

Knowledge-Worker Networks: An Information-Age Business Structure

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ABSTRACT

Flexible network arrangements between small groups of knowledge workers are on the increase. These loosely-coupled business forms are posited as having the characteristics of the 'ideal' network form, where power is evenly shared, and information flows freely and openly between nodes. In order for these characteristics to be present, the ideal network is also posited as showing high levels of trust between members. This paper tests these assertions through interviews with a consulting network made up of three highly trained knowledge work practitioners. Findings show that all three 'nodes' of this small network operate both singularly and jointly, with social needs (collegiality and trust) driving the network operation. Although all three members are committed to the network for the long term, findings suggest that there are limits to growth for this ideal form. Ways in which to 'grow' such an ideal network, where trust remains high, and information continues to flow freely, is seen as an area of research that deserves further study.

INTRODUCTION

The business reality of the twenty first century is a global environment of rapid and unpredictable change (Cravens & Piercy, 1996). As developed economies move into this turbulent environment, traditional organisational designs (functional, divisionalized and matrix) are less appropriate (Jarvenpaa & Ives, 1994). Some researchers suggest that networked business forms characterised by multiple alliances between small firms will become the prevalent forms in this environment (Kelly, 1998; Li, 1998). This network formation is encouraged through the rapid increase of more productive and efficient communication technologies (Dyer, 1996; Gagnon, 1999; Ferdows, 1999).

Much current organisational design literature relates to large firm attempts to adopt a network structure. This research includes such elements as global competition, the flattening of large-firm hierarchies, and strategic alliances (Stebbins & Shani, 1995; Miles & Snow, 1992; Cravens and Piercy, 1996). In contrast, there is a paucity of

information about small firm networks that are developing as a new organisational form. This is despite the view that small firm alliances that rely heavily on information sharing are now a common form of general business practice (Baum and Oliver, 1991; Haverman, 1993; Osborn and Hagedoorn, 1997).

This paper looks specifically at flexible network arrangements between small (sole trader) firms of knowledge workers. As with the other network forms these knowledge worker networks are thought to be well suited to the current (and predicted future) business environment of fast change.

The main objective of this paper is to examine knowledge worker networks specifically in terms of what is posited as the 'ideal' network business form. To accomplish this, the paper starts with a short description of ideal network characteristics. This is followed by a brief definition of knowledge workers and knowledge work. The review concludes with a summary of why knowledge worker networks might have ideal network characteristics.

The paper then summarizes a set of exploratory interviews with three knowledge workers who have been operating in a business network together for several years. Findings show that this small knowledge worker network exhibits the characteristics of the ideal network form, as predicted.

The paper finishes by suggesting that further research on other knowledge worker networks is worthwhile to determine if ideal network characteristics are supported by knowledge work. An examination of the limits to growth of the ideal network form is put forward as an area that deserves more study.

LITERATURE REVIEW

The 'Ideal' Network Form

Li (1998) provides a comprehensive summary of networked business forms and the multiple paradigms that underpin their foundation. He posits that the ideal network will be both flexible and stable. Trust will be strong between nodes, such that each unit is able to balance independent, self-interested behaviour together with altruistic behaviour towards the network as required. Li concludes that in order for this ideal to exist, members of the network must have 1) an interconnected and non-absolute world view, and 2) an idealism to blend altruism and self-interest. Ferdows (1999) supports the view that the ideal network form is one in which communication flows freely between the nodes in a non-hierarchical and balanced fashion.

These characteristics of the ideal network form do not generally match the findings related to networks involving large firms. Rather, large firms appear less concerned with trust and more concerned with geo-political elements such as global competition, the flattening of large-firm hierarchies, and strategic alliances (Stebbins & Shani, 1995; Miles & Snow, 1992; Cravens and Piercy, 1996). Large firm alliances are often formed as hedging against potential dominance by other organisations (Christmas, 1999).

Thus the ideal network form of Li's (1998) and Ferdow's (1999) descriptions is posited as more applicable to small networks. As was mentioned in the introduction, there is a paucity of information about how such small networks operate.

Knowledge Workers and Knowledge Work

The way in which work is performed has changed considerably since the early part of the twentieth century (Sica,1988). Automation technologies (such as robotics and miniaturization) have largely replaced work that was originally done by humans (Guillen, 1994). In response to the gradual replacement of worker tasks with technology, workers have (over time) developed a broader set of skills. The resultant outgrowth of this trend is the labeling of a 'new class' of workers as knowledge workers (Micklethwait and Wooldridge, 1996). The knowledge worker group as a whole is said to add value through the generation of ideas, analysis, judgement, synthesis, design, and the application of specialist expertise to solve problems (Dove, 1998).

Knowledge workers are thought to require different treatment and are motivated by different concerns than their early twentieth century counterparts (Drucker, 1999). The increased skill level that these workers bring results in an equivalent expectation that they will be rewarded (both socially and financially) in ways that recognise the increased value of their effort.

For instance, remuneration expectations for this group are changing, from a set salary basis to one that often includes stock options as part of the package (Reich, 1999; Inkson, 1999; Scarborough, 1999). Knowledge workers also expect to have more intrinsic personal recognition and a larger social power base (Drucker, 1999). Flexibility in how and where you work are also important factors to these workers (Reich,1999; Inkson, 1999).

Knowledge Workers and the Ideal Network Form

The increased expectations of knowledge workers are not being met by the practices of many traditional firms. Compounding knowledge worker dissatisfaction is low trust regarding employer loyalty in an era of downsizing and redundancy (Inkson,1999; Scarborough, 1999). These elements, together with the trend towards networked forms identified previously, are encouraging the growth of small knowledge worker networks as an organisational form. One study (Donckels and Lambrecht, 1997) indicates that 'professional' knowledge worker networks show significantly higher growth rates than other networks.

Combining what has been written about networks, and what has been written about knowledge workers and their motivations, we posit that a small knowledge worker network is likely to have characteristics of the ideal network described by Li (1998) and Ferdows (1999). To explain, the knowledge worker's desire for more balance in power relationships, and greater flexibility in work requirements, appears to fit the ideal network characteristics (Ferdows, 1999), in which communication flows freely between the nodes in a non-hierarchical and balanced fashion.

In addition, the dissatisfaction of knowledge workers with traditional workplaces suggests that they may be inclined to seek alternative work forms, including the formation of their own small networks, in order to meet their social needs for greater power, autonomy and flexibility.

Thus the expected characteristics of a knowledge worker network can be summarised as:

1. Share power evenly, so that social expectations are met (Reich, 1999)
2. Have high levels of trust (Li, 1998)
3. Fit the ideal network form allowing free flow of communication (Ferdows, 1999)
4. Meet financial imperatives as defined by knowledge worker motivation (Inkson, 1999)

INTERVIEWS

A set of interviews was carried out with three management consultants who are operating within a network structure which the (previously sole practitioner) consultants formed several years ago. All three respondents continue to work as sole practitioners, but for the year ending December 1999 derived an average of 30% of their revenue working on jointly held jobs. At the time of the interviews (January 2000), two of the three members were working full-time on a joint project, while the third member was working independently.

All three consultants, now 'nodes' of the network, come from similar backgrounds. All three respondents are male, with postgraduate university qualifications, and are aged between their late thirties and early forties. Each had worked for a consulting firm prior to branching out on his own.

Table 1 summarises the interview comments related to each tabled question about the network arrangement. The interview transcripts were summarised independently by the two authors of the paper, with the resulting categories and summaries validated by both. The interview findings are discussed next, in terms of the match between knowledge workers and the ideal network form as detailed previously.

Table 1: Summary of Interviews

Category	Questions	Response Summary (n=3)
Network Formation	<p>Why were you working on your own?</p> <p>Why did you form a network?</p> <p>How did the network come together?</p>	<ul style="list-style-type: none"> • Wanted to create something in own area of interest rather than 'being pulled by large organisation's mandates' • Dislike of dependency and formal power structures • Frustration caused by large firm administration and bureaucracy <hr/> <ul style="list-style-type: none"> • Need for social interaction with peers: loneliness, feelings of isolation • Awareness of limits of own skills and abilities as an individual: desire for 'critical mass', not wanting to 'rely on my own street fighting skills basically to stay alive' • Improved ideas through conversations/critiques of others <hr/> <ul style="list-style-type: none"> • Accidentally. Got together for a glass of wine after a conference attended by all three. One of the three already knew the other two. • Moved to an informal get-together on a regular basis (Fridays). • Initial joint work grew out of this: first pilot trial, followed by others.
Model of the existing network structure	<p>What does the network structure look like?</p> <p>Who is part of the network and why?</p> <p>Are there any common 'themes' that hold you together?</p>	<ul style="list-style-type: none"> • Three core operators • Bring in sub-contractors as required • Retain independent work, but take opportunities to include the others whenever possible <hr/> <ul style="list-style-type: none"> • The original three parties remain as the core • Experienced consultants with own independent business (network not large enough to support on-going work) • Have similar ideological, personal values • Tried others but didn't work out: either too dependent (not enough independent work) or wrong area of interest (not enough synergy) <hr/> <ul style="list-style-type: none"> • Desire for trust based relationships • Desire for balance of power: perfect interdependence through independence • Similar work ethic and philosophy on life: all 'team' players but also independent
	What value does the network	<ul style="list-style-type: none"> • Better quality of ideas and thought through critical ideas from others

	add to your work?	<ul style="list-style-type: none"> • Emergent 'synergy' where ideas are developed and brought to reality by the group • Social connection with similar others • Range of skills offered • Spreading of financial risk: where others are also finding work for you • More work available through a larger offering
Problems with the network	What are the issues that cause problems in the network?	<ul style="list-style-type: none"> • Communication difficulties: if stop meeting regularly, the network begins to 'fall apart' and lose its synergy • Getting jobs of the right size: many too small to support more than one person • Need for similarity but also diversity: overlap of skill set helps critique the others but sometimes not diverse enough for clearly designated roles • Sometimes messy because no one is in charge • Not large enough to have on-going work without continual effort: network not well known: brand name. Some arguments between members about size and growth.

Table 1: Summary of Interviews Continued

Category	Questions	Response Summary (n=3)
Future of the network	Size and growth?	<ul style="list-style-type: none"> • Size limited because how can you find others who fit the bill as per common themes above? Something lost if the 'wrong' people. Can't just advertise for the right people. • Three is easy to organise: concerns that if more may need to hire administration staff: dependency issues crop up. • Uncertainty about whether growth should be forced, or just let to grow 'organically.'
	Do you think that you will stay with the network?	<ul style="list-style-type: none"> • Firm commitment from all three parties that they will stay • All agree that it adds value to their lives: 'I think that there is a huge hunger for this sort of thing out there'

Findings

Strong support for the four expected characteristics of a knowledge worker network are found in the interviews. These are discussed in detail next.

1. Share power evenly, so that social expectations are met (Reich, 1999)

There is evidence from the interviews that this network developed to meet the social needs of the individual operators. Evidence of the 'even sharing' of power is seen clearly in the response that managing the network is sometimes messy because no one is in charge. Respect for the power of others in the network is seen through the view that important added value comes from the critique of one's ideas by the others, and the idea of a 'synergy' emerging from their combined effort. The difficulty in finding others like themselves (experienced in a similar field) also suggests that the members believe that this network is a network of equals.

2. Have high levels of trust (Li, 1998)

The interviews indicate that this network matches Li's view of the ideal network, which is strong in trust with members who are able to balance altruism with self-interest. Interviewees mention the need for trust, and the need for similar ideological values. All three members desire and show signs of balancing interdependence with independence, reflecting the balance between altruism and self-interest described by Li (1998). They emphasise these individual traits as being necessary characteristics for the admission of new network members.

3. Fit the ideal network form allowing free flow of communication (Ferdows, 1999)

Evidence that this network operates on the basis of the free flow of information comes from comments about the added value that the critique of the others provides, as well as comments that if the Friday meetings are stopped for any reason, the network begins to 'fall apart'. Interview comments highlight collegiality and open sharing of ideas as the basis on which this network is derived.

4. Meet financial imperatives as defined by knowledge worker motivation (Inkson, 1999)

Interview comments support the view that the sharing of financial risk is one characteristic of this network. The requirement that each member has financial independence first and foremost supports the view that these knowledge workers want their rewards to reflect their individual contribution. Thus, whilst they recognise the value of having others who may find work for them ('not wanting to rely on my own street fighting skills to remain alive'), they also have a requirement that others do not become financially dependent on them (seen in the size and growth summary).

DISCUSSION AND FURTHER RESEARCH

The findings of this small study fully support the view that small knowledge worker networks exhibit the characteristics of the ideal network model. High trust, sharing of power, a regular open flow of information, and the mutual sharing of financial incentives are seen clearly in this network. Further research on other small knowledge worker networks would be useful to determine if these ideal network characteristics appear common to this organisational form. In particular, it would be interesting to see if other such networks rate social needs above financial needs, as was seen in this small sample of three.

Some other interesting issues arise from these interviews, related in particular to management and growth of the ideal network form. Limited growth seems to be endemic to this form, leading to the premise that an ideal network can only operate if it is kept below a certain size.

This raises general questions about ideal network size and growth. Is there an optimal size for the ideal network? How do such networks grow? For instance, growth strategies may relate to the 'spin-off' effect seen in Chinese family networks (Li,1998), or alternatively may relate to organic growth through 'chunking' with other local networks as described in socio-biological models (Kelly, 1998).

In conclusion, this study suggests that small knowledge worker networks may match the ideal network form. However, whilst this ideal appears to fit each member's social and financial goals, there are issues raised from this initial study about size and growth of this network form.

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