Chapter I

On Knowledge Management in the Internet Age

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Introduction

Knowledge management in general, and internet-based knowledge management in particular, is one of the foremost strategic directions being investigated and adopted by corporations today. The promises of better decision making, faster turnaround times, improved organizational communication, and higher levels of cooperation and interaction among personnel, have all combined to create a holy grail kind of aura. Yet, like the grail the goals here are elusive, and the road to reaching them is long and fraught with pitfalls.

Each of us, as individuals, performs a variety of functions that can be termed knowledge management. We *remember* things: names, numbers, experiences, and procedures. We know *how to do* things such as ride a bike; bake a cake; calculate a derivative; fix a flat tire. We know *where to find* information that we don't remember on our own: we write things down; file them; enter them in a PDA. Some of us do it better, some of us are chronically disorganized, but at the end of the day each of us is performing his or her own knowledge management function.

When many individuals work together forming some corporate entity or organization, we encounter a new level of knowledge man-

agement. In additional to our personal knowledge management we now become part of a larger organism in which others need our knowledge, and in which we require access to the knowledge of others. Knowledge passes through an organization on a daily basis. How much of it is captured by individuals? How much of it is captured by the organization as a whole? How can we effectively identify and apply this knowledge in the future?

Increasing levels of complexity can be found when we move from physical organizations to virtual ones. In a virtual organization, where ad-hoc distributed work groups may be transient, there is a heightened need to connect the participants to usable, relevant bodies of knowledge. But, paradoxically, it is precisely these organizations that have the least opportunity to spend time developing and fine-tuning such systems.

In this introductory chapter, we begin by presenting a number of alternative definitions for Organizational Memory (OM) and Knowledge Management (KM). This is followed by a brief description of a number of challenges facing OM / KM research today – some of which are addressed in this book, some of which are not. Building on the diverse research presented in this book, and on other related work, we present the Acquire-Organize-Distribute (AOD) model for knowledge management in the Internet age and discuss how it both evolves from and contributes to the ongoing work in this dynamic field.

Organizational Memory and Knowledge Management

There are a number of different definitions of knowledge management prevalent in the literature today. A fairly representative and detailed one is that of van der Spek and Spijkervet (1997):

> ...Knowledge Management focuses on knowledge as a crucial production factor and consists of activities that aim at optimal use and development of knowledge, now and in the future. KM determines which knowledge, where, in which form and at which point of time, should be available within an organization, company or network of institutions. It employs a broad spectrum of techniques and instruments to improve

> the performance of knowledge operations and the learning capabilities of a system…"

The term Organizational Memory has come to be a close partner of Knowledge Management, denoting the actual content that a KM system purports to manage. The makeup of an organizational memory, however, may be as diverse as organizations themselves.

The discussion of OM issues in (Ackerman 1994) starts with a high level definition of OM:

> "Organizational Memory is an evocative metaphor, suggesting the promise of infinitely retrievable knowledge and experience. (...) Answer Garden [a specific OM system] supports OM in two ways: by making recorded knowledge retrievable and by making individuals with knowledge available"

Other definitions focus more on the nature of the knowledge being stored and with less of an emphasis on access to human-based knowledge, which may or may not be present::

> "[it] is an explicit, disembodied, persistent representation of the knowledge and information in an organization"
> (Van Heijst et al. 1998)

> "Knowledge is the key asset of the knowledge organization. Organizational Memory extends and amplifies this asset by capturing, organizing, disseminating and reusing the knowledge created by its employees."
> (Conklin 1996a)

> "Organizational memories can be based on the combination of two main components: 1) a knowledge base which contains the content or knowledge that is of value to the organization; and 2) a well-defined set of meta-knowledge which is used to determine how and when the knowledge or content should be applied."
> (Schwartz 1998)

Ackerman & Halverson (1998) question whether there exists a clear-cut definition of what an OM should do:

> "After nearly ten years of research, the term organizational memory has become overworked and confused. It is time for a re-examination. The term is burdened with the practical wish to reuse organizational experience, leading researchers to ignore critical functions of an organizations memory and consider only some forms of augmenting memory."

The goal of an OM is not to store all information passing through an organization, nor to keep record of everything that happens. Ideally, an OM should provide the knowledge required for the task at hand – or a pointer to that knowledge – without too much of an overhead when using or keeping the memory. Keeping an OM, an organization should also be able to look back on performed actions and learn from its behavior. OMs are to some extent a prerequisite for organizational learning. (Conklin 1996b)

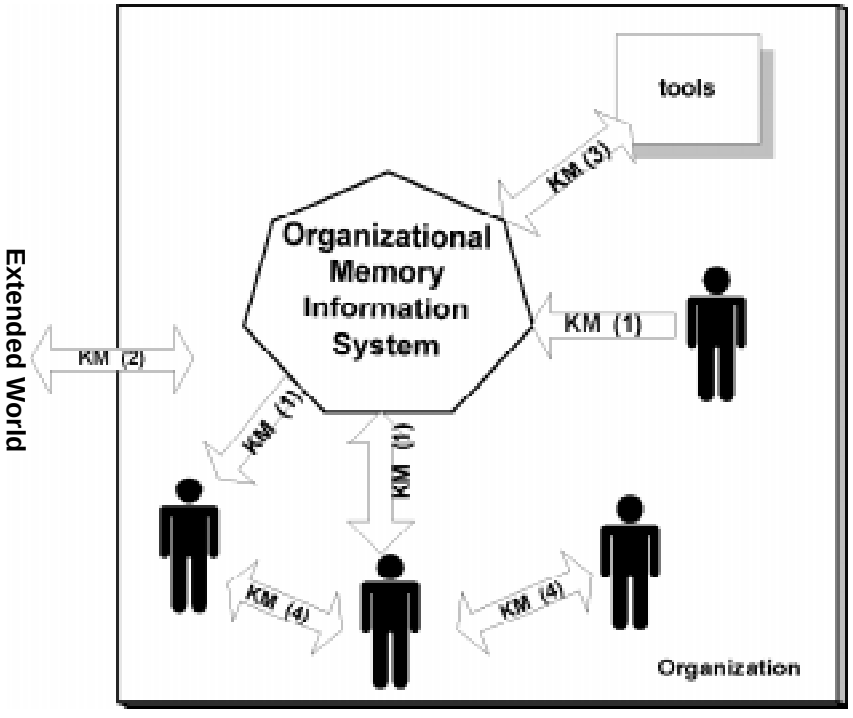
A Cooperative Activity

Creating and using an OM – as implied by the term itself – is a cooperative activity necessarily involving many members of an organization. Memories may be cooperatively created and used throughout the organization. In fact, it may be misleading to talk about *a single* OM. Walsh and Ungson (1991) define the memory of an organization to be retained in 6 levels ranging from the individual actors memory out to the external archives the organization is exposed to. Ackerman & Halverson (1998) explain how even a simple office procedure actually makes use of several distributed memories:

> ... Memories were complexly distributed, interwoven, and occasionally overlaid. (...) But, often enough, the memory that served as individual memory also had a definition as a group or as organizational memory.

To summarize, it is important to stress two points. First, within an organization knowledge is present in different forms and not all of them can be easily captured and stored so as to be used by others (Davenport and Prusak, 1998). This is an unavoidable reality that must be acknowledged by any knowledge management effort. The false hope of being able to capture all the knowledge of an organization can have disastrous results. Second, though in this chapter, and in the whole book, there is a heavy focus on the technological aspects of KM,

Figure 1: The relations among the Organizational Memory Information System and Knowledge Management



knowledge acquisition can be achieved only if adequate social and organizational tools support it. For example, various experiences with Lotus Notes databases have outlined that the attempt of creating a knowledge memory fails if the individuals are not adequately motivated in contributing to it and the organizational culture does not support knowledge sharing, see e.g. (Orlikowski, 1992).

OMIS

As a consequence of these two points, the ultimate success factor for knowledge management remains the individual, as clearly stated by Burns and Ash (1999). All of the chapters in this book demonstrate an awareness of this. We therefore believe it is important to distinguish between the Organizational Memory (encompassing people) and the Organizational Memory Information System (OMIS) that captures in a computational form, only a part of the knowledge of the organization. This system needs to be properly contextualized within

the group. Knowledge management deals with this contextualization as well as with the management of knowledge that is part of the Organizational Memory (e.g. tacit knowledge) but is not (and possibly cannot be) captured in the underlying dedicated Information System (Figure 1)

The Organizational Memory captures the knowledge of the group. The associated information system makes part of this knowledge available either by providing direct access to it (for example, by accessing experience reports) or indirectly by providing knowledge maps (e.g., Yellow Pages of experts and links to external repositories). Knowledge Management deals first of all with the question of "Which knowledge should go into the OMIS?" Answering this question requires determining what knowledge is owned by the members of the organization, what knowledge is needed now, what is going to be needed in the future and for what purposes. This helps the organization to define not only a strategy for acquiring the needed knowledge, but also to establish validation criteria in relation to the defined goals. In addition, knowledge management deals with "who needs the knowledge, when and why", as well as the policies for accessing and using the OMIS.

In addition to the contextualization of the OMIS with respect to the organization's knowledge needs (indicated in Figure 1 by the arrows labeled KM-1), knowledge management deals with the interactions with the external world to capture new knowledge (KM -2). Moroever, it is concerned with the management of the knowledge that is captured by other tools and its interfacing with the OMIS (KM-3). In fact, a considerable amount of knowledge is normally stored outside the organizational memory, for example, Simone and Divitini (1998) describe the key role of process knowledge in connection to workflow systems. To be useful an organization memory information system must therefore be able to interface with tools that are already storing organizational knowledge. This allows us to avoid duplication of knowledge. Even more important, the local storing of knowledge within different systems provides visibility of the context where the knowledge was produced and from which it takes its meaning. Last but not least, this makes it possible to envision a situation where the access to knowledge is provided by the Internet-enabled OM not in isolation, but rather in the context of the productivity tools that are used within the organization in everyday work.

Finally, knowledge management has to foster the sharing of knowledge that is not captured in any explicit form. To this aim, it must support the communication and collaboration of the individuals within the organization (*KM-4*). In general, while organizational memory provides the basis for it, knowledge management deals with all the processes that nurture the overall flow of knowledge, independent of the form of the specific piece of knowledge. Together, OM and KM aim at assuring the effective use of existing knowledge and at creating the conditions for the generation of new knowledge (Nonaka & Takeuchi 1995). Throughout this book, as in much of the literature, the term Organizational Memory is synonymous to Organizational Memory Information System.

Why a Model for OM/KM Research?

In creating the AOD framework, we began by looking at a number of issues at the forefront of OM/KM research, reinforced by the diversity of the research efforts embodied in the chapters that make up this volume. While most work in OM/KM relates to one or more of the fundamentals Acquire, Organize, or Distribute, it is helpful to have a pragmatic framework in which this diverse research can be interrelated and compared. Before presenting the model, let us have a brief look at the dominant issues being dealt with.

Context:

For a recorded memory to be useful at a later stage one also has to capture the *context* of knowledge. The importance of using memories in context has been dealt with extensively by Suirhuis and Clancy (1997), Nonaka (1994), Buckingham-Shum (1997), Schwartz and Te'eni (1999), Abecker (1998) Te'eni and Schwartz (1999), and others. The components of organizational context are defined by Agostini et al. (1996) and include the history behind a work process, the actors involved, the form of a work process, its owners and markets, the form of the applied procedures, the network of cooperation and the relations to other processes.

For fruitful use of a memory one has to be able to successfully transfer the object from its original context and into the new context of

use (Ackerman & Halverson 1998) – which may or may not involve its removal from the initial context in which it was created (Schwartz 1999).

In this volume we see different approaches to dealing with context taken by Gao and Sterling (1999), Voss et al (1999), and Polovina and Veneziano (1999).

Capturing/Authoring:

The question here is how to record the relevant memories from ongoing processes and communications without hampering these activities. Keeping an archive of all e-mail or videotaping all meetings are examples of such non-intrusive memory keeping, but such memories are not at all prepared for retrieval and is less likely to be used at a later stage (Conklin 1996b). The keeping of an OM necessitates the ability to make the desired memories explicit. Much of the needed knowledge in organizations is both fluent and tacit (Nonaka 1994) and hence is not easily captured in a form suitable for storage in computerized systems.

Storing/Organizing:

The question here is how to structure and organize the OM content. Traditionally, OMs are kept as collections of information objects or products, i.e. an *artifact* structured memory. Meta-data attributes are used in order to describe and classify the content. Alternatively, content may be structured according to the processes in which it has been created and used; thus memories are classified and described according to activities, meetings, discussions and communications etc. In such an approach, the memories are to some extent kept structured with pointers to its context and one is also able to keep track of the context changes and the history of use.

Knowledge retrieval:

Information retrieval plays an important part in OM. The issue here is how a user may locate relevant information, and information of sufficiently high quality to help in performing the task at hand. The retrieval system of an OM is not necessarily a generic retrieval system, but should be targeted to support the kind of "diagnostic" questions and the search-mode applied by a knowledge worker in these situations. What is required is not to get all information or the best

information, just *the* information that aids the worker through the task as fast and easy as possible.

Virtual Organizations and Knowledge Management

The growing importance of virtual organizations (VO) (McKay and Marshall 1999, Burn and Ash 1999) and virtual project teams (Jennex 1999) has brought the need for knowledge management to a head. To appreciate the importance of knowledge management in running a virtual organization, we must first clarify the essence of the "virtuality" we are dealing with.

Virtual organizations can be at two extremes, and at many points in between:

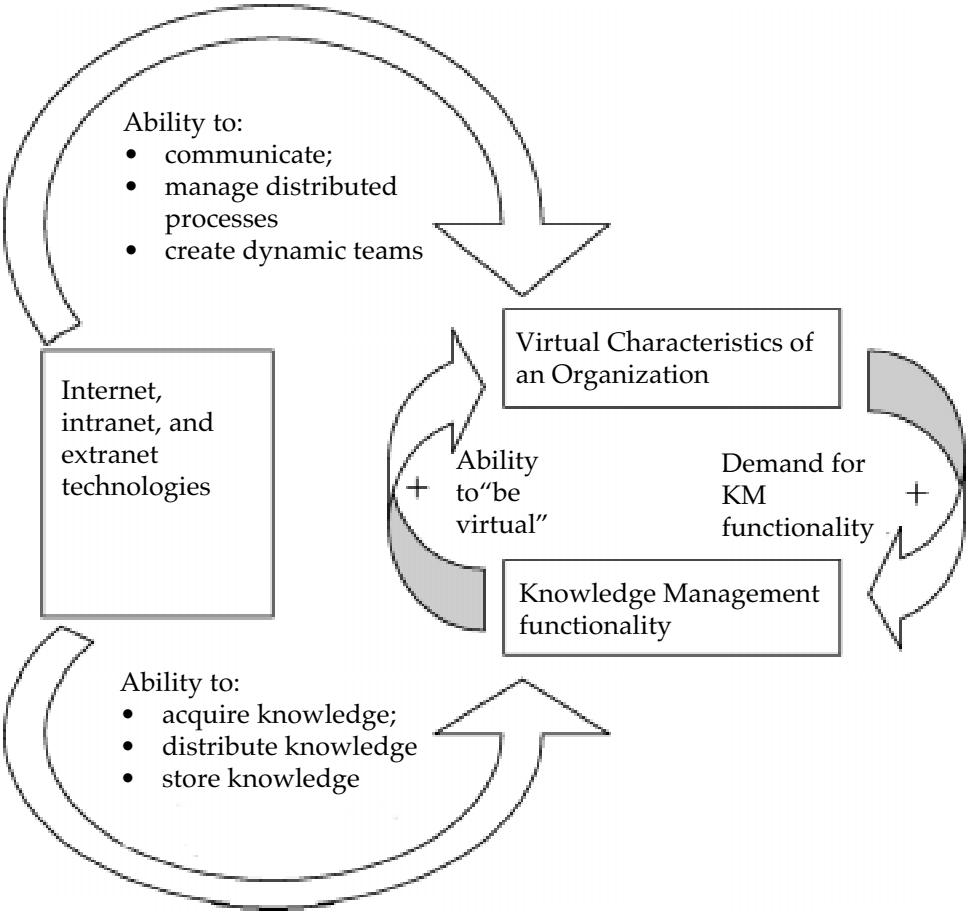
1. Organizations that have no physical offices or infrastructure, relying solely on a network of individuals connected toward a common purpose and oriented toward a common, possibly changing, set of goals over time;
2. Organizations with an established physical existence that create ad-hoc teams either within or across organizations, to accomplish a set of goals over a constrained timed period, after which the teams may disband or reorganize.

There are varying degrees of *physicality* involved in a virtual organization, as well as varying degrees of heterogeneity or coherence among the participants.

Whether we view virtual organizations as electronically linked organizations with no conventional boundaries, or simply as distributed organizations with multiple modes of communication (Wiesenfeld et. al. 1998), it is abundantly clear as pointed out by Grenier and Metes (1995) that virtual organizations are information intensive. And being information intensive today, means being Internet-intensive.

Thus it comes as no surprise that a large portion of work being done today in knowledge management is being done in the context of virtual organizations in one form or another. This is a trend that we expect to not only continue, but to grow significantly as the synergistic relationship between the Internet, KM and VO's develops (Figure 2). The development cycle is such that a VO requires investment in KM,

Figure 2: Synergy between Virtual Organizations, Knowledge Management, and Internet technologies



and subsequent investment in KM fosters new demands on the VO, extending the limits of its virtual nature.

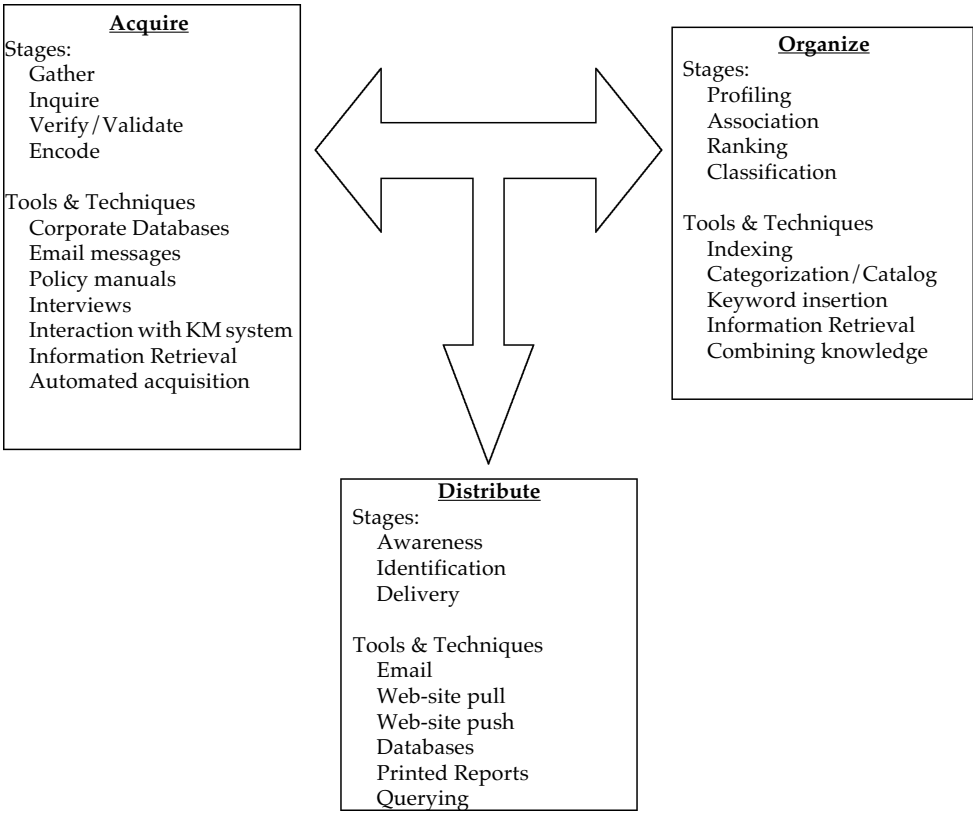
Defining the AOD Model

It is useful to view internet-based knowledge management dealing with three distinct tenets of *Acquire*, *Organize*, and *Distribute*. **Acquisition** relates to how we collect knowledge from members of the organization or other resources, and store them in an organizational

memory. **Organization** refers to structuring, indexing and formatting the acquired knowledge so we can find it when we look for it. **Distribution** is the ability to get the relevant knowledge to the person who needs it at the right time. As indicated in Figure 2, two of these — Acquisition and Distribution — are enhanced by internet technologies, while the third — Organization — is made considerably more challenging (and proportionally more important) due to the sheer mass of new knowledge made available by the Internet.

It is often the case that there are many parallel projects underway and competing technologies in use to provide knowledge management capabilities to an organization. There may also be distinct efforts related to acquisition, organization, and distribution that are not tied together into a knowledge management system but have the potential to become one. Two such situations are described by Chou and Chow (1999) and Barret, Lau and Dew (1999) where we find different levels

Figure 3: Three tenets of internet-based knowledge management



of each of A, O, and D present yet requiring a concerted integration effort to create a usable KM system.

On occasion, as in Carstensen & Snis (1999) all three are addressed — this time in the context of a field study. However more often that not, each of these tenets can be found at the center of different research efforts. Our intention here is to provide an integrative framework in which these efforts can be viewed.

In fact, as illustrated in Figure 3, the three tenets are highly correlated and can fruitfully influence each other. Moreover, knowledge management is a learning process (van der Spek and Spijkervet, 1997) that requires a continuous re-evaluation of the way knowledge is acquired, organized and delivered. Breakdowns in one of the tenets can therefore be successfully dealt with only considering it in the context of the others. For example, the impossibility of the organizational memory to answer to a user's needs, can trigger an inquiry for new knowledge and possibly a revision of the gathering strategies.

In the following we will explain the three tenets, describing their main functional goals and relate them to some of the techniques and tools discussed in this book, through which they can be realized (as indicated in Figure 3).

Acquire: Gather, Inquire, Validate/Verify, Encode (GIVE)

Knowledge acquisition indicates the phase in which information and knowledge are systematically placed into the organization memory for future reuse. Acquiring knowledge begins with a process of gathering and inquiry. This is interleaved with validation of the collected knowledge. Validation is of the utmost importance as knowledge is moved from the realm of the individual to the organizational memory where others will access it. The acquisition phase ends with the encoding of the gathered knowledge. In this section we present a number of issues connected to knowledge acquisition.

The success of an organizational memory system deeply relies on its ability to gather existing knowledge to satisfy the present and future needs of an organization. Knowledge can be present in the mind of people or externalized, e.g., in the form of documents. In the

first case knowledge can be captured through the use of different communication tools for connecting people (e.g., bulletin board, e-mail, shared workspaces). With respect to this point, the Internet constitutes a powerful infrastructure making this communication possible.

To capture knowledge externalized in documents, experience reports, and the like, an organizational memory needs to be equipped with tools for registering these documents in a shared memory. The Internet provides the most widely available interface for defining simple procedures for registering documents in such a memory. In addition, Internet technology has the potential to reduce the distance between the provider of knowledge (KP) and its consumer (KC), fostering contributions by all the members of an organization relative to their competencies. A strict distinction among the two roles has in fact proved to be a demotivating factor because those who do the work (KP), does not get any benefit (Grudin, 1994).

The acquisition of knowledge can start not only by gathering existing knowledge within the organization, but also by inquiring various sources, possibly external to the organization, to fulfill a precise demand. An inquiring can be triggered by a user or take place automatically. In the first case the request of a user that cannot be fulfilled can activate the search for the missing knowledge, where the users can be supported by the system in "getting in touch" with the right knowledge source (for example, by providing a map of expertise distribution among the organization). The system can also inquire periodically for new knowledge, one example being a request to a specific bulletin board based on some given keywords. Thus gathering and inquiry are complementary processes, designed to yield the maximum available organizational knowledge for entry into an OMIS. Having a formal or structured policy for inquiry can help ensure the timeliness and longevity of an organizational memory.

Validation and verification are still an open challenge. The Internet has actually made the problem more acute — also reducing the distance between the providers and consumers of knowledge and canceling the figure of the publisher/editor, whose main task is to assure quality. One approach to verification is storing knowledge of the KP together with the knowledge, so that on one hand people can evaluate the source, on the other hand people are more motivated to provide high quality material. A possible solution to this problem is in

the cooperative construction of the organizational memory, though a process of consensus building. Two papers in this book underline the role of cooperation in acquiring the needed knowledge and in structuring it (Tschaitschian et al. 1999; Voss et al. 1999), each contributing to the validation aspect of knowledge acquisition.

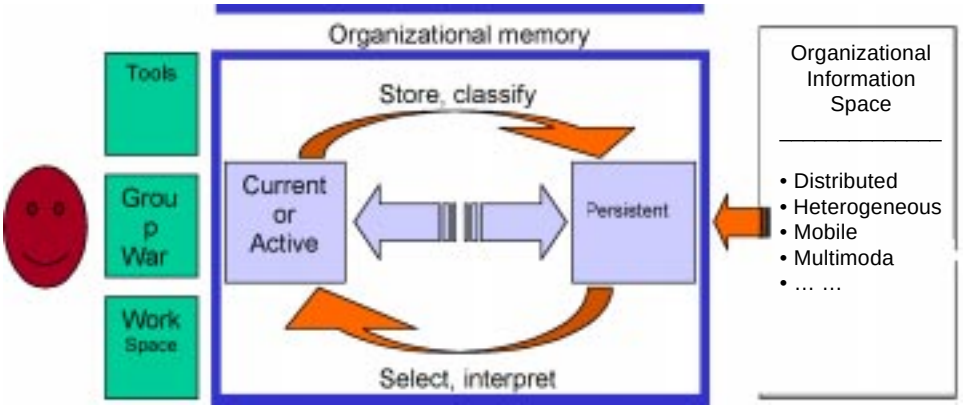
Once information has been gathered and evaluated it must be encoded in a form that allows it to be manipulated and reused in relation to the varying needs of the member of an organization. As pointed out by Davenport and Prusak (1998) "The challenge is to codify knowledge and still leave its distinctive attributes intact, putting in place codification structures that can change as rapidly and flexibly as the knowledge itself". Here again the Internet has been a powerful catalyst for different efforts. However, it is important to find a tradeoff between flexibility and the need for fixed stipulation of these structures. In fact, especially in virtual organizations, these stipulations are essential to integrate the different components and manage them.

Organize: Profile, Associate, Rank, Classify (PARC)

Once knowledge has been acquired, we begin the non-trivial task of organizing it for future use. As described in (Conklin, 1996b) and (Bannon & Kuuti, 1997), an OM should be placed *in between* the workspaces of the its current users and the long term information sources of the organization. As such, it serves two tasks; acting as an active (or current) memory supporting ongoing activities and as a persistent memory capturing, organizing and structuring relevant knowledge for later use. The persistent memory part depends on the use of *meta-data* descriptions for the classification and description of information for later retrieval and use, and also to "index" or point to relevant information wherever it may reside in the organization's overall information space. The active part of the memory is kept, stored and described according to the current interpretation and use of the knowledge.

The P, for Profile is meant to denote using some form of user/organizational/project profiling to help restore context. This primarily ends up as part of the meta-knowledge as we shall see. Associating takes two main forms — the association knowledge to other relevant knowledge, and the association of knowledge to a given user. The latter is obviously a direct result of Profiling. Classification is, the need

Figure 4 : OM as intermediary storage between working groups and Organizational Information Spaces.



to group different kinds of knowledge together to form a coherent or relevant package. Ranking is important since there will always be multiple hits on any knowledge retrieval request and they must be ranked intelligently so that the user is presented with the best match first. Both Classification and Ranking can benefit from the quality of the Profile information. Let us now elaborate on the PARC aspect of Organization.

PARC - Aspects for the organization of memories

> "For the near future at least, human intelligence and effort will remain a key component of the kind of intelligent retrieval that respects meaning and relevance. Some level of human expertise will be required, such as a librarian who can track subtleties of meaning and help with the indexing and structuring of the organizational memory. Moreover, as language and meaning evolve over time, some intellectual work must go into the re-indexing and re-structuring necessary to keep the organizational memory from becoming a historical curiosity." (Conklin, 1996b)

The need for organizing, indexing and structuring the memory is situation dependent. In organizations of some size, there should be

someone to perform the librarian like functions of keeping the memory. Content should be encoded, organized and structured according to some consistent policy that ensures persistence of this memory over time. In project settings, smaller workgroups or virtual teams across the web, however, there are usually no librarians. Hence, the organization and description of information will have to be performed by the users themselves. For the current part of the memory, active working groups need to find a profile for their use of meta-data that suits their immediate needs, without hampering the efficiency of the work.

Meta-data descriptions of documents may be divided into two categories: *Contextual* and *Semantic* descriptive meta-data. Contextual meta-data should strive to capture the context of a memory document, such as its creator, title, location, modification date and history. Exploiting the hypertext capabilities of the Internet, we should be able to associate a document with any related information, such as projects, people, groups, events, tasks etc. CSCW approaches like BSCW (BSCW 1999), ICE (Farshchian 1998) or FirstClass (FirstClass 1999) mostly use (small) static contextual meta-data schemes. Some systems use the notions of speech acts or conversations to structure information. QuestMap (SBCWeb, 1999) uses the IBIS conversation model (Conklin & Begeman, 1989) for the structuring of knowledge from creative conversations. In this volume we find (Tschaitschian et al 1999), using classification based on a set of user defined models. Users may graphically define several models — or dimensions — and describe a multimedia object interactively by associating it with elements from any of these models. Each of these efforts uses some for of meta-knowledge to achieve a useful level of Profiling.

Classification can be done by way of semantic meta-data, i.e. information intended to capture or describe the intellectual content or meaning of an information object. Examples are selected keywords from controlled vocabularies or ontologies, written abstracts/comments and text-indexes. In cooperative settings, also free-text descriptions, annotations or collected communication/discussion about the object may be used. In the Concept Index system presented by (Voss, Nakata & Juhnke 1999) collaboratively created concepts are attached to fragments of text, and thus also serve as an index for later search and exploration.

We also need to consider the ranking and selection of relevant knowledge and filtering/removal of excess information. Users may

individually or collaboratively rank information according to some accepted quality criterion. One may take notes of experiences of use or the history of information. Some of this selection and filtering will take place in the "movement" of information between the various memory levels. Shifting a memory object from one level to another requires a careful selection, interpretation and re-contextualization of the object. (Polovina & Veneziano 1999) offers a way of adding semantics and representing interpretations of existing information, by using conceptual graphs in a system called NetCARE (Conceptual Analysis and Review Environment). Ranking information is perhaps most visible in interfaces for retrieval of knowledge. (Saward 1999) presents an IR methodology, which offers advanced features for the reviewing and ranking of query results, and then refinement of goal directed searches across several underlying knowledge bases.

Distribute: Awareness, Identification, and Delivery (AID)

Within the context of knowledge distribution there are three stages that may occur:

1. Awareness on the part of the user that certain useful knowledge may exist somewhere in the organization;
2. Identification of that relevant knowledge;
3. Delivery of the knowledge to the point of action where it can be applied to the issue at hand.

In this section we discuss approaches to effective internet-based knowledge distribution.

The connection between knowledge and action has been addressed at many levels. Schwartz and Te'eni (1999) tie knowledge to action in a communications process that links email to organizational memories. Nonaker (1994) ties the very definition of knowledge to an increase in effective action. O'Leary (1998) warns that the absence of a connection between knowledge and action diminishes the value of such knowledge. In order to get knowledge to the point of action, there must be an awareness to that knowledge made available at the point of action as well.

In this volume Saward (1999) places great emphasis on the rela-

tionship between knowledge and action advocating a proactive role for the user in three distinct stages of reviewing, revising, and retrieving knowledge.

Awareness is perhaps more a function of management than it is of technology. Jennex' chapter (1999) brings this point home. As both author and member of the KM project team, he found that the first step required was generating awareness among the project team – awareness that had to span six the different organizations involved in the project.

Identification is a function of how successful the Organization stage is, combined with the appropriateness of the user interface provided. Identification of knowledge most often requires a deliberate act on the part of the user, though this is increasingly becoming a collaborative act between user and system. However such collaboration requires that the system has access to some contextual knowledge about its users and not just the other way around Voss et al (1999) attempt to combine user-generated concepts and agent-generated indices to aid in such collaboration, but stop short of implementing a representation of the user. Similarly, Tschaitschian et al's (1999) approach toward multiple views helps improve identification, once again from a knowledge standpoint rather than from a user perspective. That does not mean to say that the user cannot control and direct the view — this is surely important, and in that chapter we see how allowing users to handle part of the classification process can help improve KM systems. But for *identification* to become truly efficient, we must move towards systems that have internal representations of the users alongside the knowledge so that automatic view generation can not only consider the available memories, but also the characteristics of the user (Schwartz 1999).

Delivery itself is a system dependent function. While integration with existing systems may be key to acquiring knowledge, it is integration with new, internet-based systems that may be the key to delivering knowledge. This begins with simple web or intranet-site availability and extends on down to email delivery (Schwartz and Te'eni 1999), and the ultimate goal of unobtrusive knowledge dissemination. Here we believe this field is at its infancy. While much effort over the past decade has taken us closer to efficient acquisition and organization of knowledge, precious little has been done to understand how this knowledge can be seamlessly integrated into the

behavioral patterns of users in everyday work situations. It is here that Internet technologies empower us.

Conclusions

There are three primary factors influencing the directions being taken in knowledge management today:

1. Organizational memory is now widely recognized as a corporate resource worth
investing in.
2. The proliferation of virtual organizations and virtual team or project management has accentuated the need for knowledge management as a facilitator.
3. The Internet has opened up multiple avenues for both OM content storage and organization. The delivery of knowledge to the necessary point of action in an organization is possible through multiple methods of electronic delivery including push, pull, email, and instant messaging.

Acquire (*GIVE*), Organize (*PARC*), and Distribute (*AID*) – it sounds simple. Yet these steps have the potential of turning your organization upside down and significantly altering the way your organization operates. Whether your focus is on OM creation, KM systems development, or the managerial aspects of virtual organizations, the overwhelming impact of Internet technologies will bring the other two closer to you and will influence your part of the equation. It is unavoidable.

The AOD framework we have presented here is just that – a framework. It must and will be expanded as new angles of knowledge management come into focus. Where does your work fit in? In what segment do you find your greatest challenges? The chapters you are about to read have done a lot to put the AOD model into perspective, motivating us to seek comforting patterns in the diversity of research that makes up Internet-based Organizational Memory and Knowledge Management.

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