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Inter-Organizational Networks for Developing Dynamic Capability: A Study of Nascent Start-Up Firms

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Abstract

The idea of entrepreneurial initiative is immersed in reaching out to social actors and establishing ties with them so that these ties could be used for furthering the interests of business. The nature of these ties, however, varies and provides instruments of interaction which can be leveraged for fulfilling the purpose of business. One of these methods is an extensive reaching out to as many actors as possible so that direct ties (i.e., channels of communication) can be maintained. Another method is to intensely engage with a few actors so that interaction with others can be mediated through them – indirect ties. The development and usage of the social network of start-ups firms is a critical component of the start-ups capability development process. The networks of the start-ups founders gradually transitions into inter-organizational network of their firms. Such networks then enhances the dynamic capability of these firms.

Keywords: inter-organizational network, dynamic capability, start-up firms

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Introduction

For start-ups in general and more for innovation based start-ups, uncertainties related to market, technological, financial, and human resources are significantly high. These innovation-based start-ups need to develop dynamic capabilities to tackle such uncertainties to keep themselves afloat. Entrepreneurs face constraints from multiple fronts including access to relevant resources. Some of these resources are available from their existing network or can be availed by building new direct or indirect links by building a network. We intend to explore two variables which we expect to have significant impact and contribute heavily to the development of dynamic capabilities, namely inter-organizational networks and entrepreneurial acumen.

Understanding entrepreneurship

Entrepreneurship is a widely studied but not completely understood phenomenon. Entrepreneurship is the ability to bear risk and uncertainty for generating profits (Knight, 1921) by coordinating scarce resources (Casson, 1982); it is the activity to create something new (products, process, services, sources of raw material) yet to be considered by existing firms (Schumpeter, 1934) leading to the creation of a new organization (Gartner, 1985) or markets involving bundling, reconfiguring and redeployment of resources (Ireland, Hitt, & Sirmon, 2003). Entrepreneurship is also a process (Hitt *et al.*, 2001) by which an individual or an organization identifies and explores previously unexploited opportunities (Ireland, Hitt, Camp, and Sexton, 2001). Shane and Venkataraman (2000) suggest that entrepreneurship involves the activity of exploration (Kirzner, 1973) and exploitation (March, 1991) of profitable opportunities and leads to wealth creation. Entrepreneurship has also been referred to as a process of cognition, discovery, pursuing market opportunities (Kirzner, 1973), and coordinating knowledge leading to production of heterogeneous outputs (Alvarez & Busenitz, 2001).

Entrepreneurship literature has addressed antecedents to entrepreneurial activity such as personal or psychological characteristics of entrepreneurs (Gartner, 1985), environmental factors (Sandberg and Hofer, 1987), financing available of start-up firms, and the entrepreneurial

ecosystem available (Chandler and Hanks, 1993). These factors have been linked with their influence on performance of the venture. Other areas on which entrepreneurship literature has focused are entrepreneurial networks and resource allocation (Aldrich, 1986; Granovetter, 1992), conceptualization of the process of entrepreneurship (Shane and Venkataraman , 2000), different stages in the entrepreneurial processes, alertness and opportunity identification capabilities of the entrepreneur (March, 1991), and societal consequences of entrepreneurship (Schildt, Zahra, and Silanpaa, 2006).

Extant literature suggests that entrepreneurial start-ups play an important role in wealth creation. These start-ups, by virtue of their entrepreneurial actions, attempt to exploit opportunities which have been either previously unidentified (Ireland *et al.*, 2001) or previously untapped. This may involve tapping new markets, new product introduction in existing markets, and/or realigning existing resources to develop a new or altered set of capabilities (Smith and Gregorio, 2000). Wealth creation is preceded by the development of capability of an entrepreneurial start-up to 'generate growing, sustainable income streams' (Rutledge and Wealth, 1993, as cited in Ireland, et. al., 2001). Of the two measures of sustainable income discussed by Ireland *et. al.* (2001), one is market value added (MVA), which is a measure of wealth generated by an organisation on invested shareholder's capital. For an entrepreneurial start-up, most of the capital is either sourced through seed capitalists, angel financing, or venture capitalists, depending upon the stage of the entrepreneurial venture. By ensuring a high MVA, such organisational entities add to invested capital, and hence, to wealth of the society at large. Financial wealth is not the only wealth that entrepreneurial ventures create; during the day-to-day operations, they also add to the sources of employment, and skill generation of organisational actors (Ireland and Hitt, 1999).

Entrepreneurial decision making and tackling uncertainty

Decision-making to tackle uncertainty can be viewed through the perspective of either content or process (Elbanna, 2006). The content perspective deals with issue of the tools to be employed to tackle environmental uncertainties such as diversification, forming alliances, or merger and the alignment of firm strategies. On the other hand, process perspective deals with the issue of how to make those decisions and implement them. Decision making is also influenced by biases of

the decision maker, and heuristics used by the decision maker (Walsh, 1995). The focus of this paper is the process perspective.

Decision-making of entrepreneurial firms involves more extensive use of heuristics and personal beliefs of the entrepreneurs than it is in case of managers in larger organizations (Baron, 1998; Busenitz and Barney, 1997). When decisions are to be made in situations that are complex and available information being imperfect, entrepreneurs' use "heuristics". These heuristics are simplified, experience-based, and self developed rules of decision-making. Entrepreneurial activity involves judgmental decision making (Foss & Klein, 2006) as the range of possible outcomes available to an entrepreneur is usually limited. The range of possible outcomes is limited because of bounded rationality being faced by the entrepreneur (Thompson, 1967). The way an entrepreneur perceives and learns, as well as his reasoning is different from that of a manager. Individual heuristics and beliefs are used extensively by an entrepreneur in the decision-making process. Such a heuristic-based judgmental decision making which is not impeded by procedural and structural delays enables an entrepreneur to exploit the opportunity better in times of uncertainty. Managerial cognition and decision making is more systematic, and is based more on factual information (Alvarez and Busenitz, 2001). Managers' use preset rules, incentive structures, set procedures, and fact based logic. The windows of opportunity available to entrepreneurial ventures are brief, and exploiting these need fast decision. Heuristic-based logic enables the entrepreneur to exploit these opportunities better (Tversky & Kahneman, 1974). For startups, pursuit of new opportunities using more factual-based logic becomes very costly, if not impossible. Adhering to complex rules, policies, and procedural routines, creates hindrances in way of exploration and exploitation of opportunities for start-ups. Heuristic-based and judgmental decision-making processes enable entrepreneurs to make decisions which are different, fast, and can result in forward-looking approaches (Gavetti & Levinthal, 2000). Using such cognition can help in building heterogeneity (VRIN resources) and thus become a source of sustainable competitive advantage for entrepreneurial firms (Alvarez and Buzenitz, 2001).

Uncertainty of a startup has been conceptualized in different ways. It can arise due to imperfect information availability (Thompson, 1967), or due to unpredictability (Cyert and March, 1963), environmental complexity (Galbraith, 1973), ambiguity (Milliken, 1987) and turbulence (Emery and Trist, 1965). Irrespective of source startups need to tackle uncertainties to

survive, grow, and sustain that growth.[3] Tackling (or managing) uncertainty is the central component of the decision making process in organizations (Andrews, 1971, Miles, Snow and Pfeffer, 1978). Burns and Stalker (1961) mentions uncertainty can be categorized into perceived uncertainties (uncertainties as perceived by decision makers) and objective uncertainty (actual uncertainties that exists).

Perceived environmental uncertainty can be classified into three types: state, effect, and response (Milliken, 1987). State uncertainty arises due to imperfectness in availability of information and this makes it difficult for the decision maker to understand or to predict the state of environment. Effect uncertainty arises due to decisions makers' inability to correctly judge impact of environmental changes on their firms. Response uncertainty is caused by the decisions makers' inability to generate sufficient options to tackle the uncertainties and/or preempt the potential impacts of the chosen option. It is usually this third type of uncertainty, viz. response uncertainty, which puts the decision maker in a dilemma. Thus one can see that lack of information or knowledge is a major source of uncertainty.

Bourgeois (1980) mentions that there are two major sources of objective uncertainty for a firm, viz., task environment (Thompson, 1967) and general environment (Ansoff, 1971; Lawrence and Lorsch, 1967). Task uncertainty arises due to the very nature of task and consists of dimensions of the environment with which the firm has direct interaction. General environmental uncertainty is the uncertainty arising from factors external to the organization and consists of dimensions of the environment which affects the firm indirectly.

Major objective uncertainties for an innovation based start-up which can emerge from the task and general environment can be market uncertainties, technological uncertainties, and financial uncertainties. Market uncertainty is one of the major sources of uncertainty (Burns & Stalker, 1961**).** Market uncertainty is "*the state of not knowing or lack of future direction of a given market*" (Hoskisson and Busenitz, 2002, p:153). Entrepreneurial start-ups generally enter the markets that are unstable. This leads to emergence of unforeseen anomalies, and thus, there is

[3] Yusuf, A, (2002). IJCM, Vol. 12, No. 3 & 4, 2002 83-103. Environmental uncertainty, the Entrepreneurial orientation of business Ventures and performance. Retrieved from http://www.emeraldinsight.com/Insight/ViewContentServlet?contentType=Article&Filename=/published/ emeraldfulltextarticle/pdf/3480120306.pdf)

very little information available how the market will react to the introduction of these products. Technological uncertainty is another major source of uncertainty for innovation based start-ups (Sommer, Loch, and Dong, 2009) since the new technology is yet to prove itself and still unclear. Also, due to high rate of product and process innovation by current and prospective competitors, several other substitute designs are competing with the new product for dominance (Tushman and Rosenkopf, 1992; Anderson and Tushman, 2001) creating an uncertainty for the start-up. Access to finance has been found to positively influence start-ups' formation (Gartner, 1985), growth and sustenance (Castrogiovanni, 1991; Covin & Slevin, 1991; Vesper, 1980). Certainty related to access to capital is thus critical. Thus any other factor(s) that would influence generation of capital within the firm or getting fresh investments is important for the firm's performance. Some of these factors are related to market or technology uncertainty which can affect firm's revenues and thus can effect generation of capital within the firm. Factors that can impact fresh investments are problems in dealing with banking institutions, problems in dealing with venture capitalists, and problems in dealing with government funding agencies.

These objective uncertainties will have different attributes: complexity and dynamicity (Burgeois, 1980). Complexity refers to the numbers of and diversity of the objective factors impacting the organization. Number of interactions between these factors also impacts complexity. Dynamicity refers to the degree of change related to these factors (Dill, 1958; Duncan, 1972; Thompson, 1967).

The unique cognition and decision-making process of entrepreneurial start-ups combined with the resources it gets access to through its network gives skills of exploration and exploitation simultaneously. Entrepreneurial acumen and entrepreneurs' network contributes to building its dynamic capabilities. The dynamic capabilities enable it to tackle the environmental uncertainties and take benefit of the opportunities (which are usually available for brief period) much ahead of others. Now let's discuss dynamic capabilities and how network helps in building these capabilities.

Building dynamic capabilities

There can be a host of tools that an organisation may employ to achieve dynamic capability. One such tool is the co-alignment and realignment of internal functions as per the needs mandated by the environment (Venkatraman, 1990).

An organisation may also employ tools which alter external conditions such as developing and renegotiating inter-organisational networks of which the current organisation is at the centre or a part thereof. Such an inter-organisational network is composed of three aspects, viz., direct ties, indirect ties, and structural holes (Ahuja, 2000). Current literature on inter-organizational networks largely views existence of such networks from the prism of resource acquisition including knowledge, and development of specific capacities such as absorptive capability. There seems a visible gap in literature which would link inter-organizational network to the development of higher-order organizational capabilities. The economic turmoil of 2008-09, where financial crisis in one nation had a ripple effect on the economic well-being of a large number of other nations, warrants that we explore this missing link whereby inter-organizational networks may be viewed as a key determinant for the development of organizational dynamic capabilities. Novelty in realigning such inter-organisational networks by an organisation, such as decision on the quantum of direct vis-à-vis indirect ties, is also a symbol of the organisational innovation capability. Ahuja (2000) suggested that the objectives of network members, i.e., the member organisations, decide the architecture of inter-firm networks.

Dynamic capabilities, as understood by Eisenhardt and Martin (2000), are the processes, viz., organisational and strategic routines, by which firms achieve new resource configurations in dynamic market conditions. This view is partly similar to the understanding of Teece and Pisano (1994) and Teece *et al.* (1997), the similarity being in the way focus on input-based view is deployed. Dynamic capabilities are seen to be a manifestation of the 'best practices' employed by an organisation, with an inference being that dynamic capabilities being specific and identifiable processes linked to aspects such as product development and strategic decision-making. Also, these dynamic capabilities are idiosyncratic in nature and path-dependent.

Role of networking in tackling uncertainties

Entrepreneurship is a highly dynamic process and the entrepreneur is dependent on his linkages and relations (Aldrich & Zimmer, 1986) to gain access over resources in order to sense and further seize the opportunity existing in the market. Entrepreneur's position in a social network to a great extent facilitates the performance of his/her start-up (Birley, 1985; Hansen, 1995; Portes, 1998) by providing leads on market gaps (Hansen, 1995), access to capital (Batjargal and Liu, 2004), technological know-how (O'Donnell *et. al*, 2001), and access to required human capital. Entrepreneurs use networks to acquire resources and to execute their business mission

(Johannisson, 1987). Networks help new ventures as they become channels of information (Weick, 1969; Johannison, 1986) and access to resources (Cromie, 1994; Birley, 1985; Hansen, 1995) at very little costs (Burt, 1992). Technology firms face a large number of uncertainties on their road to commercialization (Elfring and Hulsink, 2003). They have a serious time constraint as during the ideation to commercialization phase, any moment it can be challenged by stronger and more experienced competitor and its survival can be at stake (Malecki, 1997). The added complexity and dynamism of the environment of a technology start up makes it essential that the existing links are exploited and new links are developed either though the existing ties (viz., indirect ties) or completely new direct ties are built up. The process of network development is a combination of planned as well as incidental pursuits (Steier and Greenwood, 1999). It involves building new ties, and reviving old weak ties or dormant ties. To remain competitive and take advantage of new entrepreneurial opportunities, entrepreneurs often need resources that they do not currently possess. Network contributes towards building capability of the entrepreneur to sense opportunities, get access to resources, and gain legitimacy (Elfring and Hulsink, 2003). Giving access to resources is one of the most important functions fulfilled by one's network as this is a critical constraint for any entrepreneurial venture. These links, which comprises the entrepreneurs social capital helps the start up firm to reconfigure existing capabilities and get access to new capabilities (Lin, Li and Chen, 2006) thus adding to its dynamic capability. This dynamic capability empowers the firm to muddle through the uncertainty it faces. Entrepreneurs benefit immensely from investing in network development and these networks facilitate growth of the small businesses (Donckels and Lambrecht, 1995; Donckels and Lambrecht, 1997; Havnes and Senneseth, 2001). Traditional theories of entrepreneurship (Gartnet, 1985) do not give due importance to the need of entrepreneurs to build dynamic capabilities and that it can be built up by leveraging the network ties and spanning structural holes. There is lack of sufficient literature to explain how entrepreneurial ventures build dynamic capability using their network with an aim to tackle environmental uncertainties that they face, and how these networks influence their performance. This papers aims at plugging a part of this research gap.

Ties provide information on a diverse set of issues such as potential customers, cheaper suppliers, interested employees, funding agencies, technical expertise, and other successful entrepreneurs. Resource abundance (environmental munificence) and scarcity has important impact on start-up performance. Higher availability of any resource increases range of available

strategic options (Romanelli, 1987), and increases the ability to take risks (Brown and Kirchhoff, 1997).

In excitement of using a heuristic-based decision-making, entrepreneurs may start ignoring logic based on facts. There is also possibility of development of hubris (Teece, 2007). Association with a tie which can bring complementary resources and limit over use of heuristic-based logic can give a magic wand to the entrepreneurial firms in tackling uncertainty it faces. Success rates of startups having such associations are expected to be higher than those that are out of such a network. The difference of entrepreneurial cognition enables entrepreneurs to explore more easily and much before others do. This process of cognition makes them quick learners (Alverez and Buzenitz, 2001). Being part of a network can enhance their exploitative skills. Simultaneous perusal of exploitation and exploration that happens being part of such a network becomes a source of dynamic capability for the start up. These dynamic capabilities further enable the start up to tackle the uncertainties it faces.

Entrepreneurs may not have technical expertise but his “alertness” (Kirzner, 1979; 1997) recognizes the value of an opportunity much before others. The ties with which it associates can give it the technical and knowledge expertise or access to other tangible and intangible resources that it may need to maximize exploitation of the explored opportunity.

Method

As evident from an analysis of the extant literature discussed above, there is a clear lack of empirical research linking inter-organizational networks and entrepreneurial abilities with organizational dynamic capabilities. Accordingly we carry out an inductive reasoning to develop propositions.

Unstructured interviews were conducted with entrepreneurs of five innovation-based technology start-ups currently being incubated at one of the reputed incubation centers of India, henceforth labeled as IC. Selection of firms was done in a manner to include maximum variety in the product offering/value proposition of the firms and their founders. In order to able to collect rich insights, it was deliberately ensured that the firms selected were at different levels of commercialization, different sizes, and with different background of the founders. All entrepreneurs are well educated and have formal technical education from reputed Indian

institutions. The rationale for selecting these firms was that they were placed in a congenial environment of the IC, functioning in a domain involving the task environment, which is rapidly changing, and has high growth potential.

The interviews were conducted in two phases. In the first phase, three firms were selected and their top managers of the level of CXO interviewed. The firm owners are henceforth masked as FO1, FO2, and FO3. Subsequently, two other firms were contacted to see if there are any incremental insights that they might offer; in absence of such incremental benefits, we decided to stick to the final sample size of 5 firms. This approach is aligned with the rationale of theoretical sampling (Jack, 2008). After analysing each interview on a standalone basis, the patterns that emerged were compared with other interviews to develop themes. Our interpretation of the patterns that emerge out of analysis of the interviews is discussed in the next section. These are presented as six propositions.

Firm 1 is in the IC for over 15 months now and currently operates with around 25 employees. Its product is an innovative, multi-point unified communications, collaboration and conferencing server platform with built-in support for access to platform features through a personalized, customizable web-interface. Commercial version of this product has been launched, though they are yet to receive venture capital funding. FO1 holds a graduate degree in computer sciences from one of the premier-most institutes of India and had tasted failure in two of his previous ventures.

Firm 2 is working to provide independent mobile phone, voice-based and voice-operated applications, which can be integrated with database applications running in the background. It is currently operating with three people. The firm has been able to meet the deadline of June 2009 to launch a commercial version and get organized with formal board formation. FO2 holds a masters degree in Artificial Intelligence and worked for about a year before choosing the entrepreneurial path.

Firm 3 is the result of merger between two start-ups. It is committed to making solar energy truly affordable by providing a range of latest innovations in power saving devices and energy generation methods. The firm has already received VC funding and currently operating with around 10 employees. It has been in the IC for 31 months. One of the partners hold a masters degree in management from one of the most premier institutes of India.

Analysis and Propositions

Broadening activities by a start-up necessitate reaching out to constituencies that can further business interests. They provide an opportunity to access interaction with a range of social actors to explore the possibility of developing sustainable relationships that can lead to development and growth of the business. They lead to the establishment of direct communication channels through which purpose interaction on issues of mutual interest can be sustained. All the start-ups interviewed felt that direct ties are more useful in reaping immediate benefits for the organisation. However, FO2 added, "such increase in direct ties consume a lot of effort from our end… other contacts that may be harped upon, i.e., the ones through direct ties, suffer." However, broadening activities lead to an urge to explore as many bilateral interactions as possible, which may result in the loss of deriving rent from complex linkages beyond the immediate and evident ties. This is because there is a constant trade-off associated with increase in direct ties (i.e., broadening activities) vs. efficient exploitation of existing direct and indirect ties (i.e., deepening activities). Direct ties help in creating the notion of visibility wherein the individual who initiated the direct tie persists in the memory of others. These others will be able to understand the usefulness of such an individual when they have to arrive at a decision which lies in the domain specialisation of the initiator. The remembered interaction helps in keeping alive the option of drawing upon the resources of the initiator in fulfilling a need. The direct ties, therefore, will need to be sustained to at least a minimal degree of reciprocal communication so that the memory of the initiator's specialisation is not forgotten. The expansive nature of direct ties leads to the cultivation of contacts across a wide social plane. FO1, FO2, as well as FO3 felt that broadening activities also makes their brand visible to others. The broadening activities are essentially an instrument which creates awareness about one's existence to a range of actors. Broadening activities are a statement of one's utility in a horizon of specialised actions. The dependence on intermediaries is diminished and relationships based on direct exchange of utilitarian and affective values is established. It is felt that an essential attribute of entrepreneurial action is the cultivation of contacts which can be of use in conducting business at various stages of a firm's existence. An entrepreneur's existence is documented through his/her ability to reach out to people in promoting what his or her firm does. An entrepreneur who exists in the stillness of his/her firm is seen as a person who is actively exerting himself/herself for the promotion of his/her business. It is felt that such broadening activities render charisma to the entrepreneur's personality which creates a personification of the image of the firm. The firm comes to be

personified in the interactions of the entrepreneur and his/her charisma gets transferred to the lived existence and experience of the firm. The entrepreneur seeks to promote himself to other social actors through the vehicle of his organisation. He/she desires that others should come to know of the firm through him and this constitutes a fundamental reason for broadening activities.

> Proposition I: The broadening actions of the entrepreneur leads to an increase in direct ties for the organisation, but it also puts a limit to the number of indirect ties that can be accessed fully and managed successfully.

It is not sufficient to have broad direct ties, as memory and visibility alone cannot guarantee establishment of credibility and trust, which are necessary to establish the foundation of a long standing business relationship. It is necessary that visibility is followed up by intense engagements and dependable high-profile interactions which bring alive the capabilities of a firm in a demonstrable way. Once the capabilities of a firm have been demonstrated through intense engagements, then there is trust in the capacity of the firm to deliver results, broadly perceived as credibility of the firm. These engagements are two-way interaction between network partners, in this case the partners being organisations, such that there is dependability associated on one partner with the deliverables of the other, the latter being start-ups under study. Also, intense engagements lead to the emergence of conversations which result in the reputation of the firm percolating to a variety of stakeholders without there being a direct interaction between them. The start-ups felt that for their direct allies to refer them to other business associates, these start-ups need to be high in the consideration set of these allies. This requires intense engagements reinforcing the credibility of services offered by these start-ups. These intense engagements can be used as a basis for reaching out to other stakeholders when the possibility of a business relationship arises. Intense engagements are founded in the space of the exchange of ideas and resources and the delivery of concrete utilities. They, thus ensure the manifestation of a firm not merely as a vague idea but as a concrete space of proven capacities. We understand ‘capacity’ as the ability of an organisation to perform a task in at least a minimally acceptable manner (Helfat *et al.*, 2003). These capacities then represent the reputation of the firm in the eyes of various actors with whom the firm may have no direct channel of communication. However, it can access these other actors through its existing deep relationships. The entrepreneur’s charisma is

not only in developing visibility but in also ensuring that the visibility is concretely linked to the evolution of strong relationships tied to the purpose of the firm.

> Proposition II: The deepening actions of entrepreneur leads to an increase in indirect ties for the organisation, but it also puts a limit to the number of direct ties that can be managed successfully.

An incubation centre provides a context in which the firm is insulated from the dynamics of unstable identities. The context in which entrepreneurial action has begun represents the future trajectories that are available to the firm. Cluster theory suggests that the firm is located in a specific geography where entrepreneurial action is appreciated (Kuah, 2002). This appreciation is not only in the manner of a cultural nuance but exists in the method of rendering concrete assistance that can facilitate the existence of business. Also, the very fact that the firm has found a place in the incubator is a reflection of some social opinion that the ideas leading to the emergence of the firm are workable and pragmatic. Now it is upto the firm to consolidate this social opinion and confirm its validity as being legitimate. Through the incubation centre, and the people who represent its administration, the firm can access a wide range of actors who are an interface with the administration of the centre. FO1 said, “After associating with this IC, we no longer need to take the pain of finding suitable lawyers and other professionals. The IC has a tie-up with all such professionals from whom we seek guidance and services on a time-to-time basis.” FO2 added, “For legal services, the professional whom I used to contact before being associated with the IC is the same person with whom the IC has affiliation. Earlier, it used to take me enormous amount of time and effort to take appointment… now, he is much more cordial and friendly with me, and is very accessible.” Thus, an entire spectrum of indirect ties is available to the firm through its direct tie with the incubation centre.

The firm has a stable cultural geographical territory within which it can strengthen its capacities and capabilities to deliver services to many in the realm of its business domain. It can expand its ties in a way which is not constrained by the initial search of a firm to embed itself in a context. The context and the identity is available along with possibility of numerous indirect ties. This is evident from what FO1 said, “Being attached to this IC gives credibility… suppliers/buyers/financial institutions are much more approachable.” On similar lines, FO3 said, “After being associated with this IC changes the entire context of operations… parties identify

that since our technology has been incubated here, so there is a lot more credibility… some partners don't even undertake the basic due diligence that we were subjected to, prior to joining the IC." The firm has hence to employ its strategic sensibility in determining a path which strengthens the fundamentals of its business existence. FO2 felt that since the start-up requires intense interactions with telecom industry expert(s), the organisation cultivated the access that the IC had given it. FO2 is now in direct interaction with the industry expert on a regular basis. Such sensibility will help in understanding which of the indirect ties through the incubation centre are to be harnessed directly in future, and taking necessary steps for these indirect ties to be made direct.

> Proposition III: Association with an incubation centre provides an entrepreneurial firm with one direct tie (that of the centre) and a host of indirect ties (through the centre). Over a period of time, the entrepreneurial firm converts several of these indirect ties into direct ties.

From our research we found the quality of ties matters significantly. By high quality ties we mean those ties which generate higher value (i.e. generate a major portion of its needed resources or reduce a major part of its costs) for the nodes associated with that tie just by being associated with it. Such high quality ties increase status and legitimacy of the nodes linked to them. Possessing such a high quality tie helps in sending signal to potential future links about credibility of the node. All the firms we studied provided evidence that their association with one IC has helped them in getting access to others ICs and their resources. One of the incubatees of IC1 was being simultaneously incubated at another technology incubation centre – IC2. Association with that IC2 helped him in gaining entry to the IC1. If he had been operating independently he would not have come to know of contests being organized by IC. Because of being associated with another incubation center, FO1 informally developed some ties with people associated with IC1 which later helped in clearing the tough selection process of developing another direct tie. For FO3, being in the alumni network of two institutes of excellence in technology and management in India made it easier for this entrepreneur get easy access to resources and links for doing his business being facilitated by several indirect ties developed through its direct tie with IC1.

Quality and image of the direct tie is more important than the number of direct ties one has (Ahuja, 2000). Search for important information and access to quality nodes becomes easier because of the association it a high quality direct tie. Such association can help in addressing problems such as *liability of newness* (Stinchcombe, 1965).

Networks facilitate access to information, knowledge, and resources. More broad and deep a firm's network is more agile the firm is in reacting to environmental uncertainties. Network builds competitive advantage though dynamic capabilities gained through networks. Also, strong influential ties help in meeting uncertainties. Independent IBSUs are often at a disadvantageous position, for not having links with sufficient relevant direct or indirect ties, lack resources and lack of management capacity; these factors seriously impair their competitiveness. Incubated firms get access to all these resources because of their being associated with the IC. In the initial stages of a firm, family and informal personal ties become the critical source of support (Steier, 2007). Entrepreneurs are usually good networkers and hence have a large informal network (Thompson, 1999). As was evident from the interviews these links had not been developed with any specific purpose. None of the interviewees were found to have used much of their school, college or other friends to address the uncertainties that they face. Though entrepreneurs transforms their previous informal ties for business purposes as evident from the dataset a minor percentage of the ties in personal informal network is actually used for business purposes. So when an entrepreneur is not tied to a strong and high quality node such as IC, he/she has to maintain a larger number of redundant ties vis-a-vis when one is tied to such a strong and high quality node (why and how? Ref...from data). The indirect ties that one approaches through the high quality strong direct tie or which are approachable directly because of the association with high quality strong direct tie are much more relevant to their business needs and are of immediate use.

> Proposition IV: Access to a high quality strong direct tie minimizes the chances of building redundant ties and membership to high quality strong direct tie positively influences easy access to other high quality ties.

Association with IC1 provided entrepreneurs opportunity to have links with other institutes of excellence. Access to such top level institutes has helped them in getting design

inputs, product improvement inputs, and marketing and communication related inputs. Many of these inputs are available at almost no cost and are cutting edge (at times which may not be available to larger firms, which do not have such direct ties). Ties with IC have helped the entrepreneurs in gaining access to alumni of other institutes of excellence, who in turn are successful entrepreneurs. The entrepreneurs said that the knowledge that they gain from other successful entrepreneurs was of immense help to them in redesigning their systems, structures, and process. Again, the insights that these start-up firms gain from the mentors (academic and practicing experts) with whom they are tied to through IC has been of great support to them in building new capabilities for the firm. Being largely from technical background, the entrepreneurs believed that their "*idea was great and they will rock the market*". But, their first few interactions with customers made them realise that "*only a great idea or even a great product is always not enough*". *"It's the input from experts"* which has helped them build a *"customer focused strategy for the firm"*.

Infrastructure, legal advisory, and access to venture capitalists provided to such start-up firms through IC and place these firms in a very strong platform. The tacit knowledge that the firm owners gain from regular workshops right at their workplace, conducted by experts in their respective field, helps them to plug loopholes in their capability set.

The interviews revealed that there has been a marked improvement in their skill of upgrading the products, or the skill to adjust according to the fluctuations in the market, and their access to funds for business after being tied to the IC1. This is reflected in the conversation with the respondents:

> *FO2 said, "It would have taken several months to convince these people to fund us, because of our association with the IC1 it almost seemed like a cakewalk…we never thought it would be so easy".*
>
> *Similarly, FO3 reiterated, "What would have not happened in years we have done it in a few months time….and this was possible because of the inputs that we received from experts we came in contact through IC1…I thought my technology was just perfect…had I launched it without these improvements it would have been a sure flop".*

The entrepreneurs constantly upgraded their products as they were made aware by the IC1 about parallel developments elsewhere. They would not have had such information had they

been operating without this platform, and may have faced a greater threat of technology obsolesce. The entrepreneurs interviewed were all from strong technological background and hardly ever appreciated the need of customer orientation or marketing orientation (Kohli and Jaworski, 1990) that ultimately any product needs to fulfil a customer need and deliver customer value. As FO1 said "*….I never knew customer focus was so critical…I brought about many changes in the product and our working style after this realization.…*" The ties with professors of premier institutes which emerged because of the association with IC1 helped them build up-to-date internal systems.

During the initial months of their operation, when they were facing difficulty in getting orders for their main product they sustained their business through small orders mainly coming through the IC or experts associated with the IC. Such orders were extremely critical for them to survive during these periods of low or no-order crisis. Several of the initial orders of their main product either were through the IC or because of their association with the IC. Much of this is evident from what FO's said. FO1 said "*...when I go to pitch for orders and they know that I am a incubate of this IC, it becomes easier to convince them to try our products...there were times when did not know how to run the daily expenses; we went to the IC head and he helped us in getting some projects to sustain our business during those tough times..I could get such breakthrough orders so fast may be only because I am an incubate and I am have developed these connection because of my association with this IC ..... May be otherwise also I would have managed but not so fast and you know time matters a lot.....*"

Reduction in market uncertainties of these firms due to support from IC1 also reduced a part of their financial crisis which they would have faced otherwise. Access to financial resources and funding from the investors is much easier and faster. The legitimacy which they draw because of the association with IC1 gives higher confidence to the investors. The due diligence that the firms have to undergo is less stringent and less time taking because of this legitimacy. IC1 maintains ties with a pool of investors; FOs gets access to this pool of investors through IC1. They also get access to other resources such as legal support required or even hiring employees becomes a much easier, faster, and less costly process. The FO2 mentioned"*...the VC was positive about business model even before hearing us because the IC had discussed with them about the idea and our task of convincing them was much less difficult....they know that if this IC is supporting us there must be some potential in our business....I pay much less for the*

legal consultancies than what I would have paid if I was not here; and I got the best possible legal counsel available...". FO1 said *"...You know how difficult it is for start-ups to attract talent. We are able to get good employees only because of our association with this IC."*

The time or the money which these entrepreneurs' had to spent for gaining information, skills or resources, compared to what one would have incurred if one had to learn from personal experiences and failures is significantly different. Their personal network would not have been of much help in reducing time or cost of these gains. Surviving against these uncertainties would have been very difficult. We thus propose:

> Proposition V: Access to high quality strong direct ties positively influences building new sets of capability.
>
> Proposition V.I: Access to a high quality strong direct tie positively influences capability to address technological uncertainty.
>
> Proposition V.II: Access to a high quality strong direct tie positively influences capability to address market uncertainty.
>
> Proposition V.III: Access to a high quality strong direct tie positively influences capability to address financial or resource uncertainty.
>
> Proposition V.IV: Access to a high quality strong direct tie reduces the cost of access to resources.

Environment plays a critical role in the success of any venture, and entrepreneurial start-ups are no exception. It is evident from our research that, ties with IC have helped the firm in enacting an environment where sensing as well as seizing of opportunities have become efficient and effective than it would have been otherwise. This association has also helped firms in getting potential customers, low-cost suppliers and other service providers, insights from expert managers, etc. and all these have helped them in managing their business efficiently.

One common key factor of the success of the firms investigated is this study has been access to a high quality strong direct tie. FO2 said, "*...the milestones that I have achieved is to a great extent because of the IC*". One of the entrepreneurs had been into entrepreneurship since more than five years before being incubated at IC. They had put all possible efforts behind two products (which the entrepreneurs still feels had significant potential) which could not take off because they did not have access to any access to a high quality strong direct tie, before being tied with IC. The

same people whom they approached earlier and did not believe in their idea are now eager to at least hear from them. This is reflected in the comment of FO1, "*…it was difficult to get good software developers because we were not known…association with the IC helped us in getting media coverage and now people know that we are tied with IC….people are now more open to work with us because of this association*". None of the ventures operating at the IC has yet shut its shop. Thus we note that relative chance of success is higher when one is tied to a high quality strong node such as IC. Here success is being considered as sustenance of the business once achieved, incremental changes in the business model leading to growth in business volumes, and achievement of business objectives. The proposition which emerges from the above discussion is:

Proposition VI: Access to high quality strong direct ties positively impacts success of entrepreneurial ventures.

Conclusion

Extant literature on entrepreneurship does not address the need of building dynamic capabilities using their network. Given the uncertainty entrepreneurial firms have to cope with and the scarce resources that they possess, a study on this would certainly contribute significant to this emergent domain. We propose that in the initial phases of an entrepreneurial venture, there is a focus by the owners to develop a large number of direct ties (broadening activity) followed by subsequent deepening pursuit. Over time, the entrepreneur critically evaluates the utility of these direct ties and focuses only on strong direct ties. Being part of an incubation centre initially offers a venture with a large number of indirect ties, a part of which is translated into direct ties by the entrepreneurial venture over time. With resources becoming scarcer, and increasing uncertainty and hostility environment it will become more critical for innovation based start ups to get access to a high quality strong direct tie to tackle environmental uncertainties, to grow and sustain successfully.

Managerial Implications and future research scope

Independent entrepreneurs, leaders of innovation based corporate ventures, or other managers dealing with uncertainty try to broaden their network on their own spending much of time and resource in this process. Many a times these managers are rarely aware how effective they would

be in addressing the uncertainties they are about to face through networks developed by such efforts. In such cases, rather than only broadening their network it may be more useful to strengthen a resourceful direct tie and get access to information and resources through it and later develop further network through that tie.

Networking should be built in or facilitated in an organization to direct it in a way that this activity may work towards building dynamic capabilities for the organization. This would proactively prepare the organizational unit or the organization in preparing itself towards constantly sharpening its sustainable competitive advantages.

As a follow up of this study the hypothesis developed need to be empirically tested. It will open a new direction of research in strategic management. We strongly believe insights from this study and results from subsequent study related to this will have significant managerial implications as well. Existing theories in strategy is yet to focus on need or existence of a deliberate design of networking process in an organization which would build dynamic capabilities in an organization. It would be interesting and important to explore this phenomenon to enrich the concept of dynamic capability. There has been several works in entrepreneurship literature highlighting the importance of networking but how such networking facilitates building sustainable competitive advantages is yet to be explored; thus research may focus on this aspect. This paper focuses on entrepreneurial networking in start-ups; but this concept can be extended to entrepreneurial networking in larger and established organizations as well. Studies to further explore this phenomenon and quantitative studies to test the propositions would enrich strategic management and entrepreneurship literature.

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