

■ Research Article

From Tacit Knowledge to Knowledge Management: Leveraging Invisible Assets

Nada K. Kakabadse*, Alexander Kouzmin and Andrew Kakabadse

Cranfield School of Management, UK

Within competitive advantage considerations, knowledge has emerged as one of the more strategic, although invisible, assets for organizations. This is notwithstanding a wider and specifically economic and cognitive discounting of knowledge as a factor of production — largely ignoring the socially constructed and socially mediated nature of knowledge. Intellectual capabilities and knowledge/information transformations now have a central place within globalizing information economies.

Constructing, transforming and commodifying knowledge and information require new organizational understandings and newer cognitive capabilities of strategic management praxis. Part of this cognitive awareness is a deliberate organizational designing for the role of symbolic analysts. As well, there is an emerging need for the Chief Knowledge Officer function going well beyond the Chief Information Officer requirements posited by an information technology-driven restructuring of routine processes, as compared with innovation creation capacities associated with critically non-routine functions within organizations discovered by Cranfield research.

The paper considers neglected institutional and organizational dimensions to knowledge creation and knowledge conversion — it reviews the renewed importance of internal recruitment and socialization within institutions and details knowledge codification and application functions within knowledge-creating organizations. Knowledge management, as praxis, inevitably raises concerns about cognitive failure in leadership theory and praxis.

Copyright © 2001 John Wiley & Sons, Ltd.

Nada K. Kakabadse is currently a Senior Research Fellow at the Cranfield School of Management. Her research interest focuses on information technology and organizational dynamics; diversity management; performance improvement in private and public sector organizations and excellence in politics of decision making.

Alexander Kouzmin currently holds the Chair in Organizational Behaviour at the Cranfield School of Management. His research interests include organizational design; technological change; project management; comparative management; administrative reform; and crisis management.

Andrew Kakabadse is Professor of Management Development and Deputy Director of the Cranfield School of Management. He is also European Vice Chancellor for the International Academy of Management. His current areas of interest focus on improving the performance of top executives and top executive teams, excellence in consultancy practice and the politics of decision making.

*Correspondence to: Cranfield School of Management, Cranfield, Bedford, MK43 0AL, UK. E-mail: N.Korac-kakabadse@cranfield.ac.uk

INTRODUCTION

Organizations continuously practice creative destruction by destroying old ways in order to create new ways. In the last decade, knowledge has emerged as one of the most important and valuable organizational assets. The term 'knowledge worker', coined by Peter Drucker (1959), gained acceptance and became associated with the users of information systems and information technology (IS/IT) (Drucker, 1993). The ability to use intellectual capability and create new solutions for human needs now takes central place in the global info-economy. Human knowledge and capabilities have always been at the core of value-creation, but this truism has become more visible in the info-age where the 'intellective

component of work is increasingly important (Zuboff, 1988). For years, organizations paid lip service to the management of knowledge, being concerned with more tangible and physical assets. The knowledge component of the value-chain had been obscured by the tendency to think of work as fundamentally a physical activity (Zuboff, 1988). However, the potential advantages that intellectual capital brings in the form of greater earnings through licensing technology has revised this trend. Intellectual assets exist in various forms and their exploitation is only restricted by the capacity of humans to do so. The capacity to manage the human intellect and convert it into useful products and services is fast becoming the critical executive skill in the contemporary organization (Davis, 1998). The pursuit of knowledge for competitive advantage has become increasingly central to organizational strategies. There has been an intense interest in intellectual capital, creativity, innovation and the learning organization. Yet, research shows that few organizations have realized benefits from knowledge management initiatives (Murray and Myers, 1997; Brue, Grimshaw and Myers, 2000). The reason for this is two-fold; there are various conceptualizations of knowledge and, thus, confusion as to what constitutes knowledge management and there is no coherent framework for implementing the management of knowledge in an organization.

In order to effectively manage knowledge one has to understand the meaning and significance of knowledge, understand one's own ability and limitations of knowledge and its potential meaning for organizational endeavours. Knowledge about knowledge, or meta-cognition, requires individuals to recall, analyze and use knowledge (Habermas, 1972). The challenge for management is to use the vast knowledge potential of organizations to create value.

UNDERSTANDING THE MEANING OF KNOWLEDGE

Plato (1953) first defined concept of knowledge as 'justified true belief' in his *Meno*, *Phaedo* and *Theaetetus*. Plato's (1953) concept was debated from Aristotle (1928), a student of Plato, throughout continental rationalism (Descartes, 1911), British empiricism (Locke, 1987), German philosophers (Kant, 1965; Marx, 1976; Hegel, 1977) to twentieth-century philosophers (Dewey, 1929; Husserl, 1931; Sartre, 1956; Wittgenstein, 1958; Heidegger, 1962; Merleau-Ponty, 1962; James, 1966). Although imperfect in terms of logic, this definition

has been predominant in Western philosophy (Nonaka and Takeuchi, 1995).

Attempts to understand knowledge phenomenon in organization can be traced throughout management history. Taylor (1911), in his 'scientific management', attempted to formalize workers' experience and tacit skills into objective and scientific knowledge without insight that a worker's judgement was a source of new knowledge. However, it was Barnard (1938) who shed light on the importance of 'behavioural knowledge' in the management processes. Drucker (1993), coining the term 'knowledge worker', later argued that in the 'knowledge society' the basic economic resource is no longer capital, natural resources or labour, but is and will be knowledge. Drucker (1993) further suggested that one of most important challenges for organizations is to build systematic practices for managing self-transformation. Knowledge received explicit acknowledgement in economic affairs by the neo-classical economist Alfred Marshall (1965: 115) who argued that capital consists, in a greater part, of knowledge and organization and that knowledge is the most powerful engine of production. Theories of learning (Bateson, 1973; Argyris and Schon, 1978; Senge, 1990), among others, also tried to understand knowledge and processes of learning in organizations.

Notwithstanding, the meaning and value of knowledge can be understood only in the 'knowledge context' within which that knowledge is known (Meacham, 1983). The knowledge context is determined jointly by one's perception of the extent of all knowledge that can be known and by one's perception of the proportion of what one does know to all that can be known. Thus, two persons can hold the same objective amount of knowledge, yet one might feel that she/he knows a substantial proportion of all that can be known, whilst the other might feel that she/he knows relatively little (Meacham, 1983).

In the vein of Greek philosophers' dualistic definition of knowledge as a *mythos* and *logos*, Schank and Abelson (1977) propose two classes of knowledge, 'general' and 'specific'. General knowledge includes information about, and interpretation of, human intention, disposition and relationships organized in term of 'goals' (satisfaction, enjoyment, achievement, preservation, crisis, instrumental) and 'themes' (role themes, interpersonal themes and life themes) (Schank and Abelson, 1977: 4). Thought and thinker, knower and known, is one single, indivisible unit (Olson, 1977; Labouvie-Vief, 1989). Thus, knowledge is intensely personal. As such, *mythos* refers to that part of 'knowledge' that is arguable and can be

demonstrated and identified with precision and agreement (Olson, 1977; Labouvie-Vief, 1989).

Specific knowledge is seen as a 'script'; a representation of the expected sequential flow of events in a particular situation (cooking, applying for a job). Cognitive psychologists define specific knowledge as expert knowledge under the assumption that the analysis of protocols (written or verbal) allows access to the content and structure of knowledge in a domain (Ericsson and Simon, 1984; Anderson, 1987). Thus, specific knowledge can be equated with *logos* that defines 'knowledge' that is derived from more conceptual aspects of knowledge or of the state of the world. *Logos* derives from gathering, reading and coming to connote counting, reckoning, explanation, rules or principles and, finally, reason. *Logos* implies that knowledge can be rendered purely mechanical, computable and deductively certain. Although *mythos* and *logos* represent two realms that constitute knowledge, they are also complementary and interactive poles of knowledge.

Schank and Abelson (1977) postulate that experts in a particular domain can be differentiated from novices in the domain — both at quantitative and qualitative (flexible use and organization) levels; where quantitative aspects of particular meta-knowledge and strategies (use of intuition) appear to best distinguish top experts in domains in which many people are able to specialize or acquire knowledge through formal education. Expert knowledge is considered to be based on 'factual knowledge' and 'procedural knowledge'.

Factual knowledge implies having long-term memory, an extensive data base about life — an analogue to a multiple cross-referenced encyclopaedia (Brown, 1982; Kahneman *et al.*, 1984). Procedural knowledge, on the other hand, is represented as a repertoire of mental procedures or heuristics used to select, order and manipulate information in the database or encyclopedia and is used for purposes of decision making and action planning (Brown, 1982; Kahneman *et al.*, 1984). Factual knowledge can be equated to Ancient Greeks' 'epist'm' (scientific knowledge) — theoretical or the Western reductionist and cerebral mode of enquiry of knowing that is based on cognition. Procedural knowledge can be equated to technical (craft-knowledge) — the Eastern mode of enquiry or knowing that combines the use of all senses: hands, eyes, feelings as well as cognition. The secret of technology is in being intensely personal and that it can be learned only in a network of relationships: the parent-child, master-apprentice, *gury-shisha*. This tacit

knowledge plays an important role in leadership effectiveness and effective design and implementation of IS/IT systems. This knowledge is based on the cultural norms and beliefs that are contextually imbedded.

Polanyi (1958, 1966) and, later, others (Bateson, 1973; Gelwick, 1977; Teece, 1981; Nonaka, 1990; Naisbitt, 1994; Von Hippel, 1994; Nonaka and Takeuchi, 1995) made distinctions between tacit and explicit knowledge. Polanyi (1966) defines tacit knowledge as personal, context-specific and, thus, not easily visible and expressible — nor easy to formalize and communicate to others. Individuals may know more than they are able to articulate (Polanyi, 1966). Tacit knowledge is based on the subjective insights, intuitions and hunches and is deeply rooted in an individual's actions and experience and ideals, values and emotions (Polanyi, 1966). People acquire tacit knowledge by actively creating and organizing their own experience by what Polanyi (1966) calls 'indwelling' and Kakabadse (1991) calls 'reflection' and, as such, knowledge-creating activity is underpinned by the 'commitment' (Polanyi, 1958) and 'willingness' to reflect (Kakabadse, 1991). In order to be shared, tacit knowledge needs to be converted into words, numbers or pictures that can be understood by others (Polanyi, 1966).

Polanyi (1966) has illustrated how the knowledge involved in riding a bicycle has not been made explicit, involves an embodied skill and cannot easily be articulated. Polanyi (1958: 20) argues that a 'sharp distinction between tacit and explicit knowledge does not exist and that "tacit thought" forms an indispensable part of all knowledge'. Even if knowledge has been articulated into words or mathematical formulas, this explicit knowledge must rely on being tacitly understood and applied. Therefore, 'all knowledge is either tacit or rooted in tacit knowledge' (Polanyi, 1966: 7). Tacit knowledge is deeply embedded personal beliefs, attitudes, values and experiences that give tacit knowledge its meaning (Popper, 1972). As such it is at best difficult and at worst impossible to articulate as it is highly situated in the context and to abstract it from its context of application is to lose much of its intrinsic meaning and value. It is this tacitness precisely that makes tacit knowledge difficult to imitate or import from organization to organization and therefore makes it an important organizational resource for securing competitive advantage (Grant, 1996).

The term tacit knowledge has been used to refer to knowledge that has not been formalized or made explicit (Zander and Zander, 1993), as well as to knowledge that cannot be formalized

(Popper, 1972; Nonaka and Takeuchi, 1995; Howells, 1996; Hansen, Nohria and Tierney, 1999). Hence two sub-categories of tacit knowledge emerge; knowledge that has not yet been formalized (Zander and Zander, 1993) and knowledge that cannot be formalized (Grant and Gregory, 1997). Knowledge that has not yet been formalized implies that it can be formalized at some point in time. For example Zander and Zander (1993) argue that tacit know-how is articulable under certain circumstances: when the pace of performance is low and variations are tolerable, when a standardized, controlled context for the performance is assured and when the performance as a whole can be simplified to basic interactions. Hence, the impetus for creating environments for knowledge management.

Nonaka and Takeuchi (1995: 8) expand Polanyi's (1966) tacit knowledge in a practical direction, segmenting it into two dimensions, technical and cognitive. Technical dimensions encompass craft and skills captured in concrete 'know-how' — exemplified by the master craftsman who is often unable to articulate what he or she knows. 'Know-how' cannot always be codified since it often has important tacit dimensions (Polanyi, 1966). The cognitive dimension of tacit knowledge encompasses 'mental models' (Johnson-Laird, 1983) such as schemata, paradigms, perspectives, beliefs, images of reality and vision of the future, which shape the individual's perception of the world. Tacit knowledge is created in a specific practical context and real time, 'here and now', and, thus, has an 'analog' quality (Bateson, 1973). Tacit knowledge is equivalent to cognitive psychology's definition of 'procedural' knowledge in the ACT model (Anderson, 1983; Single and Anderson, 1989).

Explicit knowledge or 'codified' knowledge, refers to knowledge that is transmittable in some systemic language — such as words, numbers, diagrams or models (Polany, 1966). As such, it is easily transmitted orally and in written or electronic form. It can also easily be manipulated and stored in various databases and repositories. Explicit knowledge is imbedded in the past events or objects and is oriented towards a context-free theory (Polany, 1966). It is sequentially created and captured by 'there and then' and, thus, possesses a 'digital' activity (Bateson, 1973). People acquire explicit knowledge by actively searching for it through education, repositories and work context. Explicit knowledge is equivalent to cognitive psychology's definition of 'declarative' knowledge in the ACT model (Anderson, 1983; Single and Anderson, 1989).

Habermas' (1972) framework recognizes three

complementary 'types' of knowledge or knowledge — constitutive interests concerned with social consensus and understanding, emancipatory interests concerned with self-critical reflection and autonomy. Holliday and Chandler (1986) also define three categories of knowledge: a general competence (a dimension that overlaps with local intelligence or technical ability); an experience-based pragmatic knowledge; and reflective or evaluative meta-analytical skills and abilities. The Western philosophical tradition has fundamentally shaped the disciplines of social science, which has shaped current thinking about knowledge and innovation (Nonaka and Takeuchi, 1995).

INFORMATION AS KNOWLEDGE

The concepts of knowledge and information tend to be used interchangeably through the literature and praxis. For example, the management of information captured on corporate databases is often considered as an example of corporate knowledge and knowledge management. Information and data management are important pillars of knowledge management. However, knowledge management encompasses broader issues and, in particular, creation of processes and behaviours that allow people to transform information into the organization and create and share knowledge. Thus, knowledge management needs to encompass people, process, technology and culture. Moreover, corporate databases and connectivity do not guarantee the sharing of information over time. In some instances, databases and connectivity result in too much information, or information overload, posing a threat to aspects of knowledge quality such as relevance (Sharda, Frankwick and Turetken, 1999).

In the era of widespread economic and ethnological change, understanding the changing nature of work is important to understanding organizing and reorganizing (Barley, 1996). The adoption of new IT also conveys a powerful cultural load, having the capacity to involve all organizational actors in its use — being inserted into organizational life in both material and discursive ways (Webster and Robins, 1986; Hill, 1988; Muetzelfeldt, 1988; Korac-Boisvert, 1992). Materially, IT provides the potential for a wide range of data collection, storage and processing. IT provides information on demand, builds banks of shared knowledge and enables real-time, structured learning events to transcend boundaries of time and space, becoming a tool for building solutions (McAteer, 1994: 68). The theoretical link

between information gathering and decision is framed in Western societies within an Apollonian context where the value of intelligent and rational choice is paramount (Nijsmans, 1992). The belief that more information leads to better decision making implies that having information in an organization is a good in itself (Nijsmans, 1992). Meyer and Rowan (1977: 340) argue that the symbolic meaning of information represents mythical and ceremonial symbolism, often independent of its immediate efficiency criteria or internal logic. Thus, the link between decision and information appears to be weak or 'loosely coupled' (March, 1962, Allison, 1971; Brunsson, 1985; Weick, 1995).

The process of information gathering in organizations can be seen as 'representation of basic social value, the ability to account intelligibly for rational decision-making process' (Nijsmans, 1992: 139). However, an individual's ability to attend selectively to information, disregarding unimportant stimuli in favour of those which pre-existing stores of knowledge indicate are relevant, is as important (Rumelhart and Nomran, 1990). However, this ability that advances individual capacity to remember, reason, solve problems and act is loaded with a potential Achilles' Heel — allowing predetermined experiences to exclude contradictory, novel and unfamiliar pieces of information entering one's analysis of the world (Weick, 1995), lowering one's capacity to classify information in knowledge structures and, even, adequately updating knowledge content. Walsh's (1995) comprehensive literature review, for example, demonstrates the lack of constancy in the understanding of knowledge structures, with some seventy alternatives for the meaning of knowledge structure.

KNOWLEDGE DEFINITIONS

The discourse on knowledge has produced a rich and diverse set of meanings. Beckman (1998) has compiled a number of useful definitions of knowledge and organizational knowledge:

- Knowledge is organized information applicable to problem solving (Woolf, 1990).
- Knowledge is information that has been organized and analyzed to make it understandable and applicable to problem solving or decision making (Turban, 1992).
- Knowledge encompasses the implicit and explicit restrictions placed upon objects (entities), operation and relationships along with general

and specific heuristics and inference procedures involved in the situation being modeled (Sowa, 1984).

- Knowledge consists of truths and beliefs, perspectives and concepts, judgments and expectations, methodologies and 'know-how' (Wiig, 1993).
- Knowledge is the whole set of insights, experiences and procedures which are considered correct and true and which, therefore, guide the thoughts, behaviours and communication of people (Van der Spek and Spijkervet, 1997).
- Knowledge is reasoning about information to actively guide task execution, problem-solving and decision making in order to perform, learn and teach (Beckman, 1997).
- Organizational knowledge is processed information embedded in routines and processes which enable action. It is also knowledge captured by the organization's systems, processes, products, rules and culture (Myers, 1996).
- Organizational knowledge is the collective sum of human-centred assets, intellectual property assets, infrastructure assets and market assets (Brooking, 1996).

Attempts to define knowledge reflect the multifaceted nature of knowledge itself. Moreover, knowledge management has been defined in a variety of ways that vary in scope and focus. In terms of scope, the term has been used broadly to refer to the capacity or process within an organization to maintain or improve organizational performance based on experience and knowledge (Pan and Scarbrough, 1999). In terms of focus, definitions emphasize, variously, organizational processes and routines (Pan and Scarbrough, 1999); performance improvement outcomes (Bassi, 1997); processes for networking and collaboration; practices for harnessing and distributing expertise (Marshall, 1997); specific tools; and methodologies, such as data-mining and storage systems (Cole-Gomolski, 1997). However, research and practice in knowledge management has been dominated by a focus on using information technology (IT) to store, separate and transfer knowledge within and across organizations based on premises of a cognitive model of knowledge management. The assumption is that if knowledge is transferred via technology, it can be used for innovation without needlessly re-inventing what has already been done elsewhere. This technocratic view of knowledge assumed in the cognitive model has been challenged by network and community models. Table 1 provides a summary of dominant models of knowledge management and their characteristics.

Table 1 Models of knowledge management

| | Cognitive model of KM | Network model of KM | Community model of KM |
|------------------------|---|---|---|
| Treatment of knowledge | Knowledge is objectively defined and codified as concepts and facts | Knowledge is external to the adopter in explicit and implicit forms | Knowledge is constructed socially and based on experience |
| Dominant metaphor | Memory | Network | Community |
| Focus | Knowledge capture and storage | Knowledge acquisition | Knowledge creation and application |
| Primary aim | Codification and capture explicit knowledge and information | Competitive advantage | Promoting knowledge sharing |
| Critical lever | Technology | Boundary spanning | Commitment and trust |
| Primary outcomes | Standardization and re-cycling of knowledge | Awareness of external development | Application of new knowledge |

Adapted from Swan and Newell (2000).

THE ROLE OF SYMBOLIC ANALYSTS IN MAKING SENSE OF INFORMATION AND KNOWLEDGE

During the 1980s, the cost of IT's material components (hardware) continued to decline (Kauffman and Weill, 1990), resulting in IT permeating every facet of organization and, concurrently, becoming available for individual use. In the 1990s and beyond, IT further intensified its dominant role by the ever-increasing societal dependence on IT systems that have segmented the labour market into three generic groups: 'routine production servers'; 'in-person servers' and 'symbolic analysts' (Reich, 1993). The proliferation of IT has further re-defined traditional routine production work into sequences of repetitive tasks, to the extent that even the supervisors of such tasks are easily replaced. There is currently no shortage of such labour and it can usually be found more cheaply in a new market (Reich, 1993). Routine production margins are controlled, profits are usually predictable and workers have a high degree of exposure to global competitive forces.

Information, in many ways, defines pair-wise relations, such as the buyer-seller relationship, where, traditionally, much of the trader's margin depended on the asymmetry of information (Evans and Wurster, 1997). For example, in trade, *caveat emptor* applies and the buyer of goods or services must look out for his or her own interests. Thus, a merchant is permitted to negotiate the best

deal he or she can get and need not consider what is in the best interest of the customer. Thus, increasingly, customers, will value mediums which provide both rich and reachable access as he or she will need information that is complete, truthful, clear and contextual (establish context of information origin) (Ngwenyama and Lee, 1997). This validation of information pertaining to the completeness, truthfulness, clarity and contextuality, and the sheer breadth of choices of media and databases available to customers, will require services of an intermediary — 'symbolic analysts' (Reich, 1993).

Symbolic analysts access, analyze and synthesize information that adds to the value chain or produces 'symbolic goods' (with the focus on intellectual fields) (Bourdieu, 1971; 1979) and conditions the supply and demand for symbolic goods (the process of competition and monopolization). For example, some organizations have an incentive to create or simply make available databases on interest rates, risk ratings and service quality histories. New opportunities emerge for third parties that neither produce a product nor deliver a primary service — intermediators (Evans and Wurster, 1997).

Navigators or agent brands have been around for long time. For example, restaurant guides influence readers towards a particular establishment. The Platform For Internet Content Selection (PICS) is a programming standard that allows net browsers to interpret third-party rating labels on Web sites. PICS enables users to rate anything and

it makes those ratings ubiquitous, searchable, portable and costless (Evans and Wurster, 1997). The dramatic proliferation of networked matrices increase the need for such navigators and other facilitating agents; those that guarantee a product's performance or assumed risk (Evans and Wurster, 1997). The first need to consider is the means for transmitting and circulating the feedback effect amongst actors; focusing on symbolic enclaves (academics, other professionals in symbolic production) and their relationship with the increasing number of actors employed in the role of cultural intermediaries. These intermediaries administer the new global media-distribution chains (via satellite), rapidly circulating information between formerly sealed-off areas of culture (Bourdieu, 1971; Touraine, 1985) through conduits of intensified competition (Crane, 1987).

There is also a need to give consideration to competition, changing balances of power and interdependencies between the specialists of 'symbolic' production and intermediaries and their interplay with other actors (Elias, 1987) — especially the conditions of growth in the former's power potential as producers in the information-age, along with a further segregation between high-skill and very low-skill demands. The process of intensified competition on an inter-societal level is shifting the balance of power from isolated areas. With the emergence of 'globalization' issues (Robertson, 1990), the struggle between the established and the outsider/newcomer is intensified (Elias and Scotson, 1965; Bourdieu, 1979). Outsider groups are often faced with a monopoly situation in which knowledge, in the form of a stable symbolic hierarchy and canon, is transmitted to initiates through a patronage and sponsorship system operated by a stable establishment; outsider groups often may have to adopt usurpatory tactics (Marphy, 1989).

Because of the speed with which the new technologies such as GroupWare and Web swept through organizations, many Web sites, for example, were developed 'on the fly' and, thus, without the effectiveness that a more methodical approach would have brought. Similarly, GroupWare (Lotus Notes) databases are cluttered with data of dubious quality. Although this *ad-hoc* and decentralized approach created opportunities for innovation, it also generated particular problems. Opportunities created by the free form and decentralized development of corporate Web sites, for example, produced a wealth of creative solutions to Web problems and large and diverse Internet facilities. However, drawbacks are the proliferation of duplicative and unmaintained information. The

challenge for information providers is to integrate information in a way that helps users be more effective in finding what they need. This may involve adopting standards for metatags, developing an internal content classification system, deploying layered search architectures and adapting other knowledge infrastructure components.

Balancing creativity and innovation with the need for levels of standardization and control requires time spent building support and developing corporate plans, guidelines and strategies. Business units can be responsible for developing the content of the information but corporate IT units need to be responsible for security policies, encryption, infrastructure and network performance issues. With increasing information flow, there is a need for corporate information librarians to be involved in selecting and implementing company-wide crawler and search engines, indexing, cataloguing major content sites and areas of knowledge and overseeing the process for authenticating Web sites and GroupWare databases. The value of library expertise in information retrieval and in cataloguing and indexing is increasingly more important in the IT context (Web, Internet, GroupWare). Increasingly, librarians are seen as a strategic asset. As a result, librarians are likely to be asked to participate in cross-functional teams where their expertise would not have previously been sought.

INSTITUTIONAL KNOWLEDGE CONVERSION

The development in strategic management of the resource-based view of the firm (Teece, Pisano and Shuen, 1997) has been extended to a knowledge-based theory of the firm (Spender, 1996), adopting more recently the concept of invisible assets (Itami, 1987) with explicit attention to core competencies of an organization (Hamel and Prahalad, 1990) and capabilities-based competition (Stalk, Evans and Shulman, 1992). This ever-increasing search for greater performance improvement also gives impetus to greater creation, sharing, application and acquisition of knowledge. From the process perspective of organizational innovation, innovation is perceived as a complex design and decision process involving the creation, sharing/diffusion, application/implementation and utilization/acquisition of new ideas by people who, over time, engage in transactions with others in an institutionalized context (Van de Ven, 1986). From a process perspective, innovation is perceived as a set of recursive and overlapping episodes which move from initial awareness of new ideas to

application and acquisition. Hence, there are four distinct stages of knowledge institutionalization; namely knowledge creation, knowledge sharing, knowledge application and knowledge acquisition.

Knowledge creation: an internalization process

Many contemporary organizations have established higher levels of information sharing which constitutes the bedrock of a knowledge culture. The emphasis on knowledge-creation and aides both allows and forces an interpretation of the nature of value-creation. The emphasis of knowledge-leadership overthrows many conventional notions of value. New knowledge emerges as the result of the interplay between individual effort and social interaction. The exact conception of an idea that leads to an innovation, almost by definition, is not confined to place and time but, rather, can occur at any time (Usher, 1954). The creation of organizational knowledge, or intellectual capital, is driven by the interplay of human capital (employee knowledge and skills) needed to meet product or customers' needs, structural capital (organizational capability to respond to market demands) and customer capital (the strength of a customer base). The availability for 'tinkering' or 'slack' time for learning, thinking and reflecting may be one of the best vehicles for knowledge creation.

Knowledge sharing: a socialization process

Sharing implicit knowledge between actors is considered to be a socialization process — externalization or knowledge transfer as the individual or group of individuals share knowledge or 'know-how' with each other or within the group. The act of knowledge sharing requires *gesinnung* or disposition-of-will; that is, the 'underlying common ground' of all the acts-of-will of a person capable of free choice (Kant, 1960). Organizational climate needs to be one of learning in order to motivate individuals and groups to share knowledge (Senge, 1990; Davenport and Prusak, 1997). For example, motivationally misleading situations can lead individuals to act in a way that is contrary to his or her intended plans and can stem from existential conflict of the will, such as between and among motives and values (Kant, 1960). Choice to share knowledge requires willingness to act or an act-of-will (Kakabadse, 1991). Creation and testing of knowledge is a social activity and, as such, requires environments that provide extensive

opportunities for communication and experimentation (Senge, 1990; Davenport and Prusak, 1997).

Knowledge application: a codification process

Many scholars link, theoretically and/or empirically, organizational performance to co-alignment between the organizational context and information technology and argue that technology utilization is influenced by organizational context (Nolan, 1979; Venkatraman and Camillus, 1984; Tushman and Anderson, 1986; Anderson and Tushman, 1990; Venkatraman, 1990; Davenport, 1993; Currie, 1995). Both vertical technology transfers (the transformation of ideas into products) and horizontal technology transfers (the application of an idea into different domains) are long, expensive and difficult processes and require technological, physical and intellectual infrastructures (Korac-Kakabadse and Kouzmin, 1999).

One out of seven analyzed organizations that had knowledge management initiatives in place had been more successful in knowledge sharing than other organizations — the differing factors being culture supportive of knowledge sharing and context and knowledge-structure management. In other organizations, where the culture of sharing was evolving, there were no structured processes in updating knowledge context and structuring the knowledge base, resulting in a knowledge repository of little use in finding more information. Considering that knowledge needs to be codified, classified and retrieved in a similar manner to information in the library, Information Librarians or Knowledge Structure Managers and Knowledge Content Managers may be required in addition to knowledge management in creating knowledge-sharing organizations.

Knowledge management and acquisition

Knowledge provides the basis on which both improvements and innovation take place in organizations. An organizational environment that is rich in opportunities for creation of relationships results in the re-evaluation of existing knowledge and the creation of new knowledge (Scharge, 1997). Managing corporate knowledge requires the development of comprehensive frameworks for managing every phase of the knowledge process and a way of measuring these intellectual assets. A first step is to visualize intellectual capital at the interchange from human capital, organizational capital and customer capital. The zeal to acquire knowledge has brought about the creation of new roles in organizations — Knowledge Managers and Knowledge Engineers,

whose work is to ensure effective management of knowledge workers.

With the rapid pace of change and the complexity of problems facing many organizations, there is a need for people who can see new perspectives and can go beyond the current boundaries — whether of knowledge, available technology, social norms or, even, beliefs. The growing uncertainties and shortening time scales in the global information economy are challenging organizations — economically, organizationally, socially, managerially and technologically.

Accounting for intellectual capital requires managers to learn how to operate and evaluate a business when knowledge is its chief resource and result. In the emerging information economy, 'soft' assets (knowledge, 'know-how', programming) can be a better credit risk than 'hard' assets (office space, equipment) as the value of tangible assets can depreciate and, even, vanish overnight. For example, IT equipment depreciates at approximately 33% annually. Knowledge is the genome of a corporation. Organizational learning depends on the business ability to generate new ideas and its adeptness at generalizing ideas through horizontal and vertical knowledge transfer (Korac-Kakabadse and Korac-Kakabadse, 1999). 'Generic concepts' provide a collection of software applications, manuals and other structured 'know-how' which can easily be customized to take account of local laws and regulations and support many lines of financial products.

Knowledge can be generated within organization through R and D or it can be accessed from outside the organization. If an organization gets most of its knowledge from external sources, it is expected, over time, that this knowledge should be transferred internally by way of training or informally through on-the-job development/specialization and it should, subsequently, be embedded in the organization. However if, with time, an organization still depends on external sources for this same knowledge then it has a knowledge management problem. Organizations with a high turnover of knowledgeable employees are very likely to have problems with managing knowledge. There are various strategies for generating knowledge: home-grown talent; recruiting; and consultancy/alliances.

Home-grown talent requires investment in the current work. As employees must find new ways to think about and do work, many organizations invest heavily in helping them learn new skills. Some learning can occur in formal training programmes and centres — much more occurs in structured on-the-job experience and development.

Investing in employees' learning, in whom inquiry is coupled with action, results in new ideas replacing old and does lead to behaviour changes. Home-grown talent strategy is not just training but training that is tied to business results. It is development where action learning occurs and where systemic learning from job experience occurs.

By recruiting, organizations can recreate/buy highly qualified talent. The process involves staffing and selection from the entry level to the executive levels. A recruiting strategy works when talent is available and accessible, but the risk can also be great. The organization may not find external talent that is better or more qualified than internal talent. Furthermore, if the organizational culture is not conducive for knowledge transfer, newly recruited talent may not be effectively utilized or it may exit.

Effectively using consultants or outsourcing partners may share knowledge, create new knowledge and design work in ways that both parties can benefit. Knowledge must transfer into the organization by adapting consultant or partner tools so that employees can replicate and redeploy them. The danger is becoming too dependent on an external consultant and not adopting the new knowledge (Korac-Kakabadse, Korac-Kakabadse and Kouzmin, 1998).

Organizations can invest in developing alliances and partnerships with outside partners who bring in ideas, frameworks and tools to make the organization stronger. Partnership is developmental and takes a long time to establish. It can be argued that management's linguistic message and the image that it conjures are both problematic. Perhaps the adoption of the term 'proctorment' (proctoring, proctorship) or some other non-gender terminology that connotes management activities may overcome some of the contextual problematic. 'Proctor' has historically been applied to junior and senior appointed persons charged with a variety of functions. It can be argued that 'proctorment' may adequately replace management terminology without the burden of stereotyping (Korac-Kakabadse and Kouzmin, 1997).

KNOWLEDGE MANAGEMENT PRAXIS

Notwithstanding that the term 'knowledge management' implies formalized knowledge transfer, its essential function is developing specific strategies to encourage knowledge exchange (Davenport and Prusak, 1998:89). A Cranfield survey (TCISKS, 1998) carried out in 100 large and medium-size European companies in the UK, Germany, France,

Ireland, Benelux and Scandinavia shows that business leaders define knowledge management as the collection of processes that govern the creation, dissemination and utilization of knowledge to fulfil organizational objectives' (Murray and Myers, 1997:29). This means that organizations need to capture knowledge they have, share it and use it to some commercial benefit. The socialization or transfer of knowledge is particularly critical for an organization whose primary role is the creation of knowledge or transfer the knowledge — such as R and D organizations. Employees' attitudes to sharing knowledge are central to creating, socializing/sharing it and using knowledge for competitive advantage. Knowledge socialization is part of organizational life and takes place whether or not organizations manage the process at all — people do talk formally and informally (Davenport and Prusak, 1998). However, at the same time, people do also provide major constraints to knowledge socialization for the fear of losing expertise, influence or control.

The Cranfield survey shows that 89% of respondents perceive knowledge as the key to business power and, as such, often are unwilling to share it (Murray and Myers, 1997). Sharing knowledge within focal groups is a primary and most common form of knowledge socialization. However, sharing knowledge between key groups and making some of it available within the organization and, perhaps, outside, among partners, suppliers and customers, requires major rethinking and new vision strategies. Sharing within organization is often difficult if there is no sharing culture and the result is 'islands of knowledge', fragmented and separated into functional 'silos'. A sharing culture requires, also, effective structures

which are flexible and responsive to change. The Cranfield, Microsoft and Partners Survey of UK knowledge management practices shows that management practices that scored highest in importance by UK managers also scored the lowest in performance ratings; namely getting people to collaborate; capturing and transferring knowledge; approving customer/supplier relationships; process efficiency; matching skills, people and tasks; and facilitating access to experts (Microsoft, 2000). The Cranfield and Partners Survey shows that there is a gap between the importance of knowledge management aims and the achievement of those aims in UK organizations (Brue *et al.*, 2000) (see Figure 1).

Although there are no proven solutions for knowledge management (KM), 87% of European respondents believed that formal systems would help knowledge management, especially managing knowledge about customers, markets, products, services and corporate performance (Murray and Myers, 1997). Many organizations are looking for the solution in the arena of IT, as IT can assist integration, span cross-functional boundaries and facilitate existing and emergent networks at the organizational and global scale. On-line information systems (IS), document management, GroupWare (Lotus Notes), Intranets, Extranets and Internet are key technologies being used in knowledge management. Notwithstanding that IS/IT is a useful tool for capturing, tracking and sharing information, it is also necessary to have culture-of-sharing 'best practice' and 'know-how'. Knowledge socialization is not a single function or process but one that pervades the whole organization. Knowledge is created and shared at all levels and in all processes and functions and, as

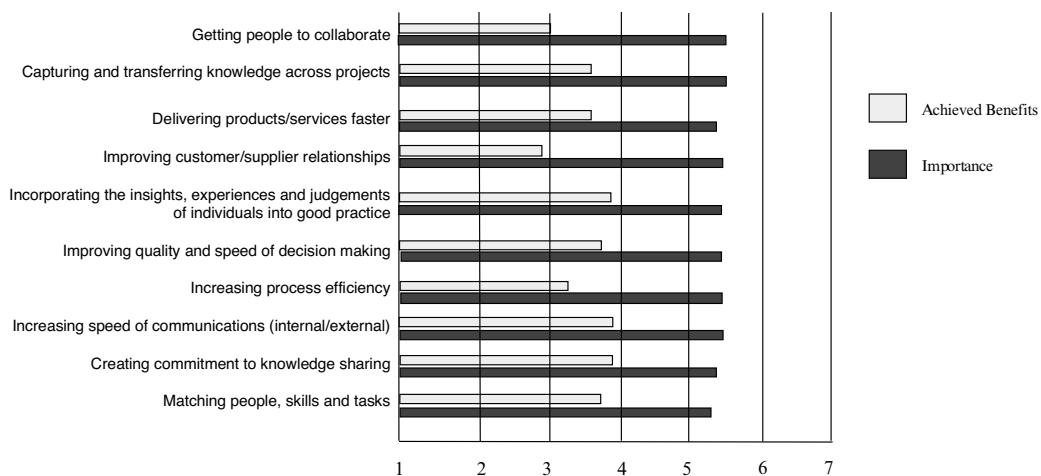


Figure 1 Top ten KM aims — importance and achieved benefits ranking (adapted from Brue *et al.* 2000).

such, requires a learning culture that rewards knowledge creation and sharing. The Cranfield survey suggests that 85% of respondents believe that their organization encourages their staff to share and bring forward new ideas, whilst 29% explicitly reward (only 6% on a regular basis) (Murray and Myers, 1997).

The advent of information technology such as Intranets, Extranets, Internet and intelligent agents has contributed significantly to the increased interest in knowledge management. As organizations are beginning to connect themselves in a way that they had not done in the past, groups, departments and teams now have ability to share information in a way that they did not have in the past. Although many existing approaches focus on organizational issues, they consider knowledge as a resource which can be managed much like capital or labour. With the advent of Web-based technologies and specialized systems such as knowledge management systems (DOCS Fulcrum System, Knowledge X Analyst, Livelink V, GrapeVine, Business Knowledge Navigator) or learning environments, a variety of information technologies exist to support organizational processes of generating, institutionalizing, retrieving and disseminating knowledge.

Information is shifting the vector of economic forces that define competitive advantage (Evans, 1999). Increasingly, in the search for competitive advantage, scholars are identifying a shift away from managing the information and technology itself towards managing the use of it: the human interface (Choo, 1998, 1999; Murray, 1999; Orlikowski, 1999). Davenport and Marchand (1999) similarly identify that facilitating access to a firm's repository of knowledge through improved information management is an important part of KM. They also highlight that companies have paid far less attention to how effectively employees apply and use their knowledge and the increasing recognition that KM is as much about managing people than it is about managing information and IT.

The Cranfield study (TCISKS, 1998) shows that because the topic of knowledge management is relatively new there are still a few outstanding examples to show where business is demonstrably delivering significant benefits from KM activities. Whilst many organizations are still deciding on the best forms of metrics and measurements, some have already implemented KM, but often in the secondary feeder process such as account management or internal networking. KM also requires investment and infrastructure. Organizations with inconsistent infrastructures and those who have been relaxed about data and information management and those who never discuss the role of

information management in the performance of their business are unlikely to leapfrog into KM (Murray, 1999). The Cranfield study shows that organizations which have achieved success in KM had visionary leadership necessary for KM. The most progressive Chief Knowledge Officers (CKOs) all had wide experience in business and were respected within their organization for their leadership qualities.

The future research agenda needs to address the general lack of understanding which connects the role of the employee and use of information/knowledge, its critical links to the optimization of the available technology within the firm and the consequent achievement of competitive advantage. Such a research agenda would need to ask:

- What effect can data/information customization have on the effective use and management of information and knowledge within an organization?
- What activities, using both human and technical interventions, will enable individuals to be able to receive customized information of the quality and quantity they require to be able to perform at their optimum level?
- What are the critical issues directly affected by the use of information technology and knowledge management within the organization?
- What are the issues relating to the relationships between the functions responsible for information and knowledge management? (HR, IT, Knowledge Management, Marketing, Internal Communications).
- What impact do these activities have on the competitive advantage of an organization?
- What are requisite organizational structures and roles identified to manage these relationships and those with the employees within the organization?

BARRIERS THAT KNOWLEDGE MANAGEMENT NEEDS TO MANAGE

Considering that there are differences in defining the nature of knowledge, a variety of measures and models for valuing knowledge and knowledge management initiatives and the endless variety of organizational structures, cultures and formative contexts, as well as numerous motivations and the problematic nature of tacit knowledge, it is no surprise that there are a variety of barriers to managing the knowledge. The Cranfield survey has identified four major broad

categories of knowledge barriers across Europe, namely, people; management; structure; and knowledge (TCISKS, 1998):

People:

- Inertia to change
- Too busy, no time to learn
- No discipline to act
- Motivation
- Constant staff turnover
- Transferring knowledge to new people
- Teaching older employees new ideas

Management:

- The fear of giving up power
- The difficulties of passing on power
- Challenging traditional company style
- Imposed constraints
- Lack of understanding about formal approaches

Structure:

- Inflexible company structures
- Fragmented organizations
- Functional 'silos'
- Failure to invest in systems

Knowledge:

- Extracting knowledge
- Categorizing knowledge
- Rewarding knowledge
- Understanding knowledge management
- Sharing between key knowledge groups
- Making knowledge widely available

The process approach to KM is one of the principal emerging patterns in KM across Europe (TCISKS, 1998). It involves identifying knowledge-dependent processes and enhancing them through KM. It has the merit of tying readily into business benefits and also allows the possibility of more formal mechanisms, metrics and measurements (TCISKS, 1998).

Knowledge management, as a combination of disciplines and technologies, aims to manage knowledge. The disciplines have evolved from several areas, including business process re-engineering and human resource management. The technologies sprung from two main sources — the universal communications medium of the Internet and established software technologies such as information retrieval, document management and workflow processing.

The first attempts at KM started with the cuneiform language of about 3000 BC. Knowledge

was inscribed with a stylus in wet clay and then baked. However, the heating process and the lack of portability limited an author's ability to share knowledge. The papyrus was the new technology in 2800 BC. Papyrus made capturing knowledge easier and allowed for the building of great libraries, such as those at Sumer, Akkad, Ebla and Alexandria. Parchment became available in 200 BC and paper in 100 AD. Being vulnerable media, due to fire and moisture, there was need for making copies, often by the monks — the first knowledge professionals. In 400 BC, the Greek philosophers Plato, Socrates and Aristotle (1928, 1984) laid down the foundations of understanding the nature of knowledge and its application (Skryme, 1996).

Socrates invited debate, through dialogue, to challenge traditional thinking whilst Aristotle (1928, 1984) encouraged storytelling. These methods are being rediscovered in contemporary management (Skryme, 1996). The significant advancement in technology, the innovation of the printing press in the 15th century, made storage and distribution of knowledge cheap and widely accessible. With the advent of IT, computerized databases were the first tools for storing knowledge in the form of data and networks provided a means of sharing it. The first really useful IT knowledge management tool was GroupWare, exemplified by Lotus Notes, which allowed multiple users to share information and help in the creation of 'corporate memory'. The invention of corporate Intranets have provided a means of building GroupWare from a collection of less expensive software using Internet standards.

Fundamentally, the basic requirement for KM has not changed dramatically — what has changed is the wasted volumes of data, the speed and ease of content changes and the transformation of the workplace. Even the cultural barriers to learning and sharing have been fundamentally the same for some time.

Although KM means different things to different people, in contemporary organizations it implies a mix of people, process and technology to share information and to gain competitive advantage. Human resources (HR) experts see KM as part of recasting the corporation as the 'learning organization'. The consultant sees it as exploitation of 'intellectual capital' or the foundation for 'knowledge-centric' organizations. Currently, US companies are *technically* focused around KM and European companies think it is about people (Dempsey, 1999). The explicit knowledge held in intellectual property portfolios, databases and, increasingly, corporate Intranets need to be

supplemented by tacit knowledge in the heads of staff. This, in turn, requires structure and culture that facilitate knowledge sharing between employees. Although the supporting technology ranges from telephone- and video-conferencing to GroupWare and Internets, these technologies are usually 20% of KM components—the other 80% are people.

Organizations need to design cultures where people have a desire to share knowledge. Whilst in its most basic form KM can be as simple as writing down contact telephone numbers in Filofax format, in its most advanced form, KM attempts to encode the unencodable. The driving assumption of many organizations is that, once formulated, the knowledge may be tapped by employees to do their jobs more effectively and, ultimately, improve organizational performance. The Cranfield research shows that to capture relevant knowledge it is important to start with business objectives and then see how knowledge can fit in and how it can help meet those objectives. Only in highly effective research organizations is there an attempt to capture something as intangible as personal judgment. It is important to focus on knowledge that is critical — knowledge relevant to business — and not lose energy on managing *all* knowledge.

The terms 'knowledge' and 'information' are often used interchangeably in the literature and praxis but a distinction is helpful. The chain is Data-Information-Knowledge-Action-Wisdom. Knowledge is information put to productive use, it implies action and through action and reflection one gains wisdom.

CONCLUSION: TOWARDS KNOWLEDGE LEADERSHIP

To obtain information that one needs and to assess the value of information, one has, or needs to acquire, both explicit (or theoretical) knowledge and implicit (or practical knowledge). Knowing how to use information in any given context requires wisdom. In order to effectively manage knowledge one has to understand the organization. Managers need to understand employees, customers, suppliers and other stakeholders and be able to act on that knowledge in appropriate ways (Kakabadse, 1991). It requires, above all, effectively managing people and creating organizations that allow individuals to develop knowledge and engage with others to exploit the potential of that knowledge. Managers need to know how to manage specialist knowledge, a deep 'know-how' within one discipline and integrate it with more superficial knowledge about how it

interacts with others (Leonard, 1998). They also have to know how to understand and manage, effectively, a diversity of cognitive styles as well as manning 'religious wars' about tools and methodologies an organization adopts (Leonard, 1998). They also need to manage 'star performers' with their 'signature skills'. Leonard (1998: 20) argues that companies' strategic advantage is based on four dimensions of core capabilities which may be readily absorbed by outsiders but that the synergy from unique competition is neither readily transferred nor imitated. Leonard (1998) defines these four interdependent core capabilities in pairs. Two may be thought of as dynamic knowledge reservoirs or competencies — namely employee knowledge and skill and the physical technical systems; and two that encompass knowledge control or knowledge-channeling mechanisms, managerial systems and values and norms (Leonard, 1998: 19). Managing these synergies requires discretionary leadership (Korac-Kakabadse and Korac-Kakabadse, 1999).

The contrasting nature of discretionary leadership (Ghiselli, 1971, 1973; Kotter, 1982; McClelland and Boyatzis, 1982) is highlighted in the observation as to how dialogue emerges according to the predisposition of the actors involved. Information is the key resource contributing towards management's ability to add value (Strassman, 1995). Dialogue is viewed more as a quality process and facilitator of issue resolution. What happens to the senior executive grouping and the organization if two or more top managers with substantially different held views as to the current configuration and future organizational identity and structure are in conflict? What if the experience of working within the senior management group is one of unworkable discomfort, whereby a restricted dialogue, debilitating tension at a personal level and minimal disclosure at the group level, become the norm? How do such experiences and processes impact on leadership practice and the future development of the organization?

In attempting to address these questions, one aspect is clear — that fundamental to leadership and to learning within organizations is the concept of dialogue, involving a process of inner reflection brought about through the sharing of experiences, especially over contrasting or conflicting agendas. Only individuals who reflect on their experiences can develop a competence or an ability to deal with new situations dissimilar to those they have already experienced. Through these rhythmic exchanges between participation and observation/distance, between action and reflection, knowledge grows (Korac-Kakabadse and Kouzmin, 1996). Thus,

dialogue can be seen as the concept that expresses the dynamics of tacit knowledge. Fundamental to leadership and organizational learning is the quality, depth and breadth of dialogue. The quality of the dialogue encompasses the extent to which issues or relationships, considered as sensitive within the group, inhibit the discussion of key organizational concerns and, thereby, affect the future of the organization and, in turn, how such experiences affect the extent to which the group members hold a shared view of the future direction of the organization (Myers, Kakabadse and Gordon, 1995). Depth refers to the level of sensitivity displayed concerning the difficult issues discussed, despite differences of view that may exist among individual members, possibly affecting relationships, which may, in turn, negatively influence openness of conversation concerning the organization (Myers *et al.*, 1995). The breadth of dialogue refers to the variety of issues (internal and external) discussed.

Similarly, in organizational settings, actors' access to information and ideas can often depend on their position within organizational and networking opportunities. Thus, quality dialogue is a resonance between the beliefs and cultural experiences of the participants, expressed through a shared familiarity with the codes in use. While actors should take advantage of emerging electronic and telemetric technologies, they should use them in addition to face-to-face dialogue. Technology is only a support mechanism and not a substitute for personal contact (Korac-Boisvert and Kouzmin, 1999). Empirical studies show that some of the best communicators spend about 40% of their time in face-to-face encounters, only because they do not have more time to give (Rice and Aydin, 1991). Irrespective of how actors develop, feedback is required to help individuals be more responsive to addressing contingencies within organizational contexts (Kakabadse and Myers, 1995a,b), enabling them to negotiate and share understanding of contexts and, thus, through learning, transcend proclivities for 'cognitive failures' (Kouzmin and Korac-Boisvert, 1995).

Fundamental to relationship building, knowledge sharing and organizational learning is dialogue, involving a process of inner reflection through the sharing of experience, enabling one to gain an understanding of one's practice. Face-to-face dialogue plays an essential role in establishing and maintaining the kind of multi-dimensional and robust relationships necessary for effective interaction and coordinated action in situations of uncertainty, ambiguity and risk (Trevino, Lengel and Daft, 1987; Nohria and Eccles, 1992). Even if

disagreement or fissure occurs during dialogue, within the context of face-to-face communication, it is easier to repair situations and re-secure relationships because of its capacity for rapid feedback and multiple cues. Additional cues of caring, building teamwork, showing trust, acknowledgement of expert power and informality all add to the importance of dialogue.

Innovating, as well as maturing, organizations need to ensure high-quality dialogue amongst senior executives and with other organizational actors (Kakabadse, 1991). International studies of management competencies indicates that when quality of dialogue is high and the relationship amongst senior management is positive, the issues and concerns facing organizations tend to be more openly addressed (Kakabadse, 1991, 1993; Kakabadse and Myers, 1995a,b; Korac-Kakabadse and Korac-Kakabadse, 1996). In organizations where relationships are tense and the quality of dialogue restricted, certain issues and problems tend not to be raised, because to do so would generate unacceptable levels of discomfort among certain, or all, of the members of the senior executive (Kakabadse, 1991, 1993). Such inhibition stimulates latent or creeping crisis opportunities (Kouzmin and Korac-Boisvert, 1995). In this context, dialogue encompasses knowledge transfer through the content of conversations concerning the present and the future of the organization, the quality of relationships among actors, external developments which may affect the organization and the views and responses of actors and groups within the organization (Kakabadse, 1991).

Organizations need to ensure the existence of a high-quality dialogue among and between both senior management and other organizational actors (Kakabadse, 1991). An audit of how issues are addressed, or unaddressed, by senior management is crucial to leadership, organizational learning and vulnerability management. Senior managers are leaders and, within that framework, are also 'social wealth creators' (Kakabadse, 1991) who set agendas and identify appropriate strategies and, at times, put operational methods forward. They need to discuss issues thoroughly, explore alternatives and seek opinions through stimulating debate about the organization's present state and future prospects (Kakabadse and Myers, 1995a). Although research evidence suggests that high-quality dialogue is not easy to attain, its importance cannot be overestimated (Westley and Mintzberg, 1989). Furthermore, the quality of the dialogue is contingent on the quality of the relationship among group members. Whilst strong and robust relationships promote a positive team spirit, where even

the most delicate of concerns are aired, with poor relationships, undue attention is given to personalities and the issues that are deemed to be too sensitive to discuss tend to remain unaddressed, often with such dysfunctionality becoming a way of life (Kakabadse and Myers, 1995a,b) and an avenue for crises.

A complex organization consists of many social and cultural groupings and communication between and across these groups is likely to involve not only shared meanings but also contradictory and contested ones, requiring quality of dialogue as the means for improvement (Kakabadse, 1991, 1993). Furthermore, participants in communication may be equally active in (re)producing meanings, but they frequently do so from positions of unequal power (Korac-Kakabadse and Kouzmin, 1997). For example, in most contemporary Western societies, a person's access to information and ideas can often depend on their class, gender, age and ethnicity, as can their access to means of communicating information to others (Korac-Kakabadse and Kouzmin, 1997). Similarly, in organizational settings, actors' access to information and ideas can often depend on their position within the organization and their orientation as networking opportunists. In these circumstances, communicated messages are effective at the explicit level and at the broader cultural level of connotation, as shared connotations arise from shared experiences (Korac-Kakabadse and Korac-Kakabadse, 1999).

REFERENCES

- Allison G. 1971. *Essence of Decision Making*. Little Brown: Boston, MA.
- Anderson JR. 1983. *The Architecture of Cognition*. Harvard University Press: Cambridge, MA.
- Anderson JR. 1987. Methodologies of studying human knowledge. *Behavioural and Brain Science* 10: No. 3, 467–505.
- Anderson P, Tushman ML. 1990. Technological discontinuities and dominant designs: a cyclical model of technological change. *Administrative Science Quarterly* 35: No. 4, December, 604–633.
- Argyris C, Schon DA. 1978. *Organizational Learning*. Addison-Wesley: Reading, MA.
- Aristotle. 1928. Analytical Posterior. In *The Oxford Translation of Aristotle: Volume 1* (translated by Mure GRG, Ross WD). Oxford University Press: Oxford; 83–94.
- Aristotle. 1984. *The Complete Work of Aristotle: Volume 2* (edited by Burns J). Princeton University Press: Princeton, NJ.
- Barley SR. 1996. Technicians in the workplace: ethnographic evidence for bringing work into organization studies. *Administrative Science Quarterly* 41, No. 3, September, 404–441.
- Barnard C. 1938. *The Functions of the Executive*. Harvard University Press: Cambridge, MA.
- Bassi LJ. 1997. Harnessing the power of intellectual capital. *Training and Development* 51: No. 1, 25–30.
- Bateson G. 1973. *Steps to an Ecology of Mind*. Paladin: London.
- Beckman T. 1997. *A Methodology For Knowledge Management*. International Association of Science and Technology For Development (IASTFD) AI and Soft Computing Conference, July, Banff, Canada.
- Beckman T. 1998. *Knowledge management: a technical review*. GWU Working Paper, Washington.
- Bourdieu P. 1971. Intellectual field and creative project. In *Knowledge and Control*. Collier-Macmillan: London; 64–83.
- Bourdieu P. 1979. The production of belief: contribution to an economy of symbolic goods. *Media, Culture and Society* 2, No. 1, 48–53.
- Brooking A. 1996. *Introduction to Intellectual Capital*. Knowledge Broker Ltd.: Cambridge.
- Brown AL. 1982. Learning and development: the problem of compatibility, access and induction. *Human Development* 25, No. 1, 89–115.
- Brue K, Grimshaw D, Myers A. 2000. The business value of knowledge exploitation: a survey of UK industry. *Report*, Cranfield School of Management, Microsoft and Knowledge Management Partners, Cranfield, May.
- Brunsson N. 1985. *The irrational organization*. John Wiley: New York.
- Choo WC. 1998. *The Knowing Organization: How Organizations Use Information To Construct Meaning, Create Knowledge And Make Decisions*. Oxford University Press: Oxford.
- Choo WC. 1999. Closing the cognitive gaps: mastering information management. *The Financial Times* 22 March: 17.
- Cole-Gomolski B. 1997. Users loath to share their know-how. *Computerworld* 31, No. 46, 6.
- Crane D. 1987. *The Transformation of the Avant-Garde*. Chicago University Press: Chicago, IL.
- Currie W. 1995. *Management Strategy For IT: An International Perspective*. Pitman Publishing: London.
- Davenport TH. 1993. *Process Innovation: Re-engineering Work Through Information Technology*. Harvard Business School Press: Boston, MA.
- Davenport TH, Marchand DA. 1999. Is KM just good information management? Mastering information management. *The Financial Times* 8 March: 11–12.
- Davenport TH, Prusak L. 1997. *Information Ecology: Mastering the Information and Knowledge Environment*. Oxford University Press: New York.
- Davenport TH, Prusak L. 1998. *Working Knowledge: How Organizations Manage What They Know*. Harvard Business School Press: Boston, MA.
- Davis MC. 1998. Knowledge management. *Information Strategy: The Executive Journal* Fall: 11–22.
- Dempsey M. 1999. The role of the Chief Knowledge Officer: buzzword has already made a lot of enemies. *The Financial Times* 28 April: 11.
- Descartes R. 1911. Discourses on the Methods. In *The Philosophical Works of Descartes: Volume 1* (translated by Haled EI, Ross GRT). Cambridge University Press: Cambridge; 217–224.
- Dewey J. 1929. *The Quest For Certainty*. Putnam: New York.
- Drucker P. 1959. Challenge to management science. *Long Range Planning* 5, No. 2, 238–242.

- Drucker P. 1993. *Post-Capitalist Society*. Butterworth/Heinemann: Oxford.
- Elias N. 1987. The retreat of sociologists into the present. *Theory, Culture and Society* 4, Nos 2 and 3, 112–120.
- Elias N, Scotson J. 1965. *The Established and the Outsiders*. Cass: London.
- Ericsson KA, Simon HA. 1984. *Protocol Analysis: Verbal Reports as Data*. MIT Press: Cambridge, MA.
- Evans P. 1999. Strategy and the new economics of information: mastering information management. *The Financial Times* 8 February: 12.
- Evans PB, Wurster TS. 1997. Strategy and the new economics of information. *Harvard Business Review* 75: No. 5, September–October, 71–82.
- Gelwick R. 1977. *The Way of Discovery: An Introduction to the Thoughts of Michael Polanyi*. Oxford University Press: Oxford.
- Ghiselli EE. 1971. *Explorations in Managerial Talent*. Goodyear: Glenview, IL.
- Ghiselli EE. 1973. The validity of aptitude tests in personnel selection. *Personnel Psychology* 26: 461–477.
- Grant E, Gregory M. 1997. Tacit knowledge, the life cycle and international manufacturing transfer. *Technology Analysis and Strategic Management* 9, No. 2, 149–161.
- Grant R. 1996. Towards a knowledge based theory of the firm. *Strategic Management Journal* 17, No. 1, 109–122.
- Habermas J. 1972. *Knowledge and Human Interests*. Beacon Press: Boston, MA.
- Hamell G, Prahalad CK. 1990. The core competence of the corporation. *Harvard Business Review* 68, No. 1, January–February, 79–91.
- Hansen MT, Nohria N, Tierney T. 1999. What's your strategy for managing knowledge? *Harvard Business Review* 77, No. 2, March–April, 106–116.
- Hegel GWF. 1977. *Hegel's Phenomenology of Spirit* (translated by Miller AV). Oxford University Press: Oxford.
- Heidegger M. 1962. *Being and Time* (translated by Macquarie J, Robinson E). Basil Blackwell, Oxford.
- Hill S. 1988. *Competition and Control at Work: The New Industrial Sociology*. Gower: London.
- Holliday SG, Chandler MJ. 1986. *Wisdom: Explorations in Adult Competence*. Karger: Basel.
- Howells J. 1996. Tacit knowledge, innovation and technology transfer. *Technology Analysis and Strategic Management* 8, No. 2, 92–106.
- Husserl E. 1931. *Ideas: General Introduction to Pure Phenomenology* (translated by Royce Gibson WR). Allen and Unwin: London.
- Itami H. 1987. *Mobilizing Invisible Assets*. Harvard University Press: Cambridge, MA.
- James W. 1966. *Psychology: The Brief Course*. Allport G (ed.). Harper and Row: New York.
- Johnson-Laird PN. 1983. *Mental Models*. Cambridge University Press: Cambridge.
- Kahneman D, Slovic P, Tversky A (eds). 1984. *Judgement Under Uncertainty: Heuristics and Biases*. Cambridge University Press: Cambridge.
- Kakabadse A. 1991. *The Wealth Creators: Top People, Top Teams and Executive Best Practice*. Kogan Page: London.
- Kakabadse A. 1993. Success levers for Europe: the Cranfield Executive Competencies Survey. *Journal of Management Development* 13, No. 1, 75–96.
- Kakabadse A, Myers A. 1995a. Qualities of top management: comparisons of European manufacturers. *Journal of Management Development* 14, No. 1, 5–15.
- Kakabadse A, Myers A. 1995b. *Boardroom Skills For Europe*. International Management Development Centre: Cranfield School of Management, Cranfield.
- Kant I. 1960. *Religion Within the Limits of Reason Alone*. Harper and Row: New York.
- Kant I. 1965. *Critique of Pure Reason* (translated by Smith NK). St Martin's Press: New York.
- Kauffman RJ, Weill P. 1990. An evaluative framework for research on the performance effects on information technology investment. *Information System Research* 1, No. 4, 377–388.
- Korac-Boisvert N. 1992. Developing economies and information technology: a meta-policy review. The Australian and New Zealand Academy of Management's (ANZAM) Annual Conference on 'Re-discovering Australasian Management Competence in a Global Context', Sydney, December, 1–34.
- Korac-Boisvert N, Kouzmin A. 1995. Re-Engineering and the role of IT in Australia's largest 'firm': The Australian Public Service (APS). The Annual Conference on the European Group of Public Administration (EGPA), Erasmus University, Rotterdam, September, 1–22.
- Korac-Kakabadse A, Korac-Kakabadse N. 1996. *The Kakabadse Report/Leadership in Government: Study of the Australian Public Service*. Report to the Commonwealth Government of Australia, Cranfield School of Management, Cranfield.
- Korac-Kakabadse A, Korac-Kakabadse N. 1999. *Essence of Leadership*. International Thomson: London.
- Korac-Kakabadse A, Korac-Kakabadse N, Kouzmin A. 1998. Negotiating consultant links with the top team: transacting meaning and obligations or executive failure through excessive outsourcing? *Journal of Contemporary Issues in Business and Government* 4, No. 2, November, 4–17.
- Korac-Kakabadse N, Kouzmin A. 1996. Innovation strategies for the adoption of new IT in government: an Australian experience. *Journal of Public Administration and Development* 16: No. 4, October, 317–330.
- Korac-Kakabadse N, Kouzmin A. 1997. maintaining the rage: from 'glass and concrete ceilings' and 'metaphorical sex changes' to psychological audits and renegotiating organizational scripts. *Women In Management Review* 12, Nos. 5 and 6, 182–195 and 207–221.
- Korac-Kakabadse N, Kouzmin A. 1999. Designing for cultural diversity in an IT and globalized milieu: some real leadership dilemmas for the new millenium. *Journal of Management Development* 18: No. 3, October, 291–319.
- Kotter JP. 1982. *The General Managers*. Free Press: New York.
- Kouzmin A, Korac-Boisvert N. 1995. Soft-core disasters: a multiple realities crisis perspective on IT development failures. In *Trends in Public Sector Renewal: Recent Developments and Concepts of Awarding Excellence*, Hill H, Klages H (eds). Peter Lang: Berlin, 89–132.
- Labouvie-Vief G. 1989. Modes of knowledge and the organization of development. In *Beyond Formal Operations II: Comparisons and Applications of Adolescent and Adult Development Models*, Commons ML, Sinnott JD, Richards FA, Rmon C (eds). Praeger: New York, 109–119.
- Leonard P. 1998. *Wellsprings of Knowledge: Building and Sustaining the Sources of Innovation*. Harvard Business School Press: Boston, MA.
- Locke J. 1987. *An Essay Concerning Human Understanding: Book II*. Oxford University Press: Oxford.

- March JG. 1962. The business firm as a political coalition. *Journal of Politics* 24, No. 4, 662–678.
- Marphy R. 1989. *Social Closure: The Theory of Monopolization and Exposure*. Clarendon Press: New York.
- Marshall A. 1965. *Principles of Economics*. Macmillan: London.
- Marshall L. 1997. Facilitating KM and knowledge sharing: new opportunities for information professionals. *Online* 1, No. 5, 92–98.
- Marx K. 1976. *Capital*. Penguin: Hammondsworth.
- McAteer PF. 1994. Harnessing the power of technology. *Training and Development* 4, No. 8, 64–68.
- McClelland DC, Boyatzis RE. 1982. Leadership motive pattern and long-term success in management. *Journal of Applied Psychology* 67, No. 4, 737–743.
- Meacham JA. 1983. Wisdom and the context of knowledge: knowing what one don't know. In *On the Development of Developmental Psychology*, Kuhn D, Meacham JA (eds). Karger: Basel; 111–134.
- Merlau-Ponty M. 1962. *Phenomenology of Perception* (translated by Smith C). Routledge and Kegan Paul: London.
- Meyer R, Rowen B. 1977. Institutionalized organization: formal structure as myth and ceremony. *American Journal of Sociology* 83, No. 3, 340–363.
- Microsoft. 2000. British businesses falls short of Blair's knowledge economy. Press release, PR2384/2000/05/03. <http://press.microsoft.co.uk/relase/2000/may/pr2384.asp>
- Murray P. 1999. How smarter companies get results from KM: mastering information management. *The Financial Times* 8: March, 10.
- Murray P, Myers A. 1997. The facts about knowledge. *Information Strategy* 2, No. 7, September, 29–33.
- Muetzelfeldt M. 1988. The ideology of consumption within the mode of production. Sociological Association of Australia and New Zealand Annual Conference, Canberra, May.
- Myers P (ed.). 1996. *Knowledge Management and Organizational Design*. Butterworth-Heinemann: Oxford.
- Myers A, Kakabadse A, Gordon C. 1995. Effectiveness of French management: analysis of the behaviour, attitudes and business impact of top managers. *Journal of Management Development* 14, No. 6, 56–72.
- Naisbitt J. 1994. *Global Paradox*. William Morrow and Company: New York.
- Ngwenyama OK, Lee AS. 1997. Communication richness in electronic mail: critical social theory and contextuality of meaning. *MIS Quarterly* 21, No. 2, June, 145–166.
- Nijsmans M. 1992. A Dionysian way to organizational effectiveness. In *Psyche at Work: Workplace Application of Jungian Analytical Psychology*, Stein M, Hollwitz J (eds). Chiron Publications: Illinois, 136–155.
- Nohria N, Eccles RG. 1992. Face-to-face: making network organizations work. In *Networks and Organizations: Structure, Form and Action*, Nohria N, Eccles RG (eds). Harvard Business School Press: Boston, MA, 288–308.
- Nolan R. 1979. Managing the crises in data processing. *Harvard Business Review* 73, No. 2, March–April, 115–126.
- Nonaka I. 1990. Redundant, overlapping organizations: a japanese approach to managing the innovation processes. *Californian Management Review* 32, No. 3, 27–38.
- Nonaka I, Takeuchi H. 1995. *The Knowledge-Creating Company*. Oxford University Press: Oxford
- Olson DR. 1977. From utterance to text: the bias of language in speech and writing. *Harvard Educational Review* 47, No. 2, 257–281.
- Orlikowski W. 1999. Managing use, not technology — a view From the trenches: mastering information management. *The Financial Times* 22 March: 7–8.
- Pan S, Scarbrough H. 1999. Knowledge management in practice: an exploratory case study. *Technology Analysis and Strategic Management* 1, No. 3, 359–374.
- Plato. 1953. *Phaedo*. In *Plato I* (translated by Gowler HN). Harvard University Press/The Loeb Classical Library: Cambridge, MA, 117–124.
- Polanyi M. 1958. *Personal Knowledge: Towards a Post-Critical Philosophy*. University of Chicago Press: Chicago, IL.
- Polanyi M, 1966. *The Tacit Dimension*. Routledge and Kegan Paul: London.
- Popper K. 1972. *Objective Knowledge: An Evolutionary Approach*. Clarendon Press: Oxford.
- Reich RB. 1993. *The Work of Nations: Preparing Ourselves For 21st Century Capitalism*. Simon and Schuster: London.
- Rice RE, Aydin C. 1991. Attitudes towards new organizational technology: network proximity as a mechanism for social information processing. *Administrative Science Quarterly* 36, No. 2, June, 219–244.
- Robertson R. 1990. Mapping the global conditions. *Theory, Culture and Society* 7, Nos 2 and 3, 63–99.
- Rumelhart DE, Norman DA. 1990. Representation of knowledge. In *Issues in Cognitive Modeling*, Aitkenhead AM, Slack JM (eds). Macmillan: New York; 43–52.
- Sartre JP. 1956. *Being and Nothingness* (translated by Barnes HE). Philosophical Libraries: New York.
- Schank E, Abelson R. 1977. *Scripts, Plans, Goals and Understanding: An Inquiry Into Human Knowledge Structures*. Erlbaum: Hillsdale, NJ.
- Scharge M. 1997. The problem with computers. *Harvard Business Review* 75, No. 5, September–October, 178–188.
- Senge P M. 1990. *The Fifth Discipline: The Age and Practice of the Learning Organization*. Century Business: London.
- Sharda R, Frankwick GL, Turetken O. 1999. Group knowledge networks: a framework and an implementation. *Information System Frontiers* 1, No. 3, 221–239.
- Single MK, Anderson JR. 1989. *The Transfer of Cognitive Skills*. Harvard University Press: Cambridge, MA.
- Skyrme D. 1996. *Creating the Knowledge-Based Business*. Oxford University Press: Oxford.
- Sowa J. 1984. *Conceptual Structures*. Addison-Wesley: London.
- Spender JC. 1996. Dynamic theory of the firm. *Strategic Management Journal* 17: Winter, Special Issue, 45–62.
- Stalk G, Evans P, Shulman L. 1992. Competing on capabilities: the new rules of corporate strategy. *Harvard Business Review* 70: No. 2, March–April, 57–69.
- Strassman P. 1995. *Information Payoff*. The Information Economics Press: New York.
- Swan J, Newell S. 2000. Linking KM and innovation; ECIS Proceedings vol 1, Vienna University of Economics, Wien.
- Taylor F. 1911. *Principles of Scientific Management*. Harper and Row: New York.
- Teece D. 1981. The market for 'know-how' and the

- efficient international transfer of technology. *Annals of the American Academy of Political and Social Science* 458: 81–95.
- Teece D, Pisano G, Shuen A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal* 18, No. 7, 509–533.
- The Cranfield Information Strategy Knowledge Survey (TCISKS). 1998. *Europe's State of the Art in Knowledge Management*. The Economist Group: London.
- Touraine A. 1985. An introduction to the study of social movements. *Social Research* 52, No. 4, 45–52.
- Trevino LK, Lengel RH, Daft RL. 1987. Media symbolism, media richness and media choice in organizations: a symbolic interactionist perspective. *Communication Research* 14: 553–574.
- Turban E. 1992. *Expert Systems and Applied Artificial Intelligence*. Macmillan: New York.
- Tushman ML, Anderson P. 1986. Technological discontinuities and organizational environments. *Administrative Science Quarterly* 31, No. 3, September, 439–465.
- Usher AP. 1954. *A History of Mechanical Innovation*. Oxford University Press: Oxford.
- Van der Spek R, Spijkervet A. 1997. Knowledge management: dealing intelligently with knowledge. In *Knowledge Management and its Integrative Elements*, Liebowitz J, Wilcox L (eds). CRC Press: London. 114–123.
- Van de Ven AH. 1986. Central problem in the management of innovation. *Management Science* 32, No. 4, 590–607.
- Venkatraman N. 1990. Performance implications of strategic coalignment: a methodological perspective. *Journal of Management Studies* 27, No. 1, January, 19–41.
- Venkatraman N, Camillus J. 1984. Exploring the concept of 'fit' in strategic management. *Academy of Management Review* 9, No. 3, July, 513–525.
- Von Hippel E. 1994. 'Sticky information' and the locus of problem solving: implications for innovation. *Management Science* 40, No. 4, 429–439.
- Walsh J. 1995. Managerial and organizational cognition: notes from a trip down memory lane. *Organization Science* 6, No. 3, May–June, 280–321.
- Webster F, Robins K. 1986. *Information Technology: A Luddite Analysis*. Ablex: Norwood.
- Weick KE. 1995. *Sensemaking in Organizations*. Sage: London.
- Westley F, Mintzberg H. 1989. Visionary leadership and strategic management. *Strategic Management Journal* 10: Summer, 17–32.
- Wiig K. 1993. *Knowledge Management Foundation*. Schema Press: New York.
- Wittgenstein L. 1958. *The Blue and Books*. Basil Blackwell: Oxford.
- Woolf H. 1990. *Webster's New World Dictionary of the American Language*. G and C Merriam: New York.
- Zander U, Zander I. 1993. Innovation and imitation the multinational company: preliminary remarks on the role of tacitness. In *International Business and Europe After 1992, Proceedings of the EIBA 19th Annual Conference, Volume 2*, Simoes V (ed.). CEDE: Lisboa, December, 174–193.
- Zuboff S. 1988. In *The Age of the New Machine*. Basic Books: New York.