

Faculty & Research Working Paper

**Agency in Action:
Entrepreneurs' Networking Style
And Initiation of Economic Exchange**

Agency in Action: Entrepreneurs' Networking Style and Initiation of Economic Exchange

by
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Agency in action: Entrepreneurs' networking style and initiation of economic exchange

Abstract

This multi-method study investigates the effects of entrepreneurs' interpersonal networking style on the initiation of interorganizational exchange ties. I use inductive theorizing to make a distinction between interpersonal networking actions aimed at adding new contacts (network broadening actions) versus managing existing contacts (network deepening actions). I reason that because networking actions alter the cost-benefit calculus of using referrals, the extent to which entrepreneurs rely on referrals when searching for new exchange partners should vary with their networking actions. I then propose that entrepreneurs are likely to add fewer new exchange partners when they rely more on referrals to search. The empirical analysis employs a longitudinal design using data coded from the business cards of new contacts formed over a two-month period by a panel of Indian entrepreneurs operating business-to-business ventures. This study makes a theoretical contribution by identifying decision makers' networking style as a distinct mechanism shaping partner selection for their organization. Specifically, the study shows entrepreneurs using more network deepening actions initiate fewer new economic exchanges, due (in part) to their increased reliance on referral-based search; whereas entrepreneurs using more network broadening actions initiate more new economic exchanges due (in part) to their decreased reliance on referral-based search.

Key words: entrepreneurship; networking behaviors; personal networks; network evolution

Network ties between organizations are ubiquitous and important because they enable organizations to access resources that may otherwise be difficult to develop or acquire (Brass et al. 2004, Burt 1992, Granovetter 1985, Podolny 1994, Powell et al. 1996, Uzzi 1996). Recognizing the importance of such exchange ties in influencing organizational behavior and performance, scholars have explored the dynamics by which an organization's ties evolve over time (Ahuja 2000, Gulati 1995, Gulati and Gargiulo 1999). This research emphasizes the importance of prior social structure and paints a picture of actors hemmed in by that structure and thus forming new ties that are largely "local":¹ organizations tend to repeat ties with their past partners or form new ties with their current partner's partners (tie transitivity). Although unobserved, an important causal mechanism underpinning tie transitivity is the process of referral from decision makers of the current partner organization that connects the focal organization and new partner (Gulati and Gargiulo 1999).

Network ties are important to all organizations, but they are especially crucial for new ventures, whose liabilities of newness and smallness (Stinchcombe 1965) can be mitigated through network ties (Hite and Hesterly 2001, Larson 1992). Specifically, new ventures that add exchange partners quickly are more likely to survive environmental jolts (Venkataraman and Van de Ven 1998) and to experience superior performance (Baum et al. 2000). Research on new ventures' tie evolution mirrors the findings of network dynamics of established organizations, although the drivers are often the founding entrepreneur's personal networks—the set of individuals (*alters*) with whom the entrepreneur (*ego*) has direct interpersonal relations—and the relations between alters (Aldrich and Zimmer 1986). Thus Shane and Stuart (2002) and Hallen (2008) find that new ventures whose founders had either past direct ties or indirect ties (i.e., connected by a common third party) to investors are more likely to secure venture capital funding. Likewise, Shane and Cable (2002) show that prior indirect ties between founders and seed-stage investors positively influenced the latter's decision to fund the new venture. Again, although unobserved, one of the causal mechanisms advanced for the importance of indirect ties is a referral

¹ Recent research has shown that discrepancy from performance aspirations (Baum et al. 2005), firm-specific uncertainty (Beckman et al. 2004), and industry fads (Sorenson and Stuart 2008) are important drivers of "nonlocal" ties.

process whereby the founder's personal network contact (the referee) connects her to the targeted exchange partner. The referral is valuable to the focal entrepreneur because it provides access to and better information about the targeted exchange partner and because it leads to accelerated trust formation with the target.

This picture of actors hemmed in by the inertial forces of prior network structure has long been subject to the critique (Emirbayer and Goodwin 1994, Emirbayer and Mische 1998) that actors can engage in reflexive choice and demonstrate agency. Specifically, the notion of relatively "passive" entrepreneurs relying on referrals from pre-existing personal network contacts to add new exchange ties for their venture is problematic for three reasons. First, it's at odds with ethnographic accounts (e.g., Nohria 1992) of entrepreneurs' energetic management of their personal network. More broadly, there is increasing realization by network scholars (e.g., Kilduff and Tsai 2005) that specifying actor-level differences in how personal networks are built could be a way to make theoretical progress. Although recent research has begun to examine individual differences in how entrepreneurs use symbolic management actions (Zott and Huy 2007) or negotiating strategies (Hallen and Eisenhardt 2008) to initiate relationships with exchange partners, it doesn't address entrepreneurs' networking actions. Hence, examining variation in networking *actions*—behavioral repertoires in the formation and management of interpersonal ties—rather than personal network *structure* as a driver of exchange partner search may shed useful light on agency in networks.

Second, extant research assumes referrals have no downsides. In other words, it stresses only the benefits to the focal entrepreneur of using referrals to search for new exchange partners (Shane and Cable 2002). However, referrals also impose costs on the entrepreneur, such as increased obligations to the referee (Coleman 1990), greater constraint in the potential relationship with the target (Krackhardt 1999), and potentially limiting the search to a narrower segment of the opportunity space. These issues are assumed away in the literature. I argue that particular types of networking actions alter the cost–benefit calculus of using referrals and thereby cause entrepreneurs to be more or less reliant on referrals when searching for new exchange ties.

Third, the generalizability of findings from prior research on the benefits of referrals to entrepreneurs is unclear. Prior research has found that referrals significantly predict success in venture financing efforts (Shane and Cable 2002, Shane and Stuart 2002). However, venture financing may be a special type of exchange tie. In the context of venture financing, investors are typically flooded with funding requests from many ventures of unknown quality and incur high fixed costs of due diligence. In such a setting, referrals could be valuable as an effective (albeit noisy) initial filtering mechanism that enables focus on more promising entrepreneurs. However, the importance of referrals to entrepreneurs is less clear in other types of exchange ties such as (say) buyer–supplier ties, where risks in exchanging with strangers could be mitigated by initiating small exchanges that progressively grow as trust is built in a manner described by Larson (1992).

To address these gaps in our understanding of the use of referrals to search for exchange partners, I explored two related questions: How does an entrepreneur's networking action influence her reliance on referrals when searching for new interorganizational exchange partners? And how does reliance on referrals influence the addition of new exchange partners for the venture? I answered these questions by first inductively conceptualizing networking actions. With the aid of rich, qualitative data on nine Indian entrepreneurs' networking actions, I propose that entrepreneurs' networking behaviors can be succinctly described through two formative constructs: (1) network broadening actions, by which entrepreneurs add new interpersonal ties; and (2) network deepening actions, by which entrepreneurs manage existing interpersonal ties. I then draw on the costs and benefits of referrals to lay out deductive arguments on how these two networking actions drive entrepreneurs' reliance on referrals when searching for exchange partners and on the performance consequences of such search (i.e., the initiation of new economic exchange).

I tested the deductive arguments using a novel longitudinal research design to follow a panel of 75 entrepreneurs running early growth stage, business-to-business (B2B) ventures in the knowledge intensive sectors of the Indian economy. I first measured entrepreneurs' networking actions and subsequently observed their search for new exchange partners over a two-month period (Phase I) using

data coded from the business cards of the new people with whom they interacted. Twelve months after the end of this phase, I observed whether economic exchange had been initiated between the focal venture and the organizations represented by the new people encountered during Phase I. This unique research design, which involved four rounds of data collection over a 15-month period, provides the basis for the causal claims made in this multi-method study.

This paper contributes to two literatures. First, it makes a contribution to the literature on partner selection by providing robust evidence that organizational decision makers' networking actions are a distinct mechanism that influences the formation of new interorganizational partnerships. Second, it contributes to the literature on personal networks and entrepreneurship by conceptualizing and measuring actions that decision makers take to shape their personal network.

ENTREPRENEURS' PERSONAL NETWORKS

Scholars view the personal networks of entrepreneurs as conduits for the flow of relevant, valuable resources from alters to the focal entrepreneur (Aldrich and Zimmer 1986). Researchers have examined how the structure and quality of personal networks affect this flow of resources and thus influence outcomes during the early years of a new venture. Personal network *structure* (measured by network density or structural holes) as well as network *quality* (measured by tie strength or the proportion of strong ties) have been shown to predict important entrepreneurial outcomes such as acquiring competitive capabilities (McEvily and Zaheer 1999), venture growth (Vissa and Chacar 2009), access to financing (Shane and Stuart 2002), and access to other resources (see Hoang and Antoncic 2003 for a comprehensive review). However, this research assumes away differences in the extent to which individual actors form new ties or manage existing ones. A growing stream of literature on employees' networks inside established organizations and in entrepreneurship examines individual differences in how actors shape their personal networks.

Research on employees' networks that examines individual differences can be categorized into two streams. The first stream of research has focused on how relatively unalterable personality traits, such

as self-monitoring (Mehra et al. 2001) or Big Five personality traits (Klein et al. 2004), affect individuals' network structural position and career success. A second stream of research examines more directly the impact of individuals' behaviors as they relate to tie formation. Thus, Obstfeld (2005) finds that employees who were more oriented to initiating tie formation between their existing network contacts (termed *tertius iungens* orientation) were more likely to have greater involvement in organizational innovations. Similarly, Shipilov et al. (2007) show that employees who form new ties at informal events rather than at formal associations had more successful careers due to greater range social capital.

In tandem with research on employees' networking behaviors, a few studies have started to examine entrepreneurial actions related to tie formation, using a grounded theory approach. Thus, Zott and Huy (2007) provide evidence that entrepreneurs engaging in more skilful and varied symbolic actions — defined as actions that convey socially constructed meanings beyond their functional use — were more successful in gaining resources from resource holders. Likewise, Hallen and Eisenhardt (2008) outline entrepreneurial negotiating strategies that lead to quicker and successful formation of interorganizational investment relationships. Each of these process-oriented studies provides a rich model of interorganizational tie formation, but neither addresses how entrepreneurs manage existing interpersonal relationships or the possible trade-offs (or synergies) between forming new interpersonal relationships and managing existing ones. Because an entrepreneur's stock of resources (e.g., time and energy) is limited, *jointly* examining both formation of new interpersonal ties and management of existing ones provides a more complete understanding of entrepreneurs' efforts to shape their personal network.

In summary, although a small body of research has examined entrepreneurial behaviors related to tie formation, there is a gap in this literature regarding the networking behaviors of entrepreneurs: how they form new interpersonal ties, how they manage existing interpersonal ties, and the trade-offs or synergies, if any, between the two. Because extant theoretical frameworks do not provide guidance on individuals' behaviors concerning the formation and management of interpersonal ties, I adopted a grounded theory approach (Strauss and Corbin 1998) to examine entrepreneurs' networking behaviors.

ENTREPRENEURS' NETWORKING ACTIONS

I conducted a multiple case inductive study (Eisenhardt 1989, Yin 1994) of nine entrepreneurs located in Bangalore, India. These entrepreneurs were operating B2B services ventures drawn from the “information technology / information technology enabled services” (ITES) classification, which is analogous to a 3-digit SIC category. Section A of the online appendix provides comprehensive details on the inductive data collection and analysis procedures; the central finding from the inductive study is reported next.

Inductive Study Findings

The central finding from the inductive study is that entrepreneurs’ networking efforts can be succinctly conceptualized by two *formative*² constructs (Bagozzi 1994, Bollen and Lennox 1991)—network broadening and network deepening—that are combinations of the following five variables: (i) reaching out to new alters; (ii) establishing interpersonal knowledge of new alters; (iii) time-based interaction pacing; (iv) network preserving; and (v) relational embedding. Table 1 provides the mapping from interview raw data to the variables just outlined, and Table 2 documents the similarities and differences between these constructs and prior research.

Insert Tables 1 & 2 about here

Network broadening encompasses entrepreneurs’ behavioral repertoires in forming new interpersonal ties and is a combination of the first two variables. Thus, *network broadening* refers to the extent to which an entrepreneur reaches out to new people and establishes interpersonal knowledge about them. Network broadening is at a maximum when the focal entrepreneur is engaged in reaching out to strangers and finding out more about them, intermediate when she scores high on reaching out to strangers but low on finding out more about them (or vice versa), and at a minimum when she scores low on both reaching out and finding out more.

Network deepening, in contrast, consists of entrepreneurs’ behavioral repertoires in managing their existing interpersonal ties and is a combination of the last three variables. Thus, *network deepening*

² Entrepreneurs in the inductive sample viewed networking actions as a type of checklist, which suggested that a formative (rather than a reflective) construct was conceptually more appropriate in this specific context.

refers to the extent to which an entrepreneur strengthens ties to existing personal network contacts by time pacing interactions with them, overlaying friendships over purely business relations and preserving existing ties. Network deepening is at a maximum when the focal entrepreneur engages in time pacing, relational embedding and preserving existing ties and at a minimum when she engages very little in those actions.

Networking Actions and Reliance on Referrals

Thus far, I have argued *inductively* that entrepreneurs' networking behaviors can be succinctly summarized by their network broadening and deepening actions. Drawing on social exchange theory's (Emerson 1976) cost–benefit style of reasoning, I now develop *deductive* arguments³ on how these two networking actions alter entrepreneurs' cost–benefit calculus of using referrals when seeking new exchange partners for their venture. Note that the following arguments hold true regardless of intentionality. Whether or not entrepreneurs engage in particular networking actions using a forward looking calculative logic or iteratively learn behaviors that they perceive as adaptive, the benefits and costs, at the margin would play out as outlined.

Benefits of Referrals

There are two significant benefits in using referrals: gaining the attention of decision makers in the target and stabilizing the (potential) dyadic relationship between ego and target. The first key benefit of referrals is that entrepreneurs are more likely to secure an invitation from the target to make a pitch—and the target is likely to pay more attention to the entrepreneur's initial pitch (Elsbach and Kramer 2003) and during subsequent interactions—if the entrepreneur has been endorsed by a referee. Second, referrals can also promote good behavior by facilitating information flow that enables collective monitoring and sanctioning of deviant behavior among partners (Burt and Knez 1995). In other words, referrals likely stabilize the potential dyadic relationship between ego and target by fostering a concern for local reputation in the target. Finally, referral-based search could also increase the pool of prospective

³ This study's research design enables deductive as well as inductive approaches to outline the causal logic on how networking actions influence economic exchange. I chose the deductive approach because it draws on prior theory and thus provides presentational parsimony in contrast to the more richly descriptive inductive approach.

exchange partners because referees likely have some knowledge of the focal venture's capabilities and thus can screen and identify potential targets that ego may not be aware of.

Costs of Referrals

Using referrals to access a new exchange partner for her venture imposes three types of costs on the entrepreneur (ego): increased obligations to the referee, greater constraint in the potential relationship with the target, and limiting the search to a narrower segment of the opportunity space. First, referrals impose costs to ego because the norm of reciprocity (Emerson 1976) in social relationships implies that using referrals to access the target would impose on the focal entrepreneur (ego) an obligation to return the favor to the referee. Even when the referral was a repayment of a past obligation to ego, there is an opportunity cost of the "credit slip" (Coleman 1990) used up by the referral. Although ego might potentially free-ride and not repay obligations to the referee, reputational concerns likely prevent this since entrepreneurs have low credibility to begin with and hence can ill-afford to free-ride.

The second cost imposed by the referral is the constraint due to the formation of a triadic relationship between ego, referee, and target. From the focal entrepreneur's point of view, the potential dyadic relationship between ego and target would be formed as a "simmelian" tie if the search occurs through a referral. Krackhardt (1999) identified two people as *simmelian tied* if they are tied to each other and to at least one third party in common. In contrast to an isolated dyadic relationship (which would occur if the entrepreneur accessed the target directly), simmelian ties reduce the individuality of both actors as well as their bargaining power. For example, when the referee is a current customer and the target is a potential new customer, then the focal entrepreneur would likely be constrained in setting the prices and terms of the economic exchange between her venture and the new customer because that new customer is also tied to the referee.

The third key cost is the likely restriction of the opportunity space. For a given opportunity space of potential exchange partners, relying on referrals to search requires that the referee perceives opportunities that could be potentially useful to ego and is motivated to help ego. This is likely to be a limited portion of the opportunity space (as shown in Figure 1 of Moran and Ghoshal 1999) and thus

could prevent the formation of more beneficial exchanges for the focal venture. Put simply, relying on referrals to search might artificially restrict the potential exchange partners accessed owing to referees' limitations.

Main Effects of Network Broadening and Deepening Actions on Search Mode

Entrepreneurs who engage in greater network broadening actions mimic referral benefits without incurring attendant costs. Greater network broadening actions mimic the screening benefit of referrals because entrepreneurs who score high on network broadening actions come into contact with a wider pool of potentially relevant new people and establish greater interpersonal knowledge about them. This enables such entrepreneurs to screen out less promising leads and to concentrate their meager resources on the more promising ones. Greater network broadening actions also mimic the attention benefit provided by referrals because establishing greater interpersonal knowledge about the new people enables the focal entrepreneur to craft exchange terms that make it easier to keep the target's attention. If we assume that targets likely have more alternative exchange partners and are hence much less dependent (Emerson 1962) on the focal venture, it follows that greater network broadening actions improves the odds of the target sustaining attention on the focal venture. Finally, because establishing interpersonal knowledge of new people involves finding out whether ego and a new person are connected through mutually known third parties, greater network broadening actions mimic the stabilization benefit of referrals by directly triggering a concern for local reputation in the target.

Qualitative interview data provide examples of this reasoning. Thus, one entrepreneur who scored high on network broadening actions said:

I normally never use a referral—even when I know I can reach my guy [the target] through someone in my network—I always go direct. In fact, at the end of such a meeting, I might even mention—"hey I know X [the mutual third party] very well," but I actually will never ask X for the referral. I've used this [referrals] just a few times since I started [the venture]. The key reason for me is I know I start with a clean page when I go by myself, I know I am good at getting people to open up and I do my own research [on the background of the target]—with a referral, there is always baggage.

Another entrepreneur scoring high on network broadening actions said:

I do use referrals sometimes—but you know some of my customers dangle it in front of me like bait. Towards the end of my project [with them] when our energy is low, they dangle it so we get excited again. It works sometimes but the big issue for me is the new guy [the target] also expects me to perform the same way [expectations on service quality and output] and that is not always possible.

These comments and the preceding arguments suggest my first hypothesis.

H1: Entrepreneurs who engage in greater interpersonal network broadening actions will rely less on referrals when searching for new interorganizational exchange partners

In contrast, greater network deepening actions—engendered by higher levels of time-based pacing, relational embedding and network preserving activity —will lead to a greater reliance on referrals to search because of the enhanced net benefits of referrals for such entrepreneurs. More specifically, greater network deepening action implies greater frequency of interaction with existing contacts. There are two reasons why this would likely increase the reliance on referrals to search. First, greater interaction frequency leads to more relational cohesion (Lawler and Yoon 1996) with personal network contacts, making it more likely that a contact is willing to share private information about a target (Uzzi 1996); this allows the focal entrepreneur to identify the key needs of the target and to craft terms of exchange that are attractive to the target. Greater relational cohesion with contacts also makes it more likely that the contact providing the referral may try to stabilize the simmelian tie by fostering a concern for local reputation in the target. Second, all else equal, greater interaction frequency with existing contacts increases the opportunity space, because greater information exchange between ego and contacts increases contacts' knowledge of the focal venture's capabilities and also increases ego's knowledge about potential exchange partners for which he could seek a referral.

Qualitative interview data support this causal reasoning. For example, one entrepreneur who scored high on network deepening actions said:

If I can use a referral, I always do that—it's not always possible of course. But I have strong relationships for my business. I do look out for them or rather I do talk to them often to see if they have something interesting where they could either refer somebody to me or that they have opportunities in which they themselves are not able to pick up but could potentially be of interest to me.

More formally, I propose the following hypothesis.

H2: Entrepreneurs who engage in greater interpersonal network deepening actions with existing contacts will rely more on referrals to search for new interorganizational exchange partners.

Interaction Effects of Network Broadening and Deepening Actions on Search Mode

Although network deepening actions have net benefits, there are two reasons why these net benefits will be lower when the focal entrepreneur is also engaging in a lot of network broadening actions. First, meeting more new people and establishing greater interpersonal knowledge about them gives entrepreneurs direct first-hand insight into new opportunities, which is preferable to second-hand information from their existing contacts. At the margin, then, the value added of gaining second-hand knowledge of new opportunities from increased interactions with existing contacts is lower when entrepreneurs are also engaged in more interpersonal network broadening actions.

Second, although referrals from existing contacts can stabilize the simmelian triad by fostering a concern for local reputation in the target, this key benefit of greater network deepening is less compelling for entrepreneurs who also engage in greater network broadening. This is so because greater network broadening actions make it more likely that the focal entrepreneur has independently established other sources of mutually known third parties. Because greater network broadening implies that entrepreneurs establish greater interpersonal knowledge about the new people they meet—including whether they are

tied through mutually known third parties—it follows that entrepreneurs can trigger a concern for local reputation in the target directly without recourse to a referral. Thus I predict as follows.

H3: The effect of entrepreneurs' interpersonal network deepening actions on their reliance on referrals while searching for exchange partners is lower when their level of interpersonal network broadening actions is higher.

Performance Consequences of Reliance on Referrals

Addition of new exchange partners is an important proximate outcome of the search process that has implications for the survival and success of new ventures. Thus, Venkataraman and Van de Ven (1998) find that new ventures that add new exchange partners faster are more likely to survive environmental jolts. Similarly, Baum et al. (2000) find that adding more exchange partners enhances early innovative performance. A new exchange relationship is established at the end of a bargaining process when the focal venture and the exchange partner jointly see collaboration as beneficial. There are three reasons why greater reliance on referrals by the focal entrepreneur leads to addition of fewer new exchange partners.

First, from the perspective of the focal entrepreneur, greater reliance on referrals means that the entrepreneur makes fewer direct searches and thus gains fewer first-hand insights into new opportunities. *Ceteris paribus*, the mutual fit between the entrepreneurs' venture and the target is likely to be lower since the pool of potential exchange partners is less suitable to begin with. Lower mutual fit with the pool of exchange partners, on average, implies initiation of fewer new exchange ties from that pool.

Second, the entrepreneur is typically the low power actor (relative to both target and referee) in the negotiations that precede exchange tie formation. The usual way to initiate an exchange tie with highly unequal power would be for the exchange terms to favor the powerful actor. However, customizing the potential exchange relation to fit the power asymmetry is difficult when a Simmelian tie is involved. From the perspective of the target, the third actor involved (the referee) creates constraints on the degree of exploitation of the low power actor (entrepreneur). As a result, the target is more likely to refuse a referred tie because he cannot offer terms that are as bad for the initiating low power actor (the entrepreneur) as he would in the case of a direct (i.e. un-referred) tie. This logic also implies that greater

reliance on referrals reduce the focal entrepreneur's ability to customize his exchange terms to fit into the acceptance zone of the target.

Finally, from the perspective of both entrepreneur and target, if the higher risks of going direct can be mitigated, then referrals may be less valuable in initiating exchange ties. This may be the case in economic exchanges such as buyer–supplier ties or alliance ties, where a viable risk-mitigating strategy for a focal target or entrepreneur may be to start with small exchanges that grow progressively as trust is established (Larson 1992). However, in the case of venture financing (the context of prior research) — where investors are typically flooded with a great many ventures of unknown quality and where the fixed costs of due diligence are usually high, referrals could be valuable as an effective (albeit noisy) filtering mechanism⁴ that positively influences exchange tie formation.

These arguments all suggest that a greater reliance on referrals should lead to the addition of *fewer* exchange partners—especially of the customer or alliance type. This prediction runs counter to prior research, which has stressed the benefit of referrals in securing exchange partners (e.g. Gulati and Gargiulo 1999). The arguments in this literature are based on benefits provided by referrals in a specific dyad (i.e., the marginal effect of referrals). One way to reconcile this prediction with prior work is to recognize that the claim here is that actors vary in their average use of referrals—some are more reliant than others. When there are “types” of actors who vary in their average use of referrals but also choose to use (or not use) a referral depending on specific circumstances, then it’s possible for the marginal effect of using referrals in a specific case and the aggregate effect of dependence on referrals to be opposed.

Finally, the arguments so far also imply that reliance on referrals while searching mediates the effect of entrepreneurs’ networking actions on the initiation of new economic exchanges. More formally, I make the following two predictions.

H4: *The greater the focal entrepreneur’s reliance on referrals when searching, the lower the addition of new exchange partners for the focal venture.*

⁴ I thank an anonymous reviewer for this insight.

H5: The relationship between focal entrepreneurs' networking actions and the addition of new exchange partners for the focal venture will be mediated by the entrepreneur's reliance on referrals when searching.

METHODS

Site and Participants

I obtained from well-known venture capitalists and entrepreneurship associations a list of entrepreneurs running B2B ventures operating largely in the ITES sector that were less than six years old, had at least one paying customer and were located in Bangalore or Hyderabad, India. I requested participation from 95 entrepreneurs who seemed to fit these criteria, of which 75 entrepreneurs (from 73 ventures) agreed.⁵ All but two of the participants identified themselves as founder or co-founders of their venture, and the two non-founders had joined their ventures as CEOs less than a year after founding. There were only three women in the sample. The average entrepreneur in the sample was 35 years old and had 12 years of work experience. Although 37% of the entrepreneurs in this sample had worked at or started a new venture prior to the current one, none of them had prominent exits (say, by selling an earlier venture for a significant amount of money). This homogeneity in the sample is important because the costs and benefits of referrals (as outlined in the theory section) may well be systematically different for entrepreneurs with a strong track record of entrepreneurial success. There was little variation in entrepreneurs' educational backgrounds, and all of them had at least an undergraduate college degree. The average venture was 3.6 years old, employed 31 people, and experienced annual revenue growth of 87%.

Research Protocol

For each participant, after securing his / her agreement I had a face-to-face meeting of about two hours to gather initial data and establish rapport. During this meeting, I measured respondents' networking actions and assessed other relevant variables such as personality traits, ego-network structure, career history, and other individual and firm-level controls.

⁵ The entrepreneurs in this deductive theory testing sample did not overlap with the inductive study sample.

I then observed for the next two months the new people with whom the panel entrepreneurs interacted. This two-month search window was selected so as not to coincide with important annual industry sector events (such as NASSCOM's annual IT event) that would have artificially inflated the count of new people met. During this Phase I of the project, respondents reported on the new people with whom they interacted in one of two ways. In the first option, research assistants (RAs) visited entrepreneurs' workplaces once a fortnight and photographed the business cards of the new people with whom the entrepreneur interacted during the period. In addition, the RA captured in a Word document the details of new people met for whom the entrepreneur did not have a business card—either because these new people were met electronically (online, over the phone, etc.) or in settings where an exchange of cards did not take place (e.g., meeting at an informal dinner party where only phone numbers were exchanged). The second option was for the respondents to e-mail the research team a templated Excel file containing the details (name, gender, title, organization, location, etc.) of the new persons with whom they interacted. In all cases, entrepreneurs were followed up via phone calls, e-mails, and site visits. Most (85%) of the sample chose the first option, but there was no significant difference in the number of new people met across the two reporting options.

Entrepreneurs sometimes re-connect with people they once knew but subsequently lost touch with (e.g., meeting an old high school friend at an airport). Hence, for this study, *new people* are defined as individuals who were complete strangers or individuals whom the entrepreneur knew earlier but had not interacted with during the previous three years. Nearly all (92%) of the new people met in this study were strangers.

Furthermore, since entrepreneurs interact with a variety of new people of potential professional relevance, it was important for this study to distinguish between mere interaction with new people and the actual formation of a new interpersonal tie. I make this distinction by defining a new *contact* as a new person with whom the entrepreneur interacted and with whom the entrepreneur *wants* to stay in touch. Initial interviews suggested this is an appropriate way to identify a new interpersonal tie in this context. Shortly after reporting the new people they met and identifying the ones they want to keep in touch with,

entrepreneurs received a customized link to a brief Web survey. This survey asked entrepreneurs to report: whether their venture had an existing or potential relationship with the organization represented by each of the new people met; the nature of the relationship (i.e., customer, alliance partner, competitor, investor/banker, supplier, or other); whether the interaction with the new person resulted from a referral and, if so, the name and organizational details of the referring individual; location of the interaction with the new person; and whether the focal entrepreneur and new person were co-alumni of the same educational or work organization.

Immediately after data collection on the new people met during Phase I, each entrepreneur was again interviewed (for about an hour) to collect additional sociometric and qualitative data on entrepreneurs' networking actions. Finally, twelve months after Phase I, a last face-to-face meeting was held with each entrepreneur (Phase II). This is when I administered a structured survey on the current status of relationships with the new people met during Phase I. Figure 1 outlines the details of the different points of data collection in this longitudinal design. The measures section describes how data from the face-to-face interviews, business cards (or Excel files), and Web survey were used to code this study's variables.

Insert Figure 1 about here

Sample Attrition

I started with 75 entrepreneurs from 73 ventures because both co-founders of two ventures wanted to participate in the project. From this panel, eleven respondents did not provide any data on the new contacts they made during the two-month period, and three respondents reported business cards for the first fortnight and subsequently withdrew from the project. All fourteen respondents who dropped out cited inadequate time as their reason. Hence, for this study I had complete data for 61 participants. There were no significant differences in venture age, size, or revenue growth between participants and dropouts. Since co-founders' networking action patterns and modes of search are unlikely to be independent, I include only the "lead" entrepreneur from the two ventures whose co-founders both participated in the project, yielding a final sample size of 59 respondents.

Measures

Dependent Variables

Reliance on referrals. The first dependent variable in this study is the entrepreneur's reliance on referral when searching for new exchange partners for her venture. This variable was coded in three steps as follows. First, from business cards (or Excel files) of new interpersonal contacts, a list of the organizations they represented was drawn up. From this list, organizations that were identified as being different business units of the same parent organization were merged. For example, "SAP Labs" and "SAP India" were treated as business units of the same organization, "SAP". The result was a list of unique organizations with which the focal entrepreneur came in contact during the two-month period. Second, from the Web survey, I coded as "new" organizations those that did not have an existing relationship with the focal venture yet were reported as a *potential* exchange partner—in other words, a potential customer, alliance partner, or supplier. Results are robust to including potential investors as well.

Third, from the Web survey data, I identified whether a new contact was met through a referral and whether the person who provided that referral was the focal entrepreneur's existing network contact, not employed by the focal venture. I then coded a focal new organization as accessed through a referral if at least one of the new contacts representing that focal new organization was accessed through a referral and the referee was an existing network contact not employed by the focal venture. Note that I observe a referral from the focal entrepreneur's self-report of referrals that actually occurred; hence I do not observe referral requests made for which the referee was either unable or unwilling to help. I took this approach for two reasons. First, the theoretical mechanisms of interest in this study are relevant only to referrals that are successful. Second, feedback from the pilot phase suggested that separating out requests for referrals from their actual realization was confusing and time-consuming to report.⁶ In addition, I used entrepreneurs' self-reports of referrals (instead of directly asking the referee) because entrepreneurs were willing to participate in this research project only if I did not directly get in touch with their existing

⁶ Observing only realized referrals assumes away a potential selectivity effect whereby entrepreneurs ask only some network contacts for referrals and the factors driving the choice of contact are correlated with networking actions and reliance on referrals. I leave it for future research to examine both realized and unrealized referrals.

contacts or the new people they met. However, the risk of biased self-reports is minimal because entrepreneurs were reporting on clearly observable behaviors and were unaware of the precise hypotheses for which data was being collected.

I then calculated *reliance on referrals* when searching for exchange partners as the ratio of potential exchange partner organizations that were accessed through a referral to the total number of potential exchange partner organizations accessed during the two-month period. Because this dependent variable is a proportion that ranges between 0 and 1, I use a GLM modeling approach (Papke and Wooldridge 1996) implemented in STATA.

Addition of new exchange partners. The second dependent variable in this study addresses an important economic consequence of search: the initiation (or not) of an economic exchange relationship between the focal entrepreneur's venture and the organizations targeted in Phase I. These data were collected during the face-to-face meeting twelve months after Phase I ended, because my interviews with the initial inductive sample respondents suggested this time gap was appropriate. In particular, the inductive sample data indicated that the typical customer, supplier, or alliance partner exchange relationship is not initiated until about six months after the initial interaction and that entrepreneurs generally regard a potential exchange partner as having "gone cold" if no business had been transacted within a year of the initial interaction. *Addition of new exchange partners* was then coded as the count of new interfirm exchange ties initiated between the focal venture and the target organizations (potential customers, alliance partners, and/or suppliers). In all cases, I physically inspected the relevant documents (e.g., purchase or alliance contract, e-mail) that provided objective evidence of an interfirm exchange relationship, and in some cases I also obtained "sanitized" copies of those documents. Since this dependent variable is a nonnegative count with over-dispersion, I use negative binomial regression analysis implemented in STATA.

Independent Variables

Networking actions. Section B of the online appendix comprehensively outlines the procedures I used for measurement of the two formative constructs of network broadening and deepening actions. A

key step in the process used established techniques (DeVellis 2003, Spector 1992) to develop validated scales for the five component variables. Table 3 reports factor loadings and scale reliabilities for this networking actions scale administered to the panel of 75 entrepreneurs during the initial face-to-face meetings.

Insert Table 3 about here

I then calculated the formative constructs of network broadening and network deepening actions as the weighted sum of the five networking variables using a grid search (Greene 1993, p.344) over parameter values to identify the weights. This procedure yielded weights of 30% and 70% (respectively) for the two component variables of *network broadening actions*—namely, reaching out to new alters and establishing interpersonal knowledge of new alters. Likewise, I estimated weights of 30%, 50% and 20% (respectively) for the three component variables that constitute *network deepening actions*: time-based interaction pacing, relational embedding, and network preserving. *Network broadening actions* should be negative and significant if H1 is supported; *network deepening actions* should be positive and significant if H2 is supported. Their interaction term should be negative and significant if H3 is supported.

Control Variables

The research design controls for broad industry sector and venture stage effects. I then controlled for a number of factors that might be associated with the search mode (referral versus direct) for new exchange partners and which potentially correlate with the independent variables. I first controlled for firm-specific factors using *venture age* (in years), *venture size* (number of full-time employees) and whether the venture was *externally funded* (dummy variable). Since the volume of search could affect the mode of search, I controlled for *search volume* by using the total number of new organizations that the entrepreneur accessed during the two-month period. I controlled for the possibility that lack of related prior work experience might influence reliance on referrals by asking entrepreneurs to self-report (on a 7-point Likert scale) the relatedness of their prior experience to the current venture (*relatedness of prior experience*). Since entrepreneurs with superior innate talent might rely less on referrals, I proxy for talent by coding the prominence of their educational institution. *Elite university* is coded 1 if the entrepreneur

graduated from an Indian Institute of Technology, an Indian Institute of Management, or any U.S. university. I controlled for *location* effects through a dummy variable that was set to 1 for ventures based in Bangalore. This distinction was made because different RAs were used in Bangalore and Hyderabad, and the two cities—though located close to each other in southern India—may differ in their micro-institutional context. Finally, I controlled for the possibility that entrepreneurs with more structural holes (Burt 1992) in their ego-network structure might rely more on referrals. I adapted Burt's name generator procedure to capture entrepreneurs' egocentric network during the initial face-to-face interview, limiting the maximum network size to twenty names. I then used Burt's constraint score to measure structural holes. The higher an ego's constraint score, the fewer structural holes in her ego-network. Because the constraint score varies between 0 and 1, to facilitate interpretation I used $(1 - \text{constraint})$ to directly measure the number of *structural holes* in the entrepreneur's initial egocentric network.

RESULTS

The average entrepreneur met 34 new people potentially relevant to him professionally during the two-month period, from which he reported 25 new contacts (new people met that he wanted to stay in touch with) drawn from 15 organizations. Table 4 provides the correlation matrix; clearly, multi-collinearity among the independent variables is not a concern.

Insert Table 4 about here

Drivers of Reliance on Referrals

Table 5 shows the results of the GLM regression analysis of the impact of networking actions on the reliance on referrals when searching for new exchange partners. Hypothesis 1 predicted a negative relationship between network broadening actions and referral-based search for new exchange partners. As seen from Table 5, the coefficient for *network broadening actions* is negative and significant at $p = 0.02$ and $p = 0.01$, respectively, in the main effects (Model #2) and interaction effects (Model #3) models, suggesting strong support for H1. In addition, H2 predicted a positive relationship between network deepening actions and referral-based search. Table 5 reports that the coefficient for *network deepening actions* is positive and significant at $p = 0.05$ in the main effect model (Model #2) and at $p = 0.04$ in the

full model (Model #3), again suggesting strong support for H2. Finally, Model #3 of Table 5 reports the negative interaction effect between network deepening and network broadening actions, as predicted by H3. A Wald test reveals that *network deepening actions* and *network broadening × network deepening actions* are jointly significant ($\chi^2(2) = 6.6, p = 0.04$), which implies that network broadening actions moderate the effect of network deepening actions on reliance on referrals to search. The coefficient of the interaction term *network broadening × network deepening actions* is negative, suggesting that high network broadening actions dampen the positive effect of network deepening actions on reliance on referrals to search; this strongly supports H3. Figure 2 presents the interaction effects graphically, for the range of data in the sample, after suitably transforming the predicted values of the dependent variable.

Insert Table 5 & Figure 2 about here

The control variables suggest that entrepreneurs running larger ventures as well as ventures based in Bangalore use a greater proportion of referrals in their search and that venture age is not significant. In addition, the data suggest that a greater volume of search is associated with a lower proportion of referral-based search. Finally, greater structural holes in entrepreneurs' ego-networks lead to greater referral-based search. I also tested for an interaction effect (results not reported here) between the two networking actions and structural holes to see whether having the “right” network structure makes up for being lazy (or shy) in adding new interpersonal contacts or managing existing ones. The interaction terms were not significant.

Performance Consequence of Reliance on Referrals

Table 6 presents the results of the negative binomial regression analysis on the count of new economic exchanges initiated. Hypothesis 4 predicted a negative relationship between reliance on referrals and the count of new exchange partners added. As shown in the table, the coefficient for *reliance on referral based search* is negative and significant at $p = 0.06$ in the main effects model (Model #2), lending moderate support to H4. The control variables suggest that greater search volume results in greater addition of exchange partners and entrepreneurs from elite universities or with related prior experience had lower odds of initiating more exchange relationships for their venture. A limitation of this study is the

measure of relatedness of prior experience collapses relatedness along demand side and supply side activities that may have opposed effects on search mode and outcomes.

Insert Table 6 about here

Hypothesis 5 predicted that reliance on referrals mediates the effects of entrepreneurs' networking actions on the addition of new exchange partners for their venture. Tests of mediation in the literature have been dominated by Baron and Kenny's (1986) causal steps approach, which has been shown to have low power detecting mediation effects and to suffer from high rates of Type I errors. In order to overcome these problems, scholars have proposed bootstrapping procedures (a nonparametric approach) for estimating indirect effects of the predictor variables on the dependent variable through the proposed mediators (see Gulati and Sutch 2007, Shrout and Bolger 2002). With this approach, the significance of the indirect paths from the independent variables (in this case, *networking broadening actions*, *network deepening actions*, and *networking broadening × deepening actions*) to the dependent variable (*addition of new exchange partners*) through the mediator (*reliance on referrals*) is explicitly estimated by a coefficient that is a product of the path coefficient from independent to mediator variables and the path coefficient from mediator to dependent variable. The results of the bootstrapping mediated regression analysis are shown in Table 7 and provide evidence of partial mediation. The 90% confidence intervals are based on bootstrap estimations with 1,000 replications. The indirect effects of *network broadening actions* ($B = 0.38$, 90% CI = 0.005 to 1.769) as well as of *network broadening × network deepening actions* ($B = 0.25$, 90% CI = 0.004 to 1.002) on the addition of new exchange partners though reliance on referrals are significant at the 10% level. However, the indirect effects of *network deepening actions* are not significant because the confidence interval for that coefficient bridges zero ($B = -0.32$, 90% CI = -2.378 to 0.197). Overall, I interpret this pattern of results showing reliance on referrals partially mediates the effect of networking actions on addition of new exchange partners as moderate support for H5. In additional robustness tests (results not reported here) I did not find evidence of search volume as a mediator.

Insert Table 7 about here

DISCUSSION AND CONCLUSION

I summarize the three key findings as follows. First, I inductively conceptualize two formative constructs, *network broadening actions* and *network deepening actions* that succinctly describe entrepreneurs' behavioral repertoires in forming new interpersonal ties and managing existing interpersonal ties. Second, I provide evidence that the two networking actions influence the entrepreneur's mode of search (i.e., her reliance on referrals while searching) for new exchange partners for her venture. As predicted, greater network broadening actions led to lesser reliance on referrals when searching for new exchange partners; in contrast, greater network deepening actions caused more reliance on referrals. Furthermore, entrepreneurs who focused on network deepening to the virtual exclusion of network broadening were the most reliant on referrals. The third and central finding is that the decision maker's mode of search (i.e., extent of reliance on referrals when searching) partially mediates the effect of networking actions on search outcomes. Specifically, the study shows entrepreneurs using more network deepening actions form fewer new economic exchanges, due (in part) to their increased reliance on referral-based search; whereas entrepreneurs using more network broadening actions form more new economic exchanges due (in part) to their decreased reliance on referral-based search.

Actors' Networking Actions and Local Network Structure

This study's conceptualization of entrepreneurs' networking actions has clear implications for research on personal networks. Prior research on interpersonal networks in instrumental settings has mostly focused on the consequences of individuals' personal network structure and quality on such outcomes as career success (Burt 1992) and entrepreneurial success (Aldrich 1999). There is much less understanding of the origins of network positions that individuals occupy—leading to a call (see Kilduff and Tsai 2005) for theorizing on the individual differences that shape local network structure.

The recent research examining differences in actions that individuals take to shape their personal networks can be classified into two streams: one focusing on existing ties and one on new ties. Thus, Obstfeld (2005) finds support for the notion that employees more oriented toward connecting their

existing network contacts to each other are more involved in organizational innovations. Focusing on public administrators' new network ties, Shipilov et al. (2007) show that the location of new tie formation events influences administrators' career success. Likewise, entrepreneurs' success in forming new ties to resource holders is driven by the effectiveness of their symbolic actions (Zott and Huy 2007) and negotiating strategies (Hallen and Eisenhardt 2008). This paper builds on these pioneering efforts by examining the joint effects of actions related to forming new ties and managing existing ties. As shown here, entrepreneurs who engaged in more deepening actions but few broadening actions were highly reliant on referrals when searching and were less successful in initiating new exchanges—thus confirming the importance of examining joint effects. This study also suggests that culling existing ties (the opposite of network preserving) is an important part of entrepreneurs' network management actions. Little attention has been given to relationship termination, and the finding here underscores the need for more research on this issue.

The study's finding on networking actions also has theoretical implications for entrepreneurship research, which has viewed personal networks as the conduit for the flow of valuable resources from alters to the focal entrepreneur. Scholars have examined how the structure and quality of personal networks affect this flow of resources and thus drive outcomes during the early years of a new venture (McEvily and Zaheer 1999, Vissa and Chacar 2009; also see Hoang and Antoncic 2003 for a review). However, this research assumes away differences in the extent to which individual actors form new ties and strengthen, keep latent, or dissolve existing ties. By shifting the focus to entrepreneurs' networking behaviors, this study sheds light on the origin of network positions that entrepreneurs occupy.

In addition, this paper's development and validation of a measurement scale that captures networking behaviors is an empirical contribution to the literatures on entrepreneurship and personal networks. The results reported here is an important first step in presenting evidence of construct validity and replication in other country or industry contexts is necessary to lend additional support. Another useful extension would be to examine the generalizability of the networking actions identified here to other domains. Entrepreneurs are less constrained by organizational structure (than are employees within

established firms) and so their behavior provides a particularly attractive context in which to study networking actions, yet the concepts discussed here may be applicable to other domains where instrumental use of networks is crucial for success, such as the networking actions of general managers.

This study's conceptualization of networking actions is also a useful starting point for future research along several paths. First, research could investigate the structural "trace" left behind by networking actions. Research on ego-networks (Marsden 1990) suggests that individuals' core discussion networks are relatively stable because the contacts elicited through name generators tend to be trusted, strong ties. However, one implication of this study's findings is that, depending on their networking actions, we should expect variation in the stability of entrepreneurs' personal networks—with more network broadening actions and fewer network deepening actions leading to more "churn" in the core networks of entrepreneurs. Examining how entrepreneurs' networking actions affect the stability of local structures is an important next step. Second, this study focused on what entrepreneurs do and ignored the motivation for those actions. Do entrepreneurs engage in network deepening actions because they anticipate using referrals? Or do entrepreneurs engage in network deepening actions because of learning? This study's design did not address the issue of motivation, and future research could examine the extent to which networking actions are learned behaviors versus based on a forward-looking planned logic (Ajzen 1991). Third, future research could examine the extent to which the networking actions identified here are subject to life-cycle effects;⁷ for example, it is plausible that broadening actions may be particularly useful at the growth stage of a venture but much less useful at its launch stage. Fourth, future research could examine how co-founders' networking actions inter-twine to influence the entrepreneurial teams' networking actions and its economic consequences. Finally, studying the extent to which these findings vary with the entrepreneur's predominant network role (Gargiulo et.al. 2009) may be fruitful.

Opening the Black Box of Referrals

The central finding of this study is that reliance on referrals partially mediates the effects of entrepreneurs' networking actions on search outcomes. This counterintuitive effect was predicted based

⁷ I thank an anonymous reviewer for this insight

on considerations of the costs of referrals to ego as well as alternative risk-mitigating options available to the target. Although adding new exchange partners enables ventures to survive environmental jolts (Venkataraman and Van de Ven 1998) and is thus an important search outcome, this study is an early investigation of the link between networking actions and search outcomes. Future research could examine the drivers of other features of new economic exchanges (e.g., the dollar value and the counterparty's status) that would yield a more complete description of how entrepreneurs acquire new exchange partners for their venture. Further, this study assumed all triads formed by referrals are homogenous, although multiplex triads (Shipilov & Li, this issue) formed by referrals from producers may differ from customer referrals. In addition, these results should be considered exploratory because they are based on a small sample of new ventures drawn from a single sector in a developing country. So the extent to which this study's insights generalize to other contexts remains to be investigated in future research.

Nevertheless, this paper makes a theoretical contribution to the partner selection literature by highlighting how decision makers' networking actions may constitute a distinct mechanism underlying initiation of new exchange ties during the early growth phase of new ventures. The key finding in research on partner selection is tie *transitivity*. An important causal mechanism underlying tie transitivity is decision makers' use of referrals from existing partners to form ties to their partners' partner (Gulati and Gargiulo 1999, Hallen 2008, Uzzi 1996) even though ties to strangers often provide net benefits (Ahuja 2000, Baum et al. 2005, Soda et al. 2004). This view ignores the costs of referrals and implicitly assumes that referrals will be used if they are available. In contrast, this study theorizes the costs and benefits of referrals, and it develops arguments on how particular types of networking actions alter the cost–benefit calculus of using referrals and thereby cause entrepreneurs to be more or less reliant on referrals when searching for new exchange ties. Thus, this study shows that decision makers with a “DIY” approach to networking (low deepening and high broadening actions) may effectively mimic the benefits offered by referrals and thereby avoid using referrals altogether because of the costs of referrals and instead go “direct”. Although this study used statistical controls to account for some of the costs of going

“direct”, the empirical context was a rapidly growing sector in a fast-growing economy, and it’s plausible that the high growth rates may attenuate the costs of going direct.

Research on partner selection has seldom paid attention to the role of individual agency in shaping inter-firm tie formation. The exception is pioneering work by Rosenkopf et al. (2001), who argue participating middle managers’ interpersonal ties amplifies the tendency for inter-firm tie formation across domains - although their key arguments stress organizational strategy rather than middle managers’ agency as the driving mechanism. This study’s context of new ventures is a particularly appropriate setting in which to build on their pioneering work by highlighting individual actors’ agency in modifying social structure.

Implications for Practice

This study offers two clear implications for practice. First, while entrepreneurs often find it easy to depend on their initial contacts to grow their personal network, network broadening is actually more important for success. Broadening is rarely achieved by simply meeting new people and handing out (or collecting) business cards! Rather, it’s more important to establish interpersonal knowledge about the new people met - gaining a rich understanding of their interests’ and areas of expertise are crucial. Second, referrals could be a double edged sword; relying too much on referrals may be counterproductive because although referrals help get a foot in the door, they may adversely affect the consummation of the relationship. Entrepreneurs in this sample that relied too much on referrals initiated fewer new customer or alliance partner relationships when compared to similar others that relied much less on referrals.

In conclusion, network research has often been subject to the critique that it views actors as being hemmed in by the inertial forces of pre-existing social structure, even though actors can engage in reflexive choice and demonstrate agency (Emirbayer and Goodwin 1994, Emirbayer and Mische 1998). This study takes a step toward addressing this critique by explicitly conceptualizing actors’ agency in terms of their networking actions and by outlining the micro-sociological processes that underpin the flow of referrals through personal networks, thus linking individual actors’ agency to organization-level outcomes.

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TABLE 1
Induction of Networking Actions from Grounded Theory Sample

Respondents' Reported Actions (illustrative evidence)		First-Order Categories	Networking Variable
Positive Form	Negative Form		
<ul style="list-style-type: none"> • “I meet potential new clients and business partners at hobby associations and alumni meetings—one of the best ways to network.” (Sunny) • “I frequently interact with complete strangers through email or on-line networking sites for business development.” (Suma) • “I religiously set aside time for meeting new people. I enjoy cold calling a lot, although now I hold myself on a leash when I cold call.” (Jai) • “I delegate a lot of my operational jobs to my employees, so I give myself a lot of time to build new connections for business development.” (Suma) 	<ul style="list-style-type: none"> • “I rarely interact with strangers because I find it difficult. While attending an industry conference, I end up talking to people from the audience who ask questions—and give my own opinion on the question—that's a way for me to connect with the person.” (Suhas) • “I don't have any fixed routines for meeting new people—I want to do it, but don't find the time for it.” (Nachi) 	<p>Seeking out strangers</p> <p>Being systematic and disciplined in meeting new people</p>	<p>Reaching out to new alters (The extent to which entrepreneur/ego takes steps to meet new people to promote his or her venture)</p>
<ul style="list-style-type: none"> • “I make myself very familiar with a new contact's areas of expertise—their skills sets, backgrounds and what they are good at.” (Jai) • “I always pride myself on knowing more about a new person I meet than the person knows about me.” (Vipin) • “When pitching my venture to a new contact, I find out the motivations for the person to engage with me and my 	<ul style="list-style-type: none"> • “I don't get a lot of information in the first conversation, but I get some background information. After a few meetings, when I feel people are OK with sharing, I get more information.” (Nachi) • “When there is no talk about technology or a common ground, I cannot carry on the conversation— 	<p>Finding out new contact's areas of expertise</p> <p>Understanding new contact's motivations</p>	<p>Establishing interpersonal knowledge of new alters (The extent to which ego finds out more about the new people he meets)</p>

Respondents' Reported Actions (illustrative evidence) →		First-Order Categories →	Networking Variable
Positive Form	Negative Form		
<p><i>venture—is he looking for a feather in his cap, gaining new knowledge etc.</i>" (Ram)</p> <ul style="list-style-type: none"> ● "I try to ask open ended questions to get a new contact I meet to open up and draw the person out. I always try to act as a sounding board for other people." (Krish) ● "When meeting a new contact, I find out if we have a common friend or worked in the same company in the past. I find that a good way to establish rapport and find out more about him." (Jai) 	<p><i>talk about other things.</i>" (Nachi)</p> <ul style="list-style-type: none"> ● "I normally don't find out the hobbies and personal interests of my new contacts or if we have mutual friends." (Ram) 	Finding out connections to common third parties	
<ul style="list-style-type: none"> ● "Every few months, I take time off to call or email my contacts just to keep in touch or say hello. I often send them articles I come across that I feel may be of use to them." (Jai) ● "I intentionally manage the gap between interactions with my contacts so there is enough gap to say something new and for me to hear something new." (Krish) 	<ul style="list-style-type: none"> ● "I do not contact people unless there is a reason. I cannot get in touch with a person to talk about things in general." (Suhas) ● "I find it difficult to keep in touch with people without having a specific need. I get in touch when I need something from them." (Veer) 	Time-based trigger for initiating interactions (temporal vs. need-based triggers)	Time-based interaction pacing (The extent to which ego paces his relationship with contacts based on temporal markers)

Respondents' Reported Actions (illustrative evidence) →		First-Order Categories →	Networking Variable
Positive Form	Negative Form		
<ul style="list-style-type: none"> “When I meet new people that I find interesting, I keep two lists—short term and long term. The short term is people who can give me business in 6 months—the others are long term. I keep in touch with both.” (Suma) “Even when a contact asks me for help and favors too many times, I find it very difficult to say no.” (Veer) “I don't intentionally stay away from anyone in my network. I might lose touch because of work pressure, but I don't avoid anyone.” (Suhas) 	<ul style="list-style-type: none"> “I stop interacting with a new contact—however important he may be—if I am not able to figure out how that person would be helpful to me in the course of six months to a year.” (Krish) “I cut off people who make me an agony aunt—because they are not able to connect with a broader set of people. I nip this in the bud—when I do not want to keep connecting with such a person, I talk directly and explain why to that person.” (Suma) “Some contacts bring a lot of negative energy and criticism that cannot add value. I actively stay away from such elements.” (Sunny) 	<p>Assessing future value of contacts</p> <p>Preserving potentially imbalanced relationships</p> <p>Retaining contacts who may not add value</p>	Network preserving (The extent to which ego acts to preserve all network ties)
<ul style="list-style-type: none"> “My friends are rarely my business contacts, but I make friends out of my business contacts.” (Suma) “When keeping in touch with an existing contact, I first ask them about business and then focus a lot more on them as people. I ask them about their kids and how they are doing. I always talk about things that are really important for them—usually managing home and work for women and finance and investing for men.” (Krish) 	<ul style="list-style-type: none"> “I rarely have lunch or dinner with business contacts—because it's too much exposure—giving them too many points to read me on.” (Jai) “I tend to keep my business and social contacts separate and not mix them up.” (Sunny) “I do discuss non-work stuff with my business contacts but I wouldn't say it consumes significant time ... yeah, I mean I wouldn't know their hobbies or personal life.” (Ram) 	<p>Creating friendships from work related interactions</p> <p>Focusing on contacts as people, not in terms of their roles</p>	Relational embedding (The extent to which ego seeks to combine social and business relations with existing contacts)

TABLE 2
Networking Constructs and Prior Research

Formative Networking Construct	Constitutive Networking Variables	Links between Inductive Findings and Prior Research	
		Similarities	Differences
Network Broadening Actions	(i) Reaching out to new alters (<i>The extent to which entrepreneur/ego takes steps to meet new people to promote her venture</i>)	Consistent with prior work that emphasizes face-to-face meetings in formal or informal foci (e.g., Shipilov et al. 2007) and the spontaneity of such interactions (Ingram and Morris 2007).	Some reaching out may involve spontaneity and face-to-face interaction, but the construct also includes deliberate, systematic planning prior to interaction as well as interactions that are not face-to-face.
	(ii) Establishing interpersonal knowledge of new alters (<i>The extent to which ego finds out more about the new people she meets</i>)	Some variation in establishing interpersonal knowledge may occur through social means, as emphasized by Nohria (1992).	This study's data suggest that information gathering (about expertise areas, mutually known third parties, current opportunities to work together, etc.) through nonsocial means (Rangan 2000) is also important.
Network Deepening Actions	(iii) Time-based interaction pacing (<i>The extent to which ego paces her relationship with contacts based on temporal markers</i>)	While novel to network theory, time pacing parallels prior research on strategy change (Gersick 1994) and product innovation (Brown and Eisenhardt 1997) that emphasize the synchronizing of actions to the passage of time.	Unlike prior research on time pacing, the interpersonal ties in this study cross firm boundaries. This difference matters because time pacing of interactions within firm boundaries is likely strongly influenced by organizational structure (e.g. authority or workflow relations).
	(iv) Network preserving (<i>The extent to which ego acts to preserve all network ties</i>)	No published work that focuses explicitly on how actors intentionally preserve ties between themselves and alters.	Prior research has focused on the natural tendency for relationships to weaken and disappear (Burt 2000).
	(v) Relational embedding (<i>The extent to which ego seeks to combine social and business relations with existing contacts</i>)	Overlaying existing task related ties with multiple social contents is similar to the process described by Uzzi (1996).	My interview data suggests entrepreneurs in this study typically have less power than their contact and may hence find it more challenging to overlay business ties with personal friendships compared to prior research. This is because high power actors may interpret low power actors' embedding behaviours as a duty and obligation (to help) rather than interpret those actions as evoking personal friendships.

TABLE 3
Item Loadings, Means, Standard Deviations, and Reliabilities of the Entrepreneurs' Networking Actions Scale

Items	RO	EKN	TBP	NP	RE	Mean	S.D.
When I attend industry forums & other business related networking events, I build connections with people I did not know before.	0.74 ^a	—	—	—	—	5.4	1.5
When I attend social events (e.g. alumni meeting, rotary club, hobby associations etc.), I build connections with people I did not know before.	0.83	—	—	—	—	5.0	1.5
I consciously set aside time for meeting new people.	0.58	—	—	—	—	3.8	2.0
When I meet a new person, I find out if he or she is connected to people I already know.	—	0.80	—	—	—	4.9	1.5
I make an effort to find out as much as possible about a new person that I meet.	—	0.80	—	—	—	4.7	1.3
When meeting a new person, I find out how he or she will benefit from our (potential) relationship.	—	0.75	—	—	—	4.9	1.6
I find it difficult to keep in touch with my contacts without having a specific reason. (R)	—	—	0.83	—	—	3.8	1.9
I get in touch with my contacts on a need basis—if I do not have a specific need, I do not contact them. (R)	—	—	0.87	—	—	3.9	1.8
When one of my contacts moves jobs, I lose touch with that person. (R)	—	—	0.69	—	—	4.6	1.6
I assess whether my current contacts would be valuable to me in the future. (R)	—	—	—	0.67	—	4.4	1.8
I deliberately keep away from some contacts in my network. (R)	—	—	—	0.74	—	3.2	1.8
I stay away from contacts who make me a “one-stop-shop” for all their needs. (R)	—	—	—	0.74	—	4.0	1.9
I take actions to build personal friendships with my business contacts.	—	—	—	—	0.75	4.4	1.6
I socialize with my business contacts.	—	—	—	—	0.80	4.3	1.6
I convert a work relationship in stages to a personal relationship.	—	—	—	—	0.79	4.7	1.7
Coefficient alpha	0.67	0.77	0.80	0.65	0.78		

Note: Table reports data from the theory testing sample. RO = Reaching out to new alters; EKN = Establishing interpersonal knowledge of new alters; TBP = Time-based interaction pacing; NP = Network preserving; RE = Relational embedding; (R) = item is reverse coded.

^a N = 73 for this theory testing sample data. Respondents were asked to rate how frequently they engaged in the itemized actions during the previous 12 months on a response scale of 1 to 7, where 1 = Never and 7 = Always. For RO and EKN, respondents were asked to think about new people (people not yet part of their personal network); for the next three variables (TBP, NP, and RE), respondents were asked to think about people who were already part of their personal network.

TABLE 4
Correlation Matrix and Descriptive Statistics^{ab}

	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Count of new exchanges	2.0	3.3	—										
2. Reliance on referral-based search	0.37	0.27	-0.28*	—									
3. Relatedness of prior experience	4.2	2.0	-0.08	-0.04	—								
4. Elite university	0.47	0.50	-0.21	0.12	-0.13	—							
5. Externally funded	0.36	0.48	0.01	0.15	-0.14	0.0	—						
6. Venture age	3.6	2.6	0.12	-0.04	-0.09	0.02	-0.01	—					
7. Venture size	31	94	0.01	0.24 [†]	-0.24 [†]	0.07	0.02	0.36**	—				
8. Search volume	15.0	13.1	0.51**	-0.15	0.04	0.05	0.08	0.10	-0.04	—			
9. Location	0.75	0.44	0.16	-0.03	0.09	-0.07	0.27*	0.09	-0.20	0.21	—		
10. Structural holes	0.74	0.08	0.09	0.14	-0.06	0.06	0.06	0.26*	0.17	0.16	-0.33*	—	
11. Network broadening actions	-0.04	0.81	0.11	-0.30*	0.09	-0.19	0.05	-0.13	-0.29*	0.09	0.23 [†]	-0.05	—
12. Network deepening actions	0.0	0.66	-0.31*	0.29*	0.15	-0.05	0.02	-0.20	0.22	-0.16	-0.16	0.07	0.01

^a Number of observations (*N*) is 59 for all variables except for the first (count of new exchanges), for which *N* = 53. The means and standard deviations reported are before variables were standardized.

[†] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$ (all two-tailed tests)

TABLE 5
GLM Model for Reliance on Referral-Based Search^{ab}

	Base Model (#1)	Main Effects (#2)	Interaction Effect (#3)
Relatedness of prior experience	0.07 (0.36)	-0.01 (-0.10)	-0.02 (-0.11)
Elite university	0.28 (1.0)	0.20 (0.66)	0.18 (0.62)
Externally funded	0.31 (0.83)	0.27 (0.80)	0.18 (0.53)
Venture age	-0.91 (-1.3)	-0.78 (-1.1)	-0.82 (-1.2)
Venture size	0.64 [*] (2.2)	0.40 [†] (1.6)	0.40 [†] (1.6)
Search volume	-0.26 [†] (-1.8)	-0.23 [†] (-1.6)	-0.25 [†] (-1.8)
Location	0.33 (0.84)	0.56 [†] (1.6)	0.68 [*] (2.0)
Structural holes	0.30 (1.6)	0.31 [†] (1.6)	0.37 [†] (1.8)
Network broadening actions		-0.37 [*] (-2.3)	-0.39 ^{**} (-2.7)
Network deepening actions		0.29 [*] (2.0)	0.33 [*] (2.0)
Network broadening actions × Network deepening actions			-0.25 [†] (-1.9)
No. of observations	59	59	59
Log pseudo-likelihood	-28.3	-27.2	-26.7

^a The dependent variable is the reliance on referrals while searching for new exchange partners for the focal venture; it ranges between 0 and 1 (inclusive). All predictor variables except the indicator variables were standardized. Figures in parentheses are *t*-statistics. All models estimated using GLM regression with robust standard errors.

[†] $p < 0.10$; ^{*} $p < 0.05$; ^{**} $p < 0.01$ (all two-tailed tests)

TABLE 6
**Negative Binomial Regression Model for the Count of New Economic Exchanges
Initiated^{ab}**

	Base Model (#1)	Main Effect (#2)
Relatedness of prior experience	-0.42 [*] (-2.3)	-0.34 [*] (-2.2)
Elite university	-1.22*** (-3.5)	-1.15*** (-3.4)
Externally funded	-0.42 (-0.93)	-0.40 (-1.0)
Venture age	0.44 (0.60)	0.26 (0.40)
Venture size	-1.36 (-1.4)	-1.16 (-1.4)
Search volume	0.76*** (4.8)	0.66*** (4.1)
Location	0.21 (0.30)	0.29 (0.46)
Reliance on referral-based search		-0.42 [†] (-1.9)
No. of observations	53	53
Wald's chi-squared	47***	60.1***
Log pseudo-likelihood	-85.0	-83.2

^a The dependent variable is the count of new sales or alliance contracts received by a focal entrepreneur from the new people he met during Phase I. Contracts signed during the 12 month period following Phase I are coded as 1, and right-censored observations were coded as 0. All predictor variables except the indicator variables were standardized. Figures in parentheses are *t*-statistics. All models estimated using negative binomial regression with robust standard errors.

[†] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (all two-tailed tests)

TABLE 7
**Results of Bootstrapping Estimates of Reliance on Referrals Mediating the Impact
of Networking Actions on New Economic Exchanges^a**

	Coefficient	90% Confidence Interval (bias corrected)
Indirect Effects		
Network broadening actions × Reliance on referrals	0.38	0.005 to 1.769
Network deepening actions × Reliance on referrals	-0.32	-2.378 to 0.197
Network broadening Actions × Network deepening actions × Reliance on referrals	0.25	0.004 to 1.002

^a The dependent variable is the count of new economic exchanges. The results reported are bootstrap estimates performed in STATA. The path from networking actions (independent variables) to reliance on referrals (mediator variable) estimated as a GLM model; the path from reliance on referrals to count of new exchanges (dependent variable) estimated as a negative binomial regression model after including the independent variables.

FIGURE 1
Research Design

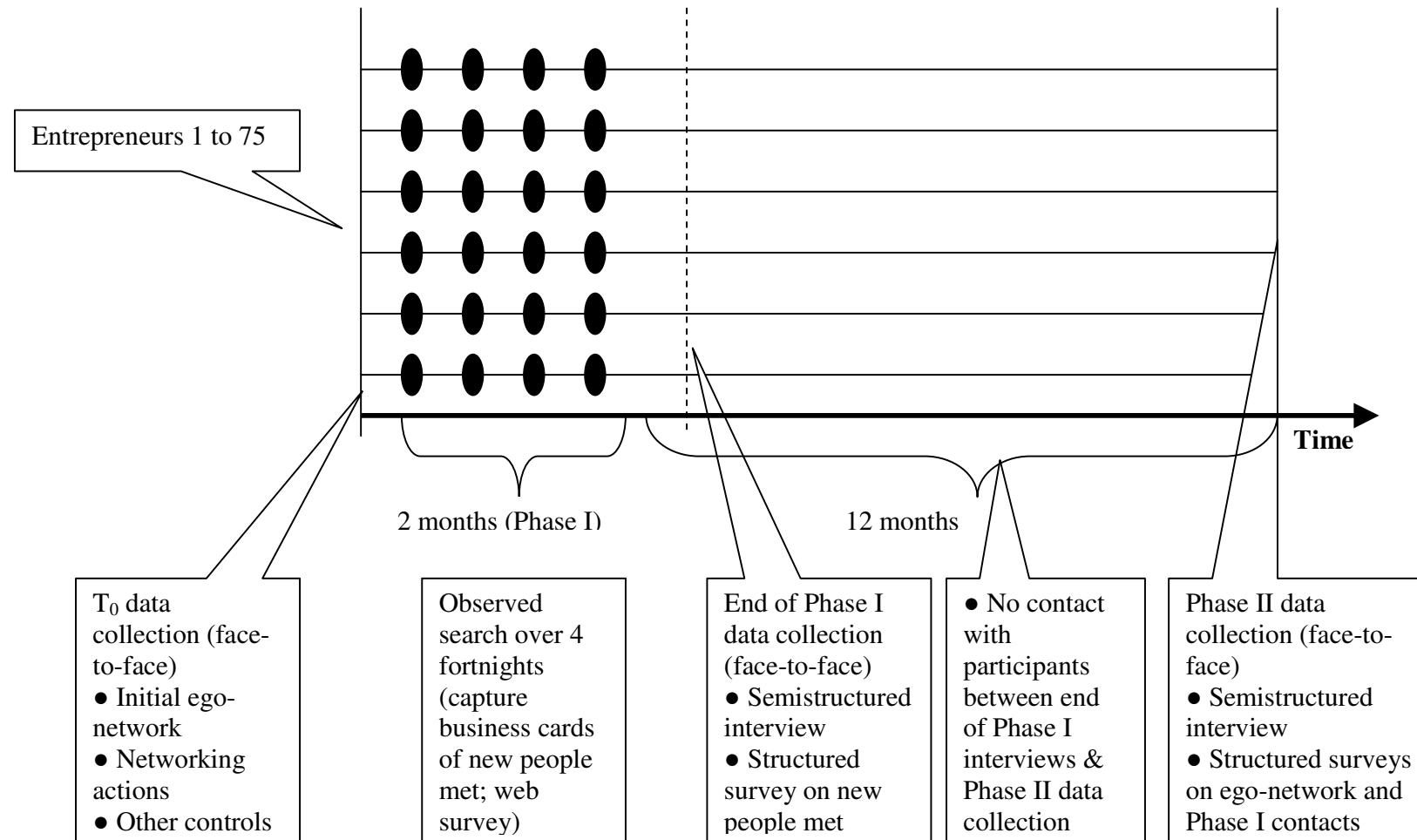
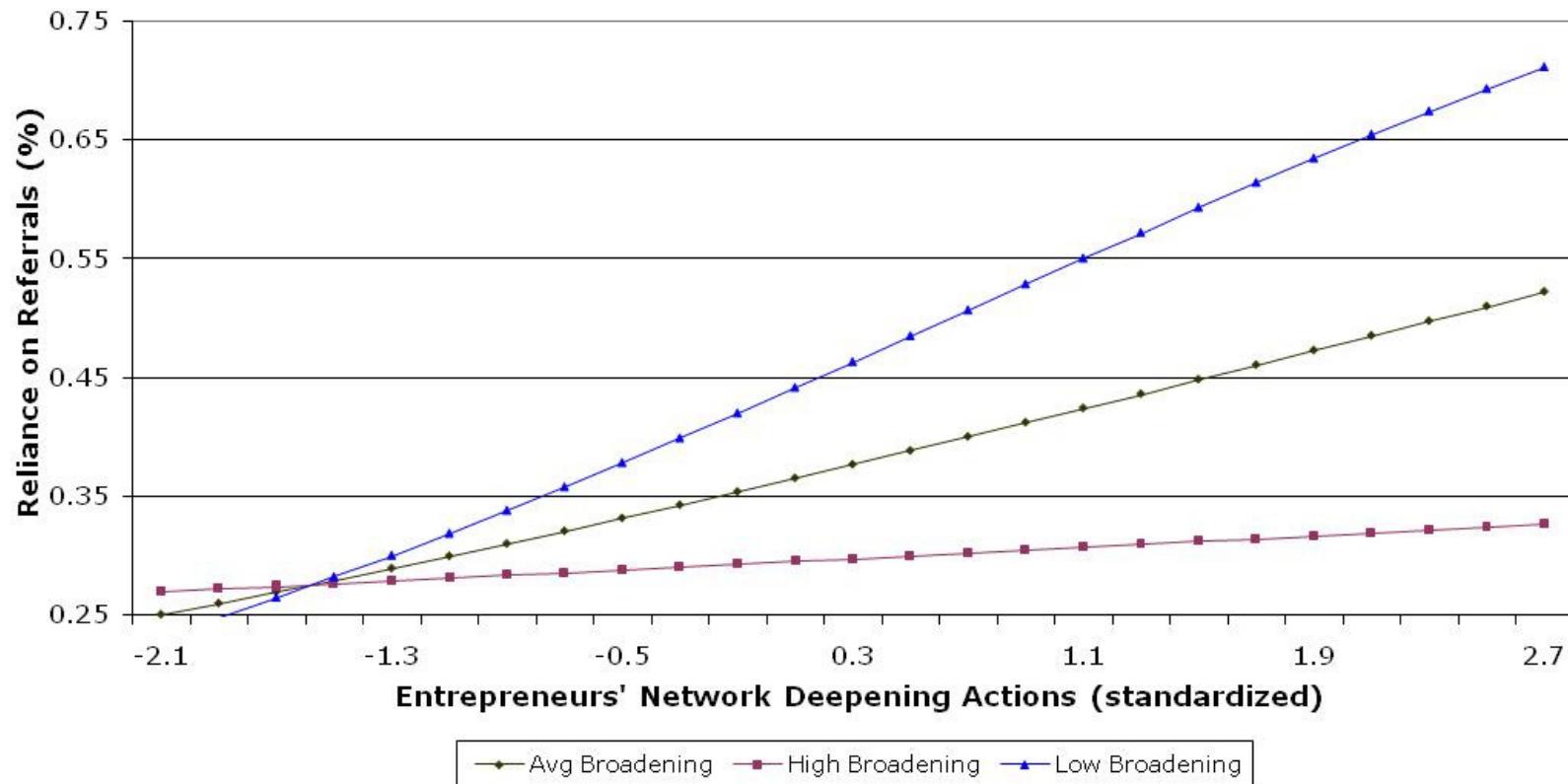


Figure 2
Interaction of Entrepreneurs' Network Broadening and Deepening Actions



Online Appendix
**AGENCY IN ACTION: ENTREPRENEURS' NETWORKING
STYLE AND INITIATION OF ECONOMIC EXCHANGE**

SECTION A

Inductive Study to Identify Entrepreneurs Networking Behaviors: Methods and Analysis

An officeholder of a peer group organization (E-club) in Bangalore identified members to participate in the inductive study, which was described as an academic research project on how Indian entrepreneurs build professional relationships in the early years of their venture. To ensure diversity of actions, I asked the E-club officeholder to identify individuals who had diverse approaches to forming and managing professional relationships. Table A1 provides more information on the participating entrepreneurs.

Data Collection

Data from this sample were gathered through open-ended semistructured interviews, supplementary conversations, and structured surveys that add up to about 42 hours of interactions with the nine entrepreneurs and other individuals (co-founder/ employee or customer) who interacted with them closely. I also examined the ventures' Web sites to gather information on the ventures' operating history and founders' background and career history. After a pilot with two entrepreneurs (who were different from the focal sample), I conducted three rounds of interviews with the nine focal entrepreneurs and their associates. Initial interviews were semistructured and typically lasted about 60 minutes. Interviews were taped and transcribed. A few months later, I conducted an additional round of supplementary conversations and more structured data collection in sessions that typically lasted 60 minutes. Finally, to triangulate accounts by focal entrepreneurs, I collected structured survey data from selected associates who were familiar with the focal entrepreneur's networking actions.

During the initial interviews, I first focused on the venture's founding story, business model, key customers, alliance partners, and competitors; I obtained details about co-founders (if any), focal entrepreneur's background, motivations for launching the venture, and perceived importance of building and managing professional relationships. I then initiated a discussion about the entrepreneur's actions, during the previous six months, that related to forming new interpersonal relationships or to managing

relationships with people who were potentially relevant to them professionally. Initial questions were open-ended (e.g. What actions did you take to meet new people potentially relevant to your business? What did you pay attention to when you met a new person? How did you keep in touch with existing contacts?). I then asked additional questions that probed deeper to find the reasons behind the actions they took (e.g. Under what circumstances did you meet new people? How did you find out more about the new people you interacted with? How did you decide whether a new person you met is worth your while to keep in touch with? When do you not keep in touch? What is the cue for you to initiate an interaction with an existing contact? Do you deliberately avoid any of your existing contacts? Why? Did you let an existing relationship “go cold” in the last six months? Why? How did you do it?). This interview ended with questions on whether their relationship formation and management actions had changed significantly since the previous year and prior to their transition to entrepreneurship.

I followed up a few months later with supplementary conversations to fill in gaps in the initial interview data and to ask entrepreneurs to nominate an associate—co-founder, employee, customer, or investor—who knew the entrepreneur well enough to answer a brief survey about his relationship building actions. I ended these conversations by asking entrepreneurs to quantify how many new people they met in a month, the number of new people met that they wanted to stay in touch with, and the average number of months that elapsed before a new contact provided something of value to the entrepreneur. I then administered a structured survey asking the focal entrepreneur to rate the frequency with which he or she performed a variety of actions relating to formation of new interpersonal ties and management of existing ones. In addition, I administered this same survey to the nominated associate. Finally, a few months later, I interviewed the entrepreneurs again to understand how they searched for new exchange partners for their venture.

Data Analysis

I first identified interview text dealing with entrepreneurs’ behaviors (i.e., *what* they do)—omitting text that was concerned solely with their emotions or motivations. This process yielded a database of 137 codable statements. Each statement consisted of a sentence or a sequence of sentences conveying a

coherent point (Weber 1990) about entrepreneurs' actions relating to formation of new interpersonal ties and management of existing ones. I then used the method of constant iteration (Miles and Huberman 1994) to create mutually exclusive and exhaustive categories as described in more detail below.

My approach to data reduction (cf. Lee et al. 1999) consisted of two steps. In the first step, I induced first-order, nonoverlapping categories of networking actions that closely matched the raw data provided by the respondents (see Gioia and Thomas 1996). Specifically, I employed an approach similar to that in Edmondson (1999), which classifies statements as positive or negative forms of the category. For example, I classified the statement "*I keep an Excel spreadsheet where I record the details of the new contacts I have made*" as the positive form of "being systematic and disciplined in meeting new people". I similarly classified the statement "*I don't have any fixed routines for meeting new people—I want to do it, but don't find the time for it*" as the negative form of "being systematic and disciplined in meeting new people". Proceeding in this fashion (see Table 1 of the published manuscript for details) yielded eleven data-induced first-order categories related to networking behaviors.

In the second step, I grouped these first-order categories into five robust and mutually exclusive variables (cf. Strauss and Corbin 1998) based on the functional/intrinsic aspects of interpersonal relationship formation or management they represented. For example, I grouped "seeking out new people" and "being systematic and disciplined in meeting new people" into the variable "Reaching out to new alters" because it captures the extent to which entrepreneurs takes steps to expand their personal network. The other groupings arose in a similar fashion (see Table 1 of the published manuscript for details). At this stage, I assessed robustness of the induction using the strategy of analyst triangulation (Lincoln and Guba 1985, p. 305). Specifically, an expert in qualitative methods who was blind to the study objectives independently coded the 137 statements in terms of the defined five variables. The level of initial agreement on the coding was 87%, giving an acceptable Cohen's kappa of 0.82 (cf. Lombard et al. 2002). The statements that were coded differently were discussed, and changes were made until consensus coding was achieved.

Insert Table A1 about here

Table A1
Description of Inductive Sample Respondents

	Veer	Nachi	Ram	Suhas	Suma	Krish	Jai	Sunny	Vipin
Gender	Male	Male	Male	Male	Female	Male	Male	Male	Male
Age	38	39	27	37	40	36	34	35	27
Years of work experience	15	14	6	13	19	12	11	12	5
Prior start-up experience	Yes	No	No	No	Yes	Yes	Yes	No	No
Venture's market	IT training & consulting	Software for electronic device design	Software products & services	Software tools for hardware design	Software solutions for process control	Marketing analytics services	PR & communication analytics services	Software services	Software services for health consulting & management
Venture age	7	5	4	4	3	4	5	6	2
Venture size (head count)	30	30	10	20	42	70	20	100	20
Role in venture	CEO	CEO	CEO	CEO	CEO	Business development	CEO	CEO	Business development
Founding team size	1	3	2	1	2	2	1	1	3
Paying customers	~50	~30	~5	~15	~25	~20	~30	~50	~15
Interviews	3: Veer (2); Employee (1)	2: Nachi (2)	3: Ram (2); Employee (1)	2: Suhas (2)	3: Suma (2); Partner (1)	3: Krish (2); Partner (1)	3: Jai (2); Customer (1)	2: Sunny (2)	3: Vipin (2) Partner (1)

SECTION B

Scale Development and Validation Procedures for Entrepreneurs' Networking Actions Scale

The formative constructs of network broadening and network deepening were defined as combinations of five variables that captured entrepreneurs' behaviours as regards adding new interpersonal ties and managing existing ones. This Appendix describes the procedures used to develop and validate a measurement scale for the two constructs.

I followed established procedures (DeVellis 2003, Spector 1992) to develop and validate a scale to measure the five component variables as follows. First, I generated a large number of items using the concept of networking action variables derived from the inductive study interviews (see section A of this online Appendix) and from a review of the related literature. My item pool was reviewed by two researchers, respective experts on social network theory and entrepreneurship, to assess their content validity. I then reworded some items for clarity and dropped others altogether based on feedback from these experts and from respondents to a pilot survey.

The second step was to transform the networking action items into a measurement scale. I did this by administering an e-mail survey with the final list of networking action items to a sample of 200 Indian entrepreneurs/MBA students specializing in entrepreneurship and family business; I received complete and usable responses from 107 of them. Note that this "scale-development sample" differs from the theory testing sample, which consisted of the panel of 75 entrepreneurs drawn from 73 ventures. I analyzed data from this scale-development sample as follows. First, I dropped items with extremely low variance (less than 1.0) because they do not enable discrimination between individuals on the construct of interest (DeVellis 2003). I then conducted an exploratory factor analysis (EFA) with varimax rotation, using SPSS/AMOS, to analyze their inter-relationship and to suggest items for deletion (Ford et al. 1986). Inspection of the EFA scree plot suggested a 5 factor solution, which accounted for 60% of the variance in the items. To ensure that each item represented the construct underlying each factor I used a factor weight of 0.4 as the minimum cut-off, yielding a total of 19 items that loaded on to the five factors. I then followed Bollen's (1989) recommendation and assessed goodness of fit using multiple indices provided

by AMOS, including the chi-square test, the root mean square error of approximation (RMSEA) test statistic, the comparative fit index (CFI), and the incremental fit index (IFI). The CFA showed only a moderate fit for the five-factor model, $\chi^2 = 217$ (142, $N = 107$), p -value = 0.00, RMSEA = 0.07, CFI = 0.85, IFI = 0.86. Inspection of the residuals and factor loadings suggested that a better fit could be obtained by removing two cross-loading items and two other problematic items. Deleting those four items improved model fit, $\chi^2 = 94.3$ (80, $N = 107$), p -value = 0.13, RMSEA = 0.04, CFI = 0.95, IFI = 0.96; this resulted in all of the indices falling within acceptable ranges (Anderson and Gerbing 1988). The final list of items—consisting of the networking actions scale with their factor loadings, scale reliability, means, and standard deviations—are reported in Table B1.

Insert Table B1about here

In the third step, I administered the networking actions scale during the initial face-to-face meetings to the panel of 75 entrepreneurs that participated in the quantitative portion of the study (the theory testing sample). To cross-validate the five-factor solution obtained from step two of the scale-development process, I performed a confirmatory factor analysis (CFA) using SPSS/AMOS; imposing a five-factor solution on the data accounted for 65% of the variance in the items. Factor loadings, scale reliabilities, item means, and standard deviations for this theory testing sample are also shown in Table 3 (of the published manuscript). As can be seen from Table 3, the scale items loaded on to the appropriate factors. In addition, the scales showed acceptable internal consistency, with Cronbach's alpha reliabilities ranging from 0.65 to 0.80.

Panel A of Table B2 shows the correlations among the five networking action latent constructs for the theory-testing sample. The average intercorrelation of 0.34 (range from -0.14 to 0.57) represents a moderately positive association among the latent constructs. To further assess factor independence, I compared this five-factor solution with a one-factor model, whose indices showed poor fits. In short, it would be difficult to argue from the data that the networking action scale items are tapping into a unidimensional construct. I used the factor scores to compute the five networking variables: reaching out

to new alters, establishing interpersonal knowledge of new alters, time-based interaction pacing, network preserving, and relational embedding.

Insert Table B2 about here

I then calculated the formative constructs of network broadening and network deepening actions as the weighted sum of the five networking variables. Specifically, I constructed an index of *network broadening actions* as the weighted sum of the first two networking variables: (i) reaching out to new alters and (ii) establishing interpersonal knowledge of new alters. I then constructed an index of *network deepening actions* as the weighted sum of the other three networking variables: (iii) time based interaction pacing, (iv) relational embedding, and (v) network preserving. Although my inductive study data enabled conceptualization of network broadening and deepening actions as a combination of five networking variables, that data did not provide any theoretical guidance regarding the relative weights of the component variables. Also, there is no well-established empirical technique for assigning the weights necessary to calculate a formative scale from its individual component variables. I therefore estimated the weights by using a grid search (Greene 1993, p. 344) over all parameter values in increments of 0.1, taking the combination that yielded the best model fit as the “most likely” combination. This empirical procedure yielded weights of 30% and 70% (respectively) for the two component variables of *network broadening actions*—namely, reaching out to new alters and establishing interpersonal knowledge of new alters. Likewise, I estimated weights of 30%, 50% and 20% (respectively) for the three component variables that constitute *network deepening actions*: time-based interaction pacing, relational embedding, and network preserving.

Finally, I assessed the convergent and discriminant validity of the networking actions scale. A measure has *convergent validity* to the extent that it co-varies with other measures purported to measure the same or related constructs. Since there is no prior work that purports to measure entrepreneurs’ networking behaviors, I assessed validity by examining the correlation of the networking actions scale with four related constructs (the *tertius iungens* orientation, self-monitoring behaviors, and the Big Five personality traits of extraversion and conscientiousness) and also with four unrelated constructs

(entrepreneurs' age and the Big Five personality traits of agreeableness, openness to variety, and emotional stability). Panel B of Table B2 reports the correlations between the networking actions scale components and the eight constructs just described, and it is explained in more detail next.

Obstfeld (2005) provides evidence that actors differ in their orientation toward connecting individuals in their contact network—the *tertius iungens* orientation. I measured this orientation by asking entrepreneurs to report (on a 7-point scale) the frequency with which they engaged in the following behavior in the previous year: “I proactively introduce current contacts in my network to each other.” We would expect entrepreneurs who actively engage in network broadening or deepening actions to also score high on the *tertius iungens* orientation. As seen in Panel B of Table B2, the *tertius iungens* orientation is correlated at 0.38 ($p = 0.001$) with network broadening actions and at 0.33 ($p = 0.001$) with network deepening actions in the sample.

Some aspects of individuals' personality traits could influence their networking actions. Mehra et al. (2001) find that high self-monitors occupy central positions in friendship networks in organizations. High self-monitors are individuals who are sensitive to the desires and expectations of others and therefore use others' behavior as a guide for expressing themselves (Snyder 1974). High self-monitors tend to seek out more information, are more accurate in diagnosing social situations, take social cues more into consideration in their behavior, and are more highly skilled at presenting impressions (Snyder 1974). Low self-monitors rely less on social cues to direct their behavior and more on introspection. We expect entrepreneurs who are high self-monitors to engage in more network broadening and network deepening actions. But contrary to these expectations, the data do not reveal any significant correlation between self-monitoring and networking actions.

Extraversion and conscientiousness are two aspects of the Big Five personality traits (McCrae and Costa 1990) that could be related to entrepreneurs' networking actions. Extraversion is characterized by positive emotions and the tendency to seek out the company of others. Individuals scoring high on this trait enjoy being with people. Conscientiousness is a tendency to show self-discipline, act dutifully, and aim for achievement. Individuals scoring high on this trait prefer planned rather than spontaneous

behavior and tend to be persistent. For a subsample of entrepreneurs ($N = 51$) I obtained responses to “mini-markers” (Saucier 1994) for the Big Five personality scale. As expected, *network broadening actions* was correlated at 0.23 ($p = 0.09$) with extraversion and at 0.29 ($p = 0.04$) with conscientiousness. Similarly, *network deepening actions* was correlated at 0.34 ($p = 0.03$) with extraversion.

In addition, we expect measures of networking actions to have lower correlation with measures of demographic attributes or personality traits that are presumed to be distinct and unrelated to networking. Thus, we would expect entrepreneurs’ age to be relatively less correlated with their networking actions, and likewise for the other Big Five personality traits (openness to variety, agreeableness, and emotional stability) that are likely to be less correlated with networking actions. As shown in Panel B of Table B2, entrepreneur age, agreeableness, and openness to variety are not significantly correlated with network broadening or deepening actions. Contrary to expectations, emotional stability was negatively correlated (at -0.23 , $p = 0.09$) with network broadening actions. Overall, I conclude that *network broadening actions* and *network deepening actions* exhibit acceptable convergent and discriminant validity with other well-established constructs.

REFERENCES

(Please refer to the References section of the main published manuscript for the details)

TABLE B1
Item Loadings, Means, Standard Deviations, and Reliabilities of the Entrepreneurs' Networking Actions Scale

Items	RO	EKN	TBP	NP	RE	Mean	S.D.
When I attend industry forums & other business related networking events, I build connections with people I did not know before.	0.78 ^a	—	—	—	—	5.1	1.5
When I attend social events (e.g. alumni meeting, rotary club, hobby associations etc.), I build connections with people I did not know before.	0.76	—	—	—	—	4.6	1.6
I consciously set aside time for meeting new people.	0.71	—	—	—	—	3.6	1.7
When I meet a new person, I find out if he or she is connected to people I already know.	—	0.75	—	—	—	4.9	1.4
I make an effort to find out as much as possible about a new person that I meet.	—	0.86	—	—	—	4.6	1.4
When meeting a new person, I find out how he or she will benefit from our (potential) relationship.	—	0.57	—	—	—	4.7	1.5
I find it difficult to keep in touch with my contacts without having a specific reason. (R)	—	—	0.84	—	—	4.0	1.7
I get in touch with my contacts on a need basis—if I do not have a specific need, I do not contact them. (R)	—	—	0.89	—	—	4.2	1.7
When one of my contacts moves jobs, I lose touch with that person. (R)	—	—	0.66	—	—	4.5	1.6
I assess whether my current contacts would be valuable to me in the future. (R)	—	—	—	0.65	—	4.3	1.8
I deliberately keep away from some contacts in my network. (R)	—	—	—	0.76	—	3.1	1.6
I stay away from contacts who make me a “one-stop-shop” for all their needs. (R)	—	—	—	0.68	—	4.1	1.9
I take actions to build personal friendships with my business contacts.	—	—	—	—	0.75	4.5	1.6
I socialize with my business contacts.	—	—	—	—	0.78	4.4	1.5
I convert a work relationship in stages to a personal relationship.	—	—	—	—	0.72	4.3	1.6
Coefficient alpha	0.69	0.68	0.77	0.61	0.71		

Note: Table reports data from the scale development sample. RO = Reaching out to new alters; EKN = Establishing interpersonal knowledge of new alters; TBP = Time-based interaction pacing; NP = Network preserving; RE = Relational embedding; (R) = item is reverse coded.

^a N = 107 for this scale development sample data. Respondents were asked to rate how frequently they engaged in the itemized actions during the previous 12 months on a response scale of 1 to 7, where 1 = Never and 7 = Always. For RO and EKN, respondents were asked to think about new people (people not yet part of their personal network); for the next three variables (TBP, NP, and RE), respondents were asked to think about people who were already part of their personal network.

TABLE B2
Correlations among Components of Networking Action Scale and Measures of Other Constructs

PANEL A	RO	EKN	TBP	NP	RE	Network Broadening Actions	Network Deepening Actions
Reaching out to new alters (RO)	—						
Establishing interpersonal knowledge of new alters (EKN)	0.48	—					
Time-based interaction pacing (TBP)	0.28	0.43	—				
Network preserving (NP)	-0.48	-0.33	0.14	—			
Relational embedding (RE)	0.43	0.37	0.57	-0.12	—		
Network Broadening Actions ^a	0.40***	0.91***	0.0	0.0	0.0	—	
Network Deepening Actions ^a	0.0	0.0	0.49***	0.32**	0.81***	0.0	—
PANEL B							
Theoretically related constructs							
<i>Tertius iungens</i> orientation	0.29*	0.29*	0.23 [†]	0.17	0.19	0.38**	0.33**
Self-monitoring	0.18	0.05	0.06	-0.02	0.12	0.12	0.12
Big Five trait: Extraversion ^b	0.23 [†]	0.15	0.26 [†]	0.25 [†]	0.20	0.23 [†]	0.34*
Big Five trait: Conscientiousness ^b	0.31*	0.19	0.11	-0.03	0.18	0.29*	0.17
Theoretically unrelated constructs							
Entrepreneur age	0.12	-0.09	0.18	0.08	-0.06	-0.03	0.07
Big Five trait: Agreeableness ^b	0.04	0.17	-0.11	0.20	0.05	0.18	0.05
Big Five trait: Openness to variety ^b	0.21	0.15	-0.08	0.21	0.07	0.23	0.08
Big Five trait: Emotional stability ^b	0.21	-0.23 [†]	-0.20	0.06	-0.04	-0.23 [†]	-0.10

^a Table reports data from the theory testing sample of 75 entrepreneurs drawn from 73 ventures. Network Broadening Actions is a weighted sum of RO (30%) and EKN (70%). Network Deepening Actions is a weighted sum of TBP (30%), NP (20%) and RE (50%). The weights were determined using a grid search approach. Networking Broadening and Network Deepening are uncorrelated because their component variables were obtained using varimax rotation.

^b N = 51 for the correlations between Big Five personality traits and networking variables; N = 73 for all other correlations.

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