Storing and sharing knowledge: supporting the management of knowledge made explicit in transnational organisations.

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Storing and sharing knowledge - supporting the management of knowledge made explicit in transnational organisations.

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Purpose:
This paper indicates and illustrates the potential for use of different types of technologies to support knowledge process in transnational organisations.

Methodology/ Approach:
The paper uses a standard literature review plus illustrations from case organisations to demonstrate the potential applications and value of technology for knowledge sharing.

Findings:
Transnational organisations have specific issues relating to space and time, and increasingly virtuality, in their working practices. Technology can assist to alleviate these issues and can provide the organisations with ways to share and distribute knowledge throughout their processes, sites and workforces. Successful knowledge management however, continues to need a sociotechnical approach where the social aspects of knowledge creation, storage and sharing need to be considered alongside the technical. Sociotechnical theory tells us we must importantly consider people, task, process, and environment (both internal and external) when considering how best to implement technology into our organisations.

Research limitations/ implications:
Case studies that specifically describe the work of transnationals are not common and thus the organisations used as illustrations may be atypical, however we believe this limitation is alleviated by using both a for-profit and a not-for-profit organisation to illustrate the variety of purposes to which technology can be put in transnational organisations.

Practical implications:
This paper has major practical implications. It is now common in the knowledge management literature to lower the value of technology for knowledge sharing and to emphasise the human aspects of knowledge sharing. This paper aggrees with this perspective but illustrates how technology can be used successfully to assist in the knowledge sharing processes across time, space and virtuality.

Keywords:
Information Communication Technology; Portals, Communities of Practice; Social Software; Knowledge Sharing.

Introduction

The complex and evolving national and international business, economic and political environments has seen (Flecker and Simsa, 2000) an eroding of boundaries, enhanced interdependencies and a greater variety of options for organisations (Steger, 1998). Transnational organisations are pluri-located, integrated communities (Pries, 1998) operating within these environments. They are thus challenged by how, and with what, they co-ordinate and control their activities.

Transnational organisations (Bartlett & Ghoshal 1993) are a blend of the international organisational model from the USA, the multi-national model from Europe, and the global model from Japan. They focus on a network of competences in different parts of the world as membership comes from several countries and indeed, may include several organisations or associations. The Roman Catholic Church has often been seen as an exemplar of an organisation that typifies a transnational. However large enterprises such as British Petroleum are now also considered to be transnationals.

Due to their lack of centrality in management the workforce of these organisations are frequently required to be mobile and by their very nature they will be (at least partially) virtual in form. Knowledge workers will be dispersed across nations as well as functions and will thus need assistance in supporting knowledge access; knowledge communication and sharing; and knowledge formation and collaboration. Indeed in transnationals, knowledge workers will be dispersed not only through virtual working practices but also through the nature and structure of the organisation. Cross-national teams and communities will exist as well as cross-functional. Knowledge management systems (KMS) will help provide the virtual workplace where these teams and communities can meet and exchange ideas. But the success of these virtual workplaces relies, according to Gartner (2002a) on managerial trust in these knowledge workers. Gartner (2002a) also say that KMS with collaborative applications provide a basis for resilience for a (virtual) organisation. ICT (Information Communication Technology) and its ability to disperse learning and knowledge across the various diverse and dispersed parts of such an organisation, permits a (better) implementation of knowledge and understanding of the complex organisational environment. It may also alleviate the (often argued) ethnocentricity of many transnationals (see Buhr, 1998 and Rudolph & Hillman, 1998 for discussion on ethnocentricity). KMS may also, conversely, strengthen ethnocentricity through its ability to disseminate 'best practice' (Mueller, 1996 argues that this is a strong method of influencing sub-units into conformity). However, it is always possible that best practice may not originate from the centre and thus local autonomy may reverse influence organisational culture and behaviour.

KMS are thus a support for knowledge sharing in such an organisation. They are not the drivers - the driving forces - those that motivate the development of such technology - are related to the dispersed nature of transnationals and the need to share information across boundaries of time and space. ICT is competent to provide this type of sharing - it is not the only way to share knowledge - (tacit knowledge being unable to be shared by technology in particular) but it provides a useful function of support in the sharing of implicit and explicit knowledge.

Current business activities in a complex, diverse and continuously evolving environment requires extensive and up-to-date knowledge of this environment to be easily accessed and managed.

Organisations must 'know what they know' and must share this knowledge in order to learn how to cope and perform their activities effectively. They learn through this knowledge sharing to also perform their activities better, in a more appropriate manner to their organisational environment. Transnational organisations have specific additional issues in knowledge sharing due to their need to incorporate knowledge from across many diverse sources and across national cultures (and thus diverse understandings) into the generally agreed organisational knowledge. Learning, according to Wenger (1998) cannot take place in isolation and thus a major challenge to transnationals is how to facilitate the learning and alleviate the isolation. Here, in this paper, we look at how technology can assist organisations to learn from what they know and to communicate this learning across the national boundaries and communities. Information technology can be seen thus not as a driver, but as an enabling technology (Allee, 1997).

In the sections below we explore and elaborate on some of the ways in which technology can support explicit and implicit knowledge sharing for transnationals. We illustrate this through two case studies of how technology is used to support knowledge sharing in two contrasting transnationals - one for profit building company and one non-governmental organisation - a charity.

Knowledge management and Technology

Knowledge management is not a technical project. It is driven by business objectives to create business value and technology must meet these objectives (Garner 2002b). The purpose of knowledge management applications is to create, capture, organise, access and use the intellectual assets of the organisation. They are intended to provide the user of knowledge with the ability to acquire, document, transfer, create and apply knowledge. They are very dependent obviously on corporate strategy for the conversion of knowledge and thus the content subscribed to will be related to this. Technology in a transnational, will have the effect of mediating the distribution of economic activity and power between the various entities of the organisation and will also act as a communication tool between the knowledge generators in the organisation. Figures 1 and 2 below indicate the possible role and type of system that technology can provide.

Figure 1.

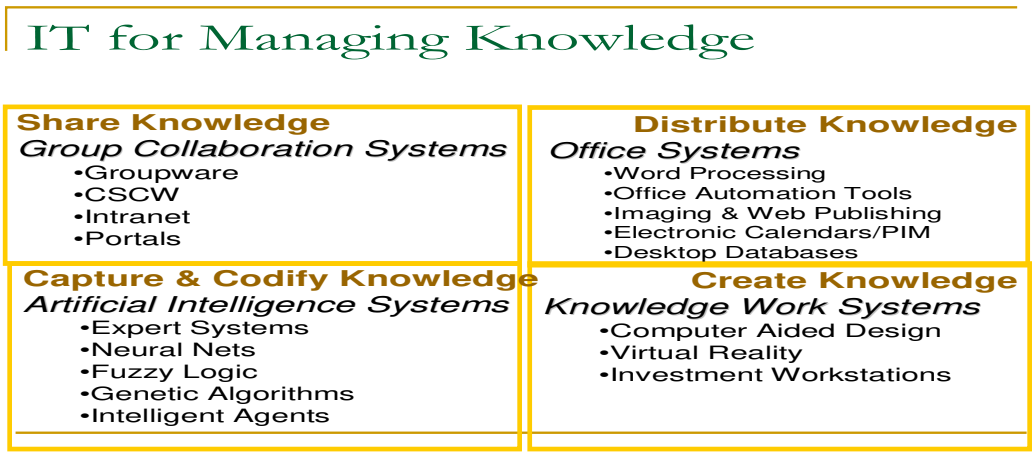
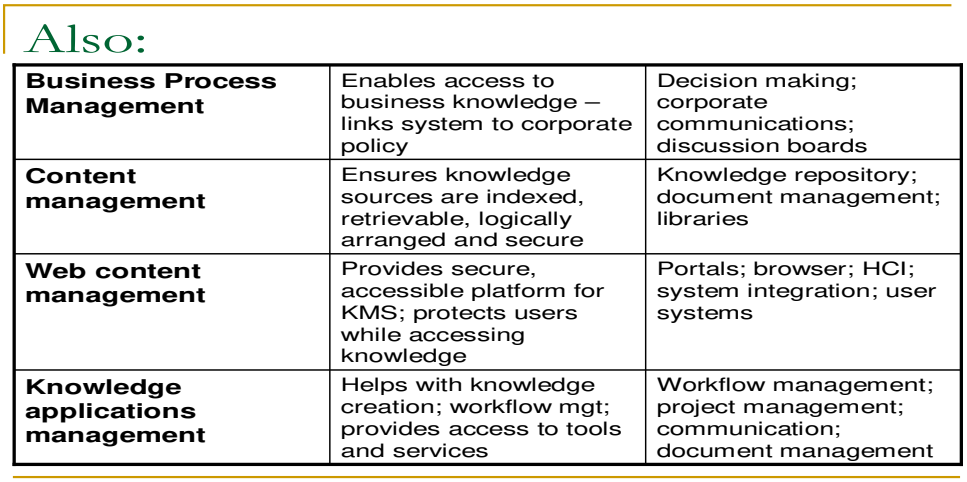


Figure 2.



Business Process Management	Enables access to business knowledge – links system to corporate policy	Decision making; corporate communications; discussion boards
Content management	Ensures knowledge sources are indexed, retrievable, logically arranged and secure	Knowledge repository; document management; libraries
Web content management	Provides secure, accessible platform for KMS; protects users while accessing knowledge	Portals; browser; HCI; system integration; user systems
Knowledge applications management	Helps with knowledge creation; workflow mgt; provides access to tools and services	Workflow management; project management; communication; document management

It is important with technology to distinguish between 'push' and 'pull' systems. 'Push' systems can broadcast to employees (and customers) a continuous stream of information often in real-time. 'Pull' systems are for the active selection of the material required after locating its position. There major problem with 'push' systems is that they tend to hurl large amounts of data at people who only want a very small limited amount, and these 'buckets of data' tend to be tangentially related to what is really wanted.

Portals

Dotsika (2006) puts the case for ICT supporting knowledge management processes in organisations - she comments that ICT supporters argue for easy access to critical market intelligence through a portal, but that there are actually more roles for ICT. These include supporting social actions and using collaborative technologies such as groupware.

But portals can also provide the doorway to these resources and services. A portal can be defined as (Davydov, 2001):

> *An entry point or originating website for combining a fusion of content and information dissemination services* (p57)

and may (some would argue should) include customizable start pages for individuals.

A portal (Hazari, 2006) should provide access to tools for collaboration, research and personal productivity; additionally it should consider scalability, legacy system integration and future system compatibility in its design. Chua (2006) adds that robustness, interoperability and security are a focus of technical knowledge management literature, but that knowledge management initiatives are not solely dependent on technology for success. Indeed, many authors, including Anand et al (1998); Davenport & Prusak (1999) and Nonaka & Takeuchi (1995) caution against reliance on technology.

Technology however can overcome the barriers of time and space as indicated above, and thus extend the reach and speed of knowledge transfer (Davenport & Prusak, 1999; Hazari, 2006) and thus can assist in the exploration and exploitation of knowledge. Exploration and exploitation can be performed through such tools as idea generators and data mining as well as simulation modelling - all provided within the portal.

Operational data can be found in organisations in the form of data warehouses (Owrang 2006). Many attempts at knowledge management have counted on Information Technology (IT) to capture all the possible knowledge of an organisation into databases (Vat, 2006) that would make it easily accessible across the organisation (King, 1999), Levine, 2001). However, as many have also argued managing organisational knowledge is 70% managing people, 20% managing processes and 10% managing technology, and knowledge therefore cannot simply be stored, owned and moved around like a piece of equipment (Vat, 2006). Nonetheless, ICT can support knowledge transfer within organisations. The data contained in these databases can indeed, not only be explicit knowledge but also implicit knowledge - tacit knowledge that can be made explicit.

Concept mapping and content analysis can also be performed through technology including summarization which produces still images from video documents

(Lienhart et al, 1997). These types of applications can be considered as ones that help implicit knowledge to be made explicit. Videos of conversations for instance that are analysed and linked into topic areas and then stored and accessed through portals are new ways to access this data and assist in visualising the context within which information has been created and transferred.

Smart Entreprise Suites (Gartner 2002c) are a special form of portals where products are packaged for greater information sharing. Typically they should include (a significant component of) the following:

- content management;
- collaboration tools;
- multi-channel access (for connectivity to a variety of desk-based and mobile devices)' information retrieval;
- expertise location and management;
- community functionality;
- process management (ad hoc and dynamic knowledge worker processes) and a portal framework.

In 2004 the Directorate of Science and Technology Policy (DSTP) in Canada produced a report reviewing portal technology. In particular, they reviewed a specific subset or portals for community support. They looked at four specific program offerings, operating under portals, across eight areas of functionality. These eight areas were:

1. ongoing interactions;
2. work;
3. social structures;
4. conversation;
5. fleeting interactions;
6. instruction;
7. knowledge exchange; and
8. documents.

These program suites: - Tomoye; community Zero; iCohere; and Communispace; were all strongly oriented towards Fleeting interactions and Instruction (apart from iCohere); but weakly supportive of social structures, knowledge exchange and documents. In addition, all software suites contained taxonomy; a local search; an experts database; discussion; and an events notification facility. None provided audio or video supported meetings or webinars; and only Communispace provided a (limited) virtual meeting space. All, except for Tomoye, provided community governance and polls. (Further details of these technologies can be found in Coakes, 2006a.) The final argument in favour of portals is that they provide a common and well understood interface that becomes transparent to the users so that use of such technology and the toll sit contains, becomes second nature to

the users. Once a portal is established, all other technologies are placed within it and organisational members will never need to learn a new interface again.

Organisational Memory

Mäkinen (2006) argues that wireless networks and mobile information and communication technologies (ICT) impact on our understanding of what form an organisational memory can take. Traditionally, organisational memory is considered to be held in technical systems such as databases (like data warehouses) but is also considered to be held in organisational culture, processes and structures (Ackermann 1996; Walsh and Ungson, 1991). Records management has focused on technology for document management and mobile technology has not yet been recognised for its role in this process according to Mäkinnen (2006). Mobile technology including laptop computers, personal digital assistants, mobile phones, and other personal communication technologies, are effective means for storing and communicating both explicit records and implicit knowledge. Mobile technology permits timely access, a well understood interface, ubiquity, and compliance with organisational security policies (Lamming et al, 2000). Transnational organisations will naturally find that, that due to their constant need to travel amongst their multiple sites, mobile workers will find that mobile ICT will provide an important source of organisational memory storage and development. The challenge will then become as to how to incorporate these memories into the main organisational memory (Mäkinnen, 2006). Organisational learning is becoming a source of competitive capability and knowledge can be distributed through ICT but it still has to be fully investigated as to how these processes can be designed and implemented effectively. Heath (2003) however argues that tacit and explicit KM when stored together form a corporate knowledge store – or organisational memory. Knowledge 'objects' can be catalogued, stored, retrieved, packaged and shared as necessary through a database – this type of database he says is called an organisational memory by Kuhn and Abecker, 1997. Storage and extraction processes need to be common and well understood across large transnationals otherwise each knowledge unit, Heath says, will become a knowledge 'island' with inaccessible knowledge from other islands. Standardisation is the rule for databases and should also become the rule for corporate memories.

Technology for Communities of Practice

Gartner (2002d) urges enterprises to recognise that the highest return can be gained from (ICT) initiatives that focus on enterprise and team collaboration and innovation. Group collaboration systems have come into their own for supporting Communities of Practice (CoPs). In order to operate successfully Communities of Practice (CoPs) require a number of resources and facilities made readily available to them. These facilities can come in both in physical and virtual forms. There are

six main resources or facilities that CoPs require in order to operate (Coakes, 2006b). These are:

1. a space to meet; this could be provided online through software that permits discussion groups; eForums; threaded discussions; online chat-rooms for instant communication and virtual meeting rooms.
2. a place to store ideas; virtual discussions of course, are easily stored in discussion threads and best practice databases that are generated and extracted from these discussions.
3. a memory of activities; databases storing content and documents; virtual presentations; webinars; and possibly also on-line courses can provide this memory.
4. a record of members and their interests; member profiles once stored on a database provide the community with not only a pool of searchable expertise, but also with the ability to link members with similar interests to enhance social networking within the community. Once expertise is stored in a database, CoP members can enhance their profiles by linking to their own records or reports, articles, web pages, web logs etc. to provide additional expert content and enhance the 'library' storage of ideas.
5. a means of communication amongst CoP members; the high-technology format for this is video-conferencing with all its requirements for well supported technical assistance and resources; the low-technology version is one that can be utilised by any home PC user – the web cam and a telephone.
6. ways to share tacit knowledge. This if course is very difficult to utilise technology to perform although if the tacit knowledge is implicit it may be possible.

Communities of Practice could thus usefully utilise in addition technology to provide: research tools - knowledge repositories - communication support - synchronous and asynchronous discursive support.

iCohere in their CoP Design guide (available from www.Icohere.com) state that there are four focal areas for CoPs – relationship building; learning and development; knowledge sharing and building; and project collaboration. They also provide the following table which allocates core technical features to each focal area. Obviously, they consider that their software offering provides these necessary features.

Table 1: iCohere's core technical features (p7)

Relationships	Learning	Knowledge	Action

Member networking profiles; Member directory with 'relationship focused' data fields; Sub groups that are defined by administrators or that allow members to self-join; Online meetings; Online discussions.	Recorded PowerPoint presentations; eLearning tools; assessments; web conferencing; online meetings; online discussions; website links.	Structured databases; 'digital stories'; idea banks; web conferencing; online meetings; online discussions; expert database and search tools; announcements; website links.	Project management; Task management; Document collaboration; File version tracking; File check-in and check-out; Instant messaging; Web conferencing; Online meetings; Online discussions; Individual and group calendaring.

The community software offering can also provide:

- searching facilities for the various stored records and content;
- role-based permissions for community activities;
- FAQ databases;
- Process and workflow management where communities work together on projects (though it is arguable in this circumstance whether the community is still a Cop or has become a project team);
- White boards for virtual meetings;
- Audit trails; notifications of document updating; self-governance voting and policy tools; taxonomies; and
- Support for sub-communities.

In addition, social software has increasingly begun to be used to support social networking within CoPs and across organisations. Social software includes Wikkis, and Blogs (weblogs) (see Figure 3 below) and is a collective term for online tools which can include email, instant messaging, and virtual online communities. The tools rely on social conventions rather than technology and software features to facilitate interaction and collaboration and permit multiple perspectives on a topic to appear. They are thus likely to be increasingly important for transnationals to consider.

Figure 3:

Wikkies; Blogs; and Social Software

Online Services	Technorati; Google; Del.icio.us; Flickr
Basic tools	Weblogs; wikis; group collaboration; chat / IM/ telephony
Online Social Networks	Linkedin; eBay; supply chain; Communities of Practice
Open standards	Web services; content aggregation; network sharing; personal identity; reputation systems – eg academici

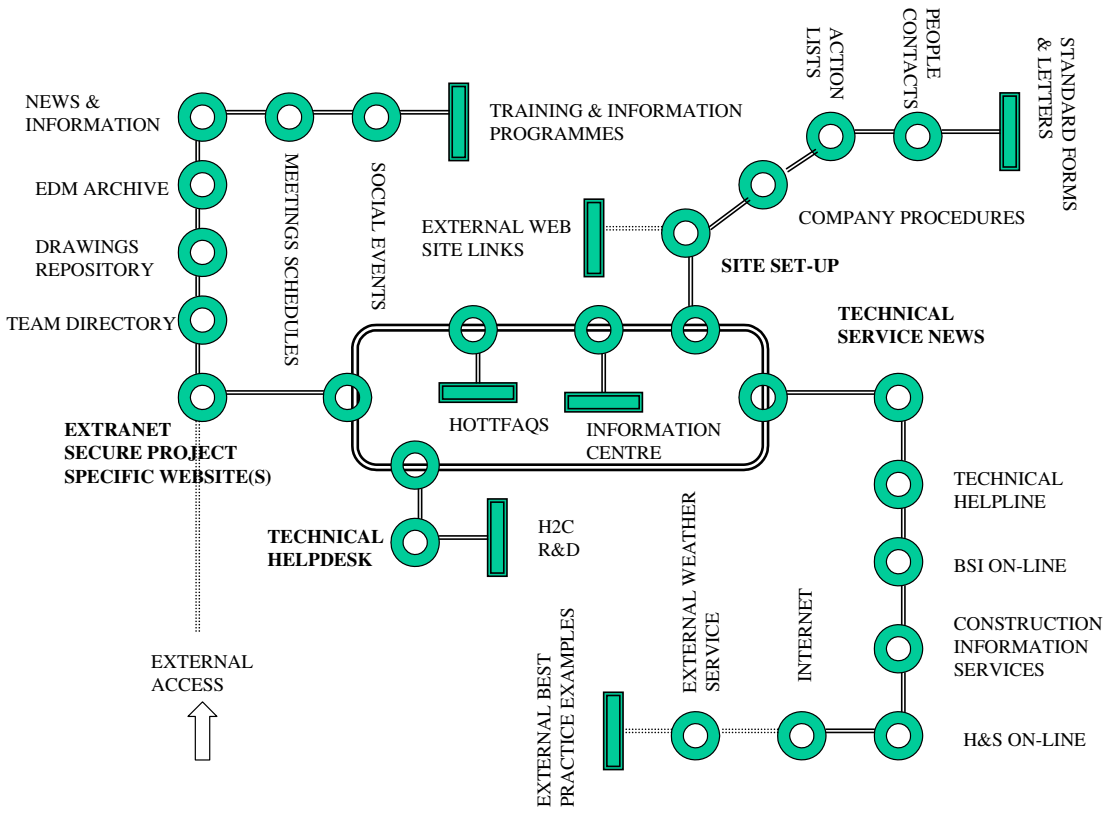
Social software of course, has its roots in CSCW (Computer Supported Collaborative Work) applications which was the early support software for people working in groups or teams and included the first jointly accessed and updated databases and reports. It has now progressed further into the realm of supporting social interactions across virtual space and time and thus has an increasing importance for transnationals to consider within their technology plans. Whether social software has a future that will integrate it fully into large corporations has yet to be seen but a useful article can be read in the Guardian (May 8th 2003), by Schofield, that attempts to discuss some of these issues.

Social software provides a shared window on the corporate world. Corporate users require the shared weblog for sense-making and information sharing; an open space (wiki) for collaboration and co-writing; a directory to find people by expertise or location; an aggregator to create and manage useful information feeds; the ability to categorise and provide tags to organise information to reflect the local needs; a shared presence of calendars and event information; and access controls that range from open to closed and can be adjusted locally. Social software, it is argued can encourage personal ownership and thus action; a culture of re-use and linking thus giving value to existing information across an organisation; emergence to uncover hidden sources of knowledge and activity and by being devolved and 'bottom-up' activity it promotes self-organisation and thus reduces the administration load for the organisation.
In the sections that follow we look at two organisations and their use of technology to facilitate knowledge transfer across time and space and across numerous organisational units and sites.

Case Study 1: H2C

H2C is a construction business operating transnationally where front line operations are characterised by project management. The company has integrated KM into its construction project processes in order to create a sustainable competitive advantage and to add value from which both customers and shareholders benefit. H2C has developed and implemented an IT enabled infostructure called HottWeb to facilitate the distribution of organisational knowledge (further details of this case study can be found in Coakes, Bradburn and Blake, 2005). HottWeb can usefully be modelled in terms of a subway metaphor as in Diagram 1 below.

DIAGRAM 1 HOTTON-COLEMAN'S IT ENABLED KM SYSTEM - HOTTWEB



This subway operates continuously beneath H2C's business operations supporting the enterprise and its business strategies. In this activity it is analogous to a computer program constantly running in the background behind other applications. The model, however, only represents the KM system in a single plane, which belies its complexity as it functions in a multi-dimensional space having a form more like a bowl of spaghetti (Kolind, 1996) The company utilised an eight-step knowledge transfer model (O'Dell et al, 1999) in order to inform the design of its KM system. This involved "...focusing on *creating*, *identifying*,

collecting and *organizing* best practices and internal knowledge, in order to understand what [organisations] know and where [the knowledge] is. The process must explicitly address *sharing* and *understanding* of those practices by motivated recipients. Finally, the process involves helping the recipients *adapt* and *apply* those practices to new situations, to create new 'knowledge' and put it into action" (O'Dell et al op.cit).

Hottweb, the KM system, features a central intranet, which carries users to any one of six portals offering access to multiple sites containing organisational knowledge, information and data. Technical Service News is an electronic, interactive, publication summarising the latest technical innovations, legislation and best practice. This portal provides access to H2C's in-house technical helpline, to on-line British Standards, construction information, on-line Health and Safety standards and provides links to external web sites for weather information and industry best practice examples via the Internet.

The Technical Help Desk (THD) portal is an on-line facility through which the company's Research and Development Department offers its specialist technical expertise. Frequent analyses of enquiries to the THD are used to generate HottFaqs, which demonstrate what lessons have been learned and what innovations have been introduced both of which constitute new organisational knowledge. Site Set-up is primarily an information portal and is an interactive guidance tool the purpose of which is to assist a project manager in setting up a new construction site. At this one-stop shop project managers have links to external web sites for other organisations such as the Police Service, the Fire Brigade and the Local Authority. In addition to the company's own procedures the site provides a check list of actions required for sites being newly established as well as a yellow pages of people contacts. There is also a repository of standard forms and business stationery.

Although Diagram 1 shows only one portal through which a secure website can be accessed there could be several. H2C establishes these extranets on a project specific basis for blue chip clients such as airports and supermarkets. These are vortals, collaborative project web sites bounding virtual communities of practice, which are live for the duration of each contract. These vortals confer all the advantages of electronic document management repositories, but with additional benefits deriving from Internet access. Each community member has available a directory of teams, a repository of drawings in two and three dimensions continually updated, a document archive including photographs of work in progress, news and information, schedules of meetings, programmes of induction and training and even listings of social events.

Finally, HottWeb features an Information Centre portal comprising a centralised interactive facility, which is available to H2C's entire workforce via e-mail,

providing an extensive range of library services. Here there are on-line services such as British Standards and Construction Information, which are accessible via the Intranet. This Centre also enables users to order documents and manage their subscriptions to journals.
The purpose of KM at H2C is:

1. To establish a systematic approach to sharing technical excellence and best practice;
2. To generate added value;
3. To differentiate the enterprise from its competitors.

Knowledge management and the company's HottWeb system have been in place for some five years. The perceived returns by H2C from its investment in KM are primarily in terms of defect reduction because in the construction industry defects can be very costly. Thus KM in this company supports quality management and its contribution to this aim could ultimately be quantified in monetary units. However, while at the time of writing consistent measures for KM are being developed most of the payback, where it is evaluated, continues to be measured in terms of qualitative outcomes with a few ad hoc assessments of cost savings. These benefits are collated in Table 1 below.

TABLE 1: RETURNS FROM KNOWLEDGE MANAGEMENT AT H2C

	TECHNICAL NEWS SERVICE	TECHNICAL HELPDESK	HOTTFAQS	SITE SET-UP NEWS	SECURE PROJECT WEB SITES	INFOR-MATION CENTRE
INCREASED EFFICIENCY OF INFORMATION MANAGEMENT	Reduction in time spent by senior managers searching for information			Project managers spend less time implementing site set-up procedures	Faster access to information and quicker response times	Offers H2C fast access to knowledge
PERMANENT GLOBAL AVAILABILITY	24/7 access	24/7 access	24/7 access	24/7 access	Instant global access anytime	24/7 access
ADMINISTRATIVE COST REDUCTION	Reductions in paperwork	Reductions in paperwork	Reductions in paperwork	Reductions in paperwork	Reduces routine administration	Reductions in paperwork
ACCESS & RESPONSE TIME REDUCTIONS					Faster access to information and quicker response times	
DISSEMINATION LEADTIME REDUCTION	Proactively keeping managers informed of the latest innovations			More time available to concentrate on value added activities		
ON-SITE PRODUCTIVITY IMPROVEMENT	Enabling managers to make better informed decisions			Project managers spend less time implementing site set-up procedures		

	TECHNICAL NEWS SERVICE	TECHNICAL HELPDESK	HOTTFAQS	SITE SET-UP NEWS	SECURE PROJECT WEB SITES	INFOR-MATION CENTRE
SAVINGS		1. Investigation of tarmacadam defects saves £60,000; 2. Cavity wall ties save £14,000 in stone façade fixture; 3. Design life technology applied to a flat inverted roof saves client £10,800; 4. Re-designed stainless steel wind posts save £20,000.		More time available to concentrate on value added activities	Relatively inxpensive to establish	Enables H2C to work more efficiently

Case Study 2: Charity and technology

(extracted from Coakes, Bradburn and Sugden, 2003)

This is a voluntary sector organisation established more than 60 years ago, which now focuses on the relief of poverty and suffering in six major world regions. This charitable organisation devotes around £100 million a year to its relief, development and lobbying campaigns.

Knowledge management was introduced into this organisation about five years when a strategic intent document was produced, which prioritised four main areas. One of these prioritised areas was KM. What the charity means by KM is making use of the knowledge and experiences of staff. In practice what this means is that one person's knowledge becomes information for the next person to assimilate and add to his, or her, own repository of experiential learning.

This is the sticky knowledge residing in peoples' heads and managing this knowledge means surfacing it and leveraging it by motivating people to share their experiences and learning. Experiential knowledge, especially in terms of projects, can be converted into fluid knowledge so that others can share an understanding of what went right, what went wrong and why things went wrong thereby enabling the organisation to ensure it does it better next time. Thus fluid knowledge can be encoded in such a way that it enables organisational learning to occur.

Knowledge management was written into the organisation's strategic plan and was allocated funding of £200,000 for a planned a three-year development project. A number of initiatives were launched in mid-2000 and focused on three areas. One of these initiatives involved lunch-time discussion groups on key areas of focus for the charity's overseas work programme work overseas. This initiative recognises

that some knowledge is socially constructed. A second initiative centres on developing an Intranet site concerned with land rights. This has information and articles drawn from white and grey literatures and provides links to other resources on land rights issues around the world. The aim is to encourage international dialogue and there is a hyperlink to this site from the organisation's website.

The upside of the initiative is that academic institutions are accessing it for research purposes. The downside is the lack of connectivity in developing countries and consequently many of the target communities do not yet have access to the Internet. However, connectivity seems to be sector dependent to some extent and in the health care sector communities of practice involved with HIV/Aids are successfully using the Internet to get experiences from different Aids work initiatives around the world. This mode of knowledge distribution is enabling different health workers in different countries to communicate and share ideas and experiences.

With Intellectual Capital being leveraged through KM and enabled by ICT the charity is evolving as a stronger international lobbying and advocacy force. The focus here is on not only trying to ameliorate the humanitarian situation at the grass roots, but also on trying to promote change at the world political level and make countries, or multilateral organisations, accept the need for new policies. The aim here is to work from the top down and from the bottom up. The organisational advantage in this context is that the charity's advocacy work is increasingly informed and based on its grass roots work with overseas projects.

The charity has a lobbying office in Washington where its various overseas Divisions feed their fluid knowledge to a resident team responsible for lobbying organisations like the World Bank, the International Monetary Fund and IMF and the United Nations. Drawing on its Intellectual Capital from around the world through KM results in much more contact and collaboration with other voluntary sector organisations such as Christian Aid, Action Aid and other like-minded charities.

Knowledge management has transformed the organisation's model of communication so that its UK headquarters no longer functions as the hub for a number of channels. Communication is now direct and offers more opportunity for collaboration and interaction between different countries through which they can share sticky knowledge by means of virtual communication.

Conclusion

Technologies to support knowledge management are many and varied as shown above. They have a number of uses and can be applied in many ways. However, as we continue to argue they are insufficient on their own. Transnational organisations have specific issues relating to space and time, and increasingly virtuality, in their working practices. Technology can assist to alleviate these issues and can provide the organisations with ways to share and distribute knowledge

throughout their processes, sites and workforces. Successful knowledge management however, continues to need a sociotechnical approach where the social aspects of knowledge creation, storage and sharing need to be considered alongside the technical. Sociotechnical theory tells us we must importantly consider people, task, process, and environment (both internal and external) when considering how best to implement technology into our organisations.

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