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**THE MECHANISMS AND PROCESSES OF ENTREPRENEURIAL
NETWORKS: CONTINUITY AND CHANGE**

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ABSTRACT

The relevance of networks for entrepreneurship is now well established. However, despite the extent of work carried out there are still clear gaps in our understanding about how networks change and adapt over time and how entrepreneurs actually go about using their networks for entrepreneurship. To deal with these issues we focus on specific network parameters - structure, content and process over time – and present the findings from a three stage longitudinal research project which combined cross-sectional qualitative and quantitative data collection. Our findings confirm, not only the relevance of networking for entrepreneurship, but also illustrate how network contacts and the actual structures of networks changed over time. Moreover, our study demonstrates that the network becomes the mechanism for coping and dealing with change. Indeed, the role of the networked entrepreneur within the wider business environment may be as the agent and catalyst of and for change.

INTRODUCTION

Sociologists and anthropologists for many years have appreciated that the nature of exchange which takes place between individuals is important in shaping and influencing behaviour, performance and outcomes (Boissevain, 1974; Bott, 1955; Bourdieu, 1986; Burt, 1992; Granovetter, 1973; Maguire, 1983). Studies in organizational and management behaviour have also shown that networks not only influence the ways in which individuals behave but also impact significantly on the evolution and management of organizations (Ahuja, 2002; Easton and Araujo, 1986; Harland, 1995; Halinen, Salmi and Havila, 1999; Karamanos, 2003; Nohria and Eccles, 1992; Nelson, 2001). Moreover, the view now becoming widely accepted is that social systems and social networks can influence and impact on economic performance (Arrow, 2000; Granovetter, 1992; Jones, Hesterly and Borgatti, 1997; Snow, Miles and Coleman, 1992; Young, 1998).

In the field of entrepreneurship an increasing appreciation of the utility, application and importance of social networks is also evident. Here we have seen an established research stream emerge from studies that have investigated many aspects of entrepreneurial networks (Hoang and Antoncic, 2003; O'Donnell, Gilmore, Cummins and Carson, 2001). Essentially, studies reflect a consensus that networks are important because they provide entrepreneurs with an abundance of diverse information and access to a large pool of resources and opportunities (Aldrich and Zimmer, 1986; Carsrud and Johnson, 1989; de Koning, 1999; Hill, McGowan and Drummond, 1997; Johannisson and Peterson, 1984; Kim and Aldrich, 2005; Singh, Hills, Hybels and Lumpkin, 1999); that entrepreneurs must engage in networks (Brüderl and

Preisendörfer, 1998; Huggins, 2000; Szarka, 1995); and use these “powerful” assets (Elfring and Hulsink, 2002). Evidently, the interactions that can take place particularly within the personal contact network of the entrepreneur - for instance, with business colleagues, family, friends, customers, suppliers and competitors – are seen to be particularly important for entrepreneurship (Johannisson, 1987; Reese and Aldrich, 1995; Szarka, 1995).

Despite the extent of work that has looked at entrepreneurial networks there are still clear gaps in the literature. Most notable is the need for a greater understanding of the content of network interactions (Barnir and Smith, 2002), the processes within and between network relations, the dynamic and changing nature of networks over time and the relationship of entrepreneurial networks to post-start-up, firm development and growth (Lechner and Dowling, 2003; O’ Donnell et al., 2001). These issues are obviously very inter-related and complex. So the exploration of these issues became the driving force behind a multi-method research project which attempted to probe deeply into network mechanisms and processes over time and to try to lay bare inter-relationships between the entrepreneur, their environmental context and the development of their enterprises. Implementation of the project, and especially the process of comparing the network literature stream with our emergent findings, indicated clearly to the research team that this would be an interesting and helpful approach to making sense of such issues. This Chapter represents the outcome of that study. It begins with a discussion about the specific parameters of networks that we are concerned with; changing network content, structure and process over time. Thereafter, an account of the research project undertaken is presented and the findings from our study are discussed. Many of our findings have already been published, and

are available for those interested in a blow-by-blow account (see Anderson, Jack and Drakopolou Dodd, 2005; Drakopolou Dodd, Jack and Anderson, 2002; 2005; Jack, Drakopolou Dodd and Anderson, 2004). Here, as we bring all our findings together for the first time, we have tried to avoid weighing down the development of our argument with too much detail, concentrating instead on pulling together our findings and conclusions into a tighter theoretical conceptualisation. This has led to an account which is less colourful, perhaps, than our usual work, and the voices of our entrepreneurial collaborators are less loud in this Chapter, but at the same time are still present, informing and challenging our own emerging understanding. Finally, we attempt to close the loop, by revisiting the issue of networks in the entrepreneurial process, highlighting generic conclusions of relevance at a fairly universal level, as well as re-specifying those network contingencies which shape the entrepreneurial process. As part of this concluding section, we propose that it is through their network interactions that entrepreneurs negotiate new venture start-up and growth, acting to co-create the environment in which they are embedded.

IDENTIFYING NETWORK PARAMETERS: OBSERVING CHANGING STRUCTURE, CONTENT AND PROCESS OVER TIME

Although the literature addressing entrepreneurial networking is reaching a fairly high degree of sophistication and scope, there are certain critical areas where important questions remain unanswered. Specifically, research into the processes of entrepreneurial networking have been hindered by a paucity of longitudinal studies. Thus the consideration of change over time is *de facto* limited. Moreover, accounts of how individuals actually use networks to learn about entrepreneurship, its practices and processes remain sparse. Yet we know that learning is a social process, so the

research gap lies in relating networks, as social contexts to the entrepreneurial learning process. Furthermore, since social relations are fundamental to everyone's life, and emerge, develop and change throughout their life-course, people are embedded in social situations that put them in touch with others (Kim and Aldrich, 2005). Consequently learning is often "located in the relations among actors" (Uzzi and Lancaster, 2003: 398). As well as direct learning through network contacts, network transitivity also facilitates learning by one embedded network member, through the knowledge held by a second member, about a third, as shown in Uzzi and Gillespie's (2002) study. Accordingly, in many ways how entrepreneurs go about using their networks and with whom they network may be critical for entrepreneurship and thus warrants investigation. It is to this end that we now consider the shape, content and process of entrepreneurial networking.

Structure, Content and Process

Our argument is that although these parameters may be analytically separable, they are, in practice inextricably interwoven. For example, Larson (1992) argued that entrepreneurial dyadic ties, the building blocks of networks, are built upon a history of preconditions for exchange, including personal and firm reputation, as well as prior relations. These preconditions act to reduce uncertainty, to create mutual expectations and obligations, and to enhance early cooperation. Lechner and Dowling's (2003) cross-sectional study into entrepreneurial software firms found that entrepreneurs of new firms initially used their *social* networks to build a foundation for their ventures. This finding fits with Larson and Starr's hypothesis that in the pre-start up phase of a venture, entrepreneurs will focus on accessing the requisite resources, through close social ties where possible, but also by developing new, initially instrumental, ties.

Support for extensive pre-start up networking activity is also provided by Greve and Salaff (2003) who found that much time was dedicated to network maintenance at this stage in the entrepreneurial process, using mostly extant social ties. De Koning (1999) studied serial entrepreneurs and found that as they move from a basic idea to a solid business concept, they routinely returned to the same tight circle of strong ties. Dialogue with this group of trusted “business friends” was an important part of the validation stage for successful serial entrepreneurs. This group also provided introductions to appropriate providers of resources, for each of the serial entrepreneurs many ventures.

The identification and organization of resources, especially those not owned by entrepreneurs, are also typically a function of networking (Brüderl and Preisendörfer, 1998; Foss, 1994; Hansen, 1991; Jack and Anderson, 2002; Johannisson, 1986; 1987; Johannisson and Nilsson, 1989; Johannisson and Peterson, 1984; Ostgaard and Birley, 1994). Beyond innovation and collective learning, clustered regional networks have also been extensively argued to provide a whole set of positive externalities, including access to markets and suppliers, shared technological development, and infrastructure (Vanhaverbee, 2001). Innovation is increasingly seen to derive from these dynamic environments where firms both contribute to and benefit from, “an adaptive system of collective learning” (de Propis, 2000). Thus, the network environment can be seen to act as a locus of shared idea generation and entrepreneurial creativity. However, rather than geographic clusters giving rise to network ties, some scholars have even argued that it is the need for social ties, especially in the creation of industrial legitimacy for entrepreneurs, which promotes geographic clustering (Shane and Cable, 2002). This fits well with Uzzi’s contention that embeddedness – and the

special benefits it brings – are contingent upon “a patterned social structure that interpreted mixed signals and transferred beliefs, values, and resources among firms” (Uzzi, 1996: 680). As entrepreneurs attempt to identify resources for their nascent firm, it is the network which signals resource availability. Thus, with whom the entrepreneur has ties could be particularly important.

However, the literature also provides evidence that early *social ties*, often drawn from an immediate circle of family and friends, may be essential to launch the business, but perhaps act as a brake on future development, by restricting diversity (Johannisson and Mönsted, 1997; Pages and Garmise, 2003; *pace* Donckels and Lambrecht, 1997). Yet, a recent Scottish study highlighted the significance of family network ties as being important providers of capital to the nascent firm (Jack et al., 2004). The development of client relationships has also been shown to be a critical process in the very early days of a new venture. Larson (1992), for example, argues that building on dyadic relationships’ basis of prior personal and business relations, one firm initiates a trial period of exchange which creates mutual economic advantage. This in turn leads to rules and procedures for dyadic engagement, clear expectations, trust and reciprocity. Larson and Starr (1993) argue that at this establishment stage, relationships will tend to become multiplex, with an added social dimension enriching previously instrumental ties, and the exchange of high-quality information becoming the major network function. The practical, functional benefit of embedded ties are also well-documented, “Embedded ties promote, and enable the greatest access to, certain kinds of exchanges that are particularly beneficial for reducing monitoring costs, quickening decision-making, and enhancing organizational learning and

adaptation”. (Uzzi, 1996: 682). Thus it would seem that there is some dispute about the benefits and constraints to using social ties for business purposes.

Once an operating foundation had established, Lechner and Dowling’s (2003) found that entrepreneurs tried to increase sales substantially by developing marketing networks, and to leverage their technological base by co-opetition networks. Similarly, Greve and Salaff (2003) found that during this phase, much time was expended on network development. They argue that the sample firms in their cross-sectional study were developing new ties to match the practical needs of their firms. Larson (1992) asked a sample of rapid growth firms an open question about what explained their growth and found that, as well as a variety of idiosyncratic internal factors, “uniformly, respondents also reported that certain critical external relationships with other companies contributed significantly to the entrepreneurial firm’s financial success, rapid growth, adaptiveness and innovation” (1992: 79). In this way we see that network change and process vary over time.

From the discussion thus far networks can also be seen as a set of relationships, so that the structure of a network – i.e. the people that the ego relates to – is an important parameter. However, the structure of a network can change and adapt to suit the specific needs of the entrepreneur and his/her venture over time, as can the amount and type of networking that takes place. Network structure has been looked at in terms of the strong tie- weak tie dichotomy first proposed by Granovetter (1973) (Aldrich, Rosen and Woodward, 1987; Hansen, 1995; Hills et al., 1997; Ibarra, 1993; Jenssen and Koenig, 2002; Lechner and Dowling, 2003); the homogeneity, heterogeneity and diversity of contacts; reachability, reciprocity, centrality of the

entrepreneur within the network; network size and the extent to which networks are embedded in formal or informal social structures (for examples and further discussion about these features see Birley, 1985; Kim and Aldrich, 2005; Mönsted, 1995). Networks have also been looked at in terms of being a bridging mechanism. For instance, Burt's (1992) structural holes thesis illustrates how individuals can access resources not available through strong ties. Kim and Aldrich (2005) argue that rather than being limited to a small number of people they know directly, entrepreneurs can take advantage of the wider social network in which their ties are embedded. So, strong ties can act as a mechanism for generating knowledge and resources but can also be used to link into the wider social context and provide a mechanism to invoke weaker ties (Jack, 2005). There has also been growth in the number of studies looking at the concept of social capital in relation to networks and entrepreneurship. Traditionally social capital has been conceptualized as a set of social resources embedded in relationships and the resources available to people through their social connections (Anderson and Jack, 2005; Liao and Welsch, 2003; Baker, 1990; Burt, 1992; Coleman, 1990; Lin, 2001; Kim and Aldrich, 2005). Social capital has been described as a network phenomenon because it resides in the network as connections and interactions that take place between individuals (Anderson, Park and Jack, 2006).

Contextual Contingencies

Networks have also been studied in terms of transnational differences and similarities. For example, Aldrich, Reese, Dubini, Rosen and Woodward (1989) examined the differences and similarities between samples of entrepreneurs from the USA (North Carolina Research Triangle) and Italy (Milan). Matched studies were carried out in Sweden (Johannisson and Nilsson, 1989), Northern Ireland (Birley, Cromie and

Myers, 1991), Japan (Aldrich and Sakano, 1995), Canada (Staber and Aldrich, 1995) and Greece (Drakopoulou Dodd and Patra, 2002)¹. Whilst these national samples exhibit a range of similarities, suggesting that: “at least some aspects of business networking are generic” (Staber & Aldrich, 1995: 443), Drakopoulou Dodd and Patra (2002) found that their Greek sample differed in important ways from other entrepreneurs, in terms of networking. A later study looked at these aspects in terms of Scottish entrepreneurs (see Drakopoulou-Dodd et al., 2002) and when compared found there to be divergences in the type of network tie – and hence, one aspect of network structure - across countries. The average proportion of family in entrepreneurial networks, for example, varies from a low of 13% for Japan, to a high of 31% for Greece. The Scots reported that just 15% of their closest ties were friends, whereas in the USA this figure was 50%. The USA (where multiple responses were permitted) reported that 65% of their closest respondents were business ties, and the Irish (who were NOT permitted multiple responses) set this figure at 55%, close to the figure for Italy and Sweden (54%). By contrast, only 14% of Canadian close ties in entrepreneurial discussion networks were classified as business ties. Another notable divergence from established international patterns of entrepreneurial networking was the finding that only 17% of possible alter to alter relationships were described as being that of strangers. With the exception of the Greek sample (24%), the percentage of stranger-relationships between alters has consistently been reported at around the 40% mark.

¹ It should be noted that differences within the samples selected, (with some studies focusing on young entrepreneurs, some on women, some on urban and some on rural groups,) limits the confidence which we can place on these results. Equally, a range of sample construction and questionnaire administration techniques were utilised, which restricts conclusions based on direct comparisons to indications of overall trends.

With regard to network processes, there are also indications that transnational differences act as contextual contingencies. For example, there is substantial variance between the 8 hours reported for Japanese entrepreneurs and the 44 hours per week reported for Greek entrepreneurs. National differences in communication and socialization, and especially the nature of the private – public divide, may lie behind these figures. In general, European entrepreneurs appear to spend around 25 hours a week in networking activities. Assuming that the entrepreneurial working week varies between 50 and 75 hours (figures vary!), this means that between half and a third of the working time of a European entrepreneur is spent in networking activities, a salutary reminder of how very important this topic is. This could be ascribed to what Liao and Welsch (2003: 155) call the “normative and mimic forces” which exist in the network environments of potential and nascent entrepreneurs. Zeleny (2001: 207) has similarly proposed that successful network communication leads to the reinforcement of selected, environmentally-fit modes of entrepreneurial behaviour. Evolved common cultural values facilitate mutual understanding, and create links of duty, support and co-operation within an industrial district (Biggiero, 2001). Here, the network acts as an organizing and governing mechanism which provides identity, meaning and resources to its member entrepreneurs. This, in turn allows them to “enact their environments more efficiently” (Johannisson and Mönsted, 1997).

Networks, especially when combined into a clustered entrepreneurial environment, can act to catapult member firms into further growth and development. However, this dynamic is not always positive, with the entrepreneurial context also exhibiting the potential to constrain growth. Venkataram (2004) makes a powerful argument that

environments with very well established entrepreneurial communities are likely to have moved from the type of well-selected virtuous cycle described above, through virtuous equilibrium, into a vicious cycle. Here, norms and behaviours become entrenched, so that change and innovation are severely restricted, and a “transformative Schumpeterian model of entrepreneurship” precluded (pp 159-161). Vanhaverbee (2001) provides empirical evidence for this type of cultural constraint in his examination of the construction and home furnishing business cluster, in South West Flanders. Here, he finds that the potential benefits of adopting a value-constellation strategy are not seized by the cluster, who fail to come together to meet customer needs in innovative ways. Other scholars have made similar observations about the rarity of spontaneous small firm innovation networks, and the failure of “engineered” agency-driven approaches (Hanna and Walsh, 2002: 204).

There is some evidence of the enhanced importance of embedded (or “strong”, or “social”) ties to knowledge-intensive, idiosyncratic, new sectors (Aldrich and Fiol, 1994; Chell, 2000; Johannisson, 1998; Larson, 1992; Liao and Welsch, 2003; Shane and Cable, 2002). The need for private, novel, distinctive and timely knowledge exchange seems to be the reason for this finding. Interestingly, service sector entrepreneurs show greater use of networking than those in manufacturing (Johannisson, 1996).

Conceptual issues and understanding network practices

So, whilst we know that networks are important for entrepreneurship, there remains a relative paucity of information about the change process at the level of the networks of individual entrepreneurs and the relationship of network change to entrepreneurial

development. Nonetheless it seems that how entrepreneurs network, and with whom they network, varies throughout the various stages of the entrepreneurial process. Moreover, given the acknowledged importance of networking, network changes may have implications for entrepreneurial success. Thus, generating a clearer understanding of how networks change and adapt over time and how entrepreneurs use their networks to meet entrepreneurial requirements is crucial to understanding the entrepreneurial process. We therefore identify three significant parameters from our discussion of the literature: structure, content and process. Of these three parameters, we have the best understanding of network structure, some comprehension of content, and a tentative understanding of process. Table One lists some of the key means which scholars have used to make sense of each of these.

Insert Table 1 about here

Our overview of the literature has not only shown the complexities of studying networks, it has also highlighted the state of knowledge thus far and allowed us to identify a series of questions which require further research. For instance, how do networks impact on entrepreneurship over time? Can network change be related to entrepreneurial success? How does the entrepreneur manage his/her network for change? And how crucial are networks to sustaining and developing entrepreneurship in the long-term? Furthermore, it has also illustrated that if we are to continue enhancing our knowledge of this critical area it is vital that we begin to look at the network process over time.

In order to shed some light on these issues that we undertook a three-stage empirical research project, which combined cross-sectional quantitative and qualitative data collection with a longitudinal study. In this section of our Chapter, we will, for the first time, present and analyse the findings of this study, which concluded in late 2004, before attempting to revisit the extant literature in the light of our findings. First, however, we introduce the methodology which we utilized, and the regional and sectoral context within which the work took place.

METHODOLOGY

Ego-centred Discussion Networks

As with many studies of entrepreneurial networks, the approach we adopted focused on the *ego-centred network* of the entrepreneur (Barnir and Smith, 2002; Burt and Minor, 1983; Greve and Salaff, 2003; Knoke and Kuklinski, 1982; Suitor, Wellman and Morgan, 1997). The ego-centred approach is especially appropriate for samples where those studied have a diverse network, not contained within a single social structure. This is certainly the case for entrepreneurs, as has been repeatedly shown, with their networks containing a mixture of business, friendship and kin ties. Entrepreneurial networks are thus a complex mixture of multiplex social and professional ties, all of which tend to contain both affective and instrumental elements, bonded by trust. We concentrated our study on the 5 main personal network contacts of our sample, for both the quantitative and qualitative phases of the study, since evidence shows that recall is strong for these relationships (Burt and Ronchi, 1994; Greve and Salaff 2003). In Granovetter's (1973) terms we were interested in the *strong ties* of our entrepreneurial sample or, to use Uzzi's (1996: 682) concept,

embedded ties, those with whom entrepreneurs regularly discussed their business and where relationships are tightly-coupled amalgams of the personal and the professional. The governing mechanism of such networks is trust: “trust is a governance structure that resides in the social relationship between and among individuals and cognitively is based on heuristic rather than calculative processing... trust is fundamentally a social process, since these psychological mechanisms and expectations are emergent features of a social structure that creates and reproduces them through time” (Uzzi 1997: 682)”.

The Sample and Setting

The sample frame for the project was derived from the 1997 edition of the Grampian Business Directory, a local government publication which provides a comprehensive listing of all firms in the Grampian region of the North East of Scotland in the United Kingdom. The Grampian region was selected as the locus for the study, because it is an economic environment in which the three authors are well-embedded, and because it represents a discrete, geographically bounded area. The selection of a single cognate region was intended to limit the effects of social and economic geography upon the data. Grampian, in the North East of Scotland, is centred around the City of Aberdeen, the ‘oil capital’ of Europe. The city has a long history of international trade and merchant venturing dating back (at least) to the middle ages. It is also, however, physically distant from the Central Scotland belt (Glasgow, Stirling and Edinburgh), and has retained a distinct character. Grampian combines some oil-related industries with the more traditional whisky, fishing, food-processing and textiles sectors.

The oil industry, however, is the dominant industrial sector in the region, and the three case study companies in our longitudinal work all serviced the oil majors. Given the relevance of sectoral factors, a little detail on the industry is required. The UK upstream oil industry is clustered in and around Aberdeen, in North-Eastern Scotland; dense ties connect cluster members, although many are also well-connected to the wider global oil industry; it is heavily affected by exogenous environmental factors, such as the price of oil, and governmental regulation; the constant need to react to these factors, and to extract oil from a very hostile environment, in competition with other “cheaper” oilfields, has placed a premium on innovation.

The sector shows a high degree of vertical disintegration, “with over 91% of inputs into offshore oil gathering being procured through the market”, and with many of these inputs being non-standard and complex (Hallwood, 1991). Thus, the major operating companies (household-name oil giants) have come to rely on a variety of strategic alliances, subcontracting, and project groups with the smaller specialized service companies, so that “service companies have become network nodes around activities fostering the diffusion of know-how and know-that” (Finch, 2002: 62). Hallwood (1991) uses transaction cost approaches to analyse the use of closed auctions by the major operating companies, noting that market mechanisms remain important to the field. However, he also found that those service firms invited to bid for contracts in these auctions already had a relationship with the operating firm. Hence, it appears that even when formal market or hierarchical governance mechanisms are utilized, these build upon extant network ties. Finch’s grounded study found that major themes for the sector include the uncertainty of the business cycle - driven mainly by fluctuating oil prices - relationships between operators and service

firms, and the demands of technological challenges (p 75). Falkenberg, Woiceshyn and Karagianis (2002) study of knowledge acquisition processes in the geophysics department of senior oil exploration companies in the US, showed that, although specific practices varied, the search for new technologies for such firms was primarily directed externally, through various ways of interrogating their professional network. Organizational learning within the oil industry has therefore been shown to have a strong bias towards networked innovation and knowledge acquisition, of exactly the kind identified as potentially important in the literature. The North Sea Upstream Oil sector is therefore an excellent choice for the context for the study, providing a clustered environment rich in intensive network interactions, which we hoped to exploit richness through the development of a detailed understanding of these interactions².

The Quantitative Survey

The regional business directory details the size and sector of firms, and provides some indication of ownership/legal status. The directory was used to generate a total regional population of 786 owner-managed firms, with between zero and 200 employees. We then randomly selected somewhat over one third of this population and thereby arrived at our final sample of 271 entrepreneurial firms. All of these firms were contacted in a telephone survey carried out in 2000, and their entrepreneurs were invited to participate in the survey by responding to an extended questionnaire over the telephone. The questionnaire had been previously developed and administered in a

² This approach is the opposite of that adopted by Uzzi (1996, 1997), who explicitly chose a conservative environment where economic theory suggested market mechanisms would be the dominant governance and exchange mechanism. Unlike Uzzi, our main objective was richness in data collection, rather than demonstration of the pervasiveness of network exchanges *per se*, even in the unlikeliest environment.

earlier series of linked international studies, led by Howard Aldrich³, so as to permit cross-national comparisons.

The survey generated 68 useable responses, equating to a 25% response rate for the sample. Whilst this is a fairly low response rate, it is not untypical for studies of networks, which entrepreneurs often show a marked reluctance to discuss (Johannisson and Mönsted, 1997). Furthermore, the telephone survey method reduces response rate by requiring that the respondent deals with the survey at a given moment in time, which is especially difficult for busy entrepreneurs.

In addition to harvesting data for quantitative analysis, the preliminary telephone surveys were also used to:

- 1) gather basic data about the respondents' enterprises and networks
- 2) identify and clarify the areas within the topic which needed to be investigated in depth.
- 3) pilot the suitability and relevance of the study techniques
- 4) identify suitable respondents for in-depth study who could provide the rich and detailed information required

The Cross-sectional Qualitative Survey

³ Special thanks to Professor Sue Birley for continuing to let us loose on an unsuspecting world with her version of the international study's questionnaire.

The preliminary interviews raised concerns about the feasibility of exploring the issues with all sixty-eight respondents. It became evident that some respondents were more forthcoming, and willing to take the time to discuss their situation at length with the researcher. Therefore, twelve respondents were selected who would provide sufficient depth of data to allow the issues to be fully examined. In the following table, specific details about the type of venture each entrepreneur operated are provided alongwith information relating to the year each activity was established and the individual's background and route to entrepreneurship.

The purposeful sampling method, recommended for qualitative studies, enabled the researchers to use their judgement to select respondents and cases that were particularly informative (Neuman, 1991) and which would help to achieve the objectives of the research (Saunders, Lewis and Thornhill, 1997). We used information provided during the quantitative survey to identify a set of respondents who, between them, represented the complete continuum of family-business relationships, and who also mirrored the wider regional population in terms of gender, age, sector, and business size. The twelve entrepreneurs in the sample also exhibited well developed strong-tie networks, and managed a diverse range of growing entrepreneurial firms (see Table Two). Interviews were carried out in 2000.

Insert Table Two about here

The Longitudinal Qualitative Study

By coincidence or perhaps as a result of the research team's own social capital in the local entrepreneurial network, three of the twelve entrepreneurs interviewed in 2000 had participated in a 1998 pilot study by one of the research team, also on the subject of entrepreneurial networks. For this earlier study, the sample of respondent entrepreneurs were chosen, following recommendations from embedded business contacts, because they were all founding entrepreneurs who continued to be the major owners, and managing directors of their ventures. This provided such a rich opportunity for extending the original remit of the overall research project, that the decision was made to develop a longitudinal aspect to the study, by re-interviewing these three entrepreneurs. In 2003-2004, a third round of interviewing duly took place. These entrepreneurs (anonymised as Mike, Paul, and Jill,) are highlighted in bold in Table Two.

Qualitative Method

For each of three interview phases, each respondent was interviewed for between two and four hours. Interviews were carried out at the respondents' premises, since relaxed and open discussion is facilitated by familiar surroundings (Hill et al., 1999; O'Donnell et al., 2001). The interviews were carried out by two of the researchers. Questions were asked and explanations sought about the types of network ties used, the areas which respondents tended to discuss with each strong tie, the kind of help these people provided, and how often, where and when they interacted with their ties. Respondents were also invited to describe the relationship they had with each strong tie, and to recount the history of these relationships, with special emphasis on their relevance for the entrepreneurial venture. Questions were not asked in any specific order, but were governed instead by the actual situation (Gummeson, 2000).

The final methodology for the extended research project therefore comprised a detailed snap-shot in 2000, combining both quantitative and cross-sectional qualitative methods, and longitudinal data collection over a six year period. Figure One presents a graphic summary of the project methodology.

Insert Figure One about here

Quantitative Data Analysis

The internationally-recognised survey instrument is especially well suited to eliciting data with regard to network structure, composition, and content. We followed Drakopoulou Dodd and Patra (2002), in adding several further questions relating to the content of network exchanges. Simple quantitative analysis was carried out on data derived from the survey, to establish the size, scale, and significance of informally-linked strong-tie network contacts.

Qualitative Data Analysis

Interviews were transcribed verbatim, and examined using well-established qualitative data analysis methods (Glaser and Strauss, 1967; Miles and Huberman, 1994), which have become the accepted approach for handling entrepreneurial network analysis (Hill et al., 1999; Human and Provan, 1996). Specifically:

- 1: The transcripts were read and re-read, with notes on emergent themes contemporaneously entered into a research diary (Easterby-Smith, Thorpe and Lowe, 1999).
- 2: The research diary was reviewed to clarify these emergent themes.
- 3: We revisited the transcripts for initial coding. This re-visitation continued until few new insights occurred (Human and Provan, 1996).

Stages one to three were carried out by the three researchers separately, to increase reliability (Falkenberg et al., 2002).

- 4: The research team met to present and compare the three sets of initial coding, both with each other, and with a working framework of expectations derived from the literature. Elements of the framework were “retained, revised, removed, or added”, as field data provided empirical evidence (Uzzi, 1997). Coding categories were agreed upon by the research team.
- 5: Completing the laborious task of categorisation, replete with illustrative examples, we simultaneously continued the development of our framework, in constant comparison to extant theory.
- 6: Finally, we jointly produced an illustrated summary of the major themes and the relationships between them, as well as a well-articulated explanatory framework.

Whilst the sample entrepreneurs are not *de facto* representative of the entire entrepreneurial universe, the purposeful selection of rich examples of strong tie networks provides useful and rigorous data about strong ties. The methodological techniques provided sufficient depth of data to allow a meaningful analysis, and hence to generate an in-depth understanding of what actually goes on within and between

ties. Quotes from the data are used to provide valuable supplements, to add voice to the text and help categorise the data (Wolcott, 1990). We also attempt to link the practices with the background of the respondents, inductively, and demonstrate veracity by telling a convincing story (Steyaert and Bouwen, 1997).

FINDINGS

Introduction

Our findings are presented here using the framework of entrepreneurial mechanisms. We begin by summarizing findings relating to network structure, progressing to network content and concluding with network process. Each section begins with findings from the quantitative survey, where relevant, before introducing material from the cross-sectional and longitudinal qualitative studies. We believe this allows us to add layers of richness and depth as we progress through each section.

Structure

To facilitate the flow of our argument, some of the structure-related findings from our quantitative survey have been utilized above, to illustrate the significance of transnational differences as a contextual contingency. To re-capitulate, essentially, we found a fairly high percentage of family members in our Scottish sample, and a higher than usual degree of interconnectedness between the entrepreneurs' contacts / alters. This raised serious issues about the utility of these contacts, since very densely connected networks of strong ties have been argued to reduce access to heterogenous sources of information and other resources (Burt, 1992; Granovetter, 1973; Hills et al., 1997; Ibarra, 1993). We therefore investigated the structure of the networks reported to us from a different perspective, to ascertain how homogenous, and close to

the entrepreneur's firm, these contacts were, for all three types of contact (family, friend, and business).

As Table Three shows, family ties were more likely to be employees of another firm (42%) than were either friends or business associates. A quarter of family strong-ties were partners or co-directors in the entrepreneur's venture. Friends were most likely to be entrepreneurs (39%), or employees of another organisation (32%). Business ties were reported to be largely partners or co-directors in the entrepreneur's venture (34%) or professionals, classified here as lawyers, accountants, and consultants (31%). Fully three-quarters of business associates were internal to the entrepreneur's organisation, or quasi-internal professionals. This was true for less than a third of family ties, and just 21% of friendship ties. Given the small cell sizes, statistical testing is not appropriate in this case. Nevertheless, the data point to clear trends, nevertheless.

Insert Table Three about here

The most detailed analysis which we carried out as to network structure, however, was based on the 12 semi-structured interviews carried out in 2000. These findings are summarised here, and have been presented in more detail elsewhere (Drakopoulou-Dodd et al., 2002). Our sample reported a tri-partite typology of strong-tie nodes, where the defining characteristic was the nature and intensity of the relationship involved. By nodes we mean that the ties were clustered around particular

affinities, that these different ties fulfilled different purposes and each had different levels of intensity. However, what distinguished these ties at a categorical level was the basis of the relationship, rather than the intensity of the tie. We were not able to separate a “friends” category from our empirical data. Rather, all contacts reported contained a varying level of affective tie and were seen to a greater or lesser degree, as friends. Instead, we identified a new type of tie, composed of suppliers, customers and competitors.

The three nodes were found to be located at specific points along a continuum of relationship-intensity. Family ties were most intense, based on ties of blood or marriage. Business contacts were quite intense and were based on mutual knowledge. Suppliers, customers and competitors were most loosely coupled and the relationship, though still based on trust, was maintained for mutual advantage. Characteristics and consistent outcomes were also ascribed to the relationships located on each of the three nodes.

The second important node was previous business contacts, which had originated from links in other business contexts. These relationships were almost all with people in the same industry, or with other entrepreneurs. The original relationships had varied from previous boss to workmate, but the new relationship was one of equal status. This is in spite of an expected tendency for younger entrepreneurs to choose an older mentor. In many cases relationships had grown closer in the shift to the new entrepreneurial context. Certainly, the relationships were characterised by quite a high degree of intensity, although less so than in the family node, and were quite tightly-

coupled. Respondents met these contacts regularly, even if infrequently, and almost always found a social occasion to round off the business aspect.

The third node was, as we have noted, comprised of suppliers, customers and competitors. Suppliers, as well as their formal role of selling goods and services to the entrepreneurs, were felt to be a valuable source of general market information and specific information about the competition. There was also some evidence that a strong relationship with suppliers improved their performance for the entrepreneur's business too. The role of certain customers, with whom the entrepreneur enjoyed a trusting but not especially personal relationship, seemed particularly important in pushing the entrepreneur towards trying out new product and market development. We were surprised to see the degree of mutual support that entrepreneurs gave to and received from the competition. Many of our sample had created a niche market for themselves and this, they felt, allowed them to avoid head-on competition. Instead, they relied on some kind of gentleman's agreement with the competition. This was true whether their niche was defined locally, nationally or internationally.

The longitudinal study added a new dimension to our research when it became clear that our respondents classified their ties, at least some of the time, according to their *quality* or *level*. All three of our longitudinal respondents emphasize how very important it has been to them to access individuals who are at a very senior level within their network. For Paul and Mike, this is often articulated through top-level members of customer organizations. As Paul argues: "*if a small company is going to have a relationship with a very large oil company then its relationship will probably only survive if its at a relatively high level*". He says this is especially so if the smaller

firm is set on driving radical change in its customers, since very senior support is needed to champion this within the client company. Mike points out that this type of relationship is also beneficial for the alter, since, when they work closely with an entrepreneurial firm, all the alter has to do to feedback information, or solve problems, is pick up the phone to the entrepreneur.

High-level network contacts offered far more than just enhanced customer relations, however. Mike managed to literally secure a seat at the big boys' table, when he became, fairly early on in his company's life, the SME representative on an important oil industry committee. Here, he forged bonds with a number of very senior players in the oil industry, including managing directors of major production companies. These were to continue to act as mentors and friends, and, in one case, to eventually become a member of Mike's board of directors. Paul also, by the end of the study, has a former oil major MD on his board. Jill, however, although she also serves the oil industry, perceived quality in network contact as a function of prominence and prestige within the local business network, emphasizing that respected lawyers, university professors (!), and leaders of local civic bodies were "the cream of Aberdeen society". She can be seen to have embedded herself in the structures of the local, rather than the sectoral network, and we will argue below that this was one of the key reasons for her business's eventual failure.

The two male entrepreneurs, however, managed very early in their business development, to build strong network contacts with members of the industry, punching well above their weight. There are also a couple of examples in the study where an early contact has also achieved prominence in their own right over time, so

that their level within the industry has risen. As we will see in our following discussion of network content, the benefits for our sample entrepreneurs arising from high-level contacts are manifold. In terms of structure, these high-level contacts increased the reachability of the entrepreneur's network, and enhanced their centrality to the main game.

The more detailed, richer data from the longitudinal study also showed that, whilst family had indeed been critical in the phases leading to birth and survival, customer contacts had also been vital, as the nascent firms negotiated to get into business. Mike's start-up strategy involved buying out a part of his employers' firm, and the customers he "inherited" provided a basis upon which his own firm could be founded. Jill's founding team also received support from clients of their former employer, who had gone bankrupt. Paul relied on his existing, extensive sectoral network, although his first major piece of work was indeed for his former employer. Whilst few of these early customers were to prove a long-standing trading relationship, their support of the nascent firm provided essential cash-flow in the early days, and a foundation upon which the three entrepreneurs were able to build and diversify. All three entrepreneurs told us that these earliest customers turned to them because of a mixture of personal and professional trust: they knew they could be trusted to get the job done.

The longitudinal data also revealed some interesting insights into the issue of formality. As we have already indicated, Mike's participation in a formal oil industry committee was a critical event in his embedding in the industry. He has also become very senior in a national business organisation, and serves on the board of a local university. Paul was part of a semi-formal dinner party group of young, change-

oriented oil industry entrepreneurs for a while, and is now involved in a national social change and leadership programme. Paul and Mike also attend the occasional formal event organised by business development agencies, such as Christmas parties. Jill participated in just about every possible formal civic network available, from local school boards to young enterprise organizations. We can see, then, that there is a certain willingness to engage in formal network structures. However, what was very interesting was the negative attitude which the two successful male entrepreneurs exhibited towards the inherent formality of these network structures.

When we asked Paul about formal networks, he said *"I don't play golf"*. This seemed to be the archetype for formal, traditional organizations, for forced artificial networking. Mike answers similarly in response to a question about surface networks and different types of networks: *"I'm not into the sort of golf network"*. Their rejection of formality appeared to relate to its creation of an artificial environment, a locus where the fraternal bonds of their networks risked being compromised by instrumental assumptions and norms. For them, the value of formal network structures rested almost entirely in the opportunities they provided to meet people, with any subsequent interactions, including the possible development of these relationships, taking place in a less formal, more intimate setting.

Content

We have three sets of original empirical findings to report for the content network mechanism. Firstly, we added a series of questions relating to network content to the quantitative survey. This allowed us, using the *"family, business, friends"* typology of the survey instrument, to compare network content across tie-type, thus defined.

Secondly, the cross-sectional qualitative study, from which the nodal typology emerged, showed clear links between network content, and node type. Although the intensity of contact varied from very high in the family, to somewhat lower in the customers, competitor and supplier node, our respondents placed a similar importance, for the *specific purpose of the value generated* within that node, on each node. Each node, therefore, delivered a different type of utility to the entrepreneur, although all three nodes were required for the development of very effective networks. Thirdly, the longitudinal data highlighted the importance of a small group of purchase-ready customers at business foundation, and introduced a new dimension to the structural mechanism: level.

First, then, the findings from the quantitative survey for network content, by type of tie (family, friend, business). Respondents were asked to identify, from a list of 12 possible areas, which management areas they discussed with their contacts and, from a list of 7 potential types of help, what type of help was provided. Multiple answers were permitted. We calculated each discussion topic area, and each type of help, as a percentage of the total reported for each of the three groups. Table Four shows the findings of the analysis into discussion content, and Figure Two the findings for type of help.

Insert Table Four about here

These data show that, while content discussed with friends varies somewhat from the overall trend, the findings for family and business ties are very similar in many respects. Whilst the small sample size prevents any meaningful statistical analysis from being carried out, the trend is strong enough to take seriously. Our respondents were as likely to discuss a range of highly instrumental and functional topics with their family contacts as with their business contacts. Indeed, for some topics, they were more likely to seek discussion with family, than with business ties. These subjects were found to be tax issues, advertising and promotion, managing production and operations and managing staff. However, in general, the data showed a great similarity between the ways family and business ties were used. The family's trust in, and affection for, a would-be entrepreneur seems to encourage them to provide essential support which otherwise might not be available. The more resources available within the immediate circle of the entrepreneur, the easier it is for them to carry out this stage of the business start-up process.

When we turn to the type of help provided, again, there is less difference between family and business ties than might have been expected. Figure Two shows these findings, which indicate that, as expected, family help is more likely to be emotional support than is help from business contacts, although assistance provided by friends is still **more** likely to be emotional in nature. Family help is also often in the form of advice, problem solving, and information provision. Again, family support for the entrepreneur seems to be almost as practical in nature as that provided by business contacts.

Insert Figure Two about here

The findings from our cross-sectional qualitative data, once more deepen and enhance our understanding of the three strong ties nodes, introduced during our discussion of network structure. Family ties were very intense ties, and in terms of network content they provided a foundation for the business in a variety of ways. These played the most significant role in entrepreneurial development, with trust presenting a crucial factor to this relationship. As could be expected, family ties were close ties, as bonded links. Family members were used to 1) promote entrepreneurship, 2) identify opportunities, 3) provide financial support, 4) offer practical assistance, 5) provide specialised advice and 6) as sounding blocks. The entrepreneurs emphasised the reliability of family members.

The category of former business associates played a key role as sounding boards and mentors, business information and advice, idea-validation, and introduction to, and legitimisation of, new contacts

The final network node was customers, competitors and suppliers. The key role for this group was the provision of market information, both general and specific, which was used to build up a picture of trends, changes and developments, as well as trying to work out why these changes were happening. Specific information from these contacts was sought out in many areas, including:

- 1) from competitors - customer credit-worthiness, equipment and insurance prices

- 2) from customers - competitor pricing and new business ideas
- 3) from suppliers - information about the competition.

Insert Figure Three about here

The differing resources provided by each the three nodes are illustrated Figure Three. This shows that the family node delivered practical, hands-on support (“*She is the sensible one. She does all the books and minimises our exposure*” (Adam)). By contrast, the business contact node gave access to validation about people (“*He has always been in touch with the business and he had had a major impact on us, identifying the priorities and the people we need to get in touch with*” (William)). The supplier, competitor and customer node provided new product ideas specifically related to the business (“*Our customers make suggestions about what they want. I suppose they really help to point us in the right direction so there’s benefits for all of us*” (Nigel)). Each nodal category was found to be homogenous in terms of relationship-type, and each provided quite specific types of resources. Furthermore, as Figure Two shows, the range of resources provided by each nodal category was quite extensive. Yet, the scope of the ties’ potential resources was heterogeneous.

Another very important, and unanticipated, finding emerged from our examination of the content mechanism within the networks of our longitudinal sample. This finding was how important networks had been as agents of entrepreneurial changes. Strategic planning, for example, is often talked about as a form of *conversation* with the

network. Specific ideas for new products also come from the customer network. Paul's first product was largely developed in a beer session in an Aberdeen pub, and this story has entered oil-industry folklore, as well as being a foundational narrative for his firm. After the session, in which a number of customer technicians took part, it took Paul's firm just 2 weeks to develop the product. Mike says all his good ideas come from customers. He directly asks the customers exactly what they want, what they don't want and then works out how to deliver it. Then he gears up his resources and capabilities to deliver. In Mike's firm, organizational morphing is driven by specific customer need. He explicitly says that they avoid building a centre of technical excellence, and then finding work: they "*don't sell 'capability', we're developing capability to match needs*" (Phase 3). Mike's conversations direct strategic change, which leads organizational change and growth.

Jill doesn't go outside for ideas or strategic inspiration. She goes outside for advice in solving specific problems, and, at one point, to try and find someone who will tell her very directly how to grow her business. Sorting through ideas and planning specific strategy is the role Mike and Paul keep for themselves, and they bring people into the firm for managerial problem solving. Jill keeps using her outside contact for this very limited role: and since she keeps having the same kind of problems – she has the same sort of problems in every interview, for example. The effectiveness of the advice she therefore receives can be questioned.

What we see here is the two successful entrepreneurs generating key ideas for business growth through their network, developing the subsequent new products with their network, creating and validating strategy via network conversations, and then

arranging for other members of the firm to manage the new relationships thus created. The contrast with Jill, whose business was massively downsized, and all but collapsed, is remarkable. Her network processes are functional, not holistic, and operational, not strategic.

Process

Process is notoriously difficult to capture using quantitative instruments, and the only findings relevant for this network mechanism from our quantitative study relate to the hours expended on network development and maintenance. These data have been reported within our discussion of transnational contingencies, and served to emphasize the amount of time – between a third and a half of an entrepreneur’s working life – dedicated to networking activities.

The findings from the cross-sectional qualitative study confirmed, as Dwyer and Handler (1994) suggested, the importance of family involvement at the start-up phase. Critical forms of family support as businesses created were promotion of the entrepreneurial concept, help with opportunity identification and, especially, provision of finance. For some respondents, entrance to entrepreneurship had been especially facilitated by kin, either through inheritance, or very extensive provision of finance and other resources. Although family help was especially important at the start-up stage, in later years family members outside the business continued to act as key network contacts and provided a range of assistance to entrepreneurs. Our findings here provide additional support for the network-driven staged model of entrepreneurial processes presented above.

However, it was with the longitudinal part of our study that we anticipated generating the richest findings with regard to the mechanism of entrepreneurial process. Indeed, given the well-recognised research lacuna of longitudinal studies which study entrepreneurial process in a temporal context, we argue that this aspect of our multi-method study is particularly valuable. It presents a chronological lens to allow us to first chart patterns of network change over time, but perhaps more importantly, by charting networks in their historical contingency, we can thus view network continuity and change from a perspective which enables us to develop a richer conceptual framework.

The nature of networking was seen by our respondents as something natural, unforced. In particular, Paul and Mike emphasised how it is a spontaneous and unaffected part of enterprising. Jill took a rather more formal approach, even targeting key individuals. Nonetheless, even when networking is purposive, all respondents told us that you actually have to like people, and to have the right chemistry with them. This, in part, explains their distaste for formal networking organizations, which were seen to undermine the open, honest, social nature of entrepreneurial networking.

We also found that networks change over time, growing, changing and developing according to the entrepreneurs' needs and the direction in which they are taking the business. Networks are adapted in response to these needs and the emergent and changing environment. Networks don't remain static but the core members generally remain the same. As we have seen already, this makes the level, reachability, and centrality of early strong contents very important for the future growth of the firm.

Paul and Mike both note that the amount of time they spend on networking varies, and increases while they're being the "*architect of each growth phase*". Then it falls off while they grow the company to meet the new opportunity they've created. They put people and systems in place to deal with operationalizing the new opportunity, which becomes routine. Then they set off to begin the next cycle, talking to their customer-networks about opportunities, selling their new ideas at the highest possible level within customer organizations, building relationships.

Entrepreneurs, of course, cannot just be seen as "taking" from their networks: reciprocity in some form is also a key network process. All three of our sample entrepreneurs are explicit in their unprompted comments about the need to give something back to their network. For Paul, especially, what he's trying to achieve within – and for - his industry is change. Paul, in the early years, articulates the strongest possible duty to be doing what's right for the industry, to be bringing about much-needed change, and he talks about this in really powerfully normative language. What we see in terms of reciprocity is two forms, a generalised version, and a specific version. Jill's case exemplifies the specific version in that favours are traded: you scratch my back and I'll scratch yours. But Jill's networking has been much less successful than our other respondents. We noted too, how she seemed to have failed to extend and cement new ties. In contrast our other respondents presented a very general loyalty and obligation to the entire network. But in so doing, we see general networked benefits returning to them, for example as in Paul's increased status. So, just as the network may act as the change-agent for entrepreneurs, so entrepreneurs may be seen to create change within their network.

What was also clear from our data was the extent to which normative values were perceived as critical to network entrance and development. Our three longitudinal respondents in particular frequently used expressions such as “*the same philosophy*” “*shared beliefs and values*”, (Paul), “*integrity*” (Mike). These shared normative and performance values were used as a hiring criteria for employees, but also as a way of validating the choice of operating partners outside the firm. It was seen as the basis for friendship relationships – for the developing of strong from weak ties.

Contextual Contingencies

From our earlier review of evidence concerning contextual contingencies, and their influence upon entrepreneurial networks, we would argue that more detailed work is required, at the micro level of the entrepreneur, into this area. Specifically, we set ourselves the objective of uncovering some of the relationships between network mechanisms (structure, content and process), and regional / sectoral context. These nuanced and complex issues require qualitative methods to do full justice to their richness, and we hope our study will prove to have been successful in this respect.

There was already some evidence from the work of other scholars to suggest that the oil industry, and the entrepreneurs supporting it, was characterised by a technical, problem-solving approach to doing business. Business ties were seen to develop as a function of this, underpinned by personal affinity and integrity, which had even managed to circumvent fairly formal contractual bidding arrangements. All three of our longitudinal case study entrepreneurs mainly served the oil industry, at the beginning of our study. One respondent, Mike, began exploiting new opportunities in

the defence industry during the period of the study, only to re-enter the oil industry to apply his newly acquired knowledge into this sector also. What was very, very clear in our findings was that the Aberdeen business environment was composed of two contrasting network structures. The oil industry network is global in reach, confined to one industrial sector, and driven by an engineering philosophy. Social capital appeared to be earned by technical expertise, as demonstrated in advanced problem solving. Trust was articulated as being able to rely on someone to deliver a technical solution in a high-risk area, and having the integrity not to compromise.

The Aberdeen professional network was geographically bounded to the city and its hinterland, contained many sectors, but was essentially led by graduate professionals, especially the legal professions. Civic duty and pride were the key to winning social capital in this very traditional and conservative network structure, where service to the city was highly valued. Trust was perceived as adherence to conservative norms, and an ability to keep secrets, personal and professional. The structures through which this network operated were largely highly formal, and hierarchical. Table Five summarises these differences.

Insert Table Five about here

Most interesting was the clear antagonism between these very different social structures. All three respondents were explicit about this, and about the negative

consequences for the development of the local economy that the resistance to change of the Aberdeen professional network had engendered.

At a micro-level, Jill's story was an embodiment of this problem. She followed her father – a small local retailer who had been very active in local bodies – into the Aberdeen professional network, sometimes attending three or four formal events a week. Very few of these gave her any access to her customer base within the oil industry, and even where oil industry members attended, they tended to be PR staff, rather than operational managers. Jill was in the wrong network, and it really made a difference! She was completely cut off from customers, with no way to gain social and professional capital upon which to build the business' growth. Critically, she could not use her embeddedness in the oil industry network to develop new product ideas, nor to create strategy. Indeed, her network became used for little more than fire-fighting tactical problems. Although the business survived for some 15 years – and flourished for some these, during good times – it was unable to continue growing to achieve a substantial size, and, eventually, was cut back to just three employees, at the point where Jill exited the firm.

DISCUSSION AND CONCLUSION

We began this Chapter by reviewing generic and specific networking parameters in the entrepreneurial process. We then reported findings of a multi-method study, which focused in particular on the growth stage of the entrepreneurial process, and uncovered a series of interesting findings, summarized above. By way of discussion, we will return to the level of the generic, and attempt to work through the implications of our findings for broader understandings of entrepreneurship.

Our literature review showed us that “network entrepreneurs” – those who use social network contacts to find out about opportunities – recognise many more entrepreneurial opportunities than less social “solo entrepreneurs”. But, what does it mean to network entrepreneurially? Our longitudinal data seems to describe two distinct and different approaches. First, instrumental or functionally purposeful; outcome focused, mechanistic, short termist but logical. Second, fraternal and affective; sympathetic, empathetic, a social alliance of trust, respect, goodwill and rapport. The data describe successful entrepreneurial networking as a strategic practice. But in the short term there are a number of benefits associated with instrumental networking. Young - and even adolescent – firms, tend by their nature to be resource-constrained, so that rapid, sustained growth is unlikely to be feasible based solely on internal resources. Increasing environmental turbulence demands strategic and operational flexibility, and an emphasis on knowledge, process, interaction, and change. The entrepreneur’s network will therefore play at least as important a role for the growing firm. So, how and why do networks change? It seems there is a process, a shift from 1 to 2. Instrumental only lasts for the duration of mutual benefit but may be convertible into a fraternal relationship. So for instrumental networks, change is the norm. As “needs” change, so does the network. These needs may be internal, hence business based, or external in terms of environmental change. Since newer businesses tend to be more flexible, because of the ignorance of newness, there may be a requirement to reconcile and adjust the internal to the external as experience develops. We note that there may be a limit to the operational size of an instrumental network, which may help to explain high churn rates. Such networks may not “develop”, but simply change direction. For fraternal networks, we wonder if

they do change very much: it may be more a matter of reframing the already established to fit emerging needs but also incorporating some selected new network members when social bonding is satisfied. Jill's failure might be attributed to aspects related to gender but we would argue that this is not necessarily the case. Alternatively, it may be interpreted that because of her work experience and background Jill speaks a "different" language than the industry in which she was located. But Jill had the contacts and was clearly able to break into this network. Instead she chose a particular networking strategy and this and the ties to whom she decided to connect were unsuitable for the needs and requirements of her specific entrepreneurial venture.

Entrepreneurship is about change, entrepreneurs both create change and respond to change, their natural milieu is movement and change. Clearly, change is ever present at all stages throughout the process and the entrepreneur as an agent of change needs to be able to respond to these changes. The network becomes the mechanism for not only dealing with the environment and the conditions for entrepreneurship but also for coping with change. Therefore, the network and the nature of network contacts can have a significant impact on the start-up, growth and development stages of a venture. Our cross-sectional qualitative study was able to capture some of these movements; we collected the histories of the business development; we saw how they evolved by navigating a pathway through the changing landscape. This in itself is not new, but what we feel this part of our study contributes is a fresh perspective about how evolving ties provide a routemap, even a structural pathway for the navigation of change. Consequently, more research needs to be directed towards understanding networks over time.

To try to explain this interaction in space and time, imagine the socio-economic landscape. We are at a fixed point, our beginning or starting point; this is both spatial and timebound, now. This landscape stretches far before us, those parts near us, within sight, are becoming familiar. We know our family, they know us, so these strong links provide a secure base for the expedition. Less clear, but in the middle distance of this imagined landscape are our business contacts. They are familiar, but often from a different context, so in some ways familiar strangers. Their position on the horizon of our emerging landscape is less clear, but as we move forward, into the future of the business and forward into less known territory, they signpost this territory for the business because they know those aspects of the terrain. Farther still is the unknown and perhaps unknowable future of the business. This becomes a reality in terms of our customers and supplier, our third node. These particular ties are the future, but they may also create the reality of our business. Until a business idea has been proven in the market place, negotiating commercial support can be difficult.

The longitudinal part of our study added further depth to this developing metaphor. It would be simplistic not to also note that local economic-industrial environments vary considerably in the quantity of resources available, as well as in the demand for these resources. Indeed, the resources we notice, and which are potentially available to our use, are very dependent on our social and industrial environment. Consider how our respondents gathered useful information about the environment: they tapped into the experience of other network members. They garnered this experience and reconfigured the networked experience to shape the strategic direction of their firms. We would argue that each network contact presents a subjective (but informed) social

construction of what the environment is doing, a presentation of experienced reality. When the entrepreneur responds to this socially constructed perception, what they are doing is to enact the environment as they subjectively understand it. This view and consequential action (enacting) is constructed from the various perceptions within the network. Thus for our respondents, networks as multiple points of contact, actually creating the environment. Of course the enacted environment as socially constructed may not represent a full or complete understanding, such is the nature of any social construct. But since we had noted that well connected individuals had access to more relevant knowledge, this seems to indicate that network contacts can be seen as channels of communication for experience. Thus the more experience that each network contact has, the better and more fuller the entrepreneurs constructed understanding of the environment will become.

To conclude, there is generally a widespread acceptance that economic action is embedded in ongoing networks of personal relationships and that economic goals are typically accompanied by non-economic goals which are related to the social context (Piore and Sabel 1984; Powell 1990; Granovetter 1992; Ring and Van de Ven 1992; Snow et al. 1992; Jones et al. 1997; Young 1998; Arrow 2000; Jack and Anderson 2002). Our study supports this and clearly demonstrates the relevance of the social context for understanding entrepreneurship. We have argued that the 'latent' entrepreneurial environment is a forum, a place to converse and trade simultaneously; a site for both co-location and co-locution. The market, in other words, is the network, and it is made real through the mechanisms of structure (who connects to who), content (what is exchanged) and process (how and when do these transactions take place).

Entrepreneurs may be limited by their ability to recognize opportunities with their social networks, but if able to use social ties effectively and efficiently they can gain returns on their social capital and increase commercial success (Kim and Aldrich, 2005). Here we have argued that regional and sectoral norms and practices have acted as contextual contingencies to profoundly impact upon the network mechanisms of our sample entrepreneurs. These norms and practices can be equally understood as the habitus within which entrepreneurs are embedded, Boudieu's habitus, in the sense of shared dispositions to behave in a certain way, is manifested as dynamic bundles of practices. The habitus of the entrepreneurial firm can be argued to be shaped by (at least) by its sectoral and regional set of co-created dispositions, but is also impacted by the "stage" in the firms' development. This stage issue isn't simply about the resources the firm needs to access from its environment, and which relationships can make real these latent resources – although this is clearly part of the story. But it's also about how the ties develop over time, becoming multiplex (or withering).

There is a key paradox, here too: the need to live out the norms and routines of the habitus, whilst simultaneously acting as agents of change. Conformity to the habitus is required so as to develop that all important trust, secure and enhance legitimation, and to invest in social capital. Yet one of the key activities of the entrepreneur is to develop new "routines"; create new resources (tangible, intangible and relational); re-shape the network-as-market; and make latencies manifest for others. This is, perhaps, Schumpeterian creative destruction in its widest sense. Our longitudinal study showed that for the two successful entrepreneurs, changing industry practice was an important

objective. The role of the entrepreneur within the wider business environment may indeed be just this, as the agent and catalyst of change.

The techniques used to carry out the research allowed us to consider the network and networking activities of our sample of respondents longitudinally. However, we recognize that these methods restrict the generalizability of our findings. It would be interesting if further research was carried out using quantitative techniques and larger samples to test the patterns we have identified from our study.

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Table One: Network Parameters

Structure	Content	Process
Type of tie (strong-weak)	Tangible assets: finance, equipment, property	Change through time
Diversity		Network development
Centrality	Intangible assets: knowledge creation and transfer, psychological and social “assets”	Network maintenance
Size		Bridging structural holes as process
Formality	Relational assets: introduction and validation	Social capital formation
Density		

TABLE TWO**QUALITATIVE STUDY RESPONDENTS**

Respondent	Activity	Established	Background and route to entrepreneurship
Nigel	Freight Forwarder	1992	Freight forwarding, set-up own business in competition to in-laws
Shaun	Stationery supplies	1983	Took over family business
Grant	Chemical supplies	1981	Accounting and business degree. Gradually taking over family business
Mike	Light Engineering	1973	New venture based on technical innovation
Bill	Light Engineering	1989	University, professional career, then creation of “life-style” business
Barry	Computing services	Various dates	Originally employed in oil industry but then started a number of businesses
Tony	Construction	1974	Management buy-out
Mary	Counselling services	1997	Housewife who identified need through own experience
Paul	Computing services	1990	Worked for major oil company allowing him to recognise related opportunities
Stuart	Language	1995	Various jobs on leaving university.

	school		Turned hobby into business
Jill	Video production	1985	Sales and marketing, set up business with partner when employer (same industry) went into liquidation
Adam	Manufacturing	1977	Identified a local opportunity

FIGURE ONE: PROJECT METHODOLOGY

1998: Semi-structured interviews with 3 entrepreneurs

2000: Telephone survey
interviews with 68
entrepreneurs

2000: Semi-structured
interviews with 12
entrepreneurs (including the 3
entrepreneurs interviewed in
1998)

2003/4: Semi-structured interviews with 3 entrepreneurs

Table Three Nature of strong-tie, and occupation of strong-tie contact			
	Family Ties	Friendship Ties	Business Ties
% of total ties	24%	15%	61%
<u>N</u> = 182	<u>N</u> = 44	<u>N</u> = 28	<u>N</u> = 111
Occupation of strong tie contact, by nature of tie			
Professionals	4%	7 %	31%
Partners / co-directors	25%	10%	34%
Entrepreneurs	16%	39%	3%
Employed (external)	42%	32%	22%
Employee (internal)	2%	4%	6%
Other	11%	7%	4%
Total	100%	99%	100%
Occupational locus of strong tie contact, by nature of tie			
Internal / quasi internal	31 %	21 %	73 %
External	69 %	78 %	27 %
Total	100%	100%	100%

Table Four: Discussion Content by Nature of Tie			
	Business	Family	Friend
Finding new customers	11.7 %	9.5 %	12.9 %
Selecting suppliers	8 %	8 %	6.5 %
Recruiting Employees	8.1 %	7.6 %	3.2 %
Seeking Finance	8.5 %	8.4 %	7.5 %
Business Growth	12.8 %	11.6%	15.1 %
Export Possibilities	5.4 %	3.6 %	6.5 %
Accounting and credit management	7 %	6.9 %	5.4 %
Tax Issues	6.7 %	8 %	6.5 %
Advertising and Promotion	7.8 %	10.2 %	11.8 %
Managing Production and Operations	7.8 %	9.5 %	7.5 %
Legal Issues	7.6 %	7.6 %	10.8 %
Managing Staff	8.6 %	9.1 %	6.5 %

Figure Two: Type of Help Provided by Nature of Tie

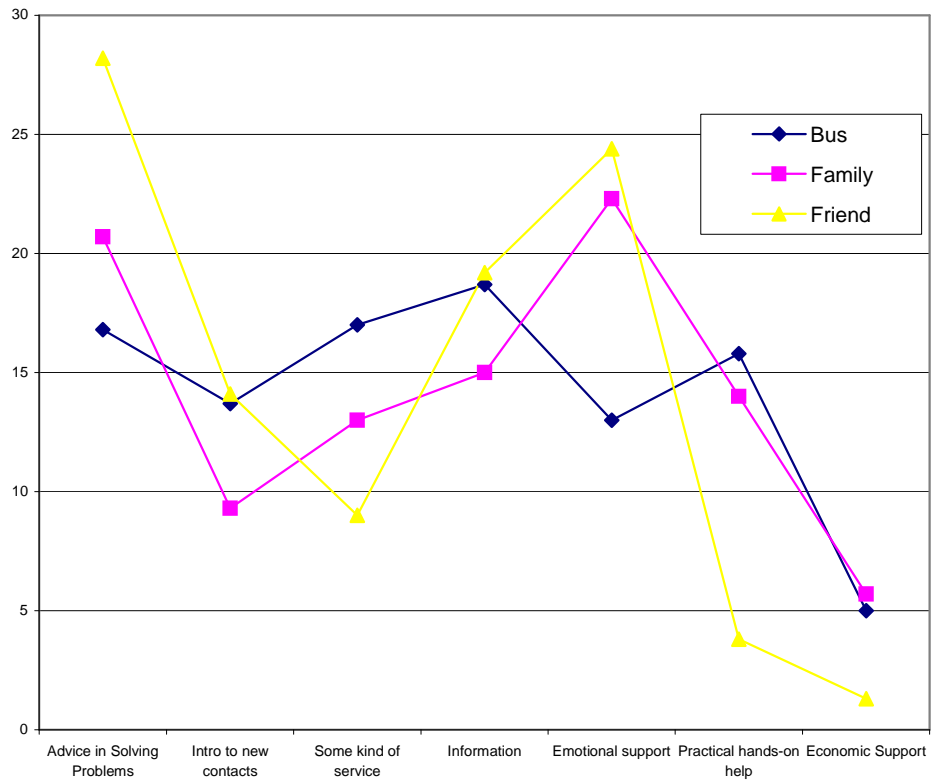


Figure Three: Relationship characteristics of the strong-tie continuum



FAMILY NODE	BUSINESS CONTACTS NODE	SUPPLIERS, COMPETITORS, CUSTOMERS NODE
Business Instigation	Information about People	General Market Information
Capital Provision	Introductions to People	Specific Information
Hands-on Support	Validation of People	New Product Ideas
Emotional Support	Mentor	Market Ideas
Diversity of Views and Skills	Strategy Development	Avoidance of Direct Competition

Table Five	
Comparison of the 2 networks in the study	
Oil Industry	Aberdeen Business
Global	Geographically bounded
1 sector	Many sectors, led by the trans-professional solicitors, accountants, etc.
Social capital earned by technical problem solving	Civic duty and pride wins social capital
Engineering philosophy	Professions and merchants
Dynamic, flexible	Conservative, traditional
Trust = technical competence, reliability of technical solutions	Trust = adherence to conservative, traditional norms, plus keeping secrets
Informal structure	Many formal structures
Like a pub	Like a church