



# Organizational Memory - Knowledge as a Process or Information as an Entity

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## ABSTRACT

*The aim of the paper is to define the concept of organizational memory by providing the first thorough content analysis applying Walker and Avant's method popular in nursing science. The analysis covers a total of 69 articles published between 1985 and 2002 in computer science, information science, archival science, economics (organization theory and business administration) and recently also in the multidisciplinary research area of knowledge management (KM). Organizational memory is a process, not a store of individual and collective organizational knowledge, related to organizational learning, decision-making and competitive capability. Therefore, it is argued that the concept is related to the emerging research area of KM, which regards knowledge as a social construct, rather than to information systems research, which dominates the empirical research of organizational memory.*

## INTRODUCTION

The roots of the idea of organizational memory go back to the organizational science and information-processing theories of the 1950s. The concept of organizational memory has been discussed in computer science, organization theory, business administration, and archival science, and in the multidisciplinary research area of knowledge management (KM). However, there is no consensus about the definition of the concept. The nature of the conceptions of organizational memory in general is examined, and the approaches of KM and their links to Information Management (IM) and organizational memory are analyzed. The definition of organizational memory is presented including the detailed findings of the analysis. Finally, the consequences for the theoretical basis of empirical studies are discussed, and ideas for further studies proposed.

## Definitions of organizational memory

Many researchers claim that the understanding of the concept of organizational memory is limited, the term is vague, but widely used. According to Ackerman (1994a, 1994b) and Ackerman and Halverson (1998) organization is a whole and organizational memory is invisible, muted and hazy. Megill (1997) defines organizational memory as consisting of all the active and historical information in an organization that is worth sharing, managing and preserving for later reuse. Walsh and Ungson (1991) model the structure of organizational memory from the perspective of administrative science. According to them organizational memory consists of five retention bins: individuals, culture, transformations, structures, and ecology. They claim that individuals are the prime resource of organizational memory. As a consequence of this, memory is embedded in organizational activities, work practises and routines in an implicit and even tacit form. The definition presented by Walsh and Ungson is most often referred to:

*"In its most basic sense, organizational memory refers to stored information from an organization's history that can be brought to bear on present decisions." (Walsh & Ungson 1991, 61)*

In this definition the role of decision-making is emphasized. Bannon and Kuutti (1996) criticize this model as an attempt to include everything in the concept of organizational memory. Megill's (1997) definition has to do with the same problem. It can be argued that the mission and advantages of organizational memory are much more diverse, like preserving history for posterity and supporting diverse operative functions of an organization. It is a highly individual aid, because it accumulates and in the first place is stored in individuals, employees, and other members of an organization. But organizational memory is also a distributed and collective resource, which may be explicit (like documents, databases, reports, manuals) or implicit (knowledge, processes, structures, culture).

## Theoretical basis of KM and IM

Schwartz, Divitini and Brasethvik (2000) note that organizational memory has become a close partner of KM, denoting the actual content that a knowledge management system purports to manage. They perceive knowledge as the key asset of the knowledge organization, and argue that organizational memory extends this asset by capturing, organizing, disseminating and reusing the knowledge. Generally the purpose of KM is seen to be to make these resources available for use. This approach refers to knowledge as an object (Sveiby 1996) and, thus, brings KM close to the traditional role of IM.

Even in information science, whose research objective is basically related to codified knowledge, the socio-behavioral (e.g. Ingwersen 1995, 170) and socio-cognitive (Hjørland 2002; see also Hjørland 1995) perspectives are emerging. The dynamic nature of knowledge has recently been emphasized (e.g. McNerney 2002), and due to its social nature, knowledge is inextricably linked to human behavior. KM can be defined as the management of people as creators and producers of knowledge and of information as the raw material of processes related to knowledge creation and production (see Huotari & Iivonen 2004). From this perspective, social aspects of human behavior and knowledge construction also become the basis for organizational memory.

It has been proposed that the concepts of intellectual capital and KM are complementary and that KM therefore needs to be placed in the wider field of intellectual capital management (e.g. Wiig 1997, MacMorrow 2001, Choo & Bontis 2002). Intellectual capital is knowledge that transforms raw materials (both tangible and intangible) thereby increasing their value (see Stewart 1997, 2001). For example, Nahapiet and Ghoshal's (1998, 246) view of intellectual capital stresses the significance of socially and contextually embedded forms of knowledge and knowing as a source of value. Sveiby (1996) also emphasizes that this process perspective will become the focus of KM during this decade. Orlikowski (2002) goes even further by showing the inter-related nature of action and knowing involving both tacit and explicit types of knowledge without separating them as, however, is done, for example, by Nonaka and Takeuchi (1995) and Cook and Brown (1999).

Schultze and Leidner (2002) showed two dominating theoretical conceptions of KM in information systems research. By applying the framework of Deetz (1996) they challenge Burrell and Morgan's (1979)

four paradigms and instead identify four discourses - normative, interpretative, critical, dialogic - as more appropriate for determining the theoretical assumptions underlying conceptions of KM including organizational memory and organizational behavior. The research focused mainly on two discourses: the normative (codification of knowledge) and the interpretative (knowledge as socially constructed, a culturally bound process based on situated learning).

Wilson (2002) argues that the information systems (IS) orientation dominates the approaches and implicit conceptions presented in the research papers, consulting practises and university curricula of KM. According to him the theoretical foundation of this orientation is similar to IM research, i.e. the term 'knowledge' is in fact used to refer to information. He argues that we cannot manage individual knowledge because it resides in human minds. Research on organizational memory information systems also supports this view by serving the needs of information retrieval and information seeking in the case of an explicit preserved form of organizational memory.

## CONCEPT ANALYSIS OF ORGANIZATIONAL MEMORY

This analysis aims at highlighting differences in defining the concept of organizational memory in various research areas. The method is Walker's and Avant's approach of concept analysis used in particular in nursing science (see Knafl & Deatrick 1993).

The research questions for the content analysis applying Walker and Avant's model were set according to the following phases. First the possible meanings, definitions and characteristics of the concept are identified. Second, the identification of the antecedents (i.e. different kinds of phenomena or events occurring before the concept is used or a phenomenon has emerged, takes shape or is augmented) and, third, of the consequences (i.e. events or elements appearing after the concept occurs) of the concept. (Creason, Camilleri & Kim 1993.)

The data consists of 69 scientific articles, conference papers, monographs and Internet resources providing the perspective of the topic published from 1984 to 2002. The emphasis is on the research area of information systems, especially on case studies, because dozens of organizational memory studies were published in the 1990s and the topic has been particularly popular at information system conferences. These conference articles are the most recent information on organizational memory research. Besides data on organization theory, information management, business administration, archival science and even psychology are represented. (See Table 1.) Towards the end of the data collection data saturation became evident as most of the definitions and references in the articles referred to the same researchers and ideas.

Due to the lack of strict rules for applying the Walker and Avant concept analysis model, some problems were encountered in the analysis. First, it was unclear whether the characteristics, model examples, antecedents, consequences and related concepts should be exactly the same as mentioned in the literature. Therefore, it was decided that the

final expressions should be built from categories based on the data. Secondly, characteristics are assumed to be properties, but organizational memory was rarely described with such words in the data. Thus terms and parts of sentences were picked out including nouns, adjectives and verbs. Antecedents were phenomena or events occurring before the use of formation and augmentation of organizational memory. In this analysis, antecedents were decoded with reference to reasons why organizational memory was used, and what preceded or supported the generation and storage of memory. Consequences referred to elements or events resulting from the use and storage of organizational memory.

The model examples were interpreted to refer to the various places where organizational memory is stored. These examples render the abstract and undefined concept more concrete, being the embodiment of organizational memory. The most commonly used concepts, those which were key concepts and by which an attempt was made to shed light on the concept of organizational memory were considered as related concepts in the analysis.

The differences and similarities of various disciplines and research areas emerged by reading through the data and comparing their interpretations against each other. However, there was not much comparison between different disciplines; therefore the summary is based on the analysis itself.

## FINDINGS

On the basis of concept analysis, the definition of organizational memory is taken to be as follows:

Organizational memory is the organized knowledge of an organization, a process which is individual and distributed and past preserving, which has an effect on organizational learning, competitiveness and decision-making, and which can be supported by information technology.

The preservation and use of organizational memory refer strictly to working life and information used in work-related settings. The empirical case studies on organizational memory pertain particularly to carrying out a task. A summary of the analysis is presented in Table 2.

The analysis indicates that the characteristics of organizational memory are contradictory, thereby reflecting the complex nature of organizational memory. The explicit form of organizational memory was emphasized, but simultaneously the individual and abstract nature of the concept were also underlined. Organizational memory in recorded form is concrete and palpable, like paper records in an archive. However, organizational memory was also manifest implicitly and defined as invisible, mute, fuzzy and easy to lose.

Individuality was an important characteristic of the concept because it referred first and foremost to individuals and secondarily to groups. Organizational memory supports decision-making because it preserves an organization's history and therefore includes the background and rationale for decisions. Organizations need to remember decisions and the knowledge connected to them (Conklin, 2001, 28). Decision support systems (DSS) provide the means to acquire and store knowledge and to support decision makers (Bolloju, Khalifa & Turban, 2002, 164).

Most of the storage places were palpable. However, culture, structure, process, and ecology were examples of the abstract nature of the concept of organizational memory. Although these examples were

Table 2. Characteristics, antecedents and consequences of organizational memory.

Characteristics	Antecedents	Consequences
individual	usable and retrievable information	enhancing and supporting information organization
knowledge based	maintenance	preserving of history
collective	information systems	supporting processes
explicit	information organization	supporting collaboration
concrete	user centrality	preparing for changes
abstract	communication	enhancing business activity
organizational	learning	facilitation of decision-making
supportive in decision-making	collaboration	
competitiveness enhancing		

Table 1. The data categorized by research areas.

Research area	Total	Percent	Notes
Information systems science	29	42 %	Total also includes 3 articles on the discipline of organizational theory
Organizational theory	16	23 %	
Information management	10	14 %	
Business administration	8	12 %	
Archival science	6	8 %	
Psychology	1	1 %	
Total	69	100 %	

Table 3. Related concepts of organizational memory.

Concept	Mentioned with OM	Relationship to OM defined	Relationship to OM analyzed	Total mentions
Organization	18	6	1	25
Organizational learning	6	10	8	24
Knowledge management	9	3	5	17
OMIS	5	8	4	17
Information technology	8	4	3	15
Computer-supported cooperative work	10	-	-	10

listed in the articles, they were not explained any further. In empirical case studies the procedures and information systems had important roles (see e.g. Ackerman & Halverson 1998).

An antecedent of organizational memory is the need to answer a question or solve a problem. Those descriptions discussing situations where organizational memory was used were rare and related to the empirical studies. Wrong expectations, negative attitudes towards organizational memory and individuality were the threats and obstacles of organizational memory. The personnel may hold erroneous beliefs about the advantages of organizational memory and dissemination of expertise.

Particularly in the area of business administration the increase of competitive advantage and efficiency of the organization were emphasized. These issues were also mentioned by some researchers in information systems science (see Bannon & Kuutti 1996).

Related concepts of organizational memory are presented in Table 3. Organization is a concept which is used together with organizational memory to describe the context of memory function. The relationship of 'organizational learning' to 'organizational memory' was most profoundly analyzed in the data. This indicates that remembering and learning are closely connected, and that without remembering there is no learning.

No significant differences between research disciplines could be identified. However, information systems scientists' perspectives were pragmatic, concentrating more often on the development of databases and information systems supporting organizational memory. Examining the content of the concept, in turn, was the focus of organizational scientists. Bannon and Kuutti (1996) claim that the concept of organizational memory does not belong exclusively to any particular research area or discipline. In the field of archival science the purpose of archives to retain and store the historical memory was emphasized. Organizational memory research has been criticized for perceiving organizational memory as solely a problem of information technology (see Koistinen & Aaltio-Marjosola, 2001).

## DISCUSSION AND CONCLUSION

The contribution of this study is the first comprehensive analysis to define the concept of organizational memory. Earlier concept analyses have been based on considerably smaller amounts of data and unsystematic analysis. According to the data the preservation and use of organizational memory refer strictly to working life and information used in work-related settings. However, the concept of organization does not refer only to work organizations but also to all kinds of organizations and communities. Therefore it would be interesting to examine the types of organizational memories in the context of more informal communities, such as sports clubs or associations. These aspects could be a subject for future organizational memory research.

We claim that the theoretical foundation of the concept is more closely related to the multidisciplinary research area of KM and enhancement of knowledge construction based on organizational learning as a source of competitive capability, than to IM. This indicates a

shift from an individual organizational member's way of applying his/her knowledge and use of information towards distributed knowledge, communication, and information and knowledge sharing, also through the use of IS. This characteristic of the concept refers to the social nature of knowledge and information, implying that knowledge is socially constructed, i.e. knowledge is a process, not an entity. The process perspective is rarely applied to studies on organizational memory, and mostly in relation to an information system and its use (Ackerman & Halverson 1998). The strategic perspective has gained more emphasis in economics (e.g. Hatami, Galliers & Huang 2002). Previously the process approach to organizational memory has not been explored or examined from the strategic perspective in the data analyzed in this study.

It would therefore be interesting to examine the role of organizational memory from a more constructionist viewpoint at the level of a workgroup, an organization, a network or even society as a whole. For innovating individual and organizational learning, these approaches would also link more closely the use of individual knowledge in collective tasks, knowledge and information sharing in knowledge processes and work practises, and even organizational culture and climate, including more intangible factors, for example, trust. When linked with the strategy building processes, these approaches would add to the knowledge of the research of strategic management of organizational knowledge and information. Beyond the organizational context examined, the memory organizations in society (libraries, museums, archives) have been assigned the role of enabling and supporting the social construction of new knowledge. In a global economy the history as well as the social and cultural nature of nations preserved by them could play a crucial role in enhancing knowledge construction and innovativeness more widely in society.

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