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Critical Social Systems as a Foundation for Knowledge Management

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ABSTRACT

The argument of this paper is for knowledge management (KM) to be grounded in a particular perspective drawn from social systems theory. The perceived need for this is based on a contention that KM is too frequently approached from a hard systems view, focusing on information technology and databases. Social systems sees KM as embedded in social interaction, and the research on which this paper is based takes this forward to provide a theoretically grounded and pragmatically tested approach, based on communicative action theory.

INTRODUCTION

Knowledge management (KM) in organisations might first be seen as a historical progression from general organisational management. Consequently, the first section of this paper undertakes a brief review of that progression, beginning with Taylor's scientific management. Following on from this, arguments are then given for systems thinking as a fundamental grounding for KM in the principles of systems, for which

Table 1 provides a summary. Considerable research and empirical study has been conducted to advance from this position to the current status, where critical social theory is promoted as a way forward for the management of KM systems. In a paper of this length it is not possible to detail all of the steps along the way, so the approach taken has been to provide a summary of the position reached, and references to interim investigations for the interested reader.

ORGANISATIONS AND THEIR MANAGEMENT

The study of organisation theory begins here with Frederick Taylor's scientific management (Taylor 1947), initially formulated at the turn of the nineteenth to the twentieth century. Major subsequent developments have been administrative management theory (Fayol 1949), where the management process is defined (to forecast and plan, to organise, to command, to co-ordinate and control), and bureaucracy theory (Webber: see Gerth and Mills 1970).

Taylor's work may be loosely classified as time and motion or work study, and this, as well as the other theories noted above, adhere to the rational model, which views organisations mechanistically, seeing the attainment of maximum efficiency as achievable by putting together the parts in an effective way under the control of management. Hierarchy, authority and rational decision making are fundamental to this. In the 1920s, largely as a result of the Hawthorn experiments, the human relations model began to gain ground, based on social structures of people at work and motivation. This model pointed to democratic, employee centred management. More recent developments have seen the growth of the systems model of organisations, where they are viewed systemically as open systems responding to environmental changes (Selznick 1948; Katz and Kahn 1978). This systems approach links well with empirical research in socio technical systems (Pasmore and Sherwood 1978), and contingency theory (Lawrence and Lorsch 1969).

Broadly, the systems model recommends that if an organisation is not functioning properly the sub-systems should be examined to see that they are meeting organisational needs, but always keeping in view the impact on the whole system of concern. From a systems perspective, the management of organisations looks very different from the rational models developed in the early twentieth century. Business organisations today may be characterised as complex, adaptive, human activity systems. In so far as such systems are devoid of human interaction (in, for example, a robot assembly plant), focus on a purely mechanistic approach may yield valuable results. As system complexity, and particularly the degree of human activity, increases, this approach is seen to break down, and human viewpoints need increasingly to be considered. It is from this perspective that we can now move to a deeper consideration of systems thinking.

SYSTEM THINKING

In common usage, the term 'system' has come to mean very little. How, for instance, are we to make sense of a single definition of 'system', when it is applied to such diverse objects as 'a hi fi system', 'the railway system', or 'the system of planets and stars we refer to as the Universe'? Clearly, before the idea of a knowledge management system is investigated, we need a common definition of 'system': this is what this section aims to achieve.

To begin with, a system is more than a simple collection of components, since properties 'emerge' when the components of which systems are comprised are combined. So, for example, we may gather together all of the components which make up a bicycle, but only when they are assembled do we have the emergent property of a mode of transport.

Further, all systems must have a boundary – try to envisage a system without a boundary, and it soon becomes clear that the concept is meaningless. When considering the nature and properties of any system, care should be taken when looking at the components of the system in isolation. These parts, or sub-systems, interact, or are 'interdependent', and so need to be considered as a whole or 'holistically'. In addition, there is likely to be a discernible structure to the way sub-systems are arranged – in a hierarchy, for example. Finally, there need to be communication and control with the system, and it has to perform some transformation process. So, in summary, a system may be defined according to its:

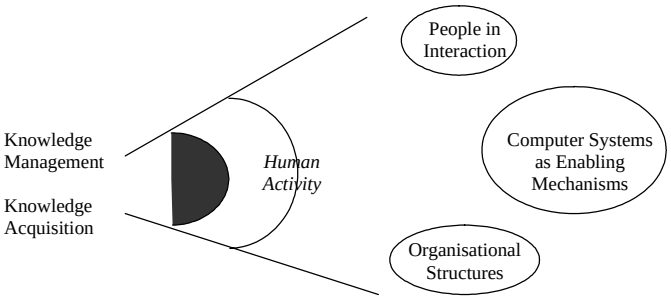
- Boundary
- Emergence
- Holism
- Interdependence
- Hierarchy
- Transformation
- Communication and Control

Further to this, and following Checkland (1994), it is possible to conceive of a typology of systems divided into:

- Physical systems, which are either natural or designed; and
- Human activity systems.

Generally, whilst physical systems might be *complicated*, and require significant skill and expertise to construct or even understand (hence the modern-day interest in the Universe), only human activity systems exhibit *complexity*. In essence, human activity systems are complex adaptive systems. In order to relate this understanding to knowledge management, it is necessary to determine how, according to the above classifications, organisational systems should be categorised.

Figure 1: The Nature of Knowledge Management Systems



Are they designed physical or human activity systems, or some combination of the two?

Designed physical systems are mechanistic or deterministic, requiring a view of the World which is mechanical or technical, and typically rule-based. By way of an example, think of an aeroplane. Its is clearly a designed physical system, whose design depends on the laws of aerodynamics. Construction of, arguably, this most complicated of all machines requires considerable skill and knowledge, but it all accords to a set of rules, most of which are well known. It is these properties that have led to such systems being seen as closed in relation to their environment. By contrast, organisational systems, whilst they might make use of designed physical or even natural systems, are made up of human actors. They are open, complex adaptive systems of activity.

Following this line of thought, knowledge management systems emerge as fundamentally systems of human activity, exhibiting voluntaristic behaviour (or 'free will'). Such systems take an interpretivistic or subjective view of the World: a view which sees not an 'objective reality', but a series of human perspectives and opinions. They are probabilistic rather than deterministic. However, whilst KM systems may be primarily human activity systems, they may also contain sub-systems which are technological or organisational, and these sub-systems may have a role in better enabling the KM to function. A way of conceptualising this is to think of a KM system as a human activity 'lens' through which all knowledge activity is viewed, and in accordance with whose characteristics and properties that activity is interpreted (Figure 1).

Knowledge management and knowledge acquisition therefore consist fundamentally of human activity, and as a consequence are subject to human perception and agreement. The whole, bounded KM system which this is seeking to manage or interpret may contain technological and structural elements, but the purpose of these is simply to better enable the human activity system to function.

Systems thinking, then, may be seen as fundamental to an understanding of KM, which is a human (social and cognitive) activity, supported or enabled by structural and technological sub-systems. By way of a summary, each of the properties of systems can now be related directly to issues in KM (Table 1). KM, then, has been categorised in relation to organisational management as something to be approached as systems of human activity. In such a short paper, there is insufficient space to trace this domain to its current position, so only the latter, the positioning of KM in critical social theory, is presented here (for more detailed information, please see Cao, Clarke et al. 2003).

CRITICAL SOCIAL THEORY AND KM

The argument of this paper has been for a more human centred approach to KM, and it has further been argued that such an approach is in line with the general progression of thinking in management, from the scientific management of Taylor, up to the more interpretivistic ideas which have been the focus of much of systems theory. All of this is echoed in the hard-soft debate within information management, and in the functionalist versus interpretivist positions adopted within the management science domain during the latter part of the twentieth century. Pursuing this further, shortcomings have been seen in the functionalist and interpretivist methods, leading to the extensive application of critical social theory to domains such as management

Table 1: Systems of Knowledge Management

	Implications for Knowledge Management		
		Enabling Mechanisms: Designed Physical Systems	
System Property	Human Activity Systems	Structure	Technology
Boundary	**The limits of that which can be known**	**The organisation, or relevant part of it**	**Bounded technological sub-systems which enable the whole system of Knowledge Management to function more effectively**
Emergence	**Emergent properties of a knowledge system: e.g. decision making**	**Structure and technology must be seen in terms of their contribution to the emergent properties of the whole KM system**	
Holism	**Encompasses technical, human (cognitive and social), and organisational factors**	**Must not be viewed in isolation, but only as part of the whole KM system**	
Interdependence	**Changes in part of the system (e.g. human knowledge acquisition) effect changes in other parts (e.g. the use of enabling technologies)**	**Technology, organisation, and human activity working together are the source of success in any KM system**	
Hierarchy	**As human beings we see structures in knowledge systems (hence the data structures in computerised systems)**	**Organisational structures help facilitate human knowledge acquisition and sharing**	**Technologies support the organisation and/or human actors**
Transformation	**The acquisition of knowledge always leads to changes, which may be perceived in organisational terms as transformation processes**	**The key in transformation achieved through Knowledge Management: technology and structure are enablers**	
Communication and Control	**These are fundamental to knowledge systems, and once more require understanding of the interactions between human, technical, and organisational issues**	**Used as aids to communication and control in the overall KM system**	

systems and information management (Hirschheim 1986; Hirschheim and Klein 1989; Lyytinen and Hirschheim 1989; Clarke 2000; Clarke and Lehaney 2002). This is proposed as a convincing basis for knowledge management to pursue the same route, and this paper makes some early inroads in this respect.

During the 1980s and 1990s, considerable progress has been made in applying ideas adopted from critical social theory to problems of management. The primary theorist whose ideas have fuelled this has been Habermas, initially through extensive application to management problem solving of his theory of knowledge constitutive interests (see, for example, Habermas 1971; Clarke, Lehaney et al. 1998). More recently, attention has shifted to his theory of universal pragmatics, and the systems-lifeworld concept.

Universal pragmatics (Habermas 1976) proposes that, in all language, communication aimed at reaching an understanding always involves the raising of four validity claims, which may be categorised as comprehensibility, truth, rightness and sincerity. Midgley (1995) has undertaken some initial work to develop these as an alternative basis for a pluralist theory. Truth is seen by Midgley as relating to the objective/ external world, and thereby to hard, cybernetic methods; rightness to the normative, social world, and hence soft methods; and sincerity to the subjective, internal world, and cognitive methods such as cognitive mapping and personal construct theory (see Kelly 1955; Eden 1988; Eden 1994).

Similarly Oliga (1996) and Foong (Foong, Ojuka-Onedo et al. 1997) have focused on Habermas' (1987) system-lifeworld concept, which conceptualises "society as a whole" as consisting of lifeworld: the inner needs of its members addressed via communicative action; and system: the outer needs addressed by material reproduction through labour. The outer needs are concerned with "system integration", and the inner needs with "social integration", and only if balanced, argues Habermas (1987 p.152), does society as a whole become ".. systematically stabilised complexes of action of socially integrated groups." In modernity, it is argued, system dominates, with the lifeworld undermined by "transfers of communicative infrastructures to the system" (Foong, Ojuka-Onedo et al. 1997).

CONCLUSIONS: A FUTURE FOR KNOWLEDGE MANAGEMENT?

Looking at KM as a human centred domain moves us away from a purely functionalist, technology-based view, to one which privileges human activity and viewpoints. Recent research and practice points to a purely interpretivist approach being insufficient, and to critical theory having something to bring to the debate. Interest in this respect has particularly focused on communicative action, and, in so far as communication, at least partially, may be oriented toward mutual understanding, it might be argued as the foundation of knowledge creation and sharing. In these terms, knowledge is not reducible (as is so often seen in scientific or pseudo-scientific study) to the properties of an objective world, but can be defined both objectively and according to the *a priori* concepts that the knowing subject brings to the act of perception. This knowing subject, being social, mediates all knowledge through social action and experience: subject and object are linked in the acts of cognition and social interaction, and the so-called subjective and objective 'paradigms' may be represented as just convenient tools for understanding, which have been accorded too much primacy as forms of reality.

Through this approach it is possible to move away from the so often prevalent subjective / objective dichotomy, with its arguments for functionalism and interpretivism being juxtaposed. According to this, for example, those espousing a technological solution will be unable to communicate and share knowledge with others who see the same problem context as existing in the views and opinions of those participants involved in and affected by the system of concern.

In this paper we are contending that these difficulties disappear once a scientific basis for our thinking is denied. For example, suppose science (as is suggested by Kant and Habermas) is seen as just one form of knowledge, which in any case is simply a convenient human perception of how the world works. Now, all human endeavour becomes mediated through subjective understanding, and the functionalist and interpretivist paradigms as impenetrable barriers disappear. So, where does this leave us? As detailed above, Habermas (1976; 1987) presents a universal theory of language which suggests that all language is oriented toward four fundamental validity claims: comprehensibility, truth, rightness and sincerity. What is most compelling about this theory, however, is that all four validity claims are communicatively mediated. This viewpoint is most radically seen in respect of the truth claim, where it is proposed that such a claim results not from the content of descriptive statements, but from the Wittgenstinian approach casting them as arising in language games which are linked to culture: truth claims are socially contextual.

'Truth', can therefore be assessed by reference to communication: truth is what statements, when true, state! Rightness is about norms of behaviour, which are culturally relevant, and are therefore to be determined by reference to that which is acceptable to those involved and affected in the system of concern as a cultural group. Finally, sincerity is about the speaker's internal world: his/her internal subjectivity. To summarise:

1. Accepting all human actions as mediated through subjective understanding leads to the possibility of a basis for KM in the universal characteristics of language.
2. The dichotomy between subject and object has gone, and with it, paradigm incommensurability.
3. Organisational intervention is recast as an entirely communicative issue. For example, the so-called technical interest of knowledge constitution theory becomes instead an question of how technology may further enable human interaction, all within a framework of human intercommunication.
4. The difficulty which now arises is essentially a practical one, of how to incorporate these ideas into knowledge management practice.

These ideas can now be taken forward to provide a KM approach, or set of approaches, which are theoretically grounded, and closer to that which is experienced in action. Such a research project is currently underway, and any interested readers are invited to contact the Centre for Systems Studies at the University of Hull, U.K. (http://www.hull.ac.uk/hubs/css/).

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