# *"Knowledge Management: The fad that forgot technology"*

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## *Abstract*

It has been argued that knowledge management's pre-occupation with technology had led the field to forget people and the inherently social nature of all knowledge practices. This paper argues however that such social activity is, in many contexts, necessarily mediated through technology and that technology is a powerful and available instrument to enrol in knowledge management initiatives. For this reason a richer view of the role of technology in knowledge management is needed. The paper describes an action research study of the British Council's development, introduction and use of an Intranet based Knowledge Management Technology (KMT). Through this study the paper explores the social construction of KMT, in an attempt to open the black box on its construction and use, and to discuss the decisions which shaped its design. The paper concludes by arguing that a view is needed whereby technology is taken seriously and put back into Knowledge Management; not as a set of tools, but as real and significant actor in the context, and one which plays an exciting, difficult and dangerous role.

## *Introduction*

Swan et al. (1999) argued that knowledge management's pre-occupation with technology had led the field to forget people and the inherently social nature of all knowledge practices. In response to the paper, and similar calls of that time, a backlash occurred within the academic literature against serious consideration of technology in Knowledge Management (Galliers and Newell 2001).

While this paper does not disagree with the fundamental need to consider the inherently social nature of knowledge creation and dissemination, it argues that such social activity is, in many contexts, necessarily mediated through technology and that technology is a powerful and available instrument to enrol in knowledge management initiatives. For this reason, if no other, a richer view of the role of technology in knowledge practices, and hence in Knowledge Management initiatives, is needed. This paper explores this role by employing the richer conceptualisations of knowledge and technology which have emerged in the intervening period since Swan et al. In particular by employing a social constructivist perspective on knowledge (Schultze 2000; Tsoukas 2002; Venters, Cushman et al. 2003) and extending it to encompass Knowledge Management Technology (KMT). This contributes to demands to theorise the IT artefact within information systems (Orlikowski and Iacono 2001), introducing this debate into the knowledge and organisational learning literature, and extending previous literatures which have considered the role of KMT within a social setting (Schultze 2000).

The paper describes an action research study of the British Council's introduction and use of intranet based KMTs. The organization's global nature (based in 110 countries) meant that most members of the organisation could not physically *"meet around the watercooler"* (Brown and Gray 1995) and unsurprisingly technology was indeed central to its knowledge management initiatives. Action research was chosen as it is appropriate for studies of technology creation and use within social settings (Baskerville 1999). Action research allows theories to be tested through intervention within the *"organisational laboratory"* (Braa and Vidgen 1996); for this study the researcher developed and introduced a Knowledge Management system into the British Council, researching its impact through the use of Soft Systems Methodology (Checkland 1981) within an interpretive epistemology.

The study confirms that KMT is often introduced *without* a predefined, advertised purpose that is meaningful to users (which has echo's of the fad that forgot people). The British Council, for instance, did not acknowledge a problem of unmanaged knowledge which required managing; rather it faced a pressure to change the organisations practices and felt that Knowledge Management, through technology, could support this change process by allowing new innovative practices to be created and shared (Venters and Wood 2005). Hence KMT was introduced with the broad aim to *"transform British Council [employees] into a community and maintain such a community"* (taken from the definition of the KM system's purpose). This bland, arguably meaningless, statement of purpose suggests that the systems meaning was at the outset unstable or incoherent. This is not unusual as many intranets, websites, groupware tools, and CSCW have also been introduced with broad expectations of positive consequences; essentially an act of technological faith. The technology's aim maybe undefined but the vision of technology is clear serving as a proxy for a general commitment to modernise, change, improve – a version of technological determinism. For KMT the aim maybe to engender knowledge creation and sharing, which are indeed highly social acts, but the means of their achievement is seen as implicated in the technical. Whatever the opaque nature of the initial purpose for the British Council, once the KMT was put in place the technology was used.

Within this paper we wish to unpick this vision of technology as an act of technological faith through the application of two distinctive lenses. The first draws on Berger and Luckmann's (Berger and Luckmann 1966) view of knowledge as a dialectic construction of meaning. We explore the social construction of KMT as a social construction in use, in an attempt to open the black box on the construction and implementation of this system, and to lay bare (through reflexive historical account of its production) the decisions which shaped its construction. We attempt to theorise users externalising their being into the system (so socially constructing its meaning) in a dialectic in which they also continually internalising their understanding of the meaning of the technology (taken to be both the technological infrastructure and the accumulation of information it "contains"). So meaning within such systems is reciprocally defined within such shared situations (Berger and Luckmann 1966). For this we draw upon Bijker's notion of interpretive flexibility within the social construction of technology (SCOT) field (Bijker and Law 1992; Bijker 1995). Interpretive flexibility is defined for differing social groups, such that "Artefacts…

are described as constituted by a relevant social group, and this description [of the artefact] includes a specification of what counts as 'working' for that [artefact] for that group" (Bijker 1995) in this way the nature of a successful system is not an intrinsic property of the artefact, but socially constructed.

We therefore consider the action research as a historical account of the construction of a technology (as an act of design) alongside its social construction within the user community (albeit from the perspective of a limited range of actors, and prefacing the view of the action researcher).

This paper is not a purely social constructivist account in which technology has no role to play (Monteiro 2000) but places itself somewhere in the middle of a continuum which Monteiro describes, between technological determinism and social constructivism in which "information technology has both restricting and enabling implications"(Orlikowski and Robey 1991). The paper is an attempt to present a plausible coherent story of the construction and use of a knowledge management technology within a global organisation through these lenses.

The next section of the paper explores the literature on technology within Knowledge Management; this is followed by a methodology section which outlines the action research approach which was adopted. Following this the construction of the KMT is presented, then the social construction of the technology within use. Finally conclusions are provided, both for the academy and for practice.

## *Literature Review*

Within the broader debate on Knowledge Management there is a large amount of literature which considers the role of technology. Much of this literature focuses on named forms of technology which are often associated with Knowledge Management, for example decision support systems, groupware tools, data warehouses, video conferencing and artificial intelligence (Davenport and Prusak 1998; Wilson and Snyder 1999; Alavi and Leidner 2001; Butler 2002). While there are no intrinsic characteristic which defines an ICT application as a Knowledge Management Technology (Hendriks 2001), the fact that such applications are employed within Knowledge Management initiatives suggests that organisations perceive such technologies to afford features which complement their aspiration of knowledge management.

We therefore argue that it is necessary to problematise the role of technology within knowledge management initiatives, and that this should be undertaken alongside an appreciation of the adopted Knowledge Management perspective/ theory. As Hendricks suggests, KMTs cannot be considered intrinsically as "knowledge management tools" based on their own characteristics, but rather on the method and situation in which they are employed (Hendriks 2001).

For KMT is not a mere artefact in deterministic subject/object dualism, but rather as a construction of situated social practices. As Wittgenstein (1984) suggested, the meaning of tools is defined by their use in practice. A technology ceases to be problematic (that is black-boxed) only when the values and interests of concerned others are inscribed within them. Such a social constructionist view is aligned with Bijker's notion of social change (Bijker 1995)

Within this analysis we suggest that KMT is socially emergent rather than pre-ordained. This said however the inherent capabilities and constraints of technology (imposed by its design) will have a significant influence on its emergent use (while a chair may be used as a weapon, it better affords sitting because of its designed capabilities). It is therefore important to consider the capabilities a technology affords.

In considering the capabilities of a KMT we employ a categorisation of Knowledge Management into two perspectives, "codification approaches" and "personalisation approaches" (Hansen, Nohria et al. 1999). These align to functionalist and interpretive perspectives to knowledge management (Schultze 1998). Codification approaches suggests that technology be employed in the storage and retrieval of information as knowledge. In contrast a personalisation approach suggests technology be employed to support social practices, usually through better communication.  It should be noted that many KMT's features could be ascribe to both.

Technologies associated with codification suggest that knowledge is capable of some degree of objectification, and that KMT should support the gathering, organisation, refining, analysing and disseminating of knowledge in the form of data (Jackson 1999). Central to such KMT is a repository (Schultze 1998), often of so called "best-practice", and a focus on taxonomies and ontologies as a backbone for categorisation and search (Stojanovic, Stojanovic et al. 2002).

In contrast KMT associated with personalisation suggests that knowledge is intrinsically linked to social action (Hansen, Nohria et al. 1999) and that KMT should

attempt to integrate with social activity and hence "recognise the tacit basis of all sense-reading and sense-giving activities, and try to make these activities more meaningful and valuable to all parties" (Walsham 2001). Such KMT aims to "reconcile the informational features of computer technology with the social needs of individuals engaged in knowledge work" (Venters 2006 (Forthcoming)). Capabilities such as threaded discussions, e-mail, newsgroups and videoconferencing are often associated with personalisation (Venters, Cushman et al. 2003).

Having briefly introduced the range of technologies associated with Knowledge Management it is necessary to consider how such technology is employed within knowledge management interventions. As argued previously it is necessary to appreciate the organisation's perception of knowledge management. Organisations do not face problems with their "knowledge" requiring "management" to which a KM solution exists. Rather they are faced with a variety of complex situations, which Russell Ackoff defines as "*a system of external conditions that produce dissatisfaction",* and which he terms a "mess" (Ackoff 1974). In considering the British Council's "messy" context for knowledge management we now move to consider the research methodology employed followed by the case study.

## *Methodology*

The study was undertaken as an action research project to develop and introduce a KMT within a global organisation. Action Research involves an intervention into a real organisational context with the aim of both improving the context and at the same time gaining relevant knowledge of the intervention. Action research is highly appropriate to the study of the development and introduction of technology within a complex social setting as Ehn et al explain "The primary laboratory for information systems research is the organisation, where the development and use of technical artefacts can be studied in context" (Ehn, Meggerle et al. 1995). Given this studies consideration of the nature of KMT and its social construction, so this research method enables the researcher to observe the history of a technology's construction as an actor in its technical construction. It is based on the tenet that providing improvement fosters co-operation and information exchange within organisational members, and in turn leads to a deeper understanding of the context (Fox 1990; Gustavsen 1993; Kock 1997). The process of research is thus a negotiated process, between the action to improve the organisation and the process of

research and thus places a "double burden" (Argyris and Schön 1991) on the researcher. Yet one of the central benefits of action research in contrast to, for example ethnography, concerns the nature of the relationship between the researcher and the research setting (Schein 1987). Whilst it is true that the action researcher suffers from the need to negotiate the nature of intervention to take account of the need for action-to-improve in addition to action-to-research, this negotiation ensures the active interest of the organisations management, and further enables access to change situations usually unavailable to other research approaches.

Crucially for research into the implementation and use of Knowledge Management technology; Action research enabled a unique historical account of the process of "creating" the knowledge management system from the vantage point of the "creator", and further enabled a post-hoc evaluation of the "use" of the same system by its intended users.

Action research is not without its critics. Often branded as "consulting masquerading as research" (Baskerville and Wood-Harper 1996), it is argued that researcher's face a "role dilemma" (Rapoport 1970) between wanting to help the organisation, and aspiring to undertake supposedly objective evaluation. In response this action research was undertaking with a pre-defined theoretical framework; empirical evidence was collected as interview transcripts, research diaries and documents; the researcher was not paid nor significantly limited in time; and, unlike consultancy, the process was not a linear application of ideas, but rather a cyclical process of learning, balancing three necessary elements of research, participation and action (Greenwood and Levin 1998). In this way the research responds to the four components argued as necessary for effective action research within information systems (Baskerville and Wood-Harper 1996).

The research was conducted as three cycles of action research over a three and a half year period. Over fifty research interviews were undertaken, alongside many months of participative interaction with the actors (filling ten research diaries). Further the researcher was given full access to the organisations intranet, public-folders and document archive during this period.

In order to undertake analysis of the empirical evidence Soft Systems Methodology (Checkland 1981; Checkland and Scholes 1990) was employed as problem contextualisation and research enquiry method. This approach was used by the developer-researcher to appreciate the problematic context within which the

information system would be used, and to "design" (in a rationalistic fashion) a potentially appropriate technological intervention with the aim of improvement of this problematic context. However, as we discuss here, such "design" activity is predicated on the social construction of the technology, both in its act of construction, and in its act of use. Within this paper we therefore only discuss "design" within these terms, and thus leave aside the use of SSM as in merely one of many influences on the resultant technology's form. Given the limited space available within this paper, we focus on the first of three action research cycles to provide evidence to support the research conclusions.

## *Case study – The British Council*

The British Council is a not-for-profit organisation, partially funded by the UK government's foreign office, which aims to develop relationships with overseas stakeholders by gaining recognition for the UK's values, ideas and achievements (Lee 1995). The organisation consists of a headquarters in London and Manchester of about 1000 members of staff administering around 5000 employees based in around 257 officers in 110 countries. As a truly global organisation which focuses on innovation, learning and knowledge sharing, so the organisation felt knowledge management to be of paramount importance to its success (Khalid and Marsden 1999; Venters and Wood 2005). Its knowledge management programme aimed to "design and implement measures which will encourage people working in the Council to generate and share information and knowledge in ways which advance our purpose and strategic objectives and will become a permanent feature of the way we work" (Internal Memo 1999).

Within this paper we will concentrate on the construction of one so-called knowledge management systems undertaken by the researcher as part of this knowledge management programme. This system (entitled CD:net) was a personalisation tool, designed and programmed by the author, and implemented for Country Directors overseas; the most senior members of staff in the overseas offices. In the following sections we will discuss CD:net in detail. Firstly we will discuss its design as a social process of construction, following which we will discuss its implementation and social construction in use within the respective user group.

It should be noted that within this paper the broader knowledge management strategy of the organisation will not be considered. This strategy is reported elsewhere

(Venters and Wood 2005) and its impact on the design of CD:net was translated through the actions of the actors involved in their construction. It is these actions which this paper concentrates upon.

## *The construction of CD:net as design*

The action researcher's role in the development of CD:net was defined by the Knowledge Manager as being responsible *"to provide the British Council with pilot tools to support the knowledge sharing needs of [the Country Director] community"*. The researcher's strong background as an IT contractor and consultant developing Intranet and Internet technology enabled him to assume this role. The additional actors in the development of the system were; the Knowledge Manager who assumed a project management role, and a recently retired Country Director who was employed as a consultant to provide *"expertise in understanding the needs of the Country Director community...to edit, produce and publish information to be provided to the community and to support the community in its knowledge sharing...[and]...to support the rest of the team in understanding the community"* (Terms of reference for the consultant).

As outlined in the introduction the aim of the CD:net intervention was not precisely defined, rather it was simply *"to support this overloaded and pressured group"* through the provision of *"knowledge management tools"*. For Country Directors this focus was about *"brining people overseas more closely into the [general] debate"* under a strand of the organisation's knowledge management strategy which aimed to *"create a comprehensively networked organisation"*. Given the poor definition of such a tools purpose the researcher undertook initial SSM research into the working practices of Country Directors in order to identify the form such a debate might take, and further to identify a form of technology which might best support such debate. This SSM analysis led to a series of rich pictures and root definitions to represent their shared working practices.

The researcher was thus concerned as to how CD:net could be designed such that it would provide benefit (and engender participation) for a disparate group of Country Directors. The development team had decided to develop a simple discussion group technology tailored to the needs of Country Directors and to then focus on adapting the technology to be ready-to-hand (Winograd and Flores 1986) for Country Directors in order that it would become integrated into their practices. This reflected

the belief among the Knowledge Management team that engendering communities of practice(Brown and Duguid 1991; Wenger 1998) was an effective means of brining about improved knowledge sharing.

It has been argued that designing a Knowledge Management system is not comparable to an engineer who identifies a problem and then designs a solution, but it is more like a gardener to provides the right conditions in the soil and hopes that something useful will grow (Snowden 2000; Johnson 2001). The "growing conditions" for Country Directors were suggested to be the capabilities of the CD:net technology, with the users left to grow their exploitation of these capabilities over time (with the support of the consultant and the researcher). These capabilities might offer affordances to users, where *"the affordances of an object refer to its possible functions. A chair affords support, whether for standing, sitting or the placement of objects. A pencil affords lifting, grasping, turning, poking, supporting, tapping, and of course writing"* (Norman 1993). The tool would thus direct (to some extent) the use made of it. The researcher could thus provide a set of capabilities which were identified (on the basis of their SSM analysis) to offer potential benefit for Country Directors as a technological agency on their working practices. However once introduced the use made of the technology would (inevitably) be different as individual directors interpret the technology differently.

In this way the researcher's aim was to promote Country Directors exploration of the technology's affordances in order that they may deconstruct the standing possibilities (Searle 1995; Kallinikos 2002) of the technology in order that they may become inscribed within the Country Directors' practices.

The notion of affordances was valuable in identifying the multiple uses to which CD:net might be put. The idea has however been criticised for focusing simply on the attributes of the artefact, so reducing human agency to a situated choice among inherent affordances (Winograd 1999). This analysis exploited this weakness by separating the analysis of the affordances of the technology (as identified by the *designers* and their linkage with capabilities) as the agency of the technology on working practices, from the analysis of the social shaping of the technology in use.

The researcher thus attempted to consider the capabilities of the technology alongside the affordances these capabilities might provide. In achieving this the researcher employed a user-centred design approaches (Norman 1990; Norman 1993). The mobile phone was used as a metaphor in order to explain this concept of

affordance to the consultant and development team. It was suggested that CD:net should become like a mobile phone in that Country Directors could use it without real thought in a huge variety of ways to make life easier for themselves.

Drawing on this metaphor, CD:net's development team aimed to engender a sense of community upon Country Directors such that the technology would be used for ongoing discussions among groups of Country Directors (as envisaged by (Wenger 1998; Wenger 2000; Wenger, McDermott et al. 2002)). It was decided that the consultant's role would be as a catalyst rather than as leader and would encourage the emergence of a *"sense of community"*. This was reiterated by the organisations Chief Knowledge Officer *"Research findings indicate that successful networking in organisations focuses on areas of need identified by the community itself, rather than by others outside the community. I suggest to (the consultant) that as community facilitator he should concentrate on assisting members to analyse their own needs and to decide what measures they need to take to mobilise their combined knowledge and skills to optimum benefit to members individually and to the Council corporately"*(internal memo).

The CD:net technologies' design was constrained however by the way in which the technology needed to be developed for use within the British Council. These constraints included issues of security, network bandwidth availability and corporate standards for Intranet sites. These constraints were identified in various meetings with the security manager, the network manager, the intranet manager, and with various members of the corporate IT department. The service ran entirely using Internet technology and was accessible through a web browser. The service had to conform to the organisation's standards for an Intranet site, imposing a series of constraints on the graphic designer. The use of website technology itself constrained the provision of capabilities to develop a sense of community. HTML (and the underlying HTTP protocol) is designed for rendering hypertext information and is thus more suited for simple information provision than for complex interaction (Berners-Lee 1998), thus leading to systems which are argued to support a more functionalist approach to knowledge (Sørensen 2002). Given these constraints the researcher still attempted to design a service which would, wherever possible, promote social activity through discussion. The researcher produced a service which provided the usual features of a discussion board including hierarchical discussions,

new postings, advanced search, linking to websites and personal details pages linked to comments.

Such discussion board capabilities are all relatively straightforward, and are almost always included in generic Knowledge Management technologies (Venters 2006 (Forthcoming)). They were selected in order to support the development of a "community of practice" and yet also to be appropriate to the needs of Country Directors. In line with Wenger's recommendations (Wenger 2000) this would then enable different levels of participation through both its structuring and the actions of the consultant; for example by providing areas for comments on a proposal, areas for general questions and areas for discussion. The systems would be made to change regularly by the consultant posting regular messages and commissioning articles. The provision of a public space in which the "community of practice" could promote their activities was to be coordinated through the consultant. In general, however, the CD:net system would remain somewhat private as a safe enclave for debate (Hayes and Walsham 2000). The service was not however advertised as private per se. This safe enclave was supported by a number of Country Directors – as one stated: *"It should be an open forum where staff can post ideas, complaints, rants brainwaves etc without fear of retribution regulation or sanction"*.
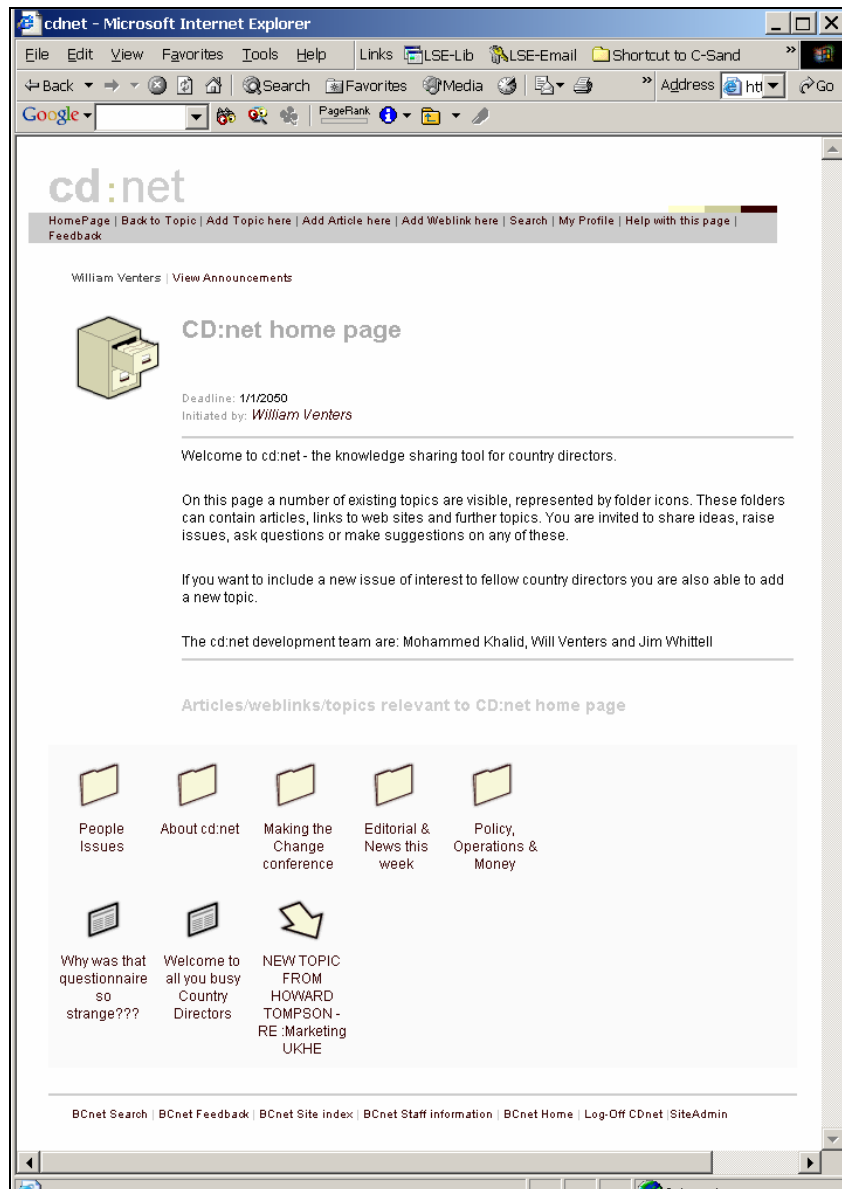
**Figure 1: CD:net page: This shows the home page with folders and discussions at the bottom of the page. The author's name (in this case the researcher) is associated with the page.**

Significantly it was decided that the system would be launched with only a small number of articles and postings (solicited by the Consultant). This decision was made as it was felt, on the basis of consultation with Country Directors, that the imposition of a strong structure and volume of material would only overload Country Directors further, and that their interest in CD:net was to gain opinions and discussions from other Country Directors, not to receive information from headquarters. As one Country Director stated: *The danger of imposing something [structured around specific issues] is that you channel the way people think, within a*

*medium which should be liberating"* Another stated that *"a strong structure should only be imposed when the service became too "anarchic to be useful and user friendly. If straight away you put a structure to it, then you might stop people thinking laterally".* Having presented the design of the system (including its capabilities and constraints) the next section will explore how the technology was shaped in use by the Country Directors. This includes consideration of the agency the CD:net technology imposed upon such social construction.

## *The social construction of CD:net in use*

Technology is experienced differently by different individuals, and differently by the same individuals depending upon the time or circumstances. This is termed by Wanda Orlikowski as "technology in practice" (Orlikowski 1998); *"what the "technology" is at any time is what the practice has made it"* (Orlikowski 1998). Experiential differences affect the way technology is appropriated and used. Given that CD:net was intended be an interactive tool such technology-in-practice would come about through a social process influenced by all users. Technology *"...is in some respects a public durable entity. It is a physically, economically, politically and socially organised object in space-time. In this aspect it may be called an "artefact" with which activity takes place... At the same time, for individual users, technology is a repeatedly experienced, personally ordered and edited version of the artefact. In this aspect it may be termed a "technology-in-practice""* (Lave and Wenger 1991).

Within this section we will discuss CD:net's use through a post hoc attempt to reconstruct the social construction of the technology in use. In doing this we will present an account of the way in which the meaning of the technology for Country Directors was shaped and changed. This discussion will be linked with the technological agency of the CD:net system as an object of design.

Upon launch the CD:net service was used actively for a couple of months, whereupon use slowed down and eventually ceased. This section considers how the technology's social construction contributed to the failure, alongside considering the affect of CD:net's technical agency on the failure. In particular we concentrate on the interpretive flexibility of the tool, and therefore describe the interpretation Country Directors made of CD:net, and in particular its purpose for them.

Some Country Directors described the system as a support tool for their life as Country Directors. For example one Country Directors detailed the need to

understand the tax and financial arrangements of working overseas, and proposed a discussion of how to invest ones money (a significant issue for Country Directors who are unable to access UK financial advice, but are paid in the UK). Others wanted to use the systems to keep track of friends (who were Country Directors) across the world. These users were often keen to share ideas so that *"you can see where everyone is coming from..."*… in particular that it would be *"useful in getting feedback from all colleagues and could save time"*.

Other Country Directors saw the system as a tool to discuss local problems with countries that may face similar concerns. A Country Director felt the system enabled policy decisions to be better disseminated. In particular they felt that *"it shouldn't be the personal choice of a Country Director who dictates the focus of activity"* within their country and that they *"would like to use CD:net to share experience with [countries in his region]"*. A Country Director also complained of *"too much top-down thinking"*, stating *"strategy can't work it it's decreed from [headquarters]"* and felt CD:net was part of achieving this. Finally others were uninterested in the wider views of Country Directors, and felt the technology simply supported *"a series of little networks"* to which people register an interest.

The consultant and a number of Country Directors were concerned that the system not ignore the political aspects of a Country Directors job (at a time when they faced significant strategic change) and that it should *"handle dissent"*. This contrasted with a Country Director's view that *"there is a danger of creating an underground movement…[if you don't involve authority] you might get conflict!"*

The messages posted on the service reflected these various interpretations of CD:net. The initial structure of CD:net reflected the consultant's categorisation that Country Directors wished to discuss *"policy, people and money"*, and that the system should be used to enable wide-ranging discussions of policy. Upon launch others posted messages about personal issues of living in overseas countries (reflecting their interpretation of the system's purpose). Others posted requests for advice, and suggestions for activity. However a final group soon began a discussion on the specific ramifications of the strategic change initiative – something quite political.

Significantly once a small number of political messages began to be posted other Country Directors changed their interpretation of the system. The areas of the discussion board focusing on politically benign topics began to also see political messages posted (as users perceived CD:net's purpose as political), while others

slowly stopped being used. This appeared to suggest that those who interpreted CD:net as "unpolitical" were confused about the nature of the tool. Country directors who had valued the ability to discuss issues away from the glare of senior management began to interpret the tool not simply as a safe enclave for knowledge sharing, but rather as a political tool; even describing it as "subversive". Indeed trust in CD:net became an issue with a country director stating *"I would not trust CD:net...I know many people will send things straight to [senior management]"*, while another stated *"I would not trust any electronic medium; every time you send an e-mail you have in your mind that the message may get out to other peoples hands"*. And yet CD:net was not designed to afford a hidden "dissention supporting system" – but as a community-engendering tool where knowledge might be created and shared. Indeed ironically CD:net seemed to be increasing mistrust among country directors rather than engendering a "sense of community".

It appeared that the agency of the system security capabilities (imposed by the British Council's security policy, and implied in the title CD:net – a network for Country Directors), afforded, to some country directors, its interpretation as a political tool. This led this group to employ the tool in a political way. By using CD:net as political (and so posting messages of a political nature) the technology was itself changed (it incorporated political messages which other groups could observe). This change in turn shaped other groups interpretation of the technology and shaped their use of the system; to join the political debate; to fight against it through further discussion; or mistrust and so avoid the system.

Drawing upon the social-constructivist perspective towards Knowledge Management adopted within this study, it is argued that any Country Director participating in the world simultaneously externalises their being into the world, and internalises it as an objective reality. This process is undertaken over time, as the Country Director is inducted into a particular social dialectic. For one Country Director the subjectivity of another director is available, becoming meaningful for them, whether or not the subjective processes (and thus suggested meanings) of each align. *"We not only understand each others definitions of shared situations, we define them reciprocally."* (Berger and Luckmann 1966). We therefore draw on the concept of an intersubjective world (Berger and Luckmann 1966), in which the natural attitude of an individual corresponds to the natural attitude of others. Within such a world each individual maintains different perspectives upon the world. Yet according to

Berger and Luckman there must be a correspondence between an individual's meaning and the other's meaning of this world in order that the two individuals may share a common sense of the reality (Berger and Luckmann 1966). These two individuals are attempting to interpret their experiences in order to recover such meaning. The words of the messages on the CD:net system may be meaningful only to the Country Director in *"concerned understanding"* (Introna 1997), yet such Country Directors were separated in location with different life experiences. The meaning they constructed was thus a hermeneutic process of meaning construction on the basis of the text posted on CD:net (Winograd and Flores 1986). They would thus interpret the posting on the basis of their perception of its author (who they may know), coupled with the meaning they gleaned from the text.

They were also provided with other clues as to the meaning, for example, where and when the text was posted on CD:net, the meaning CD:net had for them as context for the message, and to what the message referred. Each of these clues is used in order that the Country Director (and similarly all other Country Directors engaged with CD:net) might socially construct some sense of the meaning, identity and purpose of the posting. *"Communication is not merely the expression of knowledge, experience and identity"* but rather *"it is the very basis of their social construction"* (Varey, Wood-Harper et al. 2002). Yet the perception of the tool was also affected by the interpretation of the messages posted on the system and thus the interpretation of CD:net itself. So when political messages were posted the way CD:net was used quickly shifted. A Country Director upon perceiving CD:net as political might then fundamentally change the nature of the systems by posting a further political message, or by avoiding it, and so further reinforcing its *"politicalness"*. Only by challenging such political messages (perhaps through a request to have the message censured, or by initiating an open discussion on the purpose of the tool) could this be shaped in another manner.

It should also be noted that the overall perception of a system will not be homogenous. During the political discussions on CD:net messages were still being posted requesting support for events, describing recent activity etc. One could speculate that this would mean different areas of a Knowledge Management system could take on very different purposes and develop in different ways. One might see a fragmentation in the system as various groups no longer interact. As Pinch and Bijker state "all members of a social group share the same set of meaning, attached to a

specific artefact" (Pinch and Bijker 1987), and so different groups may be identified among Country Directors and thus CD:net is a negotiation of meaning between these groups. This suggests a new approach to the design of KMT as an ongoing process of intervention, a point which will be discussed in the conclusions.

## *Conclusions*

Berger and Luckmann (1966) assert that there must be correspondence between an individual's meaning and the other's meaning in order that the two individuals share a common sense of reality. Within the British Council however it was observed that a common reality of the CD:net tool was not achieved though the system and technology remained in use - with many individuals having a range of different "meanings" for the same KMT. For some CD:net was a subversive newspaper, for others a discussion board about tax arrangements, yet for others a means of sharing stories and meeting colleagues. Given the aims of the project – the engendering of a community – this desire to use CD:net perhaps implies success in Knowledge Management terms. However the widely differing interpretive frameworks of CD:net impinged on its ongoing stability in use and ultimately led to failure.

It is traditionally argued that successful technologies (such as the bicycle) must become stabilised (Bijker 1995) whereupon their meaning may be black-boxed and arguments as to their meaning cease – their purpose becomes accepted. Yet the social construction of knowledge (Berger and Luckmann 1966) suggests that such stabilisation of a system aimed to create knowledge might inhibit its ability to create meaning; and hence the system simply becoming a stagnant information dissemination tool rather than a place of debate and conflict.

This paper therefore suggests that if a KMT is to achieve its desire to support knowledge creation and sharing then perhaps stability should not be desired. If, or when, a KMT stabilises it may fail to create the ongoing breakdowns (Winograd and Flores 1986) of the meaning necessary for knowledge creation to occur, and indeed become just another data management technology (Galliers and Newell 2001). But there is a paradox and one might equally argue that without stabilisation the KMT cannot survive as demonstrated by the British Council case; for its user group fragmented (with each group of user ascribing a different meaning to the KMT); and its interpretive flexibility remaining exceedingly broad. According to traditionally

SCOT studies this suggest that building the necessary technological frame for a KMT may be very difficult (Bijker and Law 1992; Bijker 1995; Howcroft, Mitev et al. 2004). Perhaps it is of little surprise then that few Knowledge Management initiatives succeed as expected (Schultze and Boland 2000; Storey and Barnett 2000; Hendriks 2001), while many of those that survive stabilise to become little more than data management (Galliers and Newell 2001). In either case, we argue here, that technology is central, and not incidental to the experience.

This suggests a need for a new approach to the design of Knowledge Management technology, in which the technological agency of the system is employed to maintain the technology as neither stabilised nor rejected. This can clearly only be achieved through the ongoing engagement of a designer appreciating users interpretation of the tool, and how this is impacting upon the tool.

We conclude therefore by arguing that a view is needed whereby technology is taken seriously and put back into Knowledge Management; not as a set of tools, but as real and significant actor in the context, and one which plays an exciting, difficult and dangerous role. We argue that in developing KMT we should consider whether it is possible to engender a system to somehow lie between stabilisation and failure.

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