

Encyclopedia of Library and Information Science

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International Conference on Knowledge Management (ICKM)

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Abstract

The objective of this article is to describe the evolution of the International Conference on Knowledge Management (ICKM) and to explain internationally accepted concepts and sustaining developments in knowledge management. Due to limited space, only 3 well known concepts will be discussed – one of which is technologically and the other two sociologically oriented. Reports on intellectual capital will also be explored. Finally we discuss knowledge management instruments and issues for the future.

Introduction

In the first section, the fundamental nature of knowledge management will be explored in detail by examining relevant definitions. Section two will briefly describe the evolution and aims of ICKM. Section 3 will explain three well known concepts; a sociological concept from the USA (Senge), another sociological concept from Asia (Nonaka) and one technological concept from Europe (Probst). Section 4 will deal with intellectual capital reporting. Derived from Probst's concept we describe knowledge management instruments in section 5. Finally we discuss open issues.

Definitions

Peter F. Drucker (1) was one of the first researchers to mention the term “knowledge worker”. Since then, several approaches have focused on knowledge management initiatives, all of them pursuing one goal, to leverage the performance of individuals, groups or companies. Knowledge management is regarded as an interdisciplinary field involving tasks such as learning, innovation, intellectual capital reporting (human, structure, relationships) and organizational optimization. The main challenge is how to discover, create, capture, share and utilize knowledge via (social) networks. Knowledge management is not only an IT challenge – it mostly consists of motivating people to share valuable information so that intellectual capital of companies can be improved. Bontis (2), Edvinsson and Malone (3) as well as Sveiby (4) see intellectual capital as the “stock” of knowledge that exists in an organization at a particular point in time. A similar view is described by Nonaka and Takeuchi (5) who defined knowledge management as managing the stock of knowledge in an organization as it flows over time. Managing this stock remains a challenge, as there is the need to socialize and codify intangible (tacit) knowledge.

There are several various theories of knowledge management. Bonifacio, Bouquet, and Cuel (6) characterize knowledge sharing and knowledge management as the process of creating, codifying, and disseminating knowledge. They claim that knowledge can be disseminated, however this approach assumes the existence of an objective epistemology, so that all contextual, subjective and social aspects of knowledge can be eliminated in favor of an objective and general codification. This is undoubtedly an interesting idea, however individuals tend to interpret data immediately after acquiring it. It seems clear that different knowledge can be produced from the

same chunk of information contained in different brains, no matter how this information is codified.

It would seem therefore, that only information can be disseminated and exchanged and not knowledge. This view is also supported by the school of autopoietic epistemology which states that knowledge is a private, personal matter which is intuitively and strongly linked to a person's values and beliefs. Explicit knowledge is data and information which enable other people to create their own knowledge via a "structured coupling" process explained by Joia (7). There are techniques existing such as sharing knowledge through common experience, through story telling or micro articles – for all these techniques the basis is information flow based on text, speech, smell, optics (behavior) or tangibles. This information is then interpreted by our brain according to our context knowledge, previous experiences, instincts and intuitions. The usage of the terms "knowledge sharing" and "knowledge management" in this paper therefore refers to information exchange processes and various individual interpretations of transferred data. Thus, knowledge is created purely through information transfer and successful or unsuccessful knowledge sharing is a consequence thereof. This point of view has been explained in depth by Barachini (8) who asserts that knowledge management is performed in human brains only – all the rest is data and information management.

Scientists commonly recognize four types of knowledge:

1. tangible & individual knowledge, characterized by fact knowledge
2. tangible & collective knowledge, characterized by rules and written instructions
3. intangible & individual knowledge, characterized by experience
4. intangible & collective knowledge, characterized by hidden values and believes
(society's unwritten laws)

As a result, there exists a distinct difference between tangible and intangible knowledge.

Purpose and History of the ICKM

For knowledge management as a discipline to succeed, it needs to draw on the support of the different areas described above. Therefore a platform was needed to bring together both academics and practitioners. In mind with the interdisciplinary nature of this field, the International Conference on Knowledge Management (ICKM) was started by Prof. Suliman Hawamdeh in 2004 in Singapore with the aim to bring academics and practitioners of the various disciplines together. The conference's goals were to encourage world-wide collaboration, address issues relevant to today's industrial problems while delivering tangible benefits to both communities.

Building on the successes of ICKM conferences in Singapore (2004), Charlotte, North Carolina (2005), London (2006), Vienna (2007) and Columbus, Ohio (2008), a leading international forum for researchers and practitioners will continue to be provided. Although all participants may openly and freely present ideas and theories, proceeding publication is limited to peer-reviewed papers, an approach which should guarantee both high scientific quality and sufficient quantity. On average 200 participants from countries all over the world are visiting the conference.

Selected Knowledge Management Concepts

Senge's Approach

According to Peter Senge (9) learning organizations are organizations where people continually expand their capacity to create the results they desire, new and expansive patterns of thought are

nurtured, collective aspiration is generated and where learning takes place on an individual as well as collective level.

Managers can detect organizational learning disabilities by utilizing the following five principles:

- I. Personal Mastery: both life and work should be approached “as an artist would approach a work of art”
- II. Mental Models: deeply ingrained assumptions or mental images “that influence how we understand the world and how we take action”
- III. Building Shared Vision: when there is a genuine vision “people excel and learn, not because they are told to, but because they want to”
- IV. Team Learning: team members engaging in true dialogue without assumptions
- V. Systems Thinking: the integrative (fifth) discipline that fuses the other 4 into a coherent body of theory and practice

These 5 disciplines should be employed continuously in order to improve existing capacities. Since learning organization theories usually target the same approaches as that of knowledge management, there tends to be a close correlation between learning and managing knowledge.

Senge also mentions innovation management which is the cornerstone of mankind. The success of innovation management heavily depends on the quality of intellectual capital. Intellectual capital itself is characterized by human relationships, human knowledge and structural aspects.

Nonaka/Takeuchi's Approach

Nonaka published the SECI Model in 1991 (Figure 1). His spiral model shows how to share tacit and individual knowledge with colleagues (10).

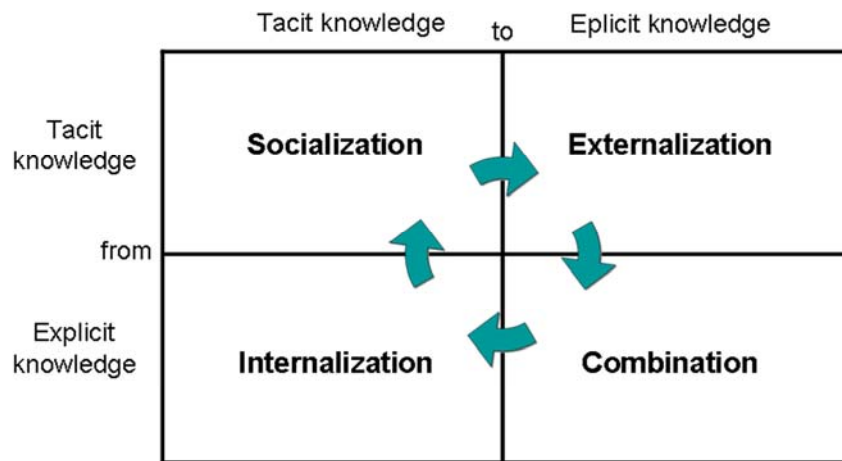


Fig.-1 : The Spiral Model

The first step, socialization, transfers tacit knowledge between individuals through observation, imitation and practice. In the next step, externalization is triggered by dialogue or collective reflection and relies on analogy or metaphor to translate tacit knowledge into documents and procedures. In the third step, combination consequently reconfigures bodies of explicit knowledge through sorting, adding, combining and categorizing processes and spreads it throughout an organization. Finally, internalization means the process of explicit knowledge transferred into individual tacit knowledge. Possibly, through a phenomenon that Nonaka calls the “knowledge spiral”, knowledge creation and sharing become part of the culture of an organization.

In 1997/1998 Tsoukas (11) theorizes that tacit and explicit knowledge were not two separate forms of knowledge, but rather inseparable and necessary components of all knowledge. Nonaka followed with a slightly enhanced SECI model in 1998 called “Ba”. “Ba” is a convenient place where knowledge can be exchanged. Nonaka pointed out that knowledge is not only produced

from individuals, but from interaction between individuals and the surrounding environment. Therefore, the more inspiring the “Ba”, the better the knowledge sharing results will be.

Probst/Raub/Romhardt's Approach

Probst (12) merged a set of connected activities into a framework called the ‘building blocks of knowledge’ (Figure 2). This framework is often used to implement knowledge management initiatives in organizations. Senge's and Nonaka's approaches are more oriented towards sociology. Probst's approach is rather a technological one.

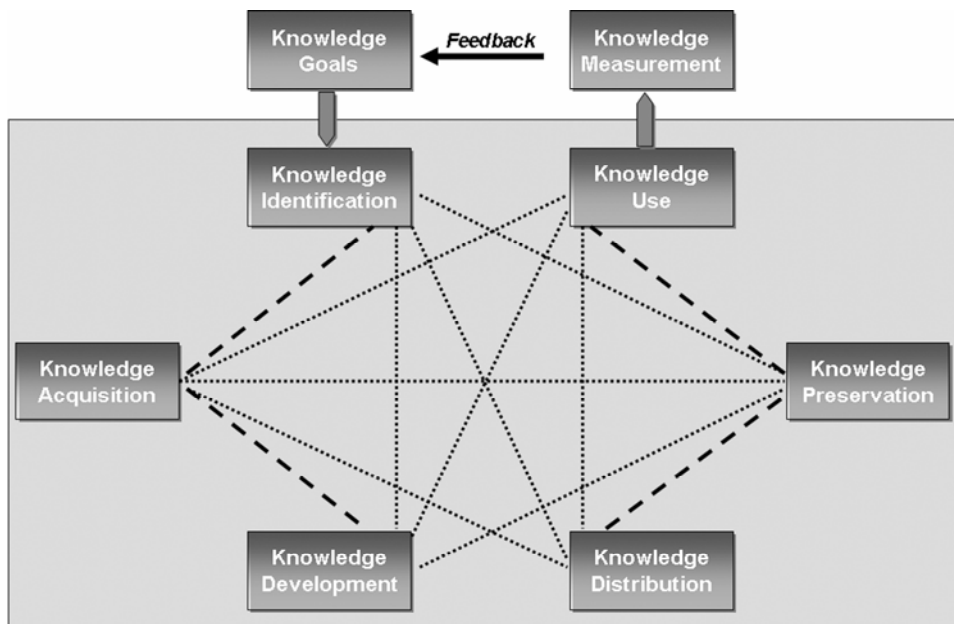


Fig. 2: Framework of Building Blocks of Knowledge

Knowledge Goals point the way for strategic and operational knowledge management activities. The main focus is to improve competitiveness. Knowledge goals identify current skills and those which might be essential in the future.

Knowledge Identification helps to establish whether internal and external knowledge is transparent. Knowledge Acquisition has its focus on the external provision of knowledge.

Knowledge Development focuses on processes which generate new knowledge. Knowledge Distribution deals with the transfer of knowledge inside a company.

Knowledge Preservation memorizes valuable knowledge while ensuring suitable storage.

Knowledge use is focused on the productive adoption of organizational knowledge.

The 'knowledge measurement' building-block is placed at the end of the process. In this block the intellectual capital is analyzed and evaluated. This results in improvements such as better education, more intensive customer relations or the need to invest into better infrastructure.

According to the feedback cycle it is necessary to measure the 'intellectual capital variables' in order to focus on target-oriented interventions. The problem is how to identify and measure these variables. Some variables such as fluctuation coefficients are easily measured while others such as tacit knowledge, which cannot be externalized by any of the above mentioned methods, remain impossible to measure. Until recently, there was no commonly accepted standard for measuring intellectual capital.

Intellectual Capital Reporting

Intellectual capital consisting of structural, human and relationship capital is part of each organization. Equipment, infrastructure, intellectual property rights, procedures and processes are regarded as structural capital. Skills and expertise of employees and management are parts of the human capital. The relationship between staff and external parties such as customers, business partners, friends or teachers represent relationship capital.

Sveiby and Edvinsson (1997) are considered the fathers of intellectual capital reporting. They identified methods and as a consequence variables characterizing structural, human and relationship capital. Similar to accounting balance sheets, measured variables are reported once a

year. Skandia and Celemi were one of the first companies in Europe to experiment with intellectual capital reports. It is not possible however to map all the different variables into one single value so that they can easily be compared between companies. Barachini (13) noted in his paper when he presented the business transaction theory that it is not possible to measure tacit individual knowledge since people do not offer knowledge (information) for free. He theorized that people employ "tit for tat" behavior during the information exchange process. This behavior is best explained by trading aspects of the modern portfolio theory. Taking the business transaction theory and the autopoiesis seriously we can conclude that there will always be a part of knowledge which will remain undiscovered.

The main idea behind an IC Report is that financial information reveals much about the past performance of an enterprise but says nothing about its future potential. An enterprise's future potential has much more to do with its Intellectual Capital. Creating transparency within the organization's Intellectual Capital will enable it to manage its intangible resources better, increase its staff's confidence and motivation as well as impart greater certainty to investors and other stakeholders about its future earnings potential. Reflecting the importance of knowledge as an asset, the IC-Report outlines the knowledge goals of the company, its knowledge-based capital, its business processes as well as its products and services.

National and international accountancy rules increasingly regulate how intellectual capital is reported. There are more than 35 intangible asset measuring models existing. These models basically differ in one aspect. One type of models use inductive methods, the others use deductive methods. Deductive methods evaluate Intellectual Capital by calculating functions expressing monetary values. Inductive methods are score card oriented. Inductive methods are subdivided into structure- and process oriented models (see a selection of methods in Figure 3).

Structure oriented models classify intellectual capital into categories and attempt to systematically measure an organization's knowledge assets. Process oriented models focus on coverage and description of knowledge flows.

Deductive Methods	Inductive Methods	
	Structural Model	Process Model
Tobin's Ratio	Skandia Navigator (Edvinsson)	Balanced Scorecard (Kaplan, Norton)
Return on Assets Methode-ROA	Intangible Asset Nonitor (Sveiby)	IC-Index (Roos)
Return on Management (Strassmann)	IC-Rating (Edvinsson)	Danish Guideline
Calculated Intangible Value		Intellectual Capital Report (ARCS)
Financial Method of Intangible Assets Measurement-FiMIAM (Rodov, Leliaert)		

Fig. 3: Selected methods for Intellectual Capital Reports

Although a wide range of methods for measuring and reporting Intellectual Capital have been developed during the last decade, especially for internal managerial purposes, companies have been reluctant to implement them. Investors are reluctant to invest in Intellectual Capital because of its inherent high-risk nature. Since Intellectual Capital is one of the main drivers of value creation and growth, this negative investment bias is seen as harmful, particularly for research-intensive and innovative enterprises (14).

Knowledge Management Instruments

On a formal level, instruments are tools, techniques or methods. A complete list of all existing instruments of knowledge management would be beyond the scope of this article. Following the

popular framework from Probst (see Figure-2) we can define at least one instrument per building block. Some of these instruments are supported by Information Technology (IT), Web technologies or social (soft) ware.

Building Block: Knowledge Measure

“Intellectual capital statement” represents coherences between organizational targets, business processes, intellectual capital and organizational profit. One well-known framework used to measure intellectual capital is the Austrian Research Center's intellectual capital report. This report measures different indicators from structural, human and relationship capital. Innovation indicators are also integrated (see Figure-4).

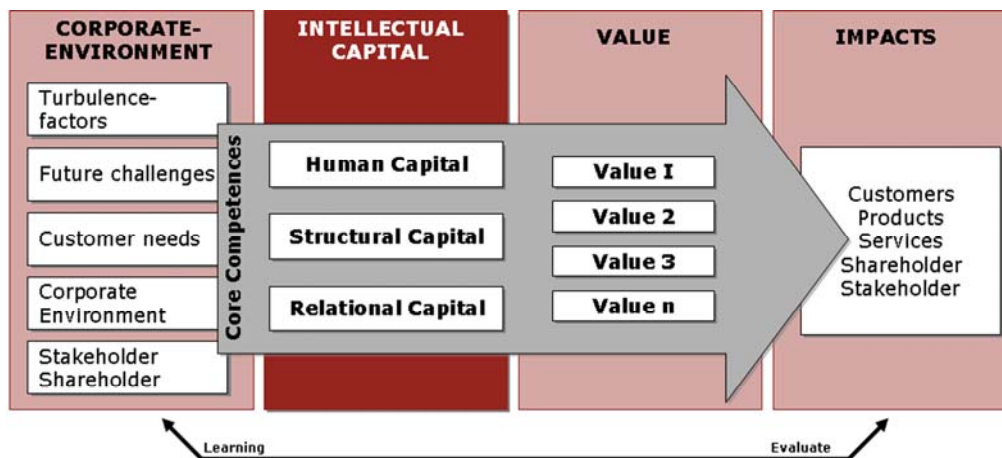


Fig. 4: Structure of the ARC Intellectual Capital Report

The ARC IC Report (15) is an inductive process oriented model developed in 1999. Currently, these types of models form the most common representation of IC-Reports.

The logic of this model combines goals, intellectual capital, knowledge processes and intangible results. The process of acquiring, applying and exploiting knowledge starts with the definition of

specific knowledge goals, which can be derived from the corporate strategy. Knowledge goals define areas where specific skills, structures and relationships should be established or increased in order to ensure the implementation of a corporate strategy. Derived from these goals the IC consisting of Structural, Human and Relational Capital is exploited. These intangible resources serve as input for the knowledge production process, which in turn is manifested in the different types of projects or processes carried out in an organization.

The model provides a framework for its adaptation and adoption by other organizations. When applying this model, organizations have to formulate explicitly the organizational goals relevant for the resources and processes (15).

Building Block: Knowledge Identification

Knowledge can be identified by knowledge or data miners. These are software programs that mine the web in order to identify useful chunks of information – a process known as “business intelligence”. Knowledge can also be discovered by a “knowledge café” where people join different tables in order to discuss various topics with various partners (16).

Building Block: Knowledge Acquisition

The simplest way to acquire knowledge is by reading a book, studying an encyclopedia, weblog or communities of practice.

Building Block: Knowledge Development

Knowledge is developed through experience, trial and error. This means that the practical application of acquired knowledge helps to develop further knowledge.

Building Block: Knowledge Distribution

Knowledge can be transferred by the telling of stories. Not only is the core message transmitted during this process but also all necessary background knowledge and semantics that are needed to understand the core message are relayed by dialogue.

Building Block: Knowledge Preservation

The brain is the body's primary repository of knowledge. Other sources such as databases on the web, data marts, MySpace, Youtube, Facebook and blogs represent information stores.

Building Block: Knowledge Use

The techniques mentioned in the other blocks are combined and used in organizational processes so that the performance of individuals or groups is enhanced.

Information sharing is the cornerstone of knowledge management. Existing information technology, referred to as social ware, helps people to share information and collaborate in an optimal fashion. Knowledge management is the management of this information flow, getting the right information to the people who need it so that they can act on it in due time.

Today many companies are using social ware to optimize collaboration and to improve results. Cultural and social problems however may occur during the collaboration process.

Conclusion and future trends

We have presented three well known concepts of knowledge management and discussed the different perspectives of knowledge management and intellectual capital reporting. Furthermore, we have presented instruments which are subject of investigation in conferences as the ICKM.

Our opinion is that substantial research is needed in intellectual capital reporting. As of yet, there are no widely accepted standards. Knowledge management itself can be seen as bringing the right knowledge to the right people in due time so that intellectual capital can be improved. The

problem is how to motivate people to share information. Appropriate rewarding schemas do exist, but they are not widely used in companies because it is too difficult to measure the value of information and the value of individual contributions. Much more research is needed in rewarding schemas.

Other obstacles for knowledge sharing are the divide between rich and poor and the divide between the educated and uneducated. Cultural differences also hamper knowledge sharing. We are convinced that there is a need to develop performance measurements for corporate social responsibility and to combine this with shareholder value. Substantial research is needed in this area and we hope that the International Conference on Knowledge Management will go a long way to stimulate such objectives.

If we accept knowledge as being a very private personal affair, then we recommend concentrating more research efforts towards neuroscience and neurobiology.

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Illustrations / Figure Caption

Figure 1: The Knowledge Spiral

Figure 2: Framework of Building Blocks of Knowledge

Figure 3: Selected methods for Intellectual Capital Reports

Figure 4: Structure of the ARC Intellectual Capital Report