

Social Networking and the Workplace

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1. Introduction

This report is concerned with social networking for the workplace. We are interested in how social network sites are used in the context of work, particularly the ways in which people use them to form and strengthen connections and to communicate with other people that they have a professional relationship with. We begin by looking at the use of public social network sites (such as Facebook) for work, and then go on to look at examples of internal social network sites that get deployed within an organisation's firewall. It would be absurd to discuss these technologies without reference to wider issues in workplace communication, and to the wider Web 2.0 movement within which social network sites have arisen. Therefore this report has a section on the (sociological) view that a social network is constituted by any set of ties between people, and we have included an appendix discussing Web 2.0. We also include an appendix that discusses the main social network sites in use today.

This report is written with a particular audience in mind (A UK government organisation), but covers issues that will be general to many organisations. References to social networking for government will be made, but beyond that, this report should be generally relevant to most large organisations.

This report has been written by a researcher on the Large Scale Complex IT Systems (LSCITS.org) initiative, an EPSRC funded research and training initiative bringing together social and technical perspectives on how to address the problems around real world complex, software-intensive systems. The LSCITS initiative has first hand experience in social networking. We have been using our own social network site, built upon the open source platform Elgg, to communicate, coordinate, discuss and share information. We have also been using external services such as Twitter, Slideshare, Dropbox, and Google Docs. Members of this team have also run social network sites for organisations including SICSA (the Scottish Informatics and Computer Science Alliance), and The University of St Andrews. We also have a PhD student (Natalie Harvey) focusing on the use of social networks in the workplace as part of her research.

We have written this report to reflect the published findings in this area, not simply our own opinions or common sense reasoning about social network sites. There is a great deal of literature discussing the use of the use of social network sites and Web 2.0 in general, but we have been careful to select only the information that we think is relevant to the workplace.

Because comparatively few studies of social networking in the workplace exist, some important questions remain unanswered. However we feel that the information that is already out there is interesting and valuable enough to collect together and communicate.

2. Definitions of Terms

Social Network Site

We use the term “social network site” to refer to an encapsulated technology that is designed specifically to support social networking. Boyd and Ellison [1] define a social network site as a web-based service that allow individuals to (1) construct a public or semi-public profile within a bounded system; (2) articulate a list of other users with whom they share a connection; and (3) view and traverse their list of connections and those made by others within the system. We agree with this definition although note that not all social network sites are exclusively web-based, for example Twitter can be used via SMS text messages.

Public Social Network Site

Social network sites are predominantly run by commercial providers, with the software and data residing on the providers’ own servers. They are often free, but sometimes subscription based. Well known examples include Facebook, LinkedIn and Twitter. We will refer to these as “public social network sites”. Appendix 1 reviews the major public social network sites in use around the world.

Internal Social Network Site

Some large organisations run their own social network site on their own servers, what we will refer to as an “internal social network site”. Examples we will discuss include Beehive at IBM, and Watercooler at HP. In some cases organisations will contract an external provider to provide a private social network site for them. In this case the servers may not be physically located in an organisation, but we will also treat this as being an internal social network site.

Social Networking

We will distinguish between “social network site” and “social networking”. We use the term “social networking” to refer to the ties and interactions between people. These can include the activities associated with social network sites and more generally with Web 2.0 technologies, particularly the making, maintaining and managing of connections with other people. Any

serious consideration of social networking must also take into account ties and interactions through other technologies (eg. telephones, paper), through co-presence, and so on. The ways in which people form ties and interact also involve factors such as whether they share a background, whether they have met, their status, their ambitions, etc. Social networking is therefore a thoroughly sociological issue.

CSCW and Social Network Analysis

CSCW (Computer Supported Cooperative Work) is an area of research focusing on how technology is used by groups or cohorts of people. This area is multidisciplinary, involving computing, sociology, psychology, etc. The focus was originally on work and the workplace, but is increasingly covering leisure activities as well. Many studies of social networking sites are published in this area. Studies in this area tend to be technology centric and commonly use qualitative methods.

Social Network Analysis is another multidisciplinary research area, this time drawing from sociology, anthropology, mathematics, epidemiology, etc. It focuses on the ties and relations between people. This discipline predates the web, let alone social networking sites, and focuses on the multitudes of connections people have rather than purely on technology. It places an emphasis on quantitative analysis.

Web 2.0 and Enterprise 2.0

We use the term Web 2.0 to refer to the cluster of interactive web technologies among which social network sites are evolving. These technologies include blogs, microblogs, wikis, and integration mechanisms such as RSS and APIs. We use the term Enterprise 2.0 to refer to the use of Web 2.0 technologies in organisations. Appendix 2 discusses Web 2.0 and Enterprise 2.0, and the technologies and practices associated with them.

3. The Use of Public Social Network Sites for Work

We begin the main body of this report with a discussion of how public social network sites get used for work (see Appendix 1 for an overview of public social network sites). By “for work” we mean the ways in which people form ties and communicate with others on a professional or semi-professional basis. We are not as interested in people passing their working day by socialising on the web, although we do briefly discuss this issue. The use of public social networks at work is a useful place to start for two reasons: public social network sites are widely used at work, and there are several published studies making helpful data available. Some public social network sites, such as LinkedIn, are specifically designed for professional use but in reality, social network sites, be they professional or leisure oriented, are used by many people for a mix of work-related and leisure-related activities. Moreover, the internal social networking sites we will discuss later are often designed to capitalise on the sorts of features public social network sites have to offer.

To illustrate how public social network sites are interesting in the workplace, we will give an example from a multinational technology company (we have spoken to two members of this organisation). Enterprise 2.0 tools (such as wikis and IRC – see Appendix 2) are used within this organisation, but there is no internal social network site as such. Most employees, whilst at work, are banned from using Facebook. However, an exception has been granted for the research and development divisions. In these divisions Facebook is officially a tool for customer engagement, but what tends to happen is that only a few use a Facebook account (it is possible to have more than one) purely for work purposes and most use it to connect to a mix of friends outside the company, colleagues within, and some external collaborators that they know on a friendly basis. This is because, in this line of knowledge work, it can be hard to separate social and work-oriented interaction. The two people we have spoken to mix their work and social connections on Facebook. They appear to put great care into making only appropriate connections and making sure nothing is available that might be embarrassing. This case highlights several points of interest. Some workplaces ban Facebook, but bans are not always blanket. Workplaces set policies, but these are not always adhered to strictly (and arguably for good reasons). Some, if not all, employees do put thought and care into how they are using Facebook at work. And, Facebook plays a mixed leisure and professional role. We do not believe this company is a particularly special case in these respects.

Facebook and LinkedIn at Work

We have found two research teams that are exploring what happens when social network sites span professional and social boundaries. Skeels and Grudin [2] have conducted research within Microsoft, and DiMicco and Millen [3] have conducted research within IBM.

Skeels and Grudin found that at Microsoft, in early 2008, around 37% of employees were using Facebook, with around 17% using it daily. More employees, around 50%, were found to have LinkedIn accounts, but far fewer of them, around 4%, were using it daily. Skeels and Grudin found a number of positive benefits come from using these technologies. LinkedIn was useful for building and maintaining professional networks. Facebook was useful in the workplace for creating and strengthening ties. But Skeels and Grudin also found worries amongst many staff using LinkedIn and Facebook about the legitimacy of this activity. In particular, there were questions over time wasting, and over security and the possibility of disclosing confidential information. There were also more practical problems for staff in mixing professional and social life, and there were related issues in whether connections should cross hierarchy, status and power boundaries.

DiMicco and Millen on the other hand looked at the use of Facebook by graduate recruits to IBM. They noticed that recruits would present themselves in one of three ways. Some were, as DiMicco and Millen put it, “reliving college days”, some were “dressed to impress” and others were “living in the business world”. All of these people had joined the IBM network on Facebook, therefore making themselves visible to anyone within the organisation. But the ways they chose to present themselves differed markedly.

What becomes clear from these studies is that the benefits and drawbacks of allowing public social network sites in the workplace are extremely difficult to evaluate. People use these sites in different ways, and the benefits people find in them, such as the creation and strengthening of ties, are difficult to measure. Because of this situation, both research teams have used qualitative methods to unpick the nuanced and contested values to be found in social networking.

Banning the Use of Public Social Network Sites at Work

The view of many employers in the UK on the use of public social network sites at work is not favourable [4]. Many have gone so far as to ban the use of sites such as Facebook. A report by the TUC in 2007 [4] recognised and sought to nullify concerns, arguing that the media exaggerates the problems and consequently employers have been overreacting. The TUC report

recognises that employers' concerns tend to be about time wasting, about the posting of inappropriate content, about the slandering of co-workers or customers, and the possibility of exposing the organisation to a higher risk of phishing attacks (eg. Pet names mentioned on Facebook might be used as passwords at work). The TUC claim that when handled properly, allowing internet access for staff during breaks can be beneficial for staff and can help them develop IT skills. They recommend a clear and well thought out policy on social networking, this being the best way to ensure employees do not waste time. The TUC also point out that employees are entitled to a private life.

The TUC report assumes social networking to be exclusively a leisure activity. However, as people's private and work lives are blurred, so too is the use of social network sites. Many people will connect on a social network site to people they know through work, perhaps to colleagues, perhaps to their boss, or perhaps to clients [2][3].

Organisational Presence on Social Network Sites

Use by individual employees aside, organisations are increasingly paying attention to their own identities in social network sites and social media, and are using these technologies to interact with the public. In this report we are focusing on the use of social network sites for interaction between workers and so will not discuss this issue extensively.

Relevant literature in this area includes the recent advice on the use of Twitter for disseminating information from UK Government departments [5] and reports on using Twitter for business [6][7]. Other organisations have built their own social networks around a brand (see [8] for a discussion). The website for the snack food Skittles (www.skittles.com) offers an extreme example of a web presence that builds on customer generated content.

Summary

- Public social networking sites already have a high penetration in the workplace.
- Concerns about social network sites include security time wasting, inappropriate content, slander, and disclosure. However these can be exaggerated in the media.
- The benefits of social networking sites tend to be in creating and strengthening ties. The specific value of public social networking site use for any workplace is difficult to determine, as the benefits are indirect.
- The ways in which social networking sites are used can vary from person to person.

- A well-designed policy on the use of social networking sites, and a means of either policing it or responding to concerns, is arguably better than a ban.

4. The Use of Internal Social Network Sites at Work

Some organisations have developed or purchased their own social network sites for use internally. In this section we will look at the findings available about these, what has been found useful, what has been found lacking.

Third Party Development of Internal Social Network Sites

Many organisations that use internal social network sites appear to be using systems developed by third parties. Procter and Gamble use an online community application called PeopleConnect, which is supplied by Telligent¹. Best Buy have an employee social network called Blue Shirt Nation, which has been built by third party developers using the open source framework Drupal². BearingPoint, Deloitte, Dow Chemical, and IBM are using a system called The SelectMinds Corporate Social Networking Solution Suite, which is supplied by Select Minds. Very little information is available about these systems, although Kuhn from SelectMinds has published a general report [31] about his experience in the area.

Kuhn explains that there is often enthusiasm for social networking sites amongst many staff of large organisations; many will desire an internal version of Facebook, and college graduates joining the workforce will be surprised employers do not already offer such services. Kuhn explains that there is often frustration with existing knowledge management and portal solutions, and unofficial, special-purpose social media offerings often flourish. However, he also says that managers and directors regularly have concerns about adopting internal social network sites. Concerns include: that social networks might not correspond to organisational charts and could undermine command and control prompts apprehension; that there may be inappropriate behaviour (this fear is driven in part by horror stories in the media, but also the real concern of legally actionable behaviour); and that social networks could be used to form or reinforce cliques. These fears can be mitigated with the provision of controls, for example pre-approval of user-generated content, controls on abusive language, and controls on repetitive and

¹http://www.cio.com/article/500363/How_Procter_Gamble_Got_Employees_to_Use_Social_Networking_at_Work

²http://www.computerworld.com/s/article/322857/The_new_employee_connection_Social_networking_behind_the_firewall?taxonomyId=16&pageNumber=1

potentially abusive behaviour. He has never encountered a client that is comfortable with the anything goes world of Facebook, but says that the interest in control lessens over time as internal social network sites mature. Kuhn explains that organisations that devote one or more people to driving usage (by submitting content, by seeding and encouraging forum discussions, by sending digest email updates) see far more traffic than those who devote fewer resources.

In Kuhn's experience, the typical constituencies of internal social network sites are employees, alumni, retirees and VIPs (managing directors, retired partners etc.).

In-House Development of Internal Social Network Sites

Several large organisations, particularly those in the technology sector, have created their own social network site. SAP have developed an internal social network called Harmony [28]. Accenture have developed a social network site called People Pages [28][32]. Microsoft have developed a site called Town Square. Deloitte (who use the SelectMinds system mentioned above to power their external alumni social network) have created an internal social network site called D Street [29]. IBM have developed two internal social networks: Bluepages [28] (launched in 2001) and Beehive [10][11][30]. HP (Hewlett Packard) have developed their own internal system called Watercooler [9].

There is very limited information available about most of these sites, and any that is available is usually descriptive rather than evaluative. The exceptions³ are IBM's Beehive, HP's Watercooler and Deloitte's D Street. These companies have all published research papers about their social network sites, and so we are able to discuss them here in more detail. All three of these social network sites have taken inspiration from popular sites such as Facebook. D Street and Beehive were designed with profile creation and connection in mind, but Watercooler has grown from being an RSS aggregator. At the heart of Watercooler is blogging and micro-blogging, rather than the profiles themselves. Beehive builds upon an older IBM social network called Bluebook.

All three systems were implemented in large, distributed organisations in which employees are scattered across a myriad of sites, business units and countries, making it virtually impossible for them to know everything going on inside the company. Employees at all three companies had already been finding value in the use of Web 2.0 technologies including social network sites, but these mainly public sites were not always an appropriate place for company

³ There is also information published in German about Accenture's People Pages (eg [32])

information. Beehive was launched in May 2007 and, within a year, supported 30,000 employees (around 7.5% of IBM staff). Around one third of these however did not connect to another user or contribute any content. Uptake was globally distributed, and tended to reflect the structure of IBM and the mix of roles rather than any one group. Watercooler was launched in June 2007. The go-live of Watercooler coincided with a major emergency (a forest fire near one of the locations), and the technology was quickly found useful as a way of getting up to date information. However the number of active users of Watercooler is 3000, 0.9% of employees. D Street was launched for 1500 Deloitte staff in June 2007. In June 2008 it was rolled out to 46000 staff, and around 25% of these had edited their (automatically generated) profile within eight weeks.

There are useful lessons to learn from Watercooler, D Street and Beehive, but all three proved hard to track and evaluate. Users do not have to be logged in to use these technologies, click rates do not correlate with reading rates, and content production rates do not necessarily correlate with quality. In order to understand the effectiveness of Watercooler, HP carried out a survey, and supplemented this with an analysis of clicks on blog posts. To understand the effectiveness of Beehive, IBM carried out interviews, repeated over the course of a year. Deloitte appear to have gathered feedback, but we are unclear which methods were used. Watercooler was found to be popular for finding people with specific interests or expertise, and for more generally exploring the organisation and groups of people. A majority of users would check the Watercooler home page for new content regularly, and around one half of people that did so would sometimes or usually read new content. Around 20% of people who looked at the homepage would rarely click on links to new content, but some said they appreciated being able to see what is going on at a glance. Beehive was found useful for people to build relationships and make sense of other people. It was found that although users connected with local colleagues, they did not use the site to share content with them. Instead content was more likely to be shared with "weak ties". These weak ties would initially be people they had formally worked with, but would later include people they met through the system. Users liked Beehive because they were able to connect with people more personally, they saw it as helping their career advancement, and they could gather support for their projects. Deloitte clearly views D Street as valuable, although the patterns of use have not been reported. The Lessons learned reported by Deloitte concern governance and programme management. They realised they needed buy in across the organisation and legal guidance during the requirements definition. Senior stakeholders wanted moderators to be able to view and veto content.

Social Network Site	Beehive	D Street	Watercooler
Organisation	IBM	Deloitte LLP	Hewlett-Packard (HP)
Size of Organisation	398000 staff, the largest technology company in the world in 08 by staff.	165000 staff in 140 countries. 46000 consultants (professionals)	310000 staff, the largest technology company in the world in 08 by turnover.
Industry	Technology.	Professional services.	Technology.
Social Network Site Launch Date	May 2007.	June 2007 (limited) January 2008 (full).	June 2007.
Basic Functionality	Create profile. Connect to other users. Post status message. Post pictures. Post lists. Comment on others.	Create profile. Connect to other users. Suggest things to do when visiting local area. Blog integration.	Create profile. Connect to other users. Blogging. Tagging. Filtering. Virtual teams.
Technology platform	Lotus Connect. Reuses code from Bluebook.	MS Sharepoint 2007.	
Profile Creation	Manual.	Automatic for every professional (consultant) in company directory.	Bloggers cross referenced with company directory.
Uptake in first year	30000 registrations (7.5% of staff). 2/3 of which contributed content or made connections.	11500 profile edits in first 8 weeks (25% of professionals).	3000 active users (0.9% of staff).
Who uses it?	Uptake reflects workforce. 40% of users in USA, 55 countries represented in total. 27% of users are engineers, 15% vice presidents or directors 32% are mobile workers.		Users in every business group, and 55 different countries. Highest usage from Engineering and marketing staff, lowest from operations.
Evaluation	Survey, interviews.		Survey, click analysis.
Control and moderation	Access controls, users can choose who they wish to share content with.	Moderated content.	

Table 1: Comparison of internal social network sites in three global organisations

Table 1 above, compares some of the features of the three companies and the three social network sites.

Not all the findings reported about Watercooler and Beehive are positive (we assume D Street also faced criticisms, but these are not reported). Some found the way Watercooler loosely confederated different services confusing. Some users of Watercooler found uptake disappointing and thought it should have been more heavily promoted. Some people stopped using Watercooler, citing a lack of time, and some mentioned that their managers did not seem to value their contribution to Watercooler. Similarly, with Beehive, although it had 10 times more users, people became disillusioned that not everyone was using it.

Experience from the LSCITS Project

We have developed our own internal social network site for the LSCITS project, and for SICSA (Scottish Informatics and Computer Science Alliance).

The LSCITS social network was launched in mid 2008. It began as a social network for the project, but expanded for use for other purposes. Initially, all members of the project were asked to participate. Industrial partners were then also invited to join, and attendees of various events have been invited to join and use the service when the events occur. Members of the School of Computing at The University of St Andrews were also later invited to join. Over 100 people have registered, but many of these are people who have registered to use the system during a workshop and have not continued since. The number of active users is therefore much lower, but the system is still very useful. Around 50% of the members of the LSCITS project actively use the system, logging in at least once a week. 30-40% of users have regularly added content. The use of this social network site in the LSCITS project and at the workshops was championed by two senior project figures.

SICSA (The Scottish Informatics and Computer Science Alliance) is an alliance between computer science departments in Scotland that provides funding for visitors and summer schools, and for several PhD studentships and research positions at the partner sites. It is designed to support improved interaction between sites and a more advantageous position for Scottish computer science on the world stage. The SICSA social network site, saw many registrations in 2008 when SICSA was launched, but usage has followed an unusual pattern. There are no regular users, and there has been no usage at all in the last 30 days. But there has been, and will continue to be spurts of behaviour. This is because the social network has been found useful for coordinating and undertaking document centric work across organisational

boundaries; tasks such as report writing, and the evaluation of studentship applications. This is made possible because the software supports document sharing within private, managed groups. This functionality replaces what has previously been coordinated by email. It is used in a similar way to existing groupware systems, but unlike these, the software can be used across organisational boundaries.

The LSCITS and SICSA social networks are built upon the open source framework Elgg. Elgg has been in development since 2004, and release 1.0 was made in 2008. Elgg can be run as a fully featured social network site, and can be extended through the development of plug-ins. Elgg is also heavily customisable, and it is possible to build alternative social network sites upon what is called the Elgg Engine. The LSCITS and SICSA social networks both allow the creation of profiles and the establishment of connections between these. This can be helpful for workshops and in large organisations such as SICSA where it is unlikely that everyone knows each other, but the main values seem to have come more from the availability of blogs, wikis and support for the creation of communities. Blogging is used on the LSCITS project for giving progress updates and sharing information and news. Wikis are used for collaborative work, sometimes for the creation of lists and agendas, and sometimes for linking to and explaining distributed documents and resources (for example for linking to and explaining the various Google Docs that are relevant to an initiative). Community support allows groups to form and for access privileges to be set. Other open source frameworks are available, for example Mahara is used at the University of Glasgow. The Best Buy internal social network site mentioned earlier is built on Drupal.

Summary

- Internal social network sites can be developed in house, or by third parties.
- Open source platforms are available for building an internal social network site
- Research data is available from two large technology companies and a large professional services company. How that data generalises to other kinds of organisation is unclear.
- Uptake of an internal social network is hard to predict, but is very unlikely to reach more than a fraction of workers.
- Blogging and other forms of content creation can be usefully integrated with a social network site.

- Evaluation is difficult. Qualitative methods have proved useful for workplace social network sites, but quantitative methods are necessary for larger scale analysis.

5. Issues in the Use of Social Network Sites at Work

In this section we will discuss wider research findings that we believe are relevant to the use of social network sites at work.

Social Searching and Social Browsing

On different social network sites, people can be found and connected to in different ways. Some sites encourage and support social searching and others social browsing [12]. Social searching is a search for somebody in particular that you already know. Social browsing is the browsing of a social network for people you would like to communicate with.

On some social network sites, including Facebook [12], people are much more likely to search for and connect to people they are acquainted with. On other social network sites, people spend more time looking for strangers they would like to interact with. Social browsing is much more common on special interest sites, or dating sites.

Social Searching will be desirable in an organisation when more information might be needed about a known person, for example a team member, or someone you are trying to contact. Social browsing is often also desirable for large organisations where employees facing similar issues can find each other and communicate, or where there is a need to find someone who holds particular information or expertise.

People Finding and Information Finding

Studies of large organisations have found that internal information technologies are often used to locate a person who would know the answer to a question rather than to find the answer to the question itself (for example [13]). This observation underlies the motivation for the large companies that are turning to internal social networking sites.

Many large organisations have, for a long time, been attempting to use new technologies to improve what is often referred to as expertise finding. The essential problem, according to Ackerman [14], is that organisations “do not know what they know”. Sharing expertise is important for enabling organisational learning, knowing and judging people’s competencies, creating ad-hoc teams to solve time-critical problems, providing better technical assistance, maintaining customer relationships and developing social capital. These issues are essentially

problems of people finding. Social network sites are increasingly seen as one way of addressing these issues.

Information and Attention

Information is no longer a scarce resource, now it is time and attention that are scarce. The social networking literature has come to focus on what is called “the attention economy” [15]. This perspective, first articulated by Simon [16], renders the classic problem of information overload as an economic issue. It acknowledges the problem is not with the information itself but what to do with it: whether to read something, forward something, comment on something etc.

There is a reciprocal relationship between the production and consumption of information in social networking [17], for example the propensity to keep contributing information relates to rates of feedback. In the workplace, if a superior or manager is reading what you write, you are more likely to continue [9][11].

Shirkey’s [18] recommendation is that people should share as much as possible, and that this should be filtered. Web 2.0 technologies such as RSS and collaborative tagging make filtering and sorting information much easier than it has been with email. For example, Watercooler [9] allowed people to set up filters by people, and topics of interest, and also displayed popular topics on its homepage.

Group Formation

Research into internal social networking has shown that workers who are located near each other, perhaps in the same office, often feel the need to connect to each other. However they find connections with people that they are not co-located with to be more valuable [10].

Beyond connecting at the individual level, people can use social network sites to form groups. These can be special interest groups, groups defined by location etc. Support for existing workgroups can be helpful, for example as a means of disseminating information. But it is also possible to form new groups, what some would call virtual teams. In some situations it can be useful for special interest groups to form quickly and focus on an immediate issue. In other situations, group formation might be valuable over the long term. With the advent of new information technologies, the overheads of group formation are now much less [18], but good

systems design is necessary to make this possible and workable for an organisations specific circumstances.

Huberman et al [19] have found that there are groups within groups in social networking. That whilst people might connect to many people, they interact regularly only with a tiny subset.

Social Capital and Time Wasting

One of the main benefits that users of social network sites report is the ability to build and maintain relationships [9][11][20]. This is often discussed in the literature with reference to social capital (eg [30][18]). The idea of social capital has been discussed by philosophers and sociologists for over a century, and whilst there is no agreed definition, it can be summarised generally as the ability of people to draw from, influence and get recognition from their network of contacts. Social capital is important, for example, in someone's ability to ask for a favour, or be trusted to do something, or to gain a position of power.

Social capital is hard to quantify or render in terms of productivity for an organisation. However the building of trust, reciprocity, and understanding between workers is clearly important. Social network sites give people a mechanism for building these, but it is through the ways in which the site is used, how people are introduced, what they can find in common, etc. that social capital is built.

One of the concerns with social networking in the workplace is that it could be a source of time wasting [9][10][11]. The arguments about social capital are that the time spent on social network sites are not always possible to put a value on in terms of productivity or direct returns, but the problem here is that it is not usually clear if any activity on a social network is worthwhile. When is someone strengthening ties, and when is someone time wasting? This is actually a general dilemma in any consideration of social capital [21].

Perhaps an answer lies in building social networks that do not consume too much attention. Some social network sites take less time to use than others, for example Zhao and Rosson [20] discuss how employees at one company prefer Twitter because it takes seconds rather than minutes to tweet something.

Privacy and Content Controls

There has been a great deal of press coverage around privacy concerns with social networking. As Boyd [22] discusses, Facebook was prompted to implement privacy controls after a massive

outrage from users. For a workplace social network, the sets of relevant concerns are slightly different, and less well articulated in the literature (although there is a large literature on the security of data in general). One thing that is likely to be true in the workplace just as much as outside is that people often do not think through the ramifications of what they post on a social networking site. When asked, people will say they value privacy, but in practice people behave otherwise [23]. However, Kuhn [31] has observed organisations often worry too much about issues to do with inappropriate content, and generally find they can relax over time.

Summary

- Organisational social networks should consider support for both searching for specific connections, and browsing for new ones.
- An emphasis on people finding over information finding has been found helpful
- Mechanisms for filtering help in managing large volumes of information.
- Social network sites can support group formation in multiple ways
- The value of any time spent on social networking is difficult to measure. The boundary between building social capital and wasting time is blurry.
- People say they value their privacy but often act otherwise.

6. Social Networking: Beyond Social Network Sites

It is artificial to separate social network sites from their wider contexts. One form of context is technological: there are many technologies amongst which social network sites are developing, and these are referred to generally as Web 2.0. Appendix 2 discusses Web 2.0.

Another form of context, one that we will focus on in this section, is more human: there are many ways in which people form ties and interact within and across workplaces. These ties and interactions are not limited to social network sites, or even to technologies in general. The field of social network analysis focuses on these.

Social Network Analysis

The analysis of social networks far predates the advent of social networking sites. Social network analysis has been a focus for sociology and other disciplines (such as information science, biology, organisational studies, geography, economics and anthropology) in one form or another for over a century [24]. The focus of social network analysis is on social ties; it is only concerned with technology insofar as it can present a form of social tie.

The previous sections of this report have drawn almost exclusively from a research area known as CSCW (computer supported cooperative work). The focus in CSCW is on how people cooperatively use technologies. It is a technology centric discipline and so it alone cannot give us a full picture. Compared with CSCW, social network analysis has a much more quantitative and large-scale outlook and is far less technology centric.

Social network analysis is not limited to the analysis of social network sites, although there is a link between the two: the small world problem. This problem (which charts the connectedness of people through social ties, and is more popularly known in terms of ‘the six degrees of separation’) has been a longstanding interest in social network analysis. The small world problem in fact has also served as the inspiration for the first social network sites (see appendix one for a discussion of the SixDegrees social network site). Social network analysis is not the analysis of social network sites, but rather social network sites were inspired by the interests in social network analysis.

Ties Between Actors

Social network analysis focuses on the ties between actors rather than their attributes [24]. There is no attempt to categorise people but rather to look at the ways in which people interact, and the influence they have on one another.

Clearly people have multiple connections, and increasingly these connections are made through technologies such as email and telephones as well as social network sites [25][26].

Social Networks in Organisations

Saint-Charles and Mongeau [27] explain that social networks in organisations can be understood as the patterns formed by both formal and informal relationships between members of the organisation. Organisations are enacted by the people within (and around) them, and it is through the interactions and cooperation of people that work is done. Saint-Charles and Mongeau refer to literature showing how organisational social networks play an important role in power, turnover and absenteeism, peer pressure and norms, team performance, work efficiency, employee satisfaction and so on.

There are many ways to analyse the social networks that exist across organisations, including the examination of email and telephone logs, and by finding out who workers speak to (by observation or by interview).

Summary

- Most of the literature that studies social network sites comes from CSCW.
- Social network analysis is a discipline that far predates social network sites.
- Social network analysis has a much broader outlook than CSCW, and takes into account the multiple ways in which people (in organisations or otherwise) hold ties.

7. Workplace Social Networking: Where to Start

Building upon the findings of earlier sections, this section lists what we think are some of the key steps that should be taken by any organisation considering the use of existing, and the launch of new social network sites. We believe the issues are much more than questions of what technologies are best to use. The issues are much wider, they are of understanding and analysing the organisation, working out requirements, and only then questioning whether technologies can help or are already helping in meeting these requirements.

Social networking sites and other Web 2.0 technologies, how they can be used in an organisation, who will use them, and what value they will bring are often best understood through play, trial and error etc. We are not suggesting that a trial and error approach should not be taken, but that at some point there will need to be some serious consideration of what value the technologies bring to the organisation.

Understand the Organisation

1. Learn how employees communicate and share.

Ask why and how people communicate and share. (What is email used for? What are phones used for? How are documents circulated? Do people gather to share information? Etc.) Ask who is connected to who? (Who do people communicate with? Are there hubs of communication? Etc.). These questions can be studied from the perspectives of CSCW and social network analysis, both qualitatively and quantitatively.

2. Learn how employees use existing Web 2.0 technologies.

What Web 2.0 technologies (including social network sites) do employees use in their own time, and what do they use for work? What do they think of them? Are these useful? Have there been any attempts to use Web 2.0 tools within the organisation, and how can these be learned from (whether successful or unsuccessful)?

3. Understand the organisation's structure and learn where there are barriers to communication.

How does organisational structure affect information sharing? (Are there barriers between different areas of the organisation? Are there barriers between different levels of the hierarchy? Etc.) How does the physical location of workers and their shift patterns affect

communication? Are obstructions and barriers there for good reasons (information may need to be contained)?

4. Understand the legal and regulatory issues around information sharing.

How do laws such as the data protection act, industrial regulation and organisational policy shape the possibilities for information sharing and communication?

Draw up Requirements

1. Define what issues need to be addressed.

Based upon an understanding of the organisation, define what issues you wish to address. What benefits do you wish to achieve? (Is there a people-finding problem? Is there a need to strengthen ties? Is there a need for people to communicate their whereabouts and current activities? Do you want to encourage people to share more information generally? Is there a boundary-crossing problem? Etc.) How must the legal, regulatory and policy issues be dealt with?

2. Consider which (if any) technologies best match your needs.

Designing a social network site, or Enterprise 2.0 infrastructure from scratch is not viable for many organisations, and it would be better to choose from the variety of existing available technologies. There are many vendors of Enterprise 2.0 technologies. Several open source frameworks are also available and can be built upon if the necessary skills exist.

3. Consider how new technologies can interact with existing ones.

Will new technologies replace or supplement other forms of communication such as telephone and email. Will any existing Web 2.0 technologies in use be built upon or replaced?

4. Analyse the risks.

What are the risks involved? (Will information be lost? Will information be shared too widely or leaked? Will people waste time? Etc.) How will these risks be responded to and managed?

Develop a Strategy

1. Develop a policy about using social networking at work.

A sensible and well-informed policy about social networking should be drawn up, covering both the use of external social network sites and any internal ones.

2. Consider how internal social network sites will be rolled out and managed.

To roll out any cooperative technology, it is important to consider who will provide leadership, will champion the system, will seed content, etc. Will roll out be gradual or by a 'big bang'? How will concerns and complaints be dealt with?

3. Consider what criteria there is for success or failure.

The evaluation of any cooperative technology can be difficult to do and no one method can ever give the full picture. However it is important to recognise when a technology is failing and to plan any remedial action. Likewise any success should be learned from. It is unlikely that success or failure will be immediately clear, and that the value of any technology will change across its lifetime, and so evaluation needs to be ongoing. It is likely that evaluation will highlight requirements for changes to the technology, new features to be integrated and new policies put in place.

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Appendix 1: Public Social Network Sites

In this appendix we discuss the main public social network sites available today.

What is a Public Social Network Site?

Boyd and Ellison [1] define a social network site as a web-based service that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.

There are hundreds of social network sites (Wikipedia lists around 150 notable sites⁴). This appendix discusses those that we feel are noteworthy. It is hard to predict which technologies will succeed and fail, what innovations will happen, and how usage patterns will change; both the technologies and the market are in changing fast. Moreover, it is difficult to measure the popularity of existing sites (as we discuss below). Therefore this document represents our analysis of what is happening in late 2009, but cannot be a definitive guide.

How do you Measure Success?

The success of a social networking site is often gauged by the number of users. However, focusing on the number of registered users that a social network site can be misleading. Users may have multiple profiles, users may have registered but never returned, and in some cases users of the site may be indirectly registered or not registered at all. Instead, it may be preferable to speak about the number of active users a site has, rather than registered users. A user is often counted as active if they have visited the site within 30 days. Again, this is very difficult to determine. Facebook is the only site we have found that emphasises the number of active users rather than registered users. The amount of time users spend on a social network is sometimes also discussed. This is usually measured in minutes and given as a mean average across all users.

The second helpful way to look at social networking sites is to measure web traffic. Alexa, an organisation owned by Amazon.com, provides web-ranking data. This is based upon data

⁴ http://en.wikipedia.org/wiki/List_of_social_networking_websites

gathered from people who have downloaded the Alexa toolbar for their browser. Its accuracy is therefore questionable, but industry and the media find it useful. Organisations such as Nielson Online and Comscore also research and rank social network site use, often using their own measures and surveys.

A third helpful way of looking is to understand the influence and impact of social networking sites. For this it is useful to draw upon media reports. Wikipedia is a helpful source of information both for summarising popular social networking sites and for discussing the issues and controversies that have surrounded them. However Wikipedia does not always contain accurate or full information. Two other sites that have proved enormously useful to this research are the social media blogs Techcrunch (www.techcrunch.com) and Mashable (www.mashable.com).

The Origins of Public Social Network Sites

It is impossible to say when or how social network sites were born, they have multiple origins and multiple characteristics. Electronic notice boards and online communities have been available for over 25 years, and over the last decade dating sites have become popular. These are in many ways the precursors to contemporary social network sites. The site Classmates (www.classmates.com) is often given as the earliest example of a social network site. It was launched in 1995, allowing people to share information with others they had been to school with (in the USA). The site SixDegrees was launched in 1997, allowing users for the first time to list friends, family and contacts. SixDegrees is no longer available. The site Friends Reunited (www.friendsreunited.co.uk) was launched in 2000. Friends Reunited took inspiration from Classmates, supporting interaction between former schoolmates. Friends Reunited is notable as the first social networking site in the UK to hit mainstream attention and stir social change. It is still a well-used site, but its peak levels of popularity proved unsustainable and it is eclipsed by the current market leaders.

Market Leading Social Network Sites in the UK

Facebook (www.facebook.com) is now the market leading social networking site, boasting more 250 million active users worldwide⁵. Facebook is very popular in the UK, with more than

⁵<http://www.facebook.com/press/info.php?statistics>

18.5 million users⁶. Facebook has for a long time been the market leader in the UK, but until around a year ago, it was second in the USA to MySpace (www.myspace.com). According to Wikipedia⁷ MySpace has more than 263 million registered users worldwide. Twitter (www.twitter.com) has been gaining much media attention recently, and has seen massive expansion in use over the last year or so. Twitter was launched publically in July 2006, and currently has over 20 million unique monthly visitors. Twitter is different to most other social networking sites as it concentrates solely on status updates. Another popular social networking site, but one that has caught much less of the zeitgeist, is Windows Live Spaces (spaces.live.com). This was originally launched in 2004 as MSN Live Spaces. It has 120 million registered users. Habbo, also known as Habbo Hotel, is a social networking site aimed at teenagers, which allows them to occupy a room and explore a virtual hotel. Habbo has around 117 million registered users worldwide. Bebo, meaning Blog Early, Blog Often, is similar to other social networking sites and is owned by AOL. It has around 40 million registered users worldwide. The London based social network site Last.fm is built around music listening, and has around 30 million registered users worldwide.

Market Leading Social Networking Sites Outside the UK

Facebook is the most popular social networking site in the world (when measured by number of users and by internet traffic) but on a country-by-country basis it is not always the leading site. Popular sites abroad are sometimes home grown, or in some cases USA based sites that have become popular elsewhere. These sites are interesting as many support different styles of interaction to Facebook. Mixi (mixi.jp), for example, is popular in Japan and places emphasis on writing and sharing personal journals. Cyworld (cyworld.co.kr), a South Korean social network site, supports the creation and linking of personal pages as well as features such as a virtual world. Friendster (www.friendster.com) is headquartered in Australia and popular across Asia, with over 90 million registered users and 61 million unique visitors a month. It emphasises sharing online content and media. Orkut (www.orkut.com) is owned by Google. It has 67 million users and is particularly popular in India and Brazil. Finally, Hi5 (hi5.com) is one of the world's most popular social networking sites (in some tables occupying third place). It is headquartered in the USA, but has not reached the same popularity there or in the UK as elsewhere.

⁶<http://www.techcrunch.com/2009/08/27/a-look-at-facebooks-reach-worldwide/>

⁷ http://en.wikipedia.org/wiki/List_of_social_networking_websites

The sites mentioned above offer differences to Facebook. Other popular sites bare a strong similarity. RenRen (xiaonei.com) is popular in Chinese Universities, where Facebook is often blocked. StudiViz (www.studiviz.net), based in Germany, was sued by Facebook for copying its look, feel, features and sites. Vkontakte (vkontakte.ru) is the most popular social network site in Russia, Ukraine and Belarus. It too has many similarities with Facebook.

Social Network Sites for Professionals

LinkedIn (www.linkedin.com) stands out among the popular social networks as it is designed for professional use. LinkedIn has around 43 million registered users. It enables professional networking by supporting creation of a contact network. It supports job-seeking and job-listing, and things such as asking and answering questions. Other social networks for professionals include Hedgehogs (www.hedgehogs.net) for the hedge fund and investment community, and UnionBook (www.unionbook.org.uk) for trade unionists. These two networks have been developed using the open source platform Elgg.

Niche Social Network Sites

Not all social network sites aim to have the highest numbers of users in the world. Many attempt to fill a niche in the market. They may be to support hobbies and interests, for example Ravelry (www.ravelry.com) is for people interested in knitting and crocheting, and RuckU (rucku.com) is for rugby fans. They might be for pet owners or parents to socialise and share information: Catster (www.catster.com), Dogster (www.dogster.com), Totspot (www.totspot.com). They can support consumer issues, for example RailRefund (railrefund.me). As with the social networks for professionals many of these networks are not developed from scratch but are powered by platforms such as Elgg. The interesting thing about niche social networks for this report is that users often make connections with people with similar interests, rather than people they already know. They also operate with smaller numbers of users. Therefore there are analogous issues with the workplace.

Appendix 2: Web 2.0 and Enterprise 2.0

Social network services are evolving as part of a wider socio-technological movement that is often referred to as Web 2.0 or social media. The words Enterprise 2.0 and Government 2.0 are also creeping into popular usage. These are more than just buzzwords, but refer to a cluster of new technologies and genuine opportunities for change. Enterprise 2.0 offers a helpful context to our discussions of internal social networking, and so this appendix will focus mainly on that.

Web 2.0

Web 2.0 generally refers to websites that allow people to easily write, or interact with web content, as well as read it. The term came into usage at around the turn of the millennium, and was popularised in around 2004⁸. The term was coined to contrast new web technologies with earlier read-only web sites. It refers more so to a cluster of web technologies than to particular features, and so is probably best described with examples (for these, see table 2 below).

Function/Technology	Description	Examples
Photo sharing	Used to store photos so that they can be accessed within social networks or elsewhere.	Flickr, Picasa
Video sharing	Used to store videos so that they can be accessed within social networks or elsewhere.	YouTube, Daily Motion
Document sharing	Used to store documents so that they can be accessed within social networks or elsewhere	Slideshare, Scribd
Social bookmarking	Allow users to bookmark and tag web sites, and to share and aggregate those bookmarks and tags.	Delicious, Stumbleupon
Blogging	The publishing of journal entries on the Web.	Blogger, Wordpress

⁸ http://en.wikipedia.org/wiki/Web_2.0

Micro-blogging	The publishing of very short journal entries on the Web.	Twitter, Jaiku
Wiki	Collaborative editing environments for creating Web document content.	PBWorks, Google Sites
Virtual Worlds	Used for Web-mediated social interaction.	Second Life

Table 2. Description of Web 2.0 technologies with examples.

One of the key features of these Web 2.0 technologies is that they can interact with other technologies, meaning the data uploaded to, or created within them can often be easily shared and manipulated. To this end, Web 2.0 technologies often support embedding, automatic syndication, and sometimes provide public APIs (application programming interfaces). As interaction between Web 2.0 technologies has become commonplace, standard formats and protocols for exchanging data are increasingly used.

Enterprise 2.0

The use of Web 2.0 and social media applications in organisations is sometimes referred to as Enterprise 2.0, a term coined by McAfee⁹. McAfee's premise is that a new type of networked company is emerging, characterised by intensive use of interactive technologies. This includes the integration of Web 2.0 tools into employees' ways of working, and the use of these technologies to strengthen ties and improve communications with customers, suppliers and other stakeholders. These Web 2.0 tools might be external services, or analogous services run internally.

⁹ McAfee A (2009) Enterprise 2.0. New Collaborative Tools for Your Organisations Toughest Challenges.

McAfee, Andrew P. (2006), "Enterprise 2.0: The Dawn of Emergent Collaboration", Sloan Management Review 47 (3): 21-28

McKinsey & Company has been tracking the use of Web 2.0 applications in industry over the last three years by surveying executives around the world. They published a survey of 2847 executives in 2007¹⁰, 1988 executives in 2008¹¹, and 1695 executives in 2009¹².

In the 2007 survey, about half of the respondents reported that they were using the technologies to help manage knowledge internally, with half of those using the tools to design and develop new products. The same survey showed that it was the technologies that support automation and collaboration that were receiving most interest and investment, with web services and peer-to-peer networks coming top of the list.

The 2008 survey showed an increase in the use of Web 2.0 technologies, and that these were being used more strategically as part of business practice. In several cases, the use of the tools and technologies was noted to have changed the ways that companies interacted with customers and suppliers, created new roles or functions within the company, and were even changing the organisational structure. As companies were becoming more familiar with the technologies, the pattern of use of the tools and technologies changed: while some tools were being abandoned, others, like blogs, RSS, Wikis and podcasts, were being used more.

The focus of the 2009 survey was more on the achievable benefits that were now starting to accrue from the use of Web 2.0 tools and technologies. Nearly 70% of respondents reported that they had gained measurable benefits, including better access to knowledge, lower costs of doing business and increased revenues. Those who reported the greater benefits were those that had invested the most. When asked to quantify the improvements, the median level of gains from internal use ranged from a 10% reduction in operational costs to a 30% increase in the speed with which employees could access the knowledge of outside experts.

McKinsey claim that greater levels of satisfaction with the use of Web 2.0 were achieved in companies where the selection of technologies was being driven by business units rather than the IT department. The greatest levels of adoption were reported where the tools were integrated into existing user workflows, where informal incentives such as recognition by peers and online status recognition (rather than necessarily by financial reward) were used, and where

¹⁰ McKinsey & Company (2007). How businesses are using Web 2.0: A McKinsey Global Survey. The McKinsey Quarterly, March.

¹¹ McKinsey & Company (2008). Building the Web 2.0 Enterprise. The McKinsey Quarterly, July.

¹² McKinsey & Company (2009). How companies are benefiting from Web 2.0. The McKinsey Quarterly, September.

executives actively used and championed the tools. The highest levels of satisfaction with Web 2.0 technologies and tools were also those who were using them the most.

The picture is not all positive, however. In the 2008 survey, only about one fifth of the respondents reported that they were extremely or very satisfied with the tools for most uses. Among the persistent barriers to Web 2.0 were: failure of management to grasp the potential financial benefits that can accrue from using Web 2.0 technologies; static corporate cultures; and a lack of enthusiasm among management.

Recently, Nielsen-Norman Consultancy carried out a review of Web 2.0 in industry¹³, with findings from 14 companies in 6 countries, supplemented by data from several companies that wished to remain anonymous.

They found that front line (younger) workers are more open to the possibilities that Enterprise 2.0 innovation offers, partly because they are familiar with Web 2.0 tools from their personal lives.

They found that the supporting intranet architecture needs to be structured according to how people use the information, rather than by ownership of that information. In other words, the intranet architecture should not be defined by the company's organisational structure chart. They found little or no need for central control as communities that use the technologies are largely self-policing, and reported instances of abuse were rare. It becomes much more difficult to maintain a strict centralised command and control structure for corporate messaging, both internally, and when dealing with outside agencies (partners, customers, suppliers and so on). Nielsen-Norman think it is important however to make sure that there is provision for a facilitator or moderator to help manage the community and guide the conversation, bringing it to a conclusion where appropriate. These people can also help convert the talk into action, because it is important to make sure that the conversation is more than just a talking shop.

In order to create an impetus in the uptake of the tools, Nielsen-Norman claim it can be useful to set up an environment that already has some content, and which allows users to transfer content from existing tools and application. As with all new tools, some degree of training will be required. It is important to assess the company culture before committing to introducing collaboration tools. If individuals are strongly committed to retain rather than share knowledge, then the introduction of collaboration tools is unlikely to succeed. The successful adoption of Enterprise 2.0 tools requires organisational change, which necessarily takes time. There is no

¹³ Nielsen Norman Group Report: Enterprise 2.0: Social Software on Intranets. A Report From the Front Lines of Enterprise Community, Collaboration, and Social Networking Projects

benchmark time for how long the process will take, but based on the case studies, Nielsen-Norman suggest that 3-5 years appears quite common for social intranet projects.

Government 2.0

The use of Web 2.0 and social media technologies to support and improve the practice of government is sometimes referred to as Government 2.0. This can include both Government led initiatives and public led initiatives. In the UK, Government led initiatives include the Number 10 e-petitions services (<http://petitions.number10.gov.uk/>) which allows members of the public to create and sign petitions. Public led initiatives include They Work For You (<http://www.theyworkforyou.com/>), which is designed to “keep tabs on the UK’s parliaments and assemblies”.

Broader movements include E-Government, E-participation and E-democracy. These are all terms associated with a movement towards greater participation by the public in decision-making. Web 2.0 and other information and communication technologies can be used to achieve this. Open Government is a term referring to the opening up of data in a way that is compliant with standards and therefore can be accessed by Web 2.0 technologies. Canada is having a major drive to open government.

The focus of Government 2.0 is on interaction between government organisations and the public. The literature on enterprise 2.0, however, includes both interaction with the public (or customers) and issues to do with internal interaction and workflow. For the time being therefore the Enterprise 2.0 literature seems far more relevant to the issues we are interested in.