

Corporate Partners Research Programme

Mapping social networks in organisations

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the work foundation



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1. Social network mapping: what's the link to business?

Social network mapping is the study of who knows who and how. The fact that anthropologists developed this methodology is not that surprising – when trying to understand an entirely alien culture, the formal structures of power may not be easily apparent or comprehensible. So studying social networks in a foreign culture would prevent an anthropologist from leaping to conclusions or falling victim to prejudices. But why should we wish to understand informal social networks in our own organisations, where we know who the leaders are, how the economy works and who is answerable to whom?

We believe that there are two main reasons why informal social networks need to be better understood in a business context. Firstly, human and intellectual capital is of growing relative value in the UK economy and for British businesses. Ideas, skills, enthusiasm, care and knowledge are intangible business assets widely deemed to be key determinants of competitive advantage and productivity growth. And unlike tangible goods, which can be distributed in an impersonal, fairly asocial means, these human capabilities are all far more embedded in their social circumstances. 'Social capital' is the crucial context for all human capital. Tiny details of things like office layout, friendliness, tacit cultural norms all play a role in affecting the productivity of an organisation, because people – with all the cultural and psychological complexities that they bring with them – are now the most valuable assets around. In an age where the production of tangible goods drove our economy, informal social networks may not have been especially significant (despite the fact that they were still there). Nowadays, conversations, friendships and chance encounters are a primary means of creating and distributing value.

Secondly, a broad social shift across our society has forced people to become less willing to trust and associate

with formal authorities and institutions in the way that they once did. For the employee, increasingly fluid career patterns mean that traditional commitments with employers are not as dependable as they may once have been. Union membership in Britain, which used to be considered important, has fallen from over half the workforce to less than a third within a generation. 'Individualism' is now understood to be a fact of Western societies. This being the case, informal social networks are now arguably a more important source of identity and security net for individuals than they were a generation ago. With the perception that job security is lower than it was, trust in managers and business leaders fell quite dramatically through the 1990s, and more people now feel that they can rely on their contacts, colleagues and friends rather than their employers. This shift in affiliation, from formal types of association and deference to informal types of association and greater self-reliance, is the second reason why informal social networks now command our attention.

Both of these phenomena pertain to business. In addition, the diffusion of Information and Communication Technologies (ICTs) into working life means that there is a widespread need for a new social template within which organisations can understand themselves. The distinction between insiders and outsiders no longer makes as much sense, hands-on attempts to manage knowledge and social relationships may have undesirable knock-on effects. Canier organisations are beginning to seek out ways in which tacit, informal networks can be given a greater visibility and prominence. If horizontal, inter-departmental and inter-organisational networks are more creative and productive arrangements for employee relations, then it makes sense that these networks be given recognition and authority to accompany their important role.

However, whilst many managers accept the logic of this proposition, few feel equipped to investigate inter and intra

organisational networks in order to solve business problems or to take advantage of business opportunities. Some of the research work conducted in this area by The Work Foundation has explored some business issues that can be addressed by social network mapping. This includes the primary knowledge flows, and the infrastructure and cultural factors which promote the effective use and exploitation of social capital. In this report we explore the methodology of network mapping in more detail and outline some of the potential uses in organisations through case studies.

2. Social networks in organisations

Ever since American management specialists first flocked to Japan in the late 1970s, there has been a widespread desire to understand how businesses can develop a more intelligent devolution of responsibility. The 'Fordist' model of the corporation – a pyramid imposing military discipline, careful management of time, and the division of work into simple tasks – looked clumsy when compared with its far nimbler Japanese rival. The latter was flatter, more efficient and drew greater value from the human capital, that is the individual knowledge and experience, that each worker brought to the production line.

Borrowing the best of the Japanese model informed many managerial trends over the following couple of decades. Certainly, practices of teamwork and more sophisticated Human Resource Management (HRM) techniques have ensured that the Fordist model of top-down bureaucratic discipline is no more than a historical relic for many organisations. Most employees now shoulder more responsibility for their work and enjoy greater autonomy than they did a generation ago. They gain career success where they utilise their network of associates for support and information. This change in management practice means that there is a greater reliance on human capital and exchanges between workers for high organisational performance.

Naturally, all organisations are rife with social exchanges that cut across departments, and link to external organisations and communities, often haphazardly and beyond managers' knowledge or control. Employees may often bring more enthusiasm, imagination and commitment to their informal social conversations than to the more formal aspects of their working life. One famous case study has shown how Xerox photocopier engineers once experienced a mysterious decline in productivity, which was eventually identified as being caused by the fact that they

were no longer all based at the same depot. Although there was no explicit need for them to use a common depot, it transpired that these colleagues were all sharing valuable knowledge about their work through the idle banter that went on between them as the paths of their working days crossed.

Social networks are acknowledged to be important conduits for information and valuable bases for collaborative behaviour. Any organisation that can tap into this resource, aligning the formal and informal lines of communication, is bound to draw strong benefits including constructive information flow, knowledge sharing, co-operation, problem solving, creativity, efficiency and productivity. Yet, tapping into this resource can be difficult and many organisations would like to go further than simply endorsing the chit-chat that distributes knowledge and wins commitment: they want to understand it better so as to shape it to address organisational issues.

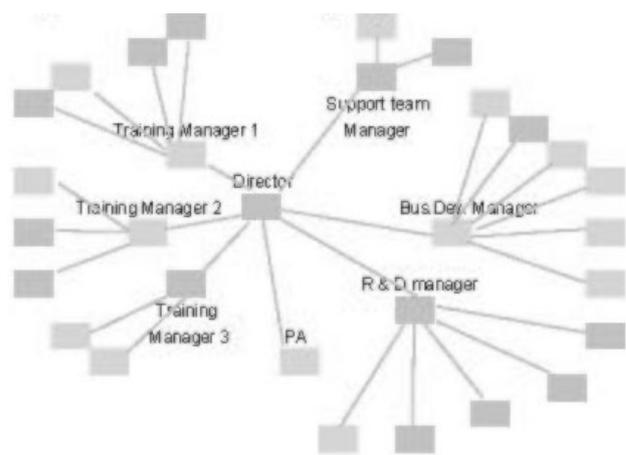
Relevant indices need to be identified, measured and analysed. Yet the existence and nature of valuable exchanges are often unseen by managers, and what determines the network is impossible to specify entirely. They are built on people having common goals, sharing information, helping or learning from each other – but it also depends on where people sit in the office, what previous contacts they have inside or outside an organisation, whether or not they smoke and so much else besides.

3. Mapping a social network

Inasmuch as social network analysis plots social connection, rather than formal lines of authority, it is the appropriate tool for redrafting an organisation's true social structure. This is not to say that patterns of social networks will replace traditional hierarchies as the chief organising principle of organisations, or that horizontal lines of communication are necessarily more important than vertical ones. But it can grant managers a better understanding of how their organisations actually do function. And yet, to date, there has been relatively little application of this method to organisations. In this chapter, avoiding complicated mathematics and technical jargon, we will explore the methodology and forms of analysis.

Quite simply, social network analysis is a methodology that aims to plot webs of social relationships and information flows between people, teams and organisations, and to analyse them systematically, very often graphically and mathematically. The resulting visual output of the analysis, a social network map, is made up of 'links' and 'nodes', corresponding to relationships and individuals respectively. To help explain how a social network is analysed, we shall introduce an example of a small training organisation, see figure 1. The person at the centre of the group is the director. The grey lines between staff reflect a normal hierarchical reporting structure to the director, as would also be displayed in an organisational chart.

Figure1 - A small training organisation



A social network map shows how people actually interact together and share information rather than merely who reports to whom, as is the case with the organisational chart. Therefore the map will illustrate who speaks to whom. There are three levels at which an organisation's networks can be analysed: individual, team and overall organisational level. Each of these levels should be considered to fully understand and interpret the dynamics in a network. We explain these levels of analysis more fully below.

3.1 The individual level

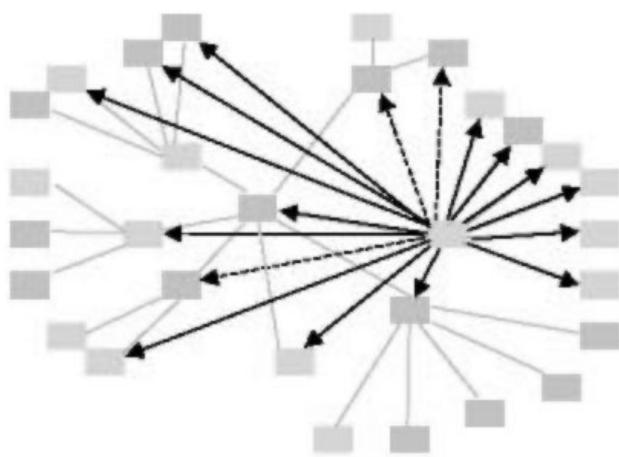
An individual's network can be measured in several different ways¹. Firstly, we can identify who the individual is linked to and how strong the various connections are. The connections between people come in two forms which are termed by sociologists as 'strong ties' and 'weak ties'. Strong ties are found between people who see each other regularly, have long-standing relationships and trust one another. Each of these connections take an investment of

¹ T.F. Brown (1998)

time to build. Weak ties exist between people who see each other rarely, have little in common, yet can benefit from sharing new information. An effective employee is someone who takes advantage of his potential to marshal resources, and who knows where to find financial, political and social support for projects, and who will use a combination of these two forms of connections. Practises such as regular job rotation and temporary secondments can make an individual's network more expansive.

Figure 2 shows the bonding and bridging exchanges for the Business Development manager in the training company. Her individual social map shows that she has strong ties with each of the staff who report directly to her as well as with most of the other managers and a few other staff.

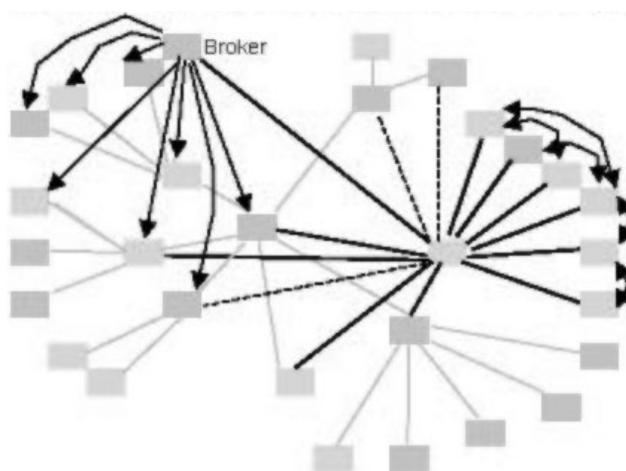
Figure 2 – Social network of Business Development manager



A second measurement is the network pattern between groups of individuals. This is an extension of the individual measure but considers the implications of how other people are linked to each other on the value of the

connections that the individual has. Very often, people are connected mainly to people who all know each other anyway and so the added value of each connection is lower. Social capital can be built where the individual connects two people who are not connected. This individual building the connection is known as a 'broker'. To illustrate, the business development team wouldn't have any brokers within it, because everybody knows each other. But only the manager in the Business Development team knows anybody in the Training team. In this case, the connection with this trainer plays a very important role in connecting the two teams, and brokering knowledge between them. Therefore personal success can be linked to the number of 'structural holes'² in a network as an individual is able to link unconnected individuals so creating value. People who connect others constantly channel information around, putting themselves in advantageous positions.

Figure 3 – A few other network connections added to the network map



² R. Burt (1992)

Thirdly, the individual network can be analysed in terms of the environmental influences on the nature of the ties. For example, a person in the network who hoards information rather than sharing, possibly for their own competitive gain, can affect the other connections in the network. The individual's connections around that 'blocker' therefore add value to their social capital. In our example, the Business Development manager does not exchange with the Training manager of team 1, this is partly due to the fact that the Training manager is out of the office a lot but there is also a personality clash between the two. Therefore, the loss of this connection is an important concern for the Business Development manager does not exchange but the connection that she has with a member of Training team 1 is valuable as it works around this blocker.

Later in this report, we will explore how this level of measurement can be used to explore internal communication processes, evaluate knowledge transfer in the organisation and the links between a communication and HR strategy.

3.2 Team/Group level

When investigating a team's network, a more detailed analysis can be carried out to identify who seeks out whom, for what purpose, how often and what form of communication is used. This information can give a detailed picture of how a team actually works together, including the people, skills, flow of resources and sharing of information. A team or group network requires active building by its members, it does not happen by accident. Therefore, having identified what they would ideally wish to happen, the team can choose to develop a target network of connections to achieve certain outcomes, draw up an action plan for the change and then repeatedly measure

progress towards the ideal by re-mapping interactions over a period of time. Team based and collective rewards encourage social capital.

A team or group's network is shaped by opportunity, constraint and choice³. Where there is a formal working relationship then opportunity for further contact is more likely. Equally, opportunity may arise where the density of network ties is low, i.e. few individuals are acquainted. Productivity and trust may be improved by developing a strategy to connect these people. Sociologists refer to this as a 'union strategy'. This may be most beneficial where there is a dysfunctional, virtual or newly formed team. Conversely, where density of network ties is high then there can be benefit of group identity but also risk of being so enclosed that 'group think', conflict and tension occur.

3.3 Organisational level

An organisation can gain significant benefit from analysis in terms of the individual and team measurements outlined above, but additional value can be gained by considering the impact of such interactions on the workings of the organisation as a whole. For example, if two teams have no links between them (commonly referred to as silos), then a 'structural hole' divides them. If someone can create a bridge between them, they put themselves in a position where they can broker knowledge from one team to another – thus making both teams more effective. However, if an individual, suitably placed to become a broker instead hoards information, then this can be a problem, especially if the incentive system does not reward information sharing. In our training company example, the connection between the Business Development manager and the trainer is valuable as without it there would be no connection between the Business Development and Training teams.

³ W. Baker, (2000)

However, the organisation should not rely on this connection and should try to ensure there are more connections between the two teams. One of the main barriers to social capital is the belief that an individual can be successful alone. Social capital as a competence allows an organisation to adapt and face the future's uncertainties.

A second way of assessing the organisation's network may be to consider the organisation's entire network including individual networks, internal and external connections. If the network is expansive this can demonstrate the level of customer focus and understanding as well as identifying opportunities for cross-collaboration.

Additionally, the organisation's network can be assessed in terms of the contents of the exchanges, such as discussions about performance, processes, strategy, personal development etc. An advertising agency that thrives on searching for alternative suggestions, naturally, requires exchanges involving the sharing of ideas. The social network map can illustrate where these conversations are taking place and more importantly - where they are not.

An organisation's social network can be analysed for a broad range of HR strategic purposes including evaluating internal communication processes, managing mergers, the introduction of coaching culture, diversity management, and staff retention. If analysed over time, the changing network map can also be a useful yardstick to identify how connections are changing within the company. Therefore it can be a very useful tool in culture change programmes and help to diagnose how a network needs to be manipulated to improve organisational productivity in the future. Some specific uses will be explored in the next chapter.

4. Using network mapping to address business issues

Staff from The Work Foundation⁴ have been working with five organisations to explore their social networks: they include CAT UK, which is a Renault car distribution company; The Work Foundation itself; and three other organisations - a business services company, a manufacturing company and an Investment bank all of which wished to remain anonymous. We investigated some of the different ways in which the information can be gathered, analysed and presented to address different business issues.

One issue that we came across in conducting the research is that staff are sometimes unwilling to be identified for various reasons. Therefore we explored the use of anonymous surveys for data gathering, as well as surveys that identified each individual. The anonymity meant that the normal social network map, as described in the previous chapter, was not possible to plot. However, we investigated whether the information, which is different to a normal employee survey, could be analysed to allow new types of diagnoses to be performed. CAT UK involved identified individuals, whilst the other four case studies were conducted anonymously.

A small sample of the different uses of network mapping is outlined further below and include diagnosing and evaluating internal communication problems; managing human capital processes, including knowledge management and specialisation; and building branding and reputation.⁵

4.1 Diagnosing and evaluating internal communication problems

There are several potential uses for network mapping in the internal communication arena. These include diagnosing structural holes⁶ or blockers, evaluating processes, profiling the types of conversations being had, or monitoring the impact of downsizing on culture.

Identifying structural holes and communication silos is one way of using social network mapping in internal communication. Even after de-layering or restructuring to be 'flatter', there can often still be silos in communication in an organisation. The silos may exist due to the design of reporting structures, different cultures between departments, cohesive teams focusing on specific activities or interests or geographical location. The social network map can help diagnose the cause of the communication blockers and ways by which the silos can be broken down. It may be a case that members of a new team don't know one another and have never met, or there may be obstructions or blockers, human or otherwise. Structural holes, as mentioned earlier in this report, inhibit knowledge-sharing, which may harm productivity.

In one of our case studies, CAT UK, we found that there was limited contact between two distribution sites that have very similar remits, except at manager level. There was limited sharing of knowledge and ideas and a lack of coaching or mentoring between the two sites, although intra site exchanges were customary. It is possible that productivity could be boosted in CAT UK if more inter site exchange is encouraged. The information that can also be collated with the survey can support the types of analysis that can be made.

In the manufacturing case study, there were found to be performance problems among sales staff but there were no obvious reason for these. The sales staff were ranked according to appropriate performance measures and were asked to complete a survey, which included some network mapping, to look at whether there were any differences in their associations. High performing sales staff were found to have significantly more external contacts, and better links to R&D staff and distribution teams. They were also found to have a good strategic view of market conditions. The

⁴ Thanks are due to Ceri Duffley, a Surveys and Diagnostics Consultant at The Work Foundation for her support with analysis of the data and to Stephen Bevan, our Deputy Director of Research, for conducting two of the case studies on our behalf.

company used remedial training and coaching to close the 'gap' for the low performers.

Communication strategists are able to adapt the social network mapping methodology to evaluate the effectiveness and efficiency of certain processes in different parts of the organisation. Key players or 'knowledge brokers' can also be identified in these processes. The strategy is fragile if the organisation relies on a few individuals for normal processes. For example, a few people in the network can be highly influential to the cohesion and information flow in the organisation. They can act as either progressors or inhibitors of information. Therefore the network map can help the organisation to understand how well, or not, communication is working. One practical use can be in the planning of mergers, where the network maps of the two companies can be monitored over time to help smooth the process (amalgamation) by linking key knowledge brokers and integrating cultures. The method can also be useful if the organisation is struggling with information cascading and upward feedback processes and is looking to review or change its communication strategy. The information collated for the social network map can be used to determine how internal communication works, both for that which is linked to organisational strategy and hypothetically 'controlled' and that which is informal and uncontrolled.

The Work Foundation runs a flexible and mobile working policy; quite often some staff groups are able to pursue flexible hours and these people 'hot desk', i.e. they work sometimes from home and sometimes in the office. This can pose a problem when selecting the most appropriate methods of communication for exchanges of information or for operational purposes. When investigating our organisation's social networks, we explored the preferred methods of internal communication. Face-to-face communication is the organisation's most popular form of

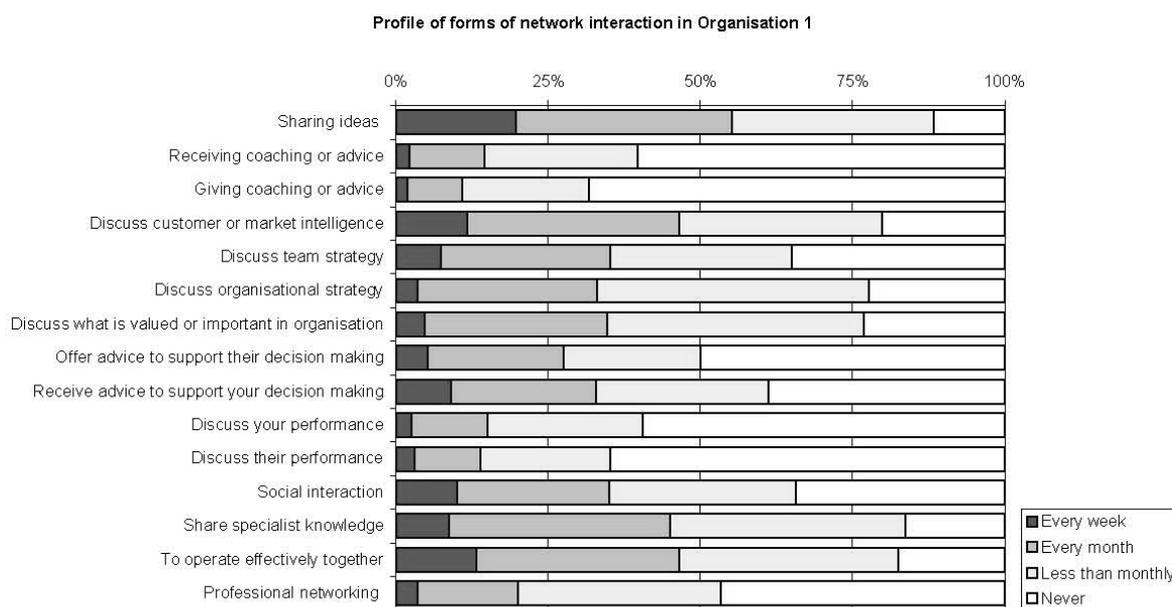
contact, and is used in half of the reported exchanges, whilst either email or telephone is used in about one in five exchanges. Group meetings were found to be the least common method of communication, although this is most popular amongst the directors group. It is assumed that this is the most effective method of communication for the directors. Due to the nature of their roles, some specific departments are more likely to use telephone than email, whilst other departments identify a preference for email. Those who identified a preference for email were also noted to be the staff able to 'hot desk'.

As well as identifying the forms of communication, network mapping also allows us to identify the contents of those conversations. This opportunity has huge benefits for conducting diagnostic assessments in organisations. Application of this form of social network mapping includes improving creativity and innovation⁶ or measuring where coaching and mentoring activity are required.

For example, in one of our anonymous case studies, we collated a profile of the conversations that were taking place and how often they were occurring. As shown in Figure 4, the business service company has a varied profile of conversations. Most frequent were exchanges of ideas and contact which enabled staff to operate effectively together. Coaching and discussions around performance were found to be the least frequently pursued exchanges. Social interaction and sharing knowledge were also frequent exchanges. This suggests that there is frequent interaction to support day-to-day operational activities so staff work effectively together, and across teams, and that social interaction strengthens the connections between staff. However, that fact that performance is discussed so infrequently may be a cause for concern.

⁶ See Drewery, K. (2003). *Harnessing Creativity and Innovation*, The Work Foundation.

Figure 4 – Profile of conversations



Another identified use of social network mapping, although one we have not yet explored in our research, is where an organisation is downsizing. In this event, social networks can be devastated. Informal bridges between departments, and with customers can be broken, affecting communication and trust. This can explain why some organisations do not recover from downsizing. To survive, it is vital that the organisation affords opportunities for staff to create good social relationships to rebuild the network across the organisation and allow information flow to recommence. This may be through multifunctional teams, building customer relationships and suppliers. Where downsizing is seen to have been successful, leaders have focused energy on redeploying human resources, tapping human potential and network rebuilding.

4.2 Managing human capital processes

In the same way that social capital is described as the context of human capital, networks of one form or another are often understood as the context for information. Extracting value from the intellectual capital carried around in the heads of employees is an important challenge for nearly any business. Our mapping methodology will illuminate the informal knowledge communities and information flows that are not identified in an organisational structure chart. This is beneficial to streamline product development activities, linking different parts of the organisation with similar knowledge groups.

CAT UK had an issue about the efficiency of their performance measurement processes. They asked us to use social network mapping to determine the process and

⁷ Reported by a member of The Work Foundation's Internal Communication Association

people involved in using the information about different processes each month. The key brokers in the process were identified as were the different staff involved in the production and use of the information. This would help them to develop clearer process mapping as well as the holders of specific information.

In a business services company, that was not a case study in our current research, they were interested in finding the thought leaders, influencers and 'movers and shakers' at all levels of the organisation⁷. The concept of identifying networks encouraged them to try to apply some of the thinking to identify more clearly some of the networks operating within a major program they are running. They were able to identify the different perceptions, views and drivers motivating the key players of this programme. Interesting observations included acknowledgment that:

- it is legitimate to use networks to achieve objectives
- 'the line' is not sacrosanct
- using a different approach is not acting in a subversive manner.

4.3 Building branding and reputation

Most decisions made in our working lives are made in the light of recommendations from others. Where there is high employee commitment and trust, there is likely to be a higher level of marketing by staff who will promote the work or services of the organisation. The informal information exchanges that occur between staff, customers, suppliers, potential staff and other people could be beneficial to building brand and reputation.

The external reputation of a business will be strongly influenced by its internal social dynamics, and this is especially true in the case of trying to attract top new graduates. Talented people stay in their jobs often because

they have a sense of community and belonging in the organisation. They feel connected to what happens and their work offers meaning to them. Social network mapping can be used to identify whether an organisation is offering its staff these intangible benefits. In the case study with an investment bank, they were concerned that there was a poor representation of women in senior posts and that this was affecting the attractiveness of the organisation to new recruits. Their internal labour market analysis highlighted issues around senior post-filling practices with the chances of a man filling a vacancy being much higher than a woman's (63% to 10% respectively). Women were twice as likely to leave the organisation as to be promoted, whilst for men it was the opposite. Network mapping revealed how senior women were excluded from key strategic networks. Women were found to have closer network links with other women and support colleagues whilst men had closer links to board members and competitor organisations. Women were also found to have business links with clients rather than the social links that men had. Each of these comparisons was found to affect the likelihood of women being selected for senior posts.

Branding is also vital when working with other organisations to deliver services. Companies focus on what they do best and cooperate with competitors, suppliers and partners more than ever. In itself, creating and managing a network of strategic alliances makes an organisation an attractive partner and so attracts new alliances. This social network mapping, especially if conducted in conjunction with the wider sphere of an organisation's partners can be especially powerful identifying how staff at all levels are working with the partners and their clients. This is an area that we are planning to explore further in future research.

5. Conclusions and the way ahead

In our research we have explored the adaptability of social network mapping from sociology to a business context. We found that the type of information that is collated and analysed in this process offers a different perspective on how intangible activities in the organisation can be quantified. This leads to several business benefits including the opportunity to identify and measure the value added to the business by such activities as well as a diagnostic tool for internal communication, performance or diversity, amongst other issues. In addition to these uses, we have explored the potential for social network mapping to be used in brand building and strategic marketing. One particular benefit of the methodology is that it allows sensitivity to a specific organisational context and business strategy. However, as with any research methodology, the quantitative tool has its limitations including some reliance on people willing to be identified in the network for the mapping to offer maximum benefits especially in a team analysis. The interpretation of the mapping also requires an understanding of the context in which the mapping has taken place in order for its interpretation to be accurate and useful. This said, the potential uses in business for the information collated are extensive and it offers an exciting new way of exploring one of the most valuable assets in the organisation, that of social capital.

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