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# Properties of emerging organizations: An empirical test

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#### Abstract

The process of new venture creation is central to the field of entrepreneurship. The effects of initial organizing have a direct influence on survival, yet empirical examination of the dimensions of emergent organizations is limited. Using longitudinal data on nascent entrepreneurs, this paper empirically tests four properties of emerging organizations-intentionality, resources, boundary and exchange- and their effect on likelihood of continued organizing [Katz, J., Gartner, W.B., 1988. Properties of emerging organizations. Academy of Management Review 13(3), 429–441]. Our results suggest that all four properties are necessary for firm survival in the short-term and those firms that organize more slowly are more likely to continue to organize. Further, nascent ventures in which intentionality preceded the other organizing properties were not significantly more likely to continue in the organizing effort. Our results suggest an extension of the original Katz and Gartner [Katz, J., Gartner, W.B., 1988. Properties of emerging organizations. Academy of Management Review 13(3), 429–441] framework. © 2007 Elsevier Inc. All rights reserved.

Keywords: Emerging organizations; Cox proportional hazards model; Survival

#### 1. Executive summary

A central activity in entrepreneurship is the creation of new organizations. Organizations are defined as goal directed, boundary maintaining systems that emerge when entrepreneurs take the initiative to engage in founding activities (Aldrich, 1979, 1999; Gartner, 1985). Organizational formation is a dynamic process in which activities such as obtaining resources; developing products, hiring employees, and seeking funding are undertaken at different times and in different orders. Carrying out these activities lays the foundation for the new venture to develop unique capabilities, overcome liabilities of newness and gain the trust of constituents permitting the new venture to be perceived as legitimate (Suchman, 1995; Aldrich, 1999; Delmar and Shane, 2004). While empirical research in entrepreneurship identifies many of the activities that most new or nascent firms undertake, less work focuses on analyzing the actual dimensions of emerging organizations.

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Katz and Gartner (1988) developed a well-regarded framework that explains organizational formation by outlining the properties of emerging organizations. Starting with the assumption that organizations emerge from the interaction between individuals and the environment, they posit that four basic properties are central to organizational emergence. These properties are: *intentionality* — the purposeful effort involved in organization emergence; *resources* — the tangible building blocks of an organization; *boundary* — the creation of protected or formalized areas in which emergence occurs; and *exchange* — the crossing of boundaries to either secure inputs (e.g., resources) or outputs of the organization. While this framework is widely recognized, to date there is not a comprehensive empirical verification.

We develop four hypotheses that test this model. First, we posit that all four properties are important; second, that completeness of properties will positively influence the likelihood of continued organizing; third, the likelihood of continued organizing will be enhanced when intentions precede the other three properties; and fourth, that organizing will be more likely to continue when properties are assembled rapidly. Our paper offers empirical verification and, as our results suggest, an elaboration of the original Katz and Gartner (1988) model. Using a longitudinal database of nascent entrepreneurs from the Panel Study of Entrepreneurial Dynamics (PSED), we find that all four properties are necessary for firm survival in the short-term, but that the intention to start a venture does not necessarily precede the other three properties or increase the likelihood of continued organizing. Contrary to our expectations, results show that fledgling firms moving quickly through the process are less likely to continue organizing than those that move more slowly.

Our findings suggest that the organizing a new venture is not a patterned or linear process but rather is simultaneous, messy and iterative. This leads us to propose an extension to the original Katz and Gartner (1988) framework. While the original framework was developed as a way in which to identify the dimensions of emerging organizations, we suggest that the model should be expanded to make evident those linkages among properties that lead to intangible outcomes such as legitimacy and organizational knowledge. We propose it is these intangibles which are likely to lead to success in the product/market and hence are critical to the new ventures' survival.

# 2. Introduction

A central activity in entrepreneurship is the creation of new organizations (Gartner, 1985; Low and Abramson, 1997; Aldrich, 1999). Organizations are defined as goal directed, boundary maintaining activity systems that emerge when entrepreneurs take the initiative to engage in founding activities (Aldrich, 1979; McKelvey and Aldrich, 1983; Gartner 1985). While organization theory examines the development of exchange relationships (Stinchcombe, 1965), acquisition of legitimacy (Aldrich, 1999), and mobilization of resources (Scott, 1987) in existing or established organizations, there is considerably less research investigating the ways in which *new* organizations emerge or come into being (Gartner, 2001; Aldrich, 1999; McKelvey and Aldrich, 1983).

Organizational formation is a dynamic process in which activities such as obtaining resources; developing products, hiring employees, and seeking funds are undertaken at different times and in different orders (Gartner, 1985). While empirical studies in entrepreneurship have identified many of the activities that most new or nascent firms undertake (Reynolds and Miller, 1992; Brush et al., 2001; Delmar and Shane, 2002, 2003; Wiklund and Shepherd, 2005), research is inconclusive about the types and order of start-up activities taken by nascent firms and their likelihood of survival. At most, all we can conclude is that the more activities carried out by the nascent entrepreneur, the greater the new firm's chances of survival (Carter et al., 1996; Gartner and Carter, 2003).

If engaging in start-up activities is not a guarantee of start-up success, so then what do entrepreneurs need to do ensure their survival? To help answer this question, Katz and Gartner (1988) developed a well regarded framework that explains organizational formation by outlining the properties of emerging organizations. Starting with the assumption that organizations emerge from the interaction between individuals and the environment, they posit that four basic properties, are central to organizational emergence. These properties are: *intentionality* — the purposeful effort involved in organization emergence; *resources* — the tangible building blocks of an organization; *boundary* — the creation of protected or formalized areas in which emergence occurs; and *exchange* — the crossing of boundaries to either secure inputs (e.g., resources) or outputs of the organization. They argue that all four dimensions characterize a "complete organization" (Katz and Gartner, 1988: 433).

Only a handful of studies have tested the four properties empirically (see Reynolds and White, 1997; Reynolds and Miller, 1992; Chrisman, 1999; Kundu and Katz, 2003 for partial tests of the theoretical model). While each of these studies examines elements of the properties framework, we found no empirical research that tested the whole

framework. This is the purpose of our paper. Building on Delmar and Shane (2004) who examined the timing of activities and the influence of legitimizing activities on survival, our work considers the extent to which the existence and completeness of organizational startup properties influences the likelihood that the new venture will continue the organizing process. In doing so, we provide important empirical verification and extension of one of the most influential frameworks in the entrepreneurship literature.

## 3. Theory

## 3.1. Organizational emergence and the Katz and Gartner (1988) framework

Organizational emergence involves those activities and events before an organization becomes an organization. This is the period in the life cycle of an organization when it is "in-creation." Referred to as gestation (Reynolds and Miller, 1992), pre-launch (McMullan and Long, 1990), and birth or creation (Quinn and Cameron, 1983), this is the phase where nascent entrepreneur(s) undertakes purposeful actions to construct an organization based on his/her vision (Aldrich, 1999; Baron, 1998, 2000; Bird, 1988).

During emergence, the entrepreneur(s) brings together resources, and engages in activities which will eventually distinguish the business as an entity that is separate from the individual(s) who began the firm (Reynolds and Miller, 1992; Carter et al., 1996). Firm formation is a social process that occurs over time as entrepreneurs make connections to individuals and organizations, acquire resources outside the newly established boundaries of the firm, and engage critical stakeholders to commit to the concept of the new venture (Low and Abramson, 1997; Shook et al., 2003). It is the "territory between pre-organization and the new organization" and is defined by four basic characteristics or properties, intentionality, resources, boundary and exchange (Katz and Gartner, 1988 :429). Each of the four emergent properties is discussed below.

#### 3.1.1. Intentionality

Intentionality is "an agent's seeking information that can be applied toward achieving the goal of creating a new organization" (Katz and Gartner, 1988: 431). Organizations are created by individual actors acting purposefully (Scott, 1987), and therefore it is the intentions of the entrepreneur(s) that lead to activities involved in creating an organization (Bird, 1988; Shook et al., 2003). There are several recent conceptual and empirical studies about entrepreneurial intentions (for a comprehensive review of the new venture cognition literature, see Forbes, 1999). For example, (Kolvereid, 1997) found support for the importance of entrepreneurial intentions to start-up success, and Krueger Reilly and Carsrud (2000) studied two models of entrepreneurial intentionality finding that the decision to start a business often preceded scanning for an opportunity.

#### 3.1.2. Resources

Resources are the building blocks of an organization. They include human and financial capital, property, and equipment (Katz and Gartner, 1988:432). Resources are the endowments that the entrepreneur brings to the start-up process, such as personal funds, time and experience (Brush et al., 2001). The creation of new organizations requires the "marshalling" or "harnessing" of resources (Scott, 1987, 159–160). These resources are then used, combined, and coordinated into the production activities of the new organization (Penrose, 1957). Munificence or scarcity of resources in the environment, as well as availability and specificity can affect firm survival (Becker and Gordon, 1966; Pfeffer and Salancik, 1978). Studies examining the role of resources in new ventures find different resource configurations influence new firm success, that firm resources interact with firm strategies and that entrepreneurs "make do" with resources they have (Chandler and Hanks, 1994; Brush et al., 2001; Baker and Nelson, 2004).

#### 3.1.3. Boundary

Boundary is the "barrier condition between the organization and its environment" (Katz and Gartner, 1988:432). It is the "space" where the organization exerts some control over the resources in its environment. Boundaries can be determined by social relations, time, legal and formal contracts as well as physical and spatial considerations (Scott, 1987). As boundaries coalesce, routines and competencies can be developed within the firm that allows it to compete and cooperate (Aldrich, 1999). Boundaries of the organization are identified by transactions and information flows as the organization develops patterns of exchange (Katz and Kahn, 1978). Boundaries may be formal, as in legal form, or

informal, as in the case when the entrepreneur makes a conscious decision to found the business (Learned, 1992). Early boundary defining actions include deciding on which people to hire; how jobs are to be structured, and how new members interact with each other as well as how they interact with others outside the organization (Aldrich, 1999). Studies examining boundaries of new organizations find that in the early phases of organizational evolution structures, practices and boundaries varied widely, but tended to be informal and fluid (Bhave, 1994). Chrisman (1999) found that boundaries were created by nascent ventures early in their formation.

#### 3.1.4. Exchange

Exchange refers to cycles of transactions that occur within the organization (Katz and Gartner, 1988: 432). While exchange can occur within the boundaries of an organization, for fledgling firms, most exchanges occur across organizational boundaries. The pattern of exchange usually involves resources or inputs that are transformed into outputs (Katz and Kahn, 1978). Exchanges are inherent in the social contract that employees or participants in the organization agree to perform certain work in exchange for pay, rights or privileges (Weick, 1979). Resources are acquired through an exchange process while goods and services are produced and exchanged across boundaries of the organization (Scott, 1987).

A significant number of studies have examined individual elements of the Katz and Gartner (1988) framework, or have used the framework as a conceptual anchor (see Table 1 for a listing of the studies that most completely build off of the Katz and Gartner, 1988 framework). However, only a few researchers have systematically studied the properties of emerging organizations. Reynolds and Miller (1992) examined the gestation (defined as conception to birth) process in new firms. They found significant variation in the length, and patterns of gestation. For example, in their sample of over 3000 established firms, they found that all of the firms did not engage in what they considered to be four key events of gestation: principal's commitment, initial hiring, initial financing and initial sales. In addition, while the average gestation period was 3 years of less, some firms took as little as one month to start-up while others took up to 10 years.

Building on the Reynolds and Miller (1992) study, Carter et al. (1996) examined the start-up activities of a cross section of 71 nascent entrepreneurs. They found that fledging firms can be classified according to three activity profiles: started a business; gave up; and still trying. They showed that firms can be distinguished based on the activities of the owner/founder, and that the behaviors of successful nascent entrepreneurs are significantly different than the behaviors of those entrepreneurs who were less successful. Chrisman (1999) examined three of the properties of emerging organizations in a study of Small Business Development Center clients. He found that 78% respondents created organizational boundaries in their new ventures; that stocks of resources varied by geographic region, and that

Table 1

Author	Year	Title	Sample	Summary of findings			
Reynolds and Miller	1992	New firm gestation: conception, birth, and implications for research	3000 established firms in the United States	Studied for key events: commitment, initial hiring, initial financing and initial sales. Findings indicate substantial variation in the length and pattern of gestation period. Not all four events undertaken by all firms and no sequencing were evident			
Carter, Gartner and Reynolds	1996	Exploring start-up event sequences	71 nascent entrepreneurs in the United States	Studied 14 startup activities — findings indicate no correlation and no sequencing among activities. Entrepreneurs who do more activities were more successful			
Chrisman	1999	The influence of outsider-generated knowledge resources on venture creation	2025 nascent entrepreneurs	Looked at the moderating influence of outsider assistance and geographic location on intentions and emergence. Found outside assistance is a predictor of start-up activity and regional differences were significant			
Kundu and Katz	2003	Born-international SMEs: bi-level impacts of resources and intentions	47 born international firms in India	Findings indicate that during the early stages of development, individual, not firm characteristics play a pivotal role in firm performance			

Articles closely based on properties of emerging organizations (Katz and Gartner, 1988)

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intentions influenced the creation process. In a complete test of the Katz and Gartner (1988) framework, Kundu and Katz (2003) studied 47 born-international small and medium sized enterprises (SMEs). They found that resources, and in particular the human capital of the owner, was a significant predictor of exchange (their dependent variable), which they defined as exports.

In sum, we see several studies that examine one or more of the elements of the properties framework, while a much smaller number of studies attempt a partial empirical verification of the Katz and Gartner (1988) model. However, none of these prior studies offer researchers a rigorous, large scale, cross sectional empirical test of the complete model. Given the importance of organizational creation, and lack of understanding about the factors leading to survival of new organizations, a complete test of the viability of this framework is of interest (Amburgey and Rao, 1999). In the next section we develop a set of hypotheses to test the basic tenets of the emerging properties framework.

# 4. Hypotheses

When nascent entrepreneurs gain control over resources and shape these into ongoing exchange relations, organizations coalesce as entities (Aldrich, 1999). Similarly, when intentions, resources, boundaries and exchanges converge into a cohesive manner so that the entity is independent of its founders, the new venture will have a life of its own (Welbourne and Andrews, 1996). Katz and Gartner (1988) note that not all four properties will appear simultaneously in emerging organizations, but some aspects of these four properties must be present to identify the existence of an emerging new entity. Hence, the "four properties characterize a complete organization" (Katz and Gartner, 1988:388). In other words, the four properties of an emerging organization do not exist independently. Therefore:

**Hypothesis one:** The four properties of emerging organizations are positively associated with the likelihood of continuing the organizing effort. More specifically:

H1a: Intentionality is positively associated with the likelihood of continuing the organizing effort.

- H1b: Resources are positively associated with the likelihood of continuing the organizing effort.
- H1c: Boundary is positively associated with the likelihood of continuing the organizing effort.
- H1d: Exchange is positively associated with the likelihood of continuing the organizing effort.

Due to the ambiguity that is inherent in the start-up process, new organizations face significant selection pressure (Reynolds and White, 1997). To mitigate this, fledging firms seek to conform to standards and to formalize operations and produce outcomes as a means to gain both sociopolitical and cognitive legitimacy (Aldrich, 1999). Organizational survival depends on replicating existing roles and competencies and maintaining boundaries and exchanging resources across boundaries (Aldrich, 1999). This suggests more visible evidence of organizational dimensions (e.g., structure, resources, facilities, routines) would be better than less. Similarly, research shows that while there are many combinations of start-up activities, occurring in different orders, those nascent firms that carry out more activities are more likely to survive (Carter et al., 1996). Therefore, greater the amounts of resources, boundaries (or structural elements), exchange, and intentions together would be likely to enhance survival in fledging firms. Therefore we hypothesize:

Hypothesis two: Nascent ventures that manifest greater completeness of the four properties are more likely to continue the organizing effort.

By definition, organizations are goal directed, boundary maintaining systems (Aldrich, 1979). During emergence, the entrepreneurs' intentions guide the process of shaping the boundaries and role structures, acquiring resources to be used in producing products/services and engaging in exchanges (Shaver and Scott, 1991; Baron, 1998). While Katz and Gartner (1988) presented the four properties as equally important, theory suggests that intentionality precedes the other properties (Bird, 1988; Krueger, 2000; Shook et al., 2003).

Intentionality is "purposeful behavior" that derives from cognitive processes like sense-making, organizing and enacting realities (Katz and Gartner, 1988). At inception, the idea for a new venture resides within the individual; hence the goals of the organization will be reflected in the individual founder's intentions (Bird, 1988; Baron, 1998; 2000; Krueger, 2000). Several authors argue that intentionality must precede the successful organization of a new entity (Learned, 1992; Krueger et al., 2000; Shook et al., 2003). Chrisman (1999) argues that boundary, exchange and

resources are physical properties which, for the most part, exist outside the nascent entrepreneur while intentionality (or organizational goals) is initially in the mind of the entrepreneur.

Empirical work supports the primacy of intentions. Carter et al. (1996) found that intentions were related to entrepreneurial start-up and that the people who were more involved in the entrepreneurial process had higher intentions. Bhave (1994) showed that the decision to start a new venture preceded opportunity recognition, and that once the commitment to pursue the opportunity was made, entrepreneurs worked to refine and develop their concept. Finally, Shook et al. (2003) summarizes existing literature into a model of new venture creation, and posits that new ventures are the direct outcome of individuals' intentions and consequent actions (2003:380). Therefore without the purposeful action of the entrepreneur, it is likely that the choices regarding boundaries, exchanges and resources would not be executed. Formally:

**Hypothesis three:** Nascent entrepreneurs are more likely to continue the organizing effort when intentionality precedes the other three properties.

The new venture formation process is fraught with multiple challenges and pressures from the environment. These spring from the inherent liability of newness that all fledging firms encounter (Stinchcombe, 1965). Organizations that are accepted by their external stakeholders are more likely to be viewed as legitimate and they have a better chance of surviving (Suchman, 1995; Aldrich, 1999). However, firms must cross a "threshold of legitimacy" when making the transition from formation to survival (Churchill and Lewis, 1983; Zimmerman and Zeitz, 2002). Logically, those organizations that cross the legitimacy threshold sooner will have a better chance of surviving. Similarly, Delmar and Shane (2004) found that new ventures that engaged in activities to make their firms appear more legitimate to external stakeholders reduced the hazard of venture failure. Because new ventures are faced with attaining legitimacy within a certain competitive "window of opportunity" it is incumbent on them to accomplish start-up steps more quickly (Tyre and Orlikowski, 1994). New ventures may be perceived with distrust and skepticism, therefore the faster that multiple organizing activities are carried out, the more likely the venture may be perceived as viable (Aldrich, 1999). Therefore it stands to reason that engaging in start-up activities sooner would hasten legitimacy. As noted above, the entrepreneurs' intentional activities of creating firm boundaries, initiating exchanges and acquiring resources are all associated with achieving legitimacy. Therefore we propose that:

**Hypotheses four:** Nascent entrepreneurs are more likely to continue the organizing effort when the four properties are accumulated rapidly.

# 5. Methodology

## 5.1. Sample

The data utilized for this study were drawn from the National Panel Study of Entrepreneurial Dynamics (PSED), a longitudinal study of nascent entrepreneurs started in 1998. As part of a national survey, a total of 64,622 individuals in the United States were contacted through random digit dialing by a marketing research firm. During these telephone interviews, two questions were used to identify those individuals who were in the process of starting a new venture: (1) "Are you alone or with others, now trying to start a business?" and (2) "Are you alone, or with others, now trying to start a new venture for your employer?" Respondents who answered yes to either of these two questions were then asked two additional questions that determined whether they were actively involved in the start-up process and whether they would share in the ownership of the new venture. Positive answers to both of these questions qualified an individual as a nascent entrepreneur to be requested to participate in the national panel study. Qualifying individuals were offered a monetary inducement (\$25) for their participation.

The PSED data were collected through a series of telephone interviews conducted at approximately 1 year intervals by researchers at the University of Wisconsin. Due to a particular interest on the part of the PSED designers, funding was obtained for a national over-sampling of women and minorities. This was done to allow scholars interested in those specific populations of nascent entrepreneurs access to sufficient numbers from which to generalize.

Following the classification scheme developed by Shaver, Carter, Gartner, and Reynolds (2001), the initial sample used for the present study includes fully autonomous nascent entrepreneurs who have not received a positive cash flow from their new businesses for more than three months (n=715). Data on the start-up status from the three waves of

follow-up phone interviews were available for 583 nascent ventures, or 81.53% of the initial sample. The approximately 20% attrition rate in the PSED is comparable to similar longitudinal studies of nascent entrepreneurs in other national contexts (for example, see, Delmar and Shane, 2003, 2004). Following event history analysis procedures, we treated the subjects that dropped out of the sample as censored as of the date of nonparticipation (Delmar and Shane, 2004). We eliminated 7 cases with data entry inconsistencies, and thus report descriptive statistics for the resulting sample of 708 nascent ventures. Missing data on some of the properties and controls left a usable sample size of n=646, for which we report the results from the Cox proportional hazard estimations.

Because the sample described above involved the over-samples of women and minorities, we employed poststratification weights for each respondent based on the U.S. Census Bureau's Current Population Survey. We followed the weighting scheme developed by Shaver (2004). Additional information about the PSED dataset and the women and minority over-sample weighting scheme can be found in Gartner et al. (2004). For researchers interested in examining or using the PSED dataset, the data are available on the University of Michigan website (http://projects.isr.umich.edu/ PSED) along with a codebook of the variables.

## 5.2. Measures

Both nominal and continuous measures are utilized in this study.

#### 5.2.1. Start-upstatus

Start-up status was measured by a self-reported categorical variable, indicating whether or not the start-up effort was, at the time of the follow-up interviews, an operating business, still an active start-up, an inactive start-up, or no longer being worked by anyone, or something else. More specifically, 237 nascent ventures reported they had reached an operating status, 64 were an active start-up, 58 were inactive start-ups, 206 were no longer being worked by anyone, and 17 reported "something else". Following Delmar and Shane (2003, 2004), we coded the fourth category (no longer being worked on by anyone) as nascent venture disbanding (or failure). The other four categories were treated as continuation of the organizing effort (or non-failure). Although past research has explored a number of emergence markers, such as first sales (Reynolds and Miller, 1992), filing a federal tax return, or having a positive cash flow (Carter et al., 1996), we agree with Shane and Delmar's (2004: 774–775) argument that "the continuation of the organizing effort is a necessary condition for all other activities in new ventures." In other words, a new venture cannot attain any alternative "emergence marker" if it has been terminated.

# 5.2.2. Properties of emerging organizations

We explored the four properties of emerging organizations: intentionality, resources, boundary, and exchange, following the definitions provided by Katz and Gartner (1988: 431–433). The data on emerging organizations' properties came from PSED dataset's section on founding activities. Business founding activities are the events, behaviors, and accomplishments of individuals that lead to the emergence of new businesses (Carter, Gartner and Reynolds, 2004). We followed Gartner, Carter and Reynolds (2004) and included twenty-six start-up activities in our analysis. Twenty-five of the activities were measured by self-reported dichotomous variables indicating whether or not nascent entrepreneurs had engaged in that particular activity prior to, or at the time of, the initial and three subsequent phone interviews. One of the activities – new product development – was measured using a 5-point ordinal scale. In addition, nascent entrepreneurs who indicated they had engaged in a particular activity were asked to indicate in which year and in which month they first engaged in the activity. We combined responses from the four waves of phone interviews to track whether or not nascent entrepreneurs engaged in a start-up activity began. In some cases, there were inconsistencies between the year/month reported across phone interview waves. In these cases, we recorded the year/month reported in the earliest wave of phone interviews, on the assumption that this time was closest to the actual time the activity took place and thus the recall bias would be minimized.

Nascent entrepreneurs were also asked whether or not they had spent a long time thinking about the new venture, or if the idea came suddenly. Since 99.4% of the respondents reported they had thought about the new venture, we excluded this variable from our analysis of emerging organizations' properties, as we felt the lack of variability would unduly confound the effect of intentionality on the continuation of the organizing effort. However, we did retain the time nascent entrepreneurs first thought of their venture and used the time stamp to determine the origin of the event history analysis time scale.

We used expert opinions to classify the twenty-six founding activities into the four properties of emerging organizations. Initially, we contacted the authors of the framework and asked them to classify the twenty-six founding activities. In addition, during the 2004 Clemson University PSED Research Symposium we provided all participants with the list of the founding activities, followed by corresponding definitions of the four properties of emerging organizations, and asked them to classify the activities accordingly. We collected and then tallied 16 expert responses, and classified the activities as per the highest vote count. We resolved any ties by using the framework's authors' votes as tie-breakers.

#### 5.2.3. Intentionality

To measure intentionality we followed Katz and Gartner's (1988) identification of purposeful actions for seeking information and taking action to start the venture. It was measured by five binary variables. Nascent entrepreneurs were asked to report whether or not they had developed a business plan, identified the business opportunity, developed financial statements, started working full-time for the nascent venture, or taken workshops on starting a new venture.

## 5.2.4. Resources

Resources are the building blocks of an organization. They include human and financial capital, building and equipment (Katz and Gartner, 1988). Resources were measured by ten dichotomous and one ordinal variable. The ten dichotomous variables indicated whether or not nascent entrepreneurs had organized a start-up team, applied for a patent, acquired raw materials, acquired equipment, saved their own money, invested their own money, asked for funds, obtained credit from suppliers, arranged for childcare, or hired employees. In addition, the level of new product development was measured by an ordinal variable, ranging from 0 (no work done) to 4 (product or service ready for sale).

#### 5.2.5. Boundary

Boundary is the "barrier condition between the organization and its environment" (Katz and Gartner, 1988:432). Boundary was measured by using four self-reported binary measures, indicating whether or not nascent entrepreneurs had opened a separate bank account for the new venture, applied for a phone listing or a D&B listing, or filed an income tax for their business.

## 5.2.6. Exchange

Exchange refers to cycles of transactions that occur within organization (Katz and Gartner, 1988:432). Exchange was measured by seven dichotomous variables. Nascent entrepreneurs were asked to report whether or not they had started marketing or promotional efforts, received revenues from sales, reached a profit, paid salaries, unemployment insurance taxes, or federal social security (FICA) taxes.

#### 5.2.7. Property completeness

Property completeness was measured by summing up the counts across the four categories, ranging from 0 (no indication of any property of an emerging organization) to 26 (all twenty-six elements). We added new product development to the property completeness score if the nascent entrepreneur reported that some work had been initiated.

We used the timing of founding activities to determine whether or not intentionality properties preceded other properties. More specifically, we calculated the time in months elapsed between each of the twenty-six activities and the time of the last phone interview (October, 2003), using the formula: Month to activity<sub>x</sub> =  $12 * (2003 - Year_x) + (10 - Month_x)$ , and then found the maximum time in months, which denotes the earliest activity for each case. We then subtracted the time in months to each of the five intentionality activities from the time to the earliest activity. If all five differences were positive, that indicated that an activity other than an activity from the intentionality category was the earliest founding activity, and we coded these cases as 0. If at least one of the differences was 0, that indicated that an intentionality activity preceded other activities, and we coded these cases as 1.

Finally, we calculated the time in months between the earliest and the latest founding activity and divided it by the sum of founding activities. The quotient provided a measure of the *speed of organizing*. Higher values suggest longer time intervals between activities, and thus indicate lower speed of organizing.

# 5.2.8. Control variables

We controlled for entrepreneur, nascent venture, and industry effects. To account for the effect of nascent entrepreneur's demographic characteristics and human capital, we included controls for gender, age, education, and

Table 2 Descriptive statistics

	N	Min	Max	Mean	SD	Frequencies*		
						Yes	Percent	
Dependent variables								
Continue organizing	582	1	0	0.65	0.46	376	64.6	
Failure time	707	1	564	100.65	86.92			
Independent variables								
Intentionality								
Prepared business plan	707	0	1	0.69	0.45	494	69.8	
Identified opportunity	707	0	1	0.93	0.25	658	93.0	
Prepared financials	705	0	1	0.57	0.49	404	57.3	
Started working full-time	707	0	1	0.47	0.49	336	47.5	
Taken workshops	707	0	1	1.54	0.49	383	54.2	
Resources								
Organized start-up team	705	0	1	0.67	0.46	474	67.1	
Applied for a patent	706	0	1	0.28	0.44	198	28.0	
Bought raw materials	707	0	1	0.81	0.38	578	81.7	
Bought equipment	707	0	1	0.68	0.46	483	68.3	
Saved money	707	0	1	0.83	0.37	588	83.2	
Invested money	707	0	1	0.94	0.23	667	94.4	
Asked for funds	705	0	1	0.36	0.48	258	36.6	
Applied for a credit	707	0	1	0.50	0.50	359	50.8	
Arranged for childcare	707	0	1	0.43	0.49	304	43.1	
Hired employees	705	0	1	0.28	0.45	202	28.7	
Level of new product development	692	0	4	2.84	1.14			
Boundary								
Opened bank account	698	0	1	0.53	0.49	375	53.7	
Applied for a phone listing	706	0	1	0.30	0.45	212	30.1	
Applied for a D&B listing	707	0	1	0.07	0.26	54	7.6	
Filed income tax	704	0	1	0.41	0.49	293	41.7	
Exchange								
Started marketing efforts	707	0	1	0.70	0.45	495	70.0	
Made sale	707	0	1	0.61	0.48	436	61.6	
Reached profit	707	0	1	0.52	0.49	373	52.8	
Paid salaries	707	0	1	0.42	0.49	302	42.8	
Paid social security taxes	705	0	1	0.29	0.45	206	29.3	
Paid insurance taxes	706	0	1	0.20	0.40	142	20.1	
Property completeness	675	1	26	14.08	5.28			
Intentions precede other properties	690	0	1	0.51	0.50	353	51.2	
Speed of organizing	674	0	87.87	5.60	6.93			
Controls								
Agriculture and mining	694	0	1	0.04	0.20	29	4.1	
Manufacturing	694	0	1	0.13	0.34	94	13.5	
Transportation	694	0	1	0.04	0.20	32	4.5	
Business services	694	0	1	0.28	0.45	196	28.3	
Initial legal form: incorporated	707	0	1	0.18	0.39	133	18.7	
Gender: male	707	0	1	0.63	0.48	450	63.7	
Age	701	18	74	38.37	11.28			
Education	696	0	9	4.52	1.94			
Years work experience	696	0	60	17.02	10.77			
Level of competition	699	1	4	2.99	.825			
Price competition	699	0	4	2.49	1.079			
Serving those missed by others	697	0	4	3.08	.918			
Superior location	701	0	4	2.53	1.238			
Attractive products	699	0	4	2.40	1.207			

\*Binary variables only.

Table 3	
Correlation	matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
continue organizing	1.00														
failure time	0.06	1.00													
prepared business plan	0.10	0.04	1.00												
identified opportunity	0.09	0.02	0.19	1.00											
prepared financials	0.16	0.02	0.34	0.21	1.00										
started working full-time	0.11	0.08	0.19	0.08	0.22	1.00									
taken workshops	0.12	0.23	0.17	0.10	0.14	0.03	1.00								
organized start-up team	0.06	-0.06	0.28	0.13	0.22	0.09	0.03	1.00							
applied for a patent	0.01	0.10	0.16	0.12	0.14	0.12	0.12	0.13	1.00						
bought raw materials	0.25	0.04	0.11	0.09	0.19	0.17	0.04	0.09	0.09	1.00					
bought equipment	0.31	0.04	0.11	0.12	0.26	0.24	0.06	0.07	0.07	0.43	1.00				
saved money	0.09	0.01	0.13	0.10	0.07	0.11	0.05	0.15	0.04	0.11	0.12	1.00			
invested money	0.18	0.05	0.05	0.18	0.08	0.11	0.07	-0.07	0.07	0.38	0.28	0.10	1.00		
asked for funds	0.12	0.06	0.19	0.07	0.26	0.23	0.07	0.20	0.11	0.09	0.20	0.07	0.01	1.00	
applied for a credit	0.13	0.11	0.13	0.16	0.32	0.31	0.06	0.12	0.03	0.25	0.35	0.12	0.14	0.25	1.00
arranged for childcare	0.08	0.00	0.08	0.08	0.12	0.11	0.07	0.11	0.08	0.16	0.15	0.17	0.02	0.14	0.08
hired employees	0.23	0.10	0.20	0.07	0.29	0.37	0.04	0.13	0.14	0.23	0.34	0.07	0.14	0.28	0.29
level of new product development	0.07	0.05	0.02	0.12	0.13	0.18	-0.01	-0.03	0.00	0.24	0.22	-0.05	0.10	0.04	0.22
opened bank account	0.20	0.00	0.16	0.10	0.36	0.37	0.13	0.06	0.10	0.30	0.40	0.09	0.19	0.26	0.44
applied for a phone listing	0.17	0.12	0.14	0.08	0.27	0.35	0.11	0.10	0.12	0.18	0.29	-0.01	0.11	0.20	0.32
applied for a D and B listing	0.15	0.05	0.10	0.05	0.23	0.21	0.09	-0.02	0.07	0.11	0.17	-0.01	0.03	0.11	0.22
filed income tax	0.26	0.06	0.13	0.14	0.35	0.36	0.11	0.10	0.02	0.28	0.39	0.08	0.18	0.20	0.39
started marketing efforts	0.19	0.07	0.17	0.21	0.27	0.31	0.08	0.14	0.09	0.40	0.37	0.02	0.22	0.12	0.28
made sale	0.23	0.08	0.10	0.17	0.30	0.31	0.11	0.04	0.00	0.42	0.42	0.05	0.24	0.18	0.35
reached profit	0.35	-0.02	0.10	0.07	0.18	0.21	0.03	0.00	0.00	0.15	0.24	0.04	0.05	0.05	0.13
paid salaries	0.19	-0.02	0.18	0.02	0.18	0.21	0.03	0.10	0.05	0.04	0.09	0.07	0.03	0.09	0.12
paid social security taxes	0.19	0.08	0.14	0.08	0.31	0.35	0.11	0.09	0.07	0.21	0.33	0.02	0.15	0.28	0.33
paid insurance taxes	0.15	0.08	0.14	0.08	0.21	0.32	0.11	0.11	0.12	0.17	0.30	0.02	0.12	0.29	0.30
property completeness	0.35	0.13	0.41	0.28	0.58	0.57	0.26	0.31	0.27	0.47	0.58	0.23	0.28	0.44	0.58
intentions precede other properties	-0.07	0.06	0.10	0.02	0.12	0.01	0.22	-0.04	0.04	-0.05	-0.05	-0.16	-0.08	-0.02	-0.03
speed of organizing	0.06	0.74	-0.08	0.02	-0.09	-0.08	0.17	-0.09	-0.03	-0.06	-0.10	-0.03	-0.02	-0.06	-0.04
agriculture and mining	-0.03	-0.05	0.05	-0.11	0.08	0.05	-0.07	0.06	0.05	0.08	0.09	0.08	0.05	0.07	0.06
manufacturing	0.01	0.08	0.01	-0.02	-0.06	0.07	-0.08	0.00	0.11	0.06	0.03	0.04	-0.04	0.03	0.05
transportation	-0.02	-0.01	-0.01	-0.02	0.10	0.08	-0.03	0.01	-0.03	0.02	0.05	-0.03	0.03	0.10	0.10
business services	0.01	-0.06	-0.01	0.00	-0.04	-0.04	0.09	0.00	-0.01	-0.01	-0.08	-0.04	0.02	-0.11	-0.10
initial legal form:	0.10	0.04	0.15	0.06	0.14	0.11	0.07	0.15	0.11	0.02	0.10	0.01	0.00	0.16	0.14
andor: mala	0.00	0.11	0.01	0.00	0.04	0.04	-0.04	0.11	0.16	-0.04	0.01	0.05	0.00	0.05	0.05
gender. male	0.00	0.11	0.01	0.00	0.04	0.04	-0.04	-0.00	-0.02	-0.04	0.01	-0.07	0.00	-0.04	0.05
advantion	0.04	0.31	0.01	0.05	0.07	-0.01	0.00	-0.02	0.02	0.05	0.03	-0.07	0.05	0.04	0.12
vears work experience	0.07	0.11	0.00	0.15	0.15	-0.01	0.19	-0.02	0.08	0.00	0.03	-0.07	0.00	-0.00	0.04
loval of compatition	0.03	0.24	0.00	0.07	-0.02	0.08	0.00	-0.04	0.02	0.05	-0.03	-0.03	0.00	-0.04	-0.05
nevel of competition	-0.04	-0.09	0.03	0.02	-0.03	-0.00	-0.09	-0.01	-0.02	-0.02	-0.02	0.03	0.07	0.03	-0.05
serving those missed by	-0.00	-0.08	0.04	0.01	0.01	-0.09	-0.08	-0.01	-0.03	-0.02	-0.02	0.02	0.00	-0.01	0.05
others	-0.02	-0.03	0.02	0.02	0.00	0.02	0.00	-0.02	0.02	-0.01	0.00	0.02	0.02	-0.01	0.01
superior location	-0.03	-0.01	0.06	0.01	-0.01	-0.10	0.01	0.05	-0.02	-0.12	-0.04	0.02	-0.10	0.05	-0.07
attractive products	-0.12	-0.01	0.00	0.01	-0.02	-0.01	0.01	0.05	0.03	-0.02	-0.04	0.02	-0.05	-0.05	-0.04
and drive products	0.12	0.01	0.05	0.00	0.02	0.01	0.01	0.00	0.12	0.02	0.00	0.00	0.05	0.05	0.04

All correlations above .08 significant at p < .05 or higher.

work experience. We also controlled for the legal form of the nascent venture, as previous research has suggested corporations all less likely to be disbanded (Delmar and Shane, 2003). Following Delmar and Shane (2003) and Shane and Delmar (2004), we also controlled for four aspects of the new venture competitive strategy: the importance of price

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1.00														
0.11	1.00													
-0.04	0.14	1.00												
0.1.4	0.04	0.00	1.00											
0.14	0.34	0.28	1.00	1.00										
0.07	0.31	0.22	0.43	0.32	1.00									
0.05	0.27	0.00	0.24	0.52	1.00									
0.12	0.34	0.27	0.57	0.45	0.28	1.00								
0.09	0.25	0.24	0.38	0.33	0.15	0.38	1.00							
0.13	0.38	0.30	0.47	0.32	0.20	0.53	0.49	1.00						
0.12	0.24	0.13	0.25	0.21	0.17	0.31	0.19	0.28	1.00	1.00				
0.02	0.24	0.08	0.12	0.17	0.15	0.15	0.07	0.11	0.41	1.00	1.00			
0.12	0.39	0.21	0.41	0.41	0.20	0.38	0.20	0.45	0.27	0.20	0.62	1.00		
0.30	0.61	0.28	0.68	0.58	0.38	0.68	0.56	0.64	0.43	0.36	0.64	0.59	1.00	
-0.08	0.02	0.02	0.00	0.08	0.06	-0.02	0.05	0.01	0.02	0.07	0.03	0.03	0.04	1.00
-0.04	-0.05	0.00	-0.17	-0.02	-0.03	-0.08	-0.09	-0.08	-0.07	-0.08	-0.04	-0.05	-0.11	0.02
0.02	0.06	0.03	0.02	0.07	0.03	0.03	0.04	0.00	-0.01	0.02	0.06	0.08	0.08	0.02
0.03	0.04	0.13	-0.04 0.12	0.03	0.08	0.04	0.09	0.00	0.04	0.11	0.07	0.00	0.04	-0.03
-0.04	-0.05	-0.02	-0.01	0.00	-0.05	0.00	0.00	0.03	-0.03	-0.03	-0.03	-0.03	-0.06	0.05
-0.06	0.17	0.04	0.18	0.18	0.17	0.14	0.09	0.04	0.07	0.15	0.18	0.23	0.24	0.02
-0.06	0.03	0.00	0.00	0.02	0.00	-0.05	-0.03	-0.06	0.03	0.09	0.04	0.06	0.04	-0.03
-0.20	0.04	0.09	0.15	0.10	0.08	0.15	0.13	0.13	0.04	-0.02	0.14	0.06	0.10	0.07
-0.05	0.04	0.15	0.15	0.08	0.02	0.12	0.15	0.15	0.02	0.02	0.09	0.00	0.12	0.00
0.02	-0.02	-0.04	-0.02	-0.03	-0.01	-0.03	-0.02	-0.06	0.08	0.03	-0.03	-0.03	0.01	-0.04
0.06	-0.06	-0.10	-0.08	-0.04	-0.05	-0.09	-0.06	-0.09	-0.04	-0.01	-0.08	-0.05	-0.05	-0.03
0.04	0.00	-0.01	-0.01	-0.02	0.01	-0.04	0.02	0.05	-0.03	0.00	-0.06	-0.07	0.01	0.05
0.04	-0.04	-0.12	-0.07	-0.05	-0.05	-0.10	-0.07	-0.05	-0.11	0.02	-0.07	-0.01	-0.06	-0.03
-0.02	-0.10	-0.13	-0.13	-0.15	0.00	-0.20	-0.04	-0.12	-0.12	-0.04	-0.20	-0.08	-0.11	0.00

(continued on next page)

competitiveness, serving those missed by others, superior location, and attractive product/service. These were measured using five-point ordinal scales, where 0 = not applicable, 1 = insignificant importance, 2 = marginal importance, 3 = important, and 4 = critical. We also introduced four industry dummies, which measured industry effects

Table 3 (continued)

Variable	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
continue organizing															
failure time															
prepared business plan															
identified opportunity															
prepared financials															
started working full-time															
taken workshops															
organized start-up team															
applied for a patent															
bought raw materials															
bought equipment															
saved money															
invested money															
asked for funds															
applied for a credit															
arranged for childcare															
hired employees															
level of new product															
development															
opened bank account															
applied for a phone listing															
listing															
filed income tax															
started marketing efforts															
made sale															
reached profit															
paid salaries															
paid social security taxes															
paid insurance taxes															
property completeness															
intentions precede other															
properties															
speed of organizing	1.00														
agriculture and mining	-0.08	1.00													
manufacturing	-0.01	-0.08	1.00	1.00											
transportation	-0.04	-0.05	-0.09	1.00	1.00										
business services	-0.01	-0.13	-0.25	-0.14	1.00										
initial legal form: incorporated	-0.02	0.03	0.05	0.05	0.01	1.00									
gender: male	0.05	-0.01	0.17	0.00	0.01	0.09	1.00								
age	0.20	-0.07	0.02	0.07	0.03	0.06	-0.08	1.00							
education	0.08	-0.16	-0.10	0.00	0.13	0.17	-0.07	0.21	1.00						
years work experience	0.18	-0.08	0.05	0.06	0.05	0.09	0.07	0.79	0.12	1.00					
level of competition	0.02	0.02	-0.03	-0.01	-0.01	0.02	0.07	-0.11	0.00	-0.10	1.00				
price competition	-0.08	0.04	0.02	0.02	0.00	-0.07	0.10	-0.19	-0.13	-0.11	0.11	1.00			
serving those missed by others	-0.11	0.07	-0.09	0.00	-0.04	-0.06	-0.01	-0.13	0.06	-0.11	-0.01	0.11	1.00		
superior location	0.04	0.03	-0.13	-0.03	-0.17	0.02	-0.10	-0.07	0.03	-0.06	0.04	0.17	0.12	1.00	
attractive products	-0.02	-0.01	-0.02	-0.01	-0.12	-0.02	0.00	-0.06	-0.05	-0.08	0.13	0.08	0.13	0.14	1.00

relative to the baseline category of consumer services. Another aspect of the industry environment we controlled for was the level of competition. Following Delmar and Shane (2003, 2004), we measured industry competitiveness with a four-point ordinal scale, where 1 = expect no competition, 2 = expect low competition, 3 = expect moderate competition, and 4 = expect strong competition.

# 6. Results

#### 6.1. Descriptive statistics

About two thirds of the nascent entrepreneurs in the sample were male, and 66.9% were white. Age ranged between 18 and 74 years, with a mean of 38.37 years. Seventy-four percent of the sample had at least some college education. Work experience ranged between 0 and 60 years, with a mean of 18.11 years. The nascent entrepreneurs contemplated entry into five industrial sectors, with the most popular sector being consumer services (49.7% of the nascent entrepreneurial ventures). Only 18.70% of the nascent ventures were incorporated as S-corporation or C-corporation. Slightly over a third of the nascent businesses had disbanded during the time of the study and the remaining two-thirds were continuing the organizing effort.

The nascent businesses varied widely in the types of elements and completeness of emerging organizations' properties, with counts in the "Intentionality" and "Resources" categories generally higher than the counts in the "Boundary" and "Exchange" categories. Thus, 93% of the nascent entrepreneurs had identified the business opportunity and 94.4% had invested their own money in the nascent venture, but one in twelve had applied for a D&B listing, and one in five had paid insurance taxes. Over 60% of the nascent ventures in the sample had generated revenues from sales during the period of the study, and for over half of the sample monthly revenues exceeded monthly expenses. Overall, nascent ventures had accumulated slightly over half of the twenty-six property items we tracked in this study, with an average of slightly less than six months from one activity to another. The sample was approximately equally split between nascent entrepreneurs for whom intentions preceded other actions (51.20%) and vice versa (48.80%).

Table 2 presents the descriptive statistics and Table 3 presents the correlations for all variables used in the statistical analysis.

## 6.2. Analytical procedure

To estimate a model of factors that influence the hazard (or risk) of a nascent venture disbanding, we used the statistical technique of failure time analysis; more popularly know as an event history approach. By taking into consideration both the occurrence and the timing of an event while simultaneously estimating the effects of exogenous factors, event history analyses offers two advantages over multiple regression for the study of longitudinal data. First, it handles censored data, or events that the subjects under observation have not experienced before the end of the observation period. Over 65% of the nascent ventures in our sample were continuing the organizing effort at the end of the study, but could experience disbanding at some point in the future. Previous research shows that such a large number of censored cases can produce substantially biased estimates (Tuma and Hannan, 1978; Vermunt, 1996). Second, event history analysis effectively handles life-cycle dependent variable measures. The endogenous variable or "time to event" is specified not in real time, but in time forgone since a triggering event and is often referred to as "waiting", "failure", or "spell" time. In our study, the nascent venture's disbanding is life-cycle dependent, and so is more meaningfully compared in terms of the year and month in the life of the nascent venture than in historical calendar time.

Following similar empirical research (Romanelli, 1989; Khavul, 2000), this study uses the Cox proportional hazards model to estimate the likelihood of an event occurring at any point in the life of the nascent venture, given that the event has not occurred until that point. Compared to parametric models, the semi-parametric Cox proportional hazard model does not require the researcher to specify a baseline relationship between time and failure (event) rates (Allison, 1984), which is an important advantage, given the early stage of theoretical development on pre-founding failure rates (Amburgey and Rao, 1996). Analyses were performed using the Cox Regression Survival procedure in STATA, implementing the Breslow method for ties. Sampling weights were introduced to correct for sampling design (Shaver, 2004).

The general form of the simple one predictor Cox regression is as follows:  $h(t) = [h_0(t)] e^{(BX)}$ , where X is the independent variable (covariate), B is the regression coefficient and t indicates the time to the event occurring. Here  $h_0(t)$  is the baseline hazard function which estimates the expected risk of an event occurring without the presence of the covariate; while  $e^{(BX)}$  is the hazard ratio which indicates the shift of the baseline function, or the increase or decrease in the risk of the event occurring when the covariate is included. Individual item HR (Hazard Ratios) report exponentiated

coefficients  $e^b$ , rather than coefficients b. Computing  $100 * [e^b - 1]$  gives the percentage change in the hazard with each unit change in the explanatory variable. For dichotomous variables, the computation provides the relative hazard for the groups corresponding to values of the dummy variable (Allison, 1984). In addition, Wald's  $\chi^2$  statistic tests the omnibus

Table 4

COX regression estimates on likelihood of nascent venture disbanding: joint effects of property categories (n=641)

Variable	Hazard ratio	S.E.			
Controls					
Agriculture and mining	1.98 <sup>a</sup>	.78			
Manufacturing	0.79	.22			
Transportation	1.65	.54			
Business services	1.23	.25			
Initial legal form: incorporated	0.71	.20			
Gender: male	0.82	.14			
Age	0.95 *	.01			
Education	0.98	.04			
Years work experience	1.01	.01			
Level of competition	0.72 **	.08			
Price competition	1.10	.09			
Serving those missed by others	0.99	.10			
Superior location	0.93	.07			
Attractive products	1.07	.07			
Intentionality					
Prepared business plan	0.80	.16			
Identified opportunity	2.19 ***	.82			
Prepared financials	1.12	.21			
Started working full-time	1.16	.22			
Taken workshops	0.54 *	.10			
Resources					
Organized start-up team	1.39 <sup>a</sup>	.25			
Applied for a patent	0.98	.19			
Bought raw materials	0.74	.18			
Bought equipment	0.68 <sup>a</sup>	.15			
Saved money	0.86	.22			
Invested money	0.53 ***	.17			
Asked for funds	0.85	.15			
Applied for a credit	0.74	.14			
Arranged for childcare	0.76	.12			
Hired employees	0.77	.21			
Level of new product development	0.96	.07			
Boundary					
Opened bank account	2.46 *	.57			
Applied for a phone listing	0.96	.23			
Applied for a D&B listing	0.61	.28			
Filed income tax	0.64 <sup>a</sup>	.17			
Exchange					
Started marketing efforts	0.78	.16			
Made sale	1.23	.27			
Reached profit	0.43 *	.09			
Paid salaries	0.69 <sup>a</sup>	.14			
Paid social security taxes	1.56 <sup>a</sup>	.41			
Paid insurance taxes	0.91	.28			
Regression function	Tests of joint significance				
Log pseudolikelihood -985.7565	Intentionality $(df=5)=18.20$ **	Boundary ( <i>df</i> =4)=16.26 **			
Wald chi square ( <i>df</i> =40) 144.61 *	Resources $(df=11)=33.82*$	Exchange $(df=6)=32.79*$			

<sup>a</sup> Significant at p < .1.

\* Significant at p < .001.

\*\* Significant at p < .01.

\*\*\* Significant at p < .05.

null hypothesis that all regression coefficients are equal to zero. Following Delmar and Shane (2003, 2004), we chose the time of initiation of the first founding activity as the origin of our time scale. The "spell" time is the number of months elapsed from the initiation of the first founding activity to the time of nascent venture disbanding. For the right-censored firms (e.g., those that continued their organizing effort at the end of the observation period), we recorded the "waiting period" or the minimum time for which we know no event occurred. The waiting period, or "failure time," "qualified by the knowledge of whether or not a firm experienced an event" became the dependent variable in the failure time analysis (Schoonhoven et al., 1990: 195).

# 6.3. Hypothesis testing

Table 5

Hypothesis one predicted that each of the four properties of nascent ventures affected the likelihood of continuing the organizing effort. As the interest here is in the joint significance of the items under each of the property categories, we specified four chi-square ( $\chi^2$ ) tests, each of which checked the probability that the regression coefficients under the corresponding property category are equal to zero (Allison, 1984).

The results from the testing of Hypothesis one are presented in Table 4 and suggest each of the four blocks of covariates is jointly significantly different from zero, rendering support for Hypotheses 1a, 1b, 1c, and 1d.

Hypothesis two predicted that property completeness will be positively associated with the continuation of the organizing effort. As results presented in Table 5 show, each additional activity the nascent venture initiates towards the completion of the four properties decreases the hazard of new venture disbanding by 8.5% in any given month the nascent venture has not yet been disbanded. This result lends strong support for Hypothesis two.

Hypothesis three predicted that the likelihood of the nascent venture continuing the organizing effort will be greater when "Intentionality" precede other properties. This hypothesis was not supported. As results in Table 5 show, whether or not "Intentionality" properties preceded other founding activities had no significant effect on the risk of nascent venture disbanding.

Variable	Completeness (n	=641)	Intentionality (n=	=652)	Speed $(n=640)$		
	Hazard ratio	S.E.	Hazard ratio	S.E.	Hazard ratio	S.E.	
Controls							
Agriculture and mining	1.83 <sup>a</sup>	0.63	1.25	0.46	0.83	0.39	
Manufacturing	0.72	0.19	0.72	0.20	0.53 *	.116	
Transportation	1.72 <sup>a</sup>	0.50	1.37	0.47	1.17	0.33	
Business services	1.19	0.22	1.31	0.23	1.25	0.24	
Initial legal form: incorporated	0.88	0.21	0.65 <sup>a</sup>	.115	0.68 <sup>a</sup>	0.15	
Gender: male	0.84	0.13	0.76 <sup>a</sup>	0.12	0.78	0.13	
Age	0.96 **	0.01	0.96 **	0.01	.95 ***	0.01	
Education	0.98	0.04	0.95	0.03	0.95	0.04	
Years work experience	1.01	0.01	1.00	0.01	1.02 *	0.01	
Level of competition	0.77 *	0.07	0.76 **	0.07	.76 *	0.07	
Price competition	1.05	0.07	1.05	0.07	00.95	0.07	
Serving those missed by others	1.02	0.10	0.96	0.09	0.85	0.08	
Superior location	0.94	0.06	0.98	0.07	1.06	0.07	
Attractive products	1.07	0.07	1.15 *	0.07	1.07	0.07	
Property completeness	0.91 ***	0.01					
Intentions precede other properties			1.00	0.15			
Speed of organizing					0.87 ***	0.02	
Regression function							
Log pseudo likelihood	-1021.9622		-1040.5761		-984.8042		
Wald chi square $(df=15)$	66.77 ***		33.18 ***		68.90 ***		

COX regression estimates on likelihood of nascent venture disbanding: effect of property completeness, intentionality and speed

<sup>a</sup> Significant at p < .1.

\* Significant at p < .05.

\*\* Significant at p < .01.

\*\*\* Significant at p < .001.

Hypothesis four predicted the speed of organizing will be positively associated with the likelihood of the nascent venture continuing the organizing effort. Surprisingly, the test revealed the opposite effect. Each additional monthly interval between founding activities decreased the likelihood of the venture disbanding by 12.6% in any given month the nascent venture continued to exist. Results are presented in Table 5.

In sum, this study shows strong support for the Katz and Gartner (1988) framework in that all properties must be present, and the more complete the properties then the more likely organizing efforts will continue. Yet, contrary to our expectations and recent social cognitive theory, the precedence of intentions had no effect on likelihood of disbanding. Further, those ventures proceeding more slowly were more likely to continue organizing. The following section discusses our results.

#### 7. Discussion

The objective of this paper was to empirically test the Katz and Gartner (1988) properties framework. Using longitudinal data on nascent organizations we empirically tested the four properties of emerging organizationsintentionality, resources, boundary and exchange-and their effect on likelihood of continued organizing (Katz and Gartner, 1988). In so doing we have developed a number of insights into the start-up process, thereby providing empirical verification as well as an extension to the original framework. Our findings suggest a number of contributions in three key areas, validating and extending the original framework, entrepreneurial cognition, and that slower organizing is more effective. Each of these is discussed below.

## 7.1. Validating and extending the Katz and Gartner (1988) framework

Consistent with the original tenets of the Katz and Gartner (1988) framework, our findings show strong support for the importance of all four properties to the likelihood an organization will continue the organizing effort. Given the amount of empirical work on new venture start-ups that used the properties framework as a conceptual anchor; finding support for this framework is an important empirical contribution.

The validation of this framework suggests that continued organizing depends on the bringing together of certain tangible organizational dimensions. However, in critically examining the 1988 properties framework, we found a number of dimensions missing. First, the resources identified in Katz and Gartner (1988) are inherently tangible and physical (e.g., physical equipment, money and raw materials). There is considerable theory suggesting intangible resources are crucial to the development of a nascent organization (Dollinger, 2002). For instance, the unique knowledge of the entrepreneur (based on work experience, education) is the foundation of knowledge development in the new organization (Aldrich, 1999). These emerging cognitive resources encompass both structure and content of knowledge and can be manifested in expertise (e.g., know how), information (e.g., data bases) or technology (e.g., intellectual property) (Hall, 1992, 1993). Cognitive knowledge influences how the entrepreneur thinks about organizing and ultimately affects the structure of the organization, as such; knowledge is an intangible resource that might be investigated relative to organizational properties.

Social capital is another intangible resource that might be explored. The entrepreneur's social capital is embedded in the structure and content of social relations (Davidsson and Honig, 2003). For nascent entrepreneurs, social capital is derived from family, community, social and business relationships. These ties are in effect an intangible resource of the organization (Honig, 2001).

Besides the notion of intangible resources, in the original framework there is no mention of activities which lead to organizational legitimacy. It is generally recognized that new ventures are founded by entrepreneurs who identify an opportunity in the product/market arena to satisfy a perceived market demand. But, their success in the marketplace is inherently tied to the ability of the new venture to be perceived as legitimate by its stakeholders (Suchman 1995; Aldrich, 1999). This means new firms must overcome the triple challenges of the liability of newness at initial founding (Stinchcombe, 1965), developing unique capabilities or competences or re-combinations that are superior to existing competitors (Schumpeter, 1934); and gaining trust and acceptance of their constituents (Delmar and Shane, 2004). Without a perception of legitimacy, new ventures face challenges initiating exchanges with outside stakeholders to gain needed resources (Bird, 1988). In other words legitimizing activities requires entrepreneurs to create structures and procedures that, in the language of the Katz and Gartner (1988) framework may become boundaries or barrier conditions (Katz and Kahn, 1978). Additional explication with respect to which activities lead to enhanced legitimacy

along with providing a clear connection between those activities and the continuation of the start-up effort would fruitfully extend the original framework.

## 7.2. Entrepreneurial cognition

Extensive work in the cognitive area argues that entrepreneurial intentions guide actions for new ventures (Bird, 1988; Krueger, 2000; Shook et al., 2003). However, contrary to the existing theoretical work, our study indicates that for organizations that are likely to continue the organizing effort, the intention to start a new business does not precede the other three properties (i.e., exchange, resources and boundary). One possibility is that current theory argues for *individual* intentions to precede opportunity identification and entrepreneurial action (Bird, 1988; Krueger, 2000; Shook et al., 2003). In this thinking, intention is a "conscious state of mind that directs attention (and therefore experience and action) toward a specific object (goal) or pathway to achieve it (means). Most current theory about intention focuses primarily on the individual perspective. While it is difficult to separate the entrepreneur from the emerging organization, the intention as defined by Katz and Gartner (1988) reflects activities that are outcomes or manifestations of individual's intentions to create a business. In other words, *individual* intentions guide actions to assemble organizational properties, one of which is organizational intention.

Our results show that organizational intention does not precede the other properties. This finding provides an interesting insight into the process of starting a new venture. Unlike literature that views start-up as a linear process (Hanks et al., 1994), our findings suggest that start-up is non-linear and that intentionality is dependent upon the other three properties (i.e., boundaries, exchanges, and resources). In other words, intentionality dimensions (i.e., writing a business plan, preparing financial statements, and identifying an opportunity) must be carried out interactively and in conjunction with the processes of gathering resources, starting marketing efforts or organizing a team. This suggests that the properties of an emerging organization are assembled in an interactive fashion and the process of organizing is simultaneous and iterative, rather than linear (Lichtenstein et al., 2004; Katz and Gartner, 1988).

## 7.3. Slower organizing is more effective

Finally, contrary to our expectations, we found that nascent organizations that take more time to accumulate properties tend to continue the organizing effort more often than those that go through the organizing process more quickly. This implies that the process of bringing properties together may also provide the opportunity for the entrepreneur to learn, to reflect and gain knowledge (Aldrich, 1999). Further, deliberate and careful organizational development may yield more solid business knowledge and lead to organizational capabilities which may result in greater credibility in the eyes of stakeholders.

Yet, this finding contradicts the literature on growing organizations. Empirical studies of growing firms show that enactment time affects growth, and that rapid growth firms carry out activities simultaneously (Fischer et al., 1993). It is possible that growing firms must act more swiftly to meet product market demands where being the first mover matters. However, when the firm is still in the organizing phase, and is not yet a going concern, our study suggests that entrepreneurs would be better served to take the time to thoroughly research and understand the desired product/market, and solidify the vital relationships with potential customers and suppliers, and in particular, to gain credibility from stakeholders and resource providers. This also follows Dierickx and Cool (1989) who suggest that time compression diseconomies imply that asset accumulation cannot be rushed. It seems plausible that the time spent upfront in organizing at the new venture stage, may facilitate faster growth later. In other words, our findings argue for effectiveness, in that doing things right is the better course for nascent firms, rather than simply doing things fast.

## 8. Implications and conclusions

Using longitudinal data on nascent entrepreneurs, this paper empirically tests the effects of the four properties of emerging organizations-intentionality, resources, boundary and exchange, as identified by Katz and Gartner (1988), on the likelihood of continued organizing. Our findings suggest that all four properties are necessary for firm survival in the short-term and those firms that organize more slowly are more likely to continue the organizing effort. Further, nascent ventures in which intentionality preceded the other organizing properties were not significantly more likely to continue the organizing effort.

We do note a few limitations to our study. In particular, the choice of the underlying categories of the dependent variable are subject to debate. For example, Gartner and Carter (2003) consider four start-up status categories: "operating", "still trying", "currently inactive", and "disbanded", Lichtenstein, Carter, Dooley, and Gartner (2004) collapse the "currently inactive" and "disbanded" categories into one and consider three categories: "succeeded", "ongoing", and "failed", Carter, Gartner, and Reynolds (2004) consider "operating" and "still active" versus the other categories. As such, some might argue that a different categorization of groups might be more appropriate. However, we felt that more consistency would be achieved by building on research (Delmar and Shane 2003, 2004) that analyzed many of the same variables that we used. Another issue has to do with the nature of the PSED data set which has a semi-survivor bias. To minimize both limitations, we included more control variables than previous research and ran a sensitivity analysis for firms 12 months and 24 months old.<sup>3</sup>

Our findings suggest an extension of the original Katz and Gartner (1988) framework. The original framework was intended to provide a set of criteria to help researchers identify nascent firms. However, Katz and Gartner (1988) do not move beyond tangible aspects of organizing to look at less tangible activities or outcomes. Therefore, a possible extension to their model would be an explicit identification of those activities which would lead to outcomes such as increased organizational legitimacy or enhanced organizational knowledge. In doing so, we suggest that the original framework could move beyond simple identification of firms to include dimensions that affect the short and long term survival of new organizations.

The Katz and Gartner (1988) framework has influenced the entrepreneurship research on starting new ventures. It has provided scholars with a much needed conceptual framework on which to anchor their studies. Our study adds to the new venture creation literature by providing empirical verification to the model and by suggesting theoretical extensions. By verifying and extending this framework, we provide future researchers with a set of fruitful avenues to explore when examining start-up processes.

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<sup>&</sup>lt;sup>3</sup> To test for sensitivity to the underlying categories of the dependent variable, we reran all tests on an alternative dependent variable measure, which classified the "currently inactive start-ups" as "disbanded". The results were highly consistent with our baseline model, from which we concluded that our model specification is robust to whether or not "currently inactive start-ups" will be considered as "disbanded" or "continuing". To test for sensitivity to semi-survivor bias (Gartner and Carter, 2003; Gartner et al., 2003, 2004), we reran all statistical analyses on the 12-month (n = 132) and 24-month sample (n = 242). We found the joint effect of the "boundary" category items to be non-significant in both the 12-month and 24-month sample. In addition, the joint effect of the "intentionality" items was significant in the 24-month sample, but not in the 12-month sample. The results from the other three tests (i.e., the effect of property completeness, intentionality, and speed of organizing) were consistent across the three samples. Taken together, the results from our sensitivity analysis suggest that results are sensitive, but not terribly sensitive, to the sampling frame. The results are available from the authors upon request.

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