Communication and Culture: Designing a Knowledge-enabled Environment to Effect Local Government Reform

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Abstract: Knowledge sharing processes and an appropriate infrastructure are key elements to successful Knowledge Management (KM) initiatives but culture is paramount. In a public sector context, where organisational structures tend to be hierarchical and complex, implementing effective KM is a difficult task. Central to the success of such initiatives are culture, trust, loyalty or solidarity and a supportive communication climate.

Keywords: knowledge; local government; culture; communication; trust

1. Introduction

Knowledge management (KM), as with many other management theories that have been developed for the private sector, is now beginning to impact on public sector organisations. The ideas, options and opportunities that successful KM offers can be used to enhance service delivery, improve relations with citizens and rationalise the internal processes of public administration.

The concept of KM is one that has many different views and interpretations. To some, it is the next stage in information and communication technology (ICT) development; designing software solutions to manage knowledge. This has been classified as the 'codification' approach (Hansen, Nohria and Tierney 2000). KM is, however, more than this: it is a social process and so needs to take account of social and human factors (Mason & Pauleen 2003). It is about people management and the 'personalisation' approach to KM (Hansen, Nohria and Tierney 2000) requires an understanding of the social processes and communication patterns which underpin successful knowledge creation and sharing. The success of personalisation strategies is dependent on nurturing an appropriate organisational climate and culture.

Recent discussions of electronic government have centred mainly on building a technical infrastructure and emphasizing the importance of well-designed databases for storing knowledge, constructing intranets for knowledge sharing and continuing the debate, prevalent for many years in the field of artificial intelligence, concerning how to 'capture' human knowledge. However, this concept of an ICT based knowledge system "ignores the dynamic and continuously evolving nature of knowledge" (Malhotra 2001:5). Attention requires to be paid to the subjective and sense-making roots of knowledge creation, the importance of the social context and the development of social relations to enhance knowledge sharing and create 'communities of practice' where individuals can interact, use and manipulate knowledge.

The need to better manage the vast and ever increasing knowledge resources found within the public sector is now leading to increased interest in the concepts of KM. Thus, in England, the Knowledge Management National Project has been established to examine if an effective KM system can be designed to serve the wide range of needs of local authorities. However, this project takes a technological determinist view and appears to be ignoring the human, cultural and communication aspects of successful KM.

The following discussion evaluates KM as an appropriate strategy for local authorities in the digital age and proposes that, for effective management of knowledge in a public sector organisation, it is important to take into account people, communities, culture and communication patterns. A key aspect of this paper is to urge public sector organisations, on the brink of widespread adoption of KM ideas and practices, to learn from the past mistakes of many private sector organisations and not to leap blindly into large scale technology investments without giving due consideration to the human and cultural aspects of their strategy.

The work is supported by an investigation of the Building Services Department of Glasgow City Council. This department has undergone many changes to structure and working practices in recent years, perhaps the most significant being the transfer of all Glasgow's housing stock to the newly created Glasgow Housing Association Ltd (GHA) in early 2003, creating a competitive market for services once almost exclusively the domain of Building Services. This, together with the UK Government's modernising agenda, has fuelled the need to adopt strategies formerly more in the domain of private sector organisations. The objectives of the research were to highlight any barriers to knowledge creation and sharing which may exist within the Department and to make recommendations as to how these barriers can be overcome to help create a knowledge-enabled, adaptive and competitive organisation for the new environment.

2. KM and e-Government

The rise in use of ICTs by governments, both to build and enhance relationships with citizens and to improve the internal workings of government departments, has been well documented and discussed (for example, Bellamy and Taylor 1998). Whilst many technologies are now accepted as part of e-government, for example, e-procurement systems and e-payment systems developed to allow citizens to pay for services on-line, governments have been slower to adopt the processes, technologies and systems of e-business. KM, as with many other methods and theories that have been developed for the private sector, is now

beginning to make an impact on public sector organisations. However, on occasion, these technologies, models and practices are sometimes implemented and applied without much regard as to how they can be adapted to the working practices and patterns of the public sector (Milner 2000).

First gaining recognition as a term during the 1990s, KM as a discipline gained credence as the importance of knowledge to organisations was recognised as a strategic tool in gaining and maintaining competitive advantage. Knowledge, learning and other intangible assets are increasingly contributing to wealth-generation and competitive strategy. Organisations need to learn from past experiences, to somehow retain and reuse that knowledge and to generate new knowledge for the future.

As referred to in the introduction, the codification approach to KM views knowledge as an object which can be created, stored and manipulated by ICTs. In this view, discussions focus on enhanced methods of access through database and data-mining technologies and KM solutions are proposed which include the use of email, groupware and other communications software such as intranets. Within this framework of understanding, attempts are made to capture tacit knowledge (that is, subjective knowledge kept 'in people's heads' made up of experience, intuition and natural talent) and turn it into explicit knowledge (that is, knowledge that can be coded, is objective and can be recorded in documents and databases that are widely distributed throughout the organisation). ICTs can then be used to store and disseminate this knowledge. ICTs are, therefore, seen as offering up radical opportunities to improve the knowledge sharing process.

However, many KM projects relying mainly or totally on the use of technology have failed to live up to expectations (Malhotra 2004). One reason is a lack of understanding of the difference between 'data', 'information' and 'knowledge' (Malhotra 1997, Hildebrand 1999). Information systems, no matter how sophisticated, cannot compel people to input all their tacit knowledge nor do they offer a solution to the surfacing and

dissemination of tacit knowledge which can only ever be volunteered and may be 'too subjective' to be extracted and coded. Technology on its own cannot make organisations more 'knowledgeable' (Hendriks 2001). The limits and potentials of ICTs need to be recognised, harnessed and controlled. By concentrating on technology, the human and organisational aspects are ignored. Knowledge is dynamic, subjective and interpretive in nature (Malhotra 1997, cited in Schloetzer 2000) and it is a mistake to "equate knowledge and information and to assume that difficulties can be overcome with information technologies" (Brown & Duguid 2002:30).

Only people can take the central role in knowledge creation: computers are merely tools, however great their information processing capabilities may be. Individuals form the 'communities of practice' which exist in every organisation and which preserve and create knowledge as well as creating a set of values and assumptions that form the basis of their working lives. Thus, knowledge becomes culturally embedded and knowledge creation occurs as a process of social interaction (Sveiby 1997). A KM solution is not, therefore, a matter of simply implementing a new ICT system, which has been called a 'mission impossible' (Hislop 2002) but involves changing organisational structures, culture, values and communication habits. Technology can, indeed, help and support the dissemination of this knowledge but is not, in itself, a knowledge creator.

After having initially focused efforts on IT, practitioners are now realizing the importance of the 'soft' aspects of KM initiatives.

> *"…. The values, norms and behaviours that make up a company's culture are the principal determinants of how successfully important knowledge is transferred."* (Davenport and Prusak 1998:96)

A very substantial body of research has been published concerning organisational culture which is often referred to as "the way we do things around here" (Deal & Kennedy 1982). Perhaps the most widely discussed definition of culture is that of Edgar Schein (1997) who proposed three levels of culture: artifacts, values and basic assumptions. Artifacts include the physical layout, written or spoken language and behaviour patterns. Values provide a common direction for employees as well as guidelines for day-to-day behaviour and are often reflected in mission or vision statements. Basic assumptions are those assumptions that individuals hold about an organisation and how it operates, which are invisible to the organisation and subconscious to the individual but are, nevertheless, in essence, what culture is all about. Recently, much has been written about the necessity of a 'knowledge-friendly' culture for successful knowledge sharing and creation. The characteristics of such a culture are less clearly defined, although, Goffee and Jones (2003) believe that the two main characteristics of a successful knowledge-sharing culture are trust and solidarity. It seems self evident that a culture or climate which promotes internal collaboration rather than internal competition (Sveiby and Simons 2002) and knowledge sharing rather than knowledge hoarding, is more likely to add value and secure external competitive advantage. A culture of knowledge sharing does not happen by accident (Allee 1997). One element of promoting such a culture is good office layout, which can remove physical and psychological barriers to encourage open communications. Leadership and the establishment of a coherent and clearly articulated set of corporate values are key elements. The values and reward system, communicated by management, should embed a basic assumption that knowledge sharing is the norm and that behaviour which supports knowledge transfer and knowledge creation is valued.

> *"The key elements of a knowledge culture are a climate of trust and openness in an environment where constant learning and experimentation are highly valued, appreciated and supported."* (Allee 1997: 212)

Unfortunately, in the public sector, there appears to be an embedded culture of not sharing information and knowledge between departments, based on lack of trust, which, in turn, may lead to difficulties in both the creation and maintenance of horizontal networks across organisations (Bate & Robert 2002). The culture and operations within the sector have been shown to hinder the development of inter-

departmental relationships (Erridge & Greer 2002) and the potential to develop 'communities of interaction'. Indeed, KM in the public sector has also been said to possess "unique challenges" due to the hierarchical and bureaucratic nature of their organisational structures which make knowledge sharing more difficult (Syed-Ikhsan & Rowland 2004). Additionally, achieving integrated public services may well be hindered by overt and covert issues of territory and power (Bannister 2003). Indeed, a recent study by Sveiby and Simons (2002) raised the question as to why public sector organisations appear to have worse collaborative climates than private sector firms. Thus, the most difficult barriers to overcome in implementing KM projects in the public sector concern the "cultures and contracts which serve to impede rather than support the collaborative and improvement focussed culture" (Milner 2000:76).

Following the publication of the Modernising Government Agenda, a programme of change and reform has begun to improve the efficiency and effectiveness of public services within the UK. From this, a number of initiatives aimed at achieving 'information age' government have been put forward. For example, Modernising Government (1999) was designed to modernise public services and an original aim was to have all public services delivered electronically by 2005 (which has, subsequently, been extended to 2008). One step towards this was the establishment of the UKOnline portal in September, 1999. A key strategic goal is that government services will become more 'joined-up' around the needs of 'the customer'. To facilitate such programmes as the on-line delivery of services, adequate access to information and knowledge resources are needed. These changes in public administration are also producing new knowledge sources and thus increasing the complexity of decision making.

A number of KM initiatives have been put forward such as the Knowledge Network, established in October 2000 and designed to support government departments in sharing knowledge and working on-line with others across government. The Knowledge Enhanced Government programme was designed to examine key KM areas, such as knowledge capture, knowledge transfer, knowledge retention and enabling knowledge based community working between and across departments. In August 2003, the Knowledge Management National Project was established in England. This project consists of seven workstreams which are examining how to establish technology infrastructures such as an information asset register and single information database, the development of a geographical information system and the exploitation of KM technologies for business transformation and change management programmes. The 'tacit knowledge exploitation activity' describes developing tools "to exploit otherwise undeclared knowledge held by staff and groups of staff within organisations." (www.localegov.gov.uk). Although there is a brief mention of developing a culture to encourage information sharing, this project appears to follow much more of the 'codification' approach to KM. The final reports are yet to be published at the time of writing. In Scotland, the Scottish Executive has considered moving "towards KM" to improve the Best Value processes, though it too appears to be treating KM as a part of IT.

The concern that public sector organisations are rushing into large-scale investments in IT based KM projects, making the same mistakes that characterised early KM projects in the private sector, appears to be well founded. If the government aim is to create a new model of public service administration and service delivery, then the creation of a successful knowledge-focussed organisational culture is necessary, indeed, some might say essential. KM is a tool that can be used as a strategy for change and improved knowledge sharing greatly contributes to achieving the goals of improving services and the efficiency of internal working practices. Successful KM can help to promote the sharing of information and knowledge, prevent the duplication of effort, improve access to information and, ultimately, improve service delivery. If this is to be achieved, however, barriers to communication and knowledge sharing must be removed and a culture and climate of trust, collaboration and loyalty created. Senior managers need to develop and instil coherent organisational values and gear reward

systems towards compliance with these values.

New forms of communication media, such as email and voice mail – which emphasise content knowledge – are now prevalent in most organisations. However, these communication media lack context and non-verbal cues and are not conducive to promoting trust and loyalty.

> *"Personal and authentic oral communication is essential to developing trust and a sense of loyalty which develops people for sustainable competitive advantage."*
> (Smith & Rupp 2002:210).

The lack of widespread, sustained and rich communication leads to a 'defensive' organisational climate, characterised by fear of reprimand and a blame culture. (Beck 1999). Knowledge sharing and creation cannot flourish in such a climate.

3. Communication, culture and KM in Building Services

The Building Services Department (BS) of Glasgow City Council was created in 1998 from the merger of two previous council departments – Property Services and City Building, with the Directorate of City Building being appointed to lead the new Department. The merger, bringing together two very different sub-cultures created tensions, which are gradually being overcome. The research centres on the 'design team' within the Department's Design, Build and Project Management Division; this team comprising architects, civil and structural engineers, electrical engineers, mechanical engineers, quantity surveyors, clerks of work and administrative staff. Following the establishment of the GHA in 2003, approximately half of the design team employees were transferred to the new organisation and 16 additional quantity surveyors were transferred in from another Division. This net loss of expertise and specialist knowledge has caused some problems for the remaining members of the design team.

The research comprised a questionnaire which was distributed to 68 members of the Design team. The questionnaire was designed with a mixture of open and closed questions so as to capture a wide range of quantifiable data as well as

collecting more qualitative responses, in line with the nature of the research topic. The total number of completed questionnaires received was 27, giving a response rate of 40%. Seven follow-up interviews were conducted. Overall, 97% of respondents either strongly agreed or agreed to some extent that knowledge sharing could benefit their organisation. The following discussion presents key findings to demonstrate the current situation in the Department regarding communications and organisational culture and incorporates insights provided by interviewees.
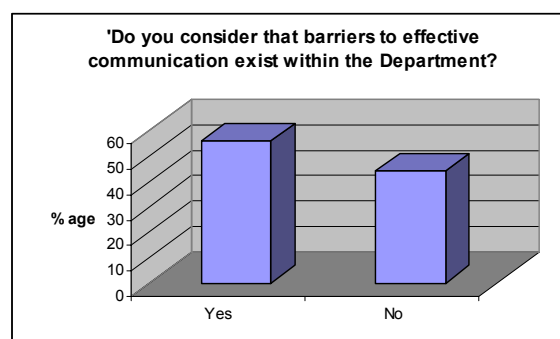
3.1 Organisational communications

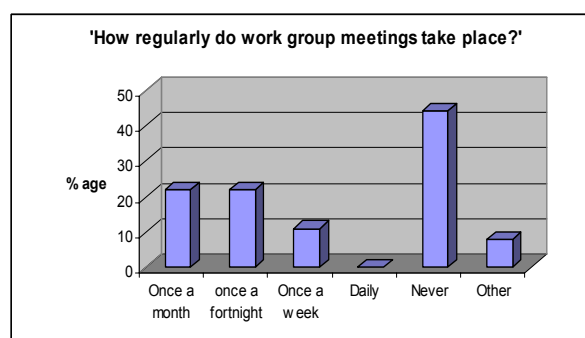
Figure 1: Barriers to effective communication

Figure 2: Work group meetings

44% of respondents stated that they never have team meetings and others expanded on this to say that team meetings are held occasionally, on an ad hoc basis, few and far between, less than once a month, twice a year and specific to project. The design manager holds regular meetings with group leaders who are then left to take different approaches to meetings within their own teams. Whilst whole design team meetings used to take place, they no longer occur, due to lack of time and, perhaps, an adequate meeting room.

56% of respondents considered that barriers to effective communications exist within the Department, suggesting that barriers such as lack of group meetings, a 'knowledge is power' culture, lack of communication from senior management, lack of time and resources and poor lines of communication, act to the detriment of the Division.

Figures 3 and 4 below illustrate that the use of email to communicate is fairly prevalent, particularly when communicating with other groups within the Department. Interviewees suggested that there is little necessity to communicate with other Divisions and, where there is a need, lines of communication are not direct. There is some evidence of the existence of different groups operating within organisational silos with little awareness of the roles of other groups in the Department and some sense of competition rather than collaboration (Sveiby and Simons 2002).
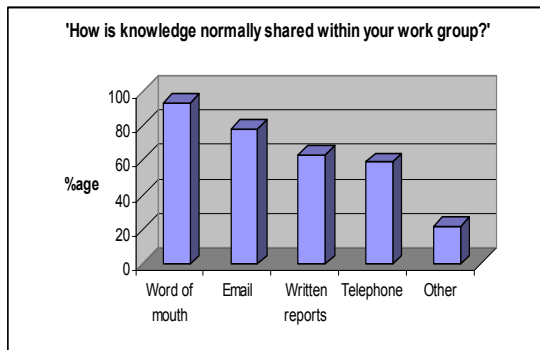

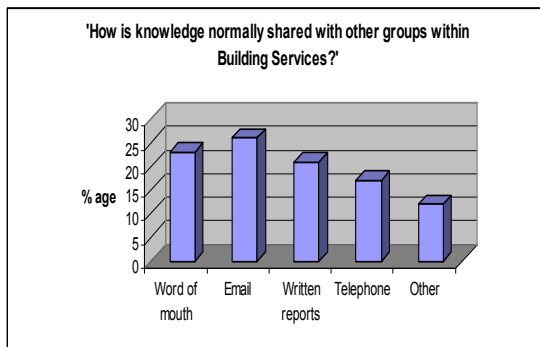**Figure 3:** Knowledge sharing media within work group

Figure 4: Knowledge sharing media within the Department

Additional comments and discussion in interviews revealed a need for more inter-team and inter-divisional communication, both formal and informal. The lack of dedicated meeting rooms and informal meeting spaces was mentioned by many.

Suggestions offered by questionnaire respondents indicated a high level of awareness of the importance of establishing clear lines of communication and encouraging inter-group discussion and knowledge sharing. Lack of, or ineffective, communication systems have a direct affect on employee morale and, therefore, loyalty.

3.2 Organisational culture

3.2.1 Basic assumptions

The indications are that the basic assumption is that the 'knowledge is power' syndrome predominates in the Department. Some respondents mentioned a 'blame' culture.
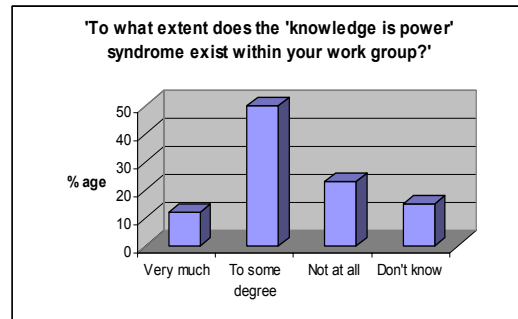

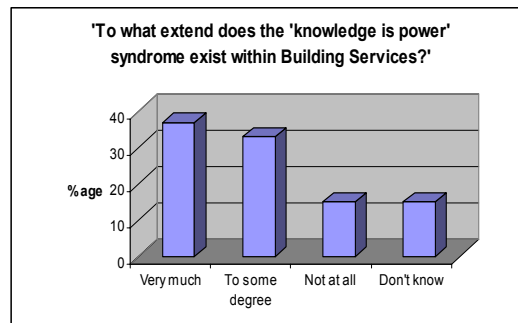**Figure 5:** Knowledge hoarding within work group

Figure 6: Knowledge hoarding within Building Services

62% of respondents consider that knowledge hoarding exists within their team, either 'very much' (12%) or 'to some degree' (50%), whilst 70% consider that knowledge hoarding exists within the Department as a whole either 'very much' (37%) or 'to some degree' (33%). This relates to the organisational culture and the way this is transmitted through the communication system. Knowledge is only a competitive asset to an organisation if it is used and shared (Sveiby and Simons 2002). As in all organisations, senior management must take the lead in communicating values and ensuring rich

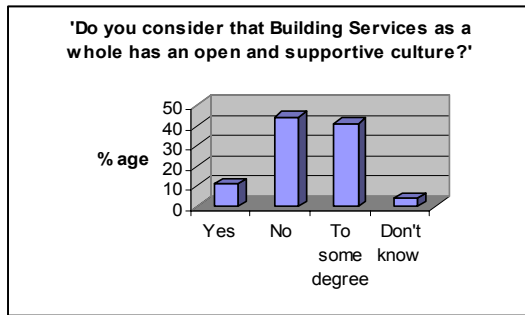and continuous communication in order to achieve the desired culture.

'Do you consider that Building Services as a whole has an open and supportive culture?'

Figure 7: Perception of organisational culture

'Do you consider that your work group displays an open and supportive culture?'
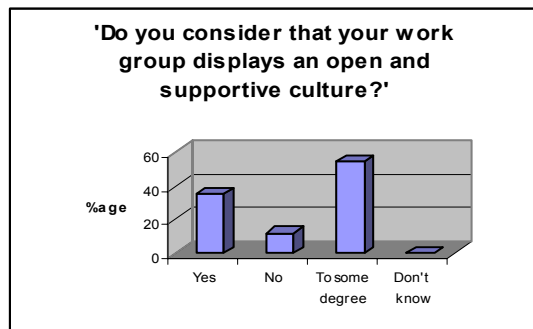
Figure 8: Perception of work group culture

The analysis, as well as comments from interviewees, suggests that whilst an open, supportive and knowledge sharing culture exists within particular work groups, there is a perception that the culture of BS as a whole is less open and supportive. There is evidence of a lack of trust between the design team employees and the construction division, where a lack of deep understanding of the different divisions' requirements and constraints can lead to some tension, in some instances. These misunderstandings appear to be founded in a lack of open communication between employees from each Division.

3.2.2 Artifacts – physical environment and processes

When asked whether the physical environment was conducive to knowledge sharing and knowledge creation, 33% answered 'yes' and 48% agreed to some degree. However, some useful suggestions were put forward as to how the physical environment could be improved, including the provision of more meeting space, both formal and informal; more communal areas; more filing cabinets, bookshelves and wall space and organised space for a library, so that resources could be shared. On balance,

the majority of respondents (59%) consider that their work group is well integrated with the rest of the organisation which indicates that the tensions associated with the 1998 merger are slowly dissipating
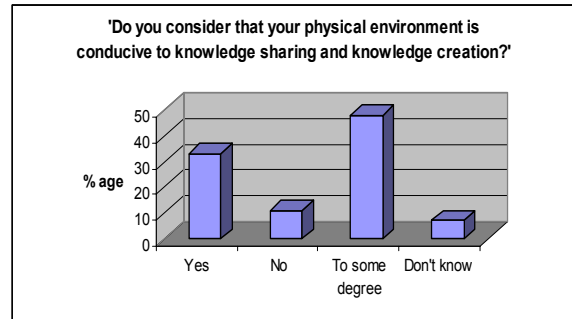
'Do you consider that your physical environment is conducive to knowledge sharing and knowledge creation?'

Figure 9: Physical environment

'Do you consider that your work group is well integrated with the rest of the organisation?'
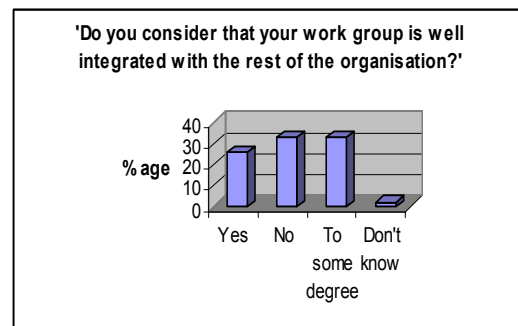
Figure 10: Work group integration

Issues particularly relating to knowledge sharing and knowledge creation are highlighted in figures 11 and 12 below:
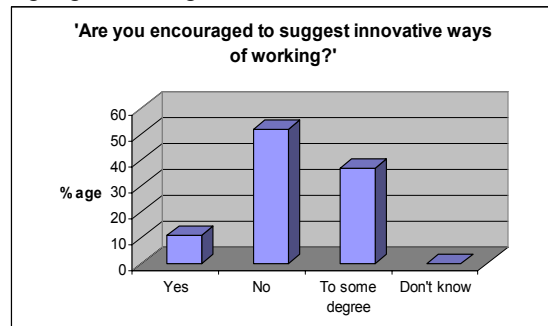
'Are you encouraged to suggest innovative ways of working?'

Figure 11: Innovative ways of working

'Which of the following processes are in place to enable new ideas to be considered:'
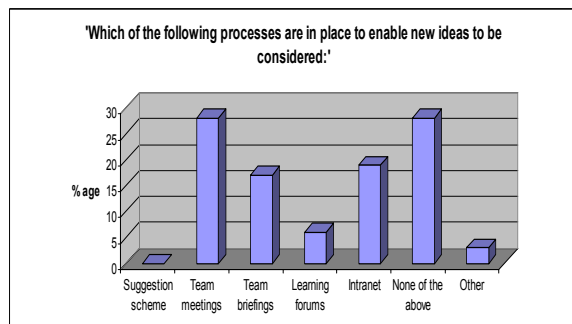
Figure 12: Processes for consideration of new ideas

52% of respondents indicated that they are not encouraged to suggest innovative ways of working and it would appear, from the responses to question 9 (fig. 12), that there is a lack of formal processes for them to do so. The Design Manager operates an open door policy but that places the onus on employees, rather than providing formal processes to allow ideas to be put forward.

As already indicated, knowledge sharing is mainly undertaken through the use of written reports and emails. Some interviewees suggested that dissemination of information and knowledge is restricted by a lack of time and resources to share, insufficient in-house seminars where expertise and experience can be shared, lack of a formal project review process and inadequate cross-discipline communications. Whilst steps are taken to ensure that no one individual works on a project, that a team is always involved so that knowledge is more distributed, teams do not appear to be learning from each other and there is some evidence of 're-inventing the wheel'.

4. Conclusions, recommendations and further research

The aim of the paper was to evaluate KM as an appropriate strategy for local authorities in the digital age. An investigation was undertaken into the communications culture of one division of a large local authority department with the objective of determining the extent to which the culture and communication climate support the changes required to underpin a KM strategy. As they move into a more competitive environment and implement the requirements of the Government's Modernising Government Agenda, BS must ensure that they harness and capitalise upon their knowledge assets. They need to ensure that the culture and lack of formal and informal knowledge sharing processes, both within and between, divisions, do not impede knowledge sharing and creation. The findings from this research indicate that more intense intra and inter-divisional communication is required.

The initial discussion highlighted the crucial role that senior management play in creating a vibrant knowledge environment and sharing culture. A supportive rather than a defensive communication climate (Beck 1999) with clear lines of communication and formal processes in place to enable discussion and knowledge sharing are crucial. The widespread communication of clear corporate values, supported by an appropriate reward system is vital to change the basic assumptions which reinforce the desired organisational culture. The more overt manifestation of the culture, in terms of workplace layout and processes should encourage the desired behaviour. Whilst it may not be feasible to motivate employees through enhanced pay and promotions schemes, it would be possible to better publicise the good work that is being done by BS. Within the team there is some fairly unique expertise and experience. The design team have been involved in many, large scale, high profile projects, including restoration of historic buildings, designing sports centres, swimming pools, land-fill sites and new schools. Better publicising these achievements and expertise would raise the profile of BS as a whole. Communicating success and promoting understanding of, and buy in to, strong corporate values and vision engenders employee loyalty.

It is apparent that, whilst there is a general recognition that KM could benefit the organisation, few formal processes exist to facilitate this. Our findings demonstrate that within the design team, communication tends to be sporadic, and between it and other divisions, there is a certain lack of trust. There appears to be little sharing of experience between different teams within the Division. In addition, the majority of the respondents mentioned lack of time as a major inhibitor in sharing and creating knowledge. An effective KM system should save time as people would no longer be 'reinventing the wheel' and duplicating effort.

The recommendations put forward to the organisation are:
▪ Schedule more team meetings and, at least once a month, hold whole group meetings as a mechanism for sharing experience and knowledge – perhaps in a location away from the normal work environment

- Arrange inter-group meetings with staff from other divisions

- Institute processes to allow better sharing of knowledge, such as after project reviews, where key lessons learned can be captured and disseminated

- Allocate space, if possible, perhaps with a coffee machine, to encourage informal meetings. A central resource room where technical books, journals and hard copies of shared reports can be securely held, and designs displayed, would act as a knowledge repository and showroom for clients

- Develop and distribute a brochure or magazine publicising the successful and high profile projects the design team have been involved in as a motivating and communicating tool.

- Encourage richer communication from senior management concerning the strategic objectives of the organisation, the key values they expect people to adhere to and widespread communication of a vision that employees can relate to.

Following submission of the paper, including recommendations, to the Design Team Manager, some of these recommendations have been implemented. It is the intention to undertake follow-up interviews in approximately six months time to assess the effectiveness of these measures.

Effective KM requires an understanding of how people interact and communicate in a particular context. Knowledge sharing processes and an appropriate infrastructure are key elements but culture is paramount. In a public sector context, where organisational structures tend to be hierarchical and complex, implementing effective KM is a difficult task. BS have recognised the importance of a KM approach. They now require to implement some enabling processes and strategies for the future.

Obviously, this work represents a micro study of one department of a large local authority, therefore, conclusions cannot be taken as universally applicable. However, the well documented experiences of many large private sector organisations indicate that a properly implemented KM strategy can add immense value. Public sector organisations, generally, have much to gain from such a strategy if due attention is paid to issues of culture, communication and motivation of employees rather than concentrating solely on the technology infrastructure.

References

Allee V (1997) The Knowledge Revolution: Expanding Organizational Intelligence Butterworth-Heinemann

Bannister F (2003) "Turf Wars: The Hidden Menace" Conference Proceedings of the 3rd European Conference on e-Government, Trinity College, Dublin, 2- 3 July

Bate SP & Robert G (2002) "Knowledge Management and Communities of Practice in the Private Sector: Lessons for Modernizing the National Health Service in England and Wales" in Public Administration Vol 80 No 4 pp 643-663

Beck CE (1999) Managerial Communication: Bridging Theory and Practice Prentice Hall: New Jersey

Bellamy C and Taylor JA (1998) Governing in the Information Age Open University Press

Brown & Duguid (2002) "Organizing Knowledge" in Little S, Quintas P & Ray T Managing Knowledge Open University/Sage:London

Davenport & Prusak (1998) Working Knowledge: How Organisations Mange What They Know Harvard Business School Press: Boston

Deal T E & Kennedy A A (1992) Corporate Cultures: the rites and rituals of corporate life, Addison-Wesley

Erridge A and Greer J (2002) "Partnerships and Public Procurement: Building Social Capital Through Supply Relations" *Public Administration* Vol. 80 No 4 pp 503-522

Goffee R & Jones G (1996) "What Holds the Modern Company Together?" Harvard Business Review

Hansen MT, Nohira N & Tierney T (1999) "What's Your Strategy for Managing Knowledge?" Harvard Business Review, March-April, pp 106-116

Hendriks PHJ (2001) "Many rivers to cross: from ICT to knowledge management systems" in Journal

of Information Technology Vol 16 pp 57-72

Hildebrand C (1999) "Making KM Pay Off" CIO Magazine February 15

Hislop D (2002) "Mission Impossible? Communicating and sharing knowledge via information technology" Journal of Information Technology Vol 17 No 3 pp165-177

Malhotra Y (1997) "Knowledge Management in Inquiring Organizations" Proceedings of 3rd Americas Conference on Information Systems, August 1997, pp 293-296

Malhotra Y (2001) Organizational Controls as Enablers and Constraints in Successful Knowledge Management Systems Implementation. In Y Malhotra (Ed.) Knowledge Management and Business Model Innovation, Hershey PA, Idea Group Publishing, 326-336

Mason D & Pauleen DJ (2003) "Perceptions of Knowledge Management: A Qualitative Analysis" in Journal of Knowledge Management Vol 7 No 4 pp38-48

Milner EM (2000) Managing Information and Knowledge in the Public Sector Routledge:London

Schein E H (1997) Organizational Culture and Leadership, 2nd edition, Jossey Bass Wiley

Smith & Rupp (2002) "Communication and Loyalty among Knowledge Workers: a resource of the firm theory view" Journal of Knowledge Management, volume 6, issue 3 pp 207-223

Sveiby K-E (1997) The New Organizational Wealth Berrett-Koehler

Sveiby K-E & Simons (2002) "Collaborative climate and effectiveness of knowledge work – an empirical study" Journal of Knowledge Management, volume 6, issue 5 pp 420-433

Syed-Ikhsan S O M & Rowland F (2004) "Knowledge management in a public organization: a study on the relationship between organizational elements and the performance of knowledge transfer" in Journal of Knowledge Management Vol 8 No 2 pp 95-111