relationships they should maintain, consolidate, or invest in to obtain the required resources and capabilities. Entrepreneurs can obtain financial resources through their personal networks—especially if these are wide ranging and interrelated—and the associations to which they belong. They may find their technological and commercial capabilities extended if they strengthen their relationships with market agents (particularly, suppliers and customers) and may obtain organizational resources if they join associations and professional networks. Together with this, adopting a clearly defined competitive strategy (but not a reactive one) is a relevant factor for the success of small entrepreneurs.

Another implication of our study is that entrepreneurs must do their utmost to maintain and strengthen their own relationship networks and to connect with and integrate into other existing ones. As Partanen *et al.* (2008) conclude, the importance of social capital is fundamental in the different phases of a business (innovation, marketing, and sales growth). Managing and using said social capital must, therefore, remain ongoing. Yet, creating networks needs not be confined to the initiative of the entrepreneur. While large companies can create and manage their relationship networks internally, such a task is not always feasible for entrepreneurs whose networks of contacts may initially be small. In this aspect, public authorities and, more specifically, local and regional development agencies, must play an important role when it comes to facilitating entrepreneur access to or contact with the various agents. Organizing events in which businesspeople from varying sectors participate, creating specific associations at the local level in order to bring together individuals with different capabilities, or developing activities that promote relational links among neighbors or citizens in a given area are some of the possibilities for increasing local entrepreneurs' relationship networks.

Limitations and future research

This study is not without its limitations and possibilities for future research. The first limitation concerns the subjective measurement of performance. Future studies should analyze the impact of networks on performance, collecting objective data on growth, sales, and benefits. In addition, the present work defines, in broad terms, the extent to which networks offer valuable resources, which are inimitable in the case of high competitive rivalry or are substitutable over time. However, research should strive to gauge entrepreneurs' perceptions of the features of the resources afforded by each network, exploring whether contextual or idiosyncratic factors in a given sector may alter the value, imitability, and substitutability of the resources embedded in personal, associative, professional, and institutional networks.

In addition, the study was carried out on a varied sample of small entrepreneurs. A differential analysis by sectors would allow us to specify the degree to which social capital affects each type of business. A more detailed description of the strategies is also needed, bearing in mind the peculiarities of each business sector, as is an analysis of the relationship between entrepreneurs' strategies and their access to resources through relationship networks. Future research should also explore the implications of firm ownership for the type of resources accessed through networks, in particular for venture capitalists.

Our study of entrepreneurs' social capital resources was conducted in Spain, a developed economy with good market infrastructure and a stable social, political, economic, and institutional environment. It would seem feasible to replicate the study in other similar economies, such as other Euro zone countries. In a different vein, one future direction of the current research is to extend the study to other quite distinct contexts (including emerging economies), different cultural environments depending on the role of social institutions (families, social groups, associations, etc.), or countries with different transparency and efficacy in public institutions. Only then will it be possible to evaluate the generalizability of our findings. As a first step, with our sample and the available data, we would be able to carry out a comparative analysis between the subsample belonging to rural areas and the subsample belonging to urban areas.

Finally, the study could be complemented by analyzing the various dimensions of social capital (structural, relational, and cognitive social capital) in order to shed light on which features of entrepreneurs' relationship networks (size, diversity, cohesion, relational orientation, etc.) facilitate access to useful resources. The resource-based view of competitive advantage indicates that, thanks to learning effects,

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many resources and most capabilities are enhanced by use. It would, therefore, prove enlightening to analyze the formation and maintenance of networks over time, in other words, the life cycle of entrepreneurs' relationship networks.

Despite these limitations, the present study shows that entrepreneurs' economic performance is mainly influenced by professional and institutional network resources. However, the industry's competitive intensity reduces the effect of resources provided by institutional networks and increases the relevance of resources provided by personal relationships, whereas entrepreneurs' experience in the sector reinforces the impact of professional and institutional network resources.

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APPENDIX

Measurement of social capital resources

The following questions are related to your relationship networks and to those resources and abilities that are useful for running your business. We specifically refer to the following relationship networks:

Personal relationships: a group of people with whom you maintain frequent contact in your private circle, such as relatives, friends, neighbors, or acquaintances with whom you share informal social activities.

Professional relationships: a group of people with whom you are in frequent contact in your professional circle (both in your current business as well as in previous businesses or jobs), such as professional colleagues, workers in your company, partners, suppliers, distributors, clients, or workmates.

Associative relationships: a group of people who belong to the same associations as you and with whom you are in frequent contact. These may be any kind of associations such as civil rights groups, volunteer associations, cultural associations, sports associations, political parties, trade unions, women's associations, neighbors' associations, professional associations, religious groups, etc.

Institutional relationships: people with whom you maintain direct contact and who belong to public institutions (such as justice, public services, the police, politicians, public sector workers, or local, regional, national, or European Union government representatives, etc.) or to private institutions (such as large firms and banks, the church, the media, etc.).

Please indicate to what extent each of your relationship networks contributes to your obtaining each of these resources (1: the network has made no contribution whatsoever; 5: the network has made a major contribution to obtaining the resource).

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Financial resources: Funds you obtain to finance your business. These include both loans (whether personal or from a bank) as well as credit or subsidies and public aid. (*).

Contribution of each relationship network to providing access to financial resources

Personal relationships					Professional relationships					Associative relationships					Institutional relationships				
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

(*) This item is repeated for each type of resources: technology and innovation, commercial and marketing resources, quality management capabilities, human resources, and organizational capabilities.

Technology and innovation. Technologies your business uses (for example, IT tools, machinery, exploitation of patents, etc.), experience your business has in the use of these technologies, and human resources (workers in your business and external experts), skills to develop new technologies and innovations.

Commercial and marketing resources. Your firm's ability to obtain information from your environment (customers, suppliers, and competitors) and to use it to better satisfy your customers and also to attract new customers. These resources include access to information (for example, databases), sales and communication skills (for example, advertising or sales work), etc.

Quality management capabilities. Your firm's ability to design products and services, to access suppliers providing high-quality raw materials, to train employees, or to introduce quality management systems (ISO norms, etc.).

Human resources. Your team's professional quality and qualifications as well as your firm's ability to manage these human resources (attract, retain, and motivate workers).

Organizational capabilities. Your firm's ability to coordinate all the above resources (human, quality, sales, technological, and financial resources) so your business is successful and generates value. Organizational capabilities include your management skills, the ability to adapt your business to change, and the management of information and communication systems whether they are managed directly or externally (consultancy, advice).

Description of small firms' competitive strategies

Prospector strategy:

We are usually the first to enter into new ventures or to offer new ways of providing our services or new products.

We do not hesitate to enter new segments of the market if we consider they represent a business opportunity.

We like to be more innovative than our competitors, to be the 'first' to explore new opportunities, even though this sometimes means having to take on greater investment or smaller margins.

Analyzer strategy:

We are rarely the first to offer new products or services or enter new market segments. However, we are always very aware of what our competitors are doing and of how customers react to what competitors do.

As we devote part of our efforts to keeping our businesses more stable, we usually enter into new ventures in second place, but in a more efficient way (with less investment and costs) than those who entered first.

Low-cost defender strategy:

Our market (products and customers) is quite stable and we are capable of defending it with great strength compared to our competitors.

We like to focus on what we know how to do well. Thus, although we are not normally at the forefront of innovation, we manage to control our costs and offer better prices than those of our competitors.

Our business aims are focused on increasing our market share in our traditional business by offering better value for money than the competition.

(Continues)

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Appendix *(Continued)*

Differentiated defender strategy:
Our market (products and customers) is quite stable and we are capable of defending it with great strength compared to our competitors.
We like to focus on what we know how to do well. Thus, although we are not normally at the forefront of innovation, we can, therefore, manage to offer a product or service of greater quality than that of the competition, even though our prices may be somewhat higher.
Reactor strategy:
Our company does not have a clear strategy with regard to innovating in our products or services, entering new markets or especially emphasizing price or quality.
We do not anticipate the actions of the competitors nor the changes in our environment. Rather, we prefer to wait for changes to happen and for competitors 'to make their move' in order to define our actions (to innovate, enter a new market, reduce costs and prices, or enhance quality).

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