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**Competences for knowledge-management and for work in networks:
Individual initiative, the ability to cooperate, the ability to communicate**

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INTRODUCTION

To start with we need to agree on a common understanding of what knowledge-management is.

This requires first the clarification of the definitional complex word “knowledge”. It will be emphasized that in the management context “knowledge” means organizational knowledge rather than the contents of encyclopedias or reference books.

After the ensuing discussion about knowledge management, attention will turn to competencies needed for sharing knowledge and for working with and in networks in our global world.

KNOWLEDGE AS A MANAGEMENT CONCEPT

The word “knowledge” is probably among the top ten in our world. The question of what we know and, by inference, take to be true - or rather, in the words of Plato, accept as “justified true belief” - has exercised some of the finest intellects of the human race.

The quest for the understanding of the nature of knowledge, beginning with Plato and his student Aristotle, over the centuries has given rise to the two principal Western traditions of epistemology, which is the critical study of the theory of knowledge with reference to its methods, validation, and scope.

The first of these principles is rationalism, associated with the continental European tradition. Rationalism is the belief that reason alone, without any reliance on experience, can reveal the nature of reality.

The second is empiricism, which is most strongly associated with British philosophy and the two great empiricists, John Locke (1632-1704) and David Hume (1711-1776). Empiricism holds that all knowledge is based on experience and that the human mind is not equipped with a set of concepts in advance of experience.

Nonaka and Takeuchi (1995) state that Western philosophical thinking is still largely dominated by a strong dualism or the “Cartesian Split: the intellectual separation of subject and object, mind and body, or mind or matter. They contrast this with the Japanese philosophical tradition which has itself been strongly influenced by Chinese thinking, notably Confucianism, and Indian systems, notably Buddhism.

At the root of Japanese philosophical thinking is the quest for oneness, harmony and complementarities.

It becomes apparent therefore that there can be no objective, universal standard for knowledge: at best we can say it is the sum of what we know or think we know and our own particular stand-point. Whilst knowledge may elude formal definition to suit everyone, there can be less doubt as to the properties of knowledge:

- Knowledge is, in a strict sense, only created by individuals.
- It is perpetually expandable - even an interpretation of an inviolate text which is in the spirit of that text is an addition to knowledge.

- It can be stored in human heads and in what we might call “technical repositories” such as books, other documents, databases, data files and so forth.
- It can be stored in a systematic way (for example, according to subject arranged in alphabetical order in encyclopedias to make it more accessible intellectually or retrievable from technical repositories).
- It is often in the form of summary and part of the summarization process may include codification.
- It can be shared: in principle, universally.
- It can be forgotten and not used.

**In short, knowledge is generated; it is codified and coordinated;
it is transferred and is then in principle used.**

The purpose of these knowledge-generating processes is to serve

- the generator (e.g. the scholar, who becomes more knowledgeable);
- the encoder or coordinator of knowledge (e.g. an encyclopedia), and
- the user (the person who consults the encyclopedia) to extend or re-evaluate his or her existing knowledge.

Defining “knowledge” as in knowledge management is no straightforward task. Here, for example, is the hardly eloquent, organizationally slanted definition of “knowledge” supplied by Davenport and Prusak (1998):

“Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms”.

Davenport and Prusak (1998) concede that “this definition makes clear. . . that knowledge is not neat or simple”.

Tacit and Explicit knowledge

It is possible to make some major distinctions about the nature of knowledge. The most important distinction is that which is made between knowledge which is tacit and knowledge which is explicit.

Tacit knowledge is personal, context specific, and therefore hard to formalize and communicate.

Nonaka and Takeuchi (1995) segment tacit knowledge into two dimensions: the technical and the cognitive dimension.

It is the technical dimension, which encompasses the kind of informal and hard-to-pin-down skills or crafts captured in the term 'know-how'.

A master craftsman, for example, develops a wealth of expertise “at his fingertips” after years of experience. But he is often unable to articulate the scientific or technical principles behind what he knows.

At the same time, tacit knowledge contains an important cognitive dimension. It consists of schemata, mental models, beliefs, and perceptions so ingrained that we take them for granted. The cognitive dimension of tacit knowledge reflects our image of reality (what is) and our vision for the future (what ought to be). Though they cannot be articulated very easily, these implicit models shape the way we perceive the world around us.

Explicit knowledge is that which can be articulated in formal language including grammatical statements, mathematical expressions, specifications, manuals and so forth and thus can be transmitted across individuals formally and easily. (Nonaka and Takeuchi, 1995).

However, this division of knowledge is not unimpeachable and has been cogently criticized by Maula (2000). Among her reservations are that the distinction between explicit and tacit knowledge as objective and subjective respectively are not clear-cut because “our personal knowledge - and the company’s knowledge as well - is more or less influenced by our senses and earlier experiences and knowledge”.

The assumption too that explicit knowledge “is created through the rational functioning of the mind” is likewise questionable.

We need to bear these reservations in mind, for, as we shall see later, the distinction between tacit and explicit knowledge is especially problematically when knowledge is transferred cross-culturally.

In passing we should mention other two properties of knowledge which we will refer to. Burton-Jones (1999) draws our attention to stickiness and absorptive capacity:

Stickiness refers to the difficulty associated with codifying knowledge, i.e. turning it into explicit transmittable information. Readers will doubtless have encountered the problem of stickiness on occasion, when trying to get “a thought down on paper”. In the firm, internal stickiness often hinders effective transfer of knowledge between individuals and departments.

Whereas stickiness slows down the export of knowledge, absorptive capacity affects how easily the recipient can understand it. Prior knowledge of a particular “knowledge domain” or subject tends to make it easier to understand new information that is related to that knowledge domain.

The converse is also true, as many firms and individuals have found to their cost, when venturing into new knowledge domains.

For the sake of completion we should mention some other typologies of knowledge. Machlup (1980) made a distinction between five types of knowledge based on what he called “areas of concern”, which are associated with these statements:

- Knowing that something is so, and not otherwise;
- Knowing how something looks;
- Knowing how something happened;

- Knowing how to perform a certain task;
- Knowing how something (a cause or antecedent) is connected with;
- ... Something else (a subsequent effect).

Fleck (cited by Brown and Woodland, 1999) identified ten components of management knowledge, one of which is meta-knowledge. Writers who are more concerned with “knowledge in action” use more pragmatic typologies.

Burton-Jones (1999) characterizes knowledge in relation to the firm using three criteria: knowledge within the firm; the specificity of knowledge to the firm; and its value to the organization.

Davenport and Prusak (1998), making use of the experience of British Petroleum in introducing a company-wide knowledge management/ organizational learning system, classify knowledge management on the basis of principles which should underpin good practice.

Knowledge management principles by T. Davenport & L. Prusak, 1998

- Knowledge originates and resides in people's minds;
- Knowledge-sharing requires trust;
- Technology enables new knowledge behaviors;
- Knowledge-sharing must be encouraged and rewarded;
- Management support and resources are essential;
- Knowledge initiatives should begin with a pilot program;
- Quantitative and qualitative measurements are needed to evaluate the initiative;
- Knowledge is creative and should be encouraged to develop in unexpected ways.

KNOWLEDGE MANAGEMENT

“Knowledge management” is a fashionable term, indeed one of the hottest buzzwords in the corporate world.

Knowledge management has been defined as “the systematic management of the knowledge processes by which knowledge is identified, gathered, shared and applied” (Newing, 1999).

Knowledge Management as a concept is for all the hype. Knowledge itself remains the paramount resource and thus the key economic progress, focusing on knowledge transfer in international acquisitions.

In many industries, the importance of developing abilities to better utilize the knowledge contained in the company’s network has become apparent to managers. Many of the management fads of recent years have assisted in this process of recognition. Benchmarking has demonstrated the potentially great benefits of best practices transfer. Instances of failure of downsizing, on the other hand, have revealed the cost of losing knowledge. Empowerment and globalization have created local knowledge with potential for utilization elsewhere, and information technology has given individuals increasingly differentiated knowledge, unknown to head office. One of the most cited reasons for the importance of knowledge management is the increasing speed of competition. Reinventing the wheel, it is argued, is a serious waste of time when the requisite knowledge is already contained in other parts of the organization.

The term "knowledge management" has unwanted implications. The "management" part implies that this is something Management is in charge of, when what is wanted is that everyone in the organization be involved in the exchange as well as generation of knowledge.'

A primary task of firms today lies in the protection and integration of special knowledge. Knowledge is the most sought-after remedy to uncertainty. This entails the recognition that the key element in knowledge management is the continuous learning from experience; or, the continuous learning from experiences (added emphasis). In practical terms, the aim of knowledge management is to keep track of valuable capabilities used in one place that could be applied elsewhere.

What, in a practical sense, does knowledge management actually entail? In essence, the task of knowledge management acknowledges that managers must continually update their knowledge without reinventing the wheel. This engages organizations in two kinds of knowledge activity:

First they must find effective ways to translate their ongoing experience into usable knowledge. This is the act of creating what is called "common knowledge".	Second, they have to transfer that knowledge across organizational borders. This is the act of leveraging common knowledge "across time and space".
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Common knowledge is the knowledge that "employees learn from doing the organization's tasks. E.g. what an organization has learned about how to introduce a new drug into the market, how to increase refinery reliability, how to reduce materials cost on capital projects, and how to control the amount of pitch in wood pulp, etc.

All these examples involve knowledge management: the generation of knowledge through external acquisition or internal creation, its codification, and transfer.

The aim of knowledge management is to secure insights, judgments and understanding order to develop company-specific knowledge, which can be converted into tacit knowledge, which both adds value to company activities in the widest sense and is difficult for rivals to copy,

In other words, the task is to create and leverage common knowledge for organization advantage. Adding value can be understood in terms of networking performance providing improved solutions to customers' problems, and developing capabilities or competencies likely to be valuable in the future as well as the present.

Of course, knowledge management is an activity which is heavily dependent on information technology but IT is, in principle, fine with explicit knowledge. Developing IT systems for handling the all-important tacit knowledge is more problematical: it is not only hard to capture pin down and codify, but there must be knowledgeable human experts at the disposal of the company to attest to its relevance and potential value.

KNOWLEDGE WORK

Although knowledge work can be seen in terms of generation, codification and transfer of knowledge, these should not be seen as operationally discrete categories. All of them involve and overlap with

- the use of a personal knowledge base,
- the acquisition of new information,
- the combination, processing production and communication of information,
- the continuous learning from experiences.

Furthermore, the totality of knowledge work activities variously involve the knowledge worker in the consolidation, extension and attenuation of personal networks, knowledge itself, transcend firm, industry and national boundaries.

Generation of knowledge: Acquisition and creation

The first thing to note about knowledge acquisition is that firms require a constant supply of knowledge inputs. Key issues include:

- the selection and management of knowledge resources,
- balancing knowledge supply and demand, and
- acquiring the knowledge of other companies

Acquisition starts a variety of internal and external sources: printed and other documentary resources, computer databases, and personal interaction with other people who are “knowledgeable”.

Creation is the act of combining these sources into new knowledge configurations. As we noted earlier, competitive advantage is linked, to the acquisition of tacit knowledge which is not only in “knowledgeable” people’s heads, but embedded in their specific context.

This contextual knowledge – e.g. the know-how associated with Japanese just-in-time manufacturing systems – is often rich and “unique”. It is the kind of knowledge that a firm needs when it wants to acquire or merge with another one and finds that it disappears when they think they have it: as in various mergers where the “knowledgeable people”, not liking the shape of the newly formed company, went “down the road” with their knowledge to another company – in the worst case to a competitor.

Codification of knowledge

The aim of codification is to put organizational knowledge into a form that makes it accessible to those who need it. It literally turns knowledge into code (though not necessarily a computer code) to make it organized, explicit, portable, and as easy to understand as possible.

Knowledge managers and users can categorize knowledge, describe it, map and model it, simulate it, and embed it in rules and recipes. Each of these approaches has its own set of values and limitations, and they can be applied singly or in combination. Obviously, new technologies play an important role in the knowledge codification and make the prospects for those activities increasingly promising.

Codification is a problem, but not always a technical one. A critical factor seems to be to decide what knowledge is relevant from the point of view of company goals and therefore worth codifying, but provided it can be, given that tacit knowledge is 'almost impossible to reproduce in document or database.

Knowledge workers use a variety of information technologies to manipulate information. Technologies such as electronic mail, groupware, and information networks enable knowledge workers to share information with both individuals and groups. Portable computers equipped with fax/modems, supported by worldwide networks, allow knowledge

workers to compute anytime, anywhere and to keep in constant contact with their office and colleagues.

However, I believe that the most productive form of knowledge transfer is through face-to-face interactions, which take place not only at meetings and seminars that companies might arrange, but also in more casual encounters in company corridors.

Knowledge management is still overwhelmingly preoccupied with technology: data repositories, intranet, communities of practice, corporate yellow pages, whilst “skipping over” changes in attitudes, behaviors and beliefs.

If that were not bad enough, the challenges of the transfer knowledge between departments in the same company are “far from trivial” and the problems associated with transfer will increase with geographical and cultural difference.

By its nature participation in the global economy requires, in principle, the leveraging of knowledge from any source regardless of location, but it seems that the most valuable knowledge - the knowledge that gives the chance of sustained competitive advantage - is that which resides in the brains of people worldwide: the all-important tacit knowledge, which is not only personal and hard to formalize, but also exceptionally difficult to manage even in a unitary cultural ambience, let alone in contexts where the management of cross-cultural flows is the key to the leveraging of knowledge.

The issue over whether human interaction or man-machine interfacing is in the end the superior vehicle for transferring knowledge, especially of the tacit sort, is a moot question. Technology seems to be very important and we can't set up knowledge management without cracking the technology. It gives the speed and the connectivity that companies need to capture and distribute knowledge. Even though knowledge management systems are far more suited to handle technical information, the transfer of technical know-how can be still inhibited for context-specific reasons.

KNOWLEDGE LEADERSHIP

A new economic world order is emerging – one based upon the flow of intellectual, not financial capital. Every function, every industry and every region of the world – developing and industrialized nations alike – is experiencing profound changes in the way we manage our most precious resource – human talent.

Modern management concepts are evolving from practitioners – not the theoretical academic research base. Leading (and being led) is more a function navigation and networking than the traditional command-and-control systems with which we are familiar.

Most astute executive managers have seen beyond the limitations of an information society, technology-enamored strategies and the dot.com phenomenon. Modern leaders do not fear the speed of change; they embrace an agenda of learning. They know that effective management is **not a matter of having the most knowledge; it is knowing how to use it.**

It is not enough to know modern management concepts. How they get implemented (i.e., put into action)? Leadership is more an art than a science, but that doesn't excuse us for searching for appropriate metrics for a return-on-leadership. We must develop an innovation competence and how to measure the performance thereof.

At the heart of the current transformation is the human being within whom knowledge resides. And the path to a sustainable future is an ability to innovate - create knowledge,

convert it into viable products and services, and apply it for the profitable growth of an enterprise, the vitality of a nation's economy and the advancement of society. It is that simple and that complex.

There is certainly nothing new about the link of knowledge and progress. Since man began to interact with his environment, what he knew was essential for survival.

What is different about the Knowledge Economy is our ability to focus upon and manage knowledge – individual and collective – more explicitly.

Because of the multiplier effect of knowledge – the more it is shared, the more it grows – we are now evolving a view of executive development demanding a new style of leadership behavior.

Leadership in Measurement

Although many of these principles may have been around for decades, few organizations have implemented them in a major way. Fewer have discovered a systematic way to measure the results. Measurement in the management development field is uncomfortable and time-consuming. Now, with the significant research being done, we are beginning to comprehend the power behind the intangible value of the enterprise.

Today, we measure what we can measure, rather than ask the difficult questions. Courageous leaders such as Leif Edvinsson, notably the first Chief Knowledge Officer in the World and now a professor of Knowledge Economics at the University of Lund (Copenhagen, Denmark) said, "I'd rather be roughly right than precisely wrong!"

SUMMARY / CONCLUSION

Knowledge management has a profound effect on today's businesses and organizations. Companies race to compete in a global market place where speed in service delivery and taking products to market, low cost, easy access, and demanding customers determine which companies survive. Key to survival is the ability of a company to maximize its greatest resource - its collective knowledge assets. Knowledge management is becoming more and more important as organizations and businesses look at how they create, store, distribute and apply knowledge to enhance their results.

The field of knowledge management is gaining prominence due to the proliferation of information, the demands for rapid assimilation of data, and the increased value placed on knowledge as an asset. In some ways, knowledge management is characterized by the desire to develop and apply knowledge from an abundance of data and information.

A preliminary review of the literature indicates that in today's rapidly changing work environment, successful companies are those that consistently create new knowledge, disseminate it through the organization, and embody it in technologies, products and services (I. Nonaka, 1991).

While most organizations are adept at generating information, they are often challenged by the task of extracting and managing the knowledge buried within the volume of information, and subsequently bringing it to bear for useful and productive actions. Jerry Junkins, CEO of Texas Instruments, has been quoted as saying "If we only knew what we know at TI."

In a survey of over 70 companies, 79% of the managers agreed that managing organizational knowledge was central to their organizational strategy. At the same time, 59% of those managers felt they were doing this either poorly or not at all. (A. Allee, 1997).

Knowledge management is not simply a question of technology. While information technology is clearly a part of the solution, the challenge is much more complex and involves issues of organizational culture and values which, in many cases, have never been examined or articulated.

For example, in many organizations, knowledge is power, and achievement and advancement are based on individual expertise. In addition to innovative information systems, effective knowledge management will require organizational changes that produce norms, behaviors, and rewards that consistently communicate and demonstrate the importance of shared knowledge. This is by no means an easy challenge, but one which may be a determining factor for success in the coming years

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Working Areas

„Cross Cultural Management“: Multicultural Team Building, International HR Development, Expatriate and Transfer Management, Cultural Change Processes, Negotiations & Conflict Resolution, Leadership Coaching, Know-How Transfer and Networking Strategies.
