Managing intranets to improve knowledge sharing

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1. Introduction

We live in an environment of constant change. The business world of today is defined by global competition, the need for constant strategic adaptation, ever-increasing customer demands and an explosion of service-based industries. The marketplace and competitive field change overnight; alliances and structures transform daily; basic operating assumptions are questioned; traditions are challenged - in fact, everything in the organization is open to scrutiny!

To survive in such an environment, it is necessary for individuals to gain new knowledge, disseminate this knowledge widely throughout the organization and quickly embody it in new technologies and products. How does this happen and are there tools to assist in this process? This article looks at the process of creating, distributing and using (sharing) knowledge within an organization and the role of technology - specifically the corporate intranet - in this process.

2. Knowledge economy

One of the most familiar ideas of our time is that the Western world is rapidly moving towards a knowledge economy (Bryans and Smith 2000) - an economy in which the development and application of knowledge replaces capital, raw materials and labour as the main means of production (Stewart 1997).

According to the *International Knowledge Management Newsletter*, there are three main forces to the knowledge economy, namely globalization, information technology (IT) and shareholder value.

- **Globalization** refers to the increasing integration of today's world, resulting from the revolution in communication technology and the progressive lowering of trade barriers. From a business perspective, it means that capital is free to move across national borders and is available for investment in new ideas, products or services, anywhere in the world.
- **Information technology (IT)** is all around us - computers, telephones, fax machines, modems and the Internet. IT is about digitizing information - words, images and sounds. This digital technology is at the heart of the emerging knowledge economy and is the visible face of the knowledge age.
- The concept of **shareholder value**, stated simply, is where the highest market price is sought for a company's equity capital. To increase shareholder value, companies must adopt strategies that support wealth creation.

3. Change drivers

Four factors, namely innovation, responsiveness, productivity, and competency are mentioned by Huang (1998) as important 'change drivers'.

3.1 Innovation

In today's business, Huang (1998) says, one of the critical success factors for organizations is their ability to innovate, to quickly develop the products, processes and services the customers want, at a competitive price, to find new solutions to old problems and to adapt solutions to changing circumstances.

3.2 Responsiveness

De Figueiredo (Radical innovation 1998) says that we live in an economy of abundance - an abundance of information. Customers have many choices and enterprises have to move quickly and efficiently so they cannot only react to, but also anticipate, customer needs. In this fast-moving business environment, product availability is essential. Enterprises have to ensure that customers can get the products they want, with the features they are looking for, at the places where they want to buy. The key measure of cycle time - from placing a customer purchase order to delivering a ready-to-use product - is a major yardstick of responsiveness (Huang 1998).

3.3 Productivity

Continuous improvement in operation efficiency and productivity is essential to long-term earnings growth and is a key determinant of an enterprise's competitiveness. With this in mind, the emphasis for an enterprise is not simply on cost reduction, but also on maximizing global resource productivity in the context of long-term growth and profitable operations (Huang 1998).

3.4 Competency

A competency is a logical grouping of productive resources (human, technical and intellectual) that represent leading-edge and differentiated thinking that is valued in the marketplace. A competency can foster the rapid transfer of experience and ideas that can be applied in a consistent manner across organizational and geographic boundaries (Huang 1998). A competency is focused - it does not try to be 'all things to all people.' It is designed to accumulate knowledge wealth, reusing abilities and shedding irrelevancies. Because competencies are difficult to duplicate, they enhance a company's competitiveness.

As indicated in the preceding paragraphs, the knowledge economy looks and operates quite differently from its industrial age counterpart. We have thus entered an era in which the wealth of nations depends on the creation, transformation and capitalization of knowledge (Dzinkowski 1999). The rise of the information economy has created what is termed the new 'knowledge-based' intangibles: organizational structures and processes, know-how, and intellectual and problem-solving capacity. These terms are not new in the sense that they did not exist within organizations before, but rather that they have taken on a new and unprecedented importance in a business world defined by global competition, the need for constant strategic adaptation, ever-increasing customer demands and an explosion of service-based industries.

To survive and prosper in the new information economy, an organization must be ready to meet customers' challenges and provide a winning solution ahead of the competition. The organization must therefore position itself as an aggressively evolving 'knowledge factory' that is internationally competitive (Goldmann 1997). For such an enterprise, knowledge engineering has to be its core competency - the principal strength that keeps it in business. Knowledge engineering is understood here, Goldmann (1997) says, as the business of:

- gathering relevant data from suppliers, customers and other key sources;
- adding value by creating new knowledge - often jointly with strategic partners; and
- disseminating (selling) the added-value product to the customers.

4. Definitions

It is important at this point, to clarify some concepts used in this article.

- Firstly, a clear distinction must be made between *information* and *knowledge*, as these terms are often used interchangeably by business writers. Knowledge is part of an evolutionary process whereby raw data become valuable knowledge (Stewart 1997). Data, he says, become information when they are given meaning and information becomes knowledge when it can be applied. Knowledge is therefore applied information (Coleman 1997). So, if what we retrieve is information and that information is filtered and ranked according to relevance and can then be used by the requester of that information, then that information, when used, becomes knowledge (Coleman 1997). Thus, while information is not a very rich carrier of human interpretation, knowledge, Malhotra (1998) says, resides in the user's subjective context of action, based on that information. Knowledge is therefore largely cognitive and highly personal.
- PricewaterhouseCoopers (Stoddart 2001) defines the concept of *knowledge management* as 'facilitating learning - through sharing - into usable ideas, products and processes'.
- Dzinkowski (1999) highlights the next concept when he refers to 'a new management

paradigm that attempts to address the problem of intellectual capital management (ICM)'. ICM, he says, builds a new framework for thinking about what constitutes value in a company. This new framework is built for growing, extracting and measuring corporate value that does not necessarily rely on revenue flows or tangible assets as a basis for accounting. Intellectual capital, he continues, is a term that applies to the missing value between book value and market value in an organization. This missing value, he says, can represent up to 75% of the market price of the company and is due to the increasing role of knowledge in creating shareholder value and a broad recognition that corporate knowledge is power. The essence of managing knowledge is built on *intellectual capital* (Bennet 1999). The management thereof is defined by Skyrme (1997) as 'the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organising, diffusion, use and exploitation'. It requires, he says, turning personal knowledge into corporate knowledge which can be widely *shared* and appropriately applied throughout the organization.

- Grey (1999) has the following to say about *knowledge sharing*: it means a commitment to inform, translate and educate interested colleagues. It is an active listening and learning process and real sharing, he says, implies opportunity for feedback, acceptance and critique; a willingness to engage in deep dialogue and the expectation of reciprocity. Sharing, he continues, requires a level of trust; it is a two way process and forms an integral part of relationship building. Like Malhotra (1998) says: unlike information, knowledge is embedded in people and knowledge creation occurs in the process of *social interaction*.

5. Organizational learning

Knowledge and learning, says Allee (2000), has become the new strategic imperative of organizations. Let us therefore look at the concept of *learning* as an *organization.*

The organizational learning process is viewed, Gregory (1999) says, as a continuous cycle of activities that include sensing the external environment, perceiving external changes taking place', interpreting the meaning and significance and developing appropriate adaptive behaviours based on these interpretations. Organizations are therefore continuously learning through a *transformation process* by which individuals share their insights, knowledge and ideas to develop a common understanding.

A learning organization is thus an organization that facilitates learning of all its employees and continuously adapt and change to address environmental challenges. It is, according to Drew and Smith (1995), a social system whose members have learned conscious communal processes for continually:

- generating, retaining and leveraging individual and collective learning to improve performance of the organizational system in ways important to all stakeholders; and
- monitoring and improving performance.

An important characteristic of a learning organization is information flow *within* the organization and access to information from the *external* world. Information can therefore, be generated internally or it can be accessed from sources outside the organization (Mrinalini and Nath 2000). A dynamic organization he says, will have both - in other words, the organization structure will be so designed that it can access and process information *from within* as well as *from outside* the organization. It is therefore, essential to develop internal capability and adopt various practices to encourage information flow and thus

continuous learning.

The learning organization, says Bryans and Smith (2000), emphasizes openness (knowledge needs to be seen as public property), the development of new knowledge and new kinds of knowledge, the importance of awareness (consciousness raising) about knowledge as a product and process. They propose seven fundamental principles which require attention if a new *framework for learning* is to be developed. These principles they say, are the following:

5.1 Openness

Openness allows learning to happen. Openness, they say, means recognising barriers and boundaries - personal, organizational and political - as a step towards removing them where appropriate. To be open, they continue, is to refuse to settle in advance what might be relevant to personal or organizational development; to be alert and attentive to the world and, through analysis, to build capacity for critical awareness of itself in its environment.

Openness can lead to a shared awareness of values and a new inclusiveness which facilitates powerful learning throughout the organization (Bryans and Smith 2000). A good starting point, they say, is through institutionalizing open communication, that is proving from the top of the organization that the intention is to open up the flow of information and knowledge.

5.2 Uncertainty

Uncertainty is the most marked feature of the knowledge economy (Bryans and Smith 2000). The future, they say, grows less predictable, the foundations of knowledge less secure. We learn in the knowledge economy, they continue, to live with doubt and uncertainty instead of supposing that every problem must have a solution. They suggest that all objectives should be WISE and OPEN:

W: Workable (rooted in the complex realities of the workplace)

I: Intelligent (thoughtful and alert to a wide range of ideas and factors)

S: Situated (in the network of relationships in the organizational context)

E: Experimental (ready to take risks, try out new ways and formulate new aims).

O: Open (responsive to a wide range of ideas and influences)

P: Participative (emphasizing shared learning)

E: Experiential (seeing learning as rooted in reflection on experience)

N: New knowledge (creating new knowledge rather than managing what is known).

5.3 Complexity

In the knowledge economy, items of knowledge do not sit in discrete boxes but connect

with one another and hold implications for each other in ways that are hard to predetermine (Bryans and Smith 2000). The need to share ideas and work together from different disciplinary backgrounds becomes paramount.

5.4 Relationships

It is important to see learning as a function of the relationships between persons rather than something held as the 'possession' of the individual (Bryans and Smith 2000). We may know truths together, they say, that we cannot know apart. Just as the collective intelligence of an organization may fluctuate with circumstance and according to its capacity for collaboration, living with complexity, etc., so may its capacity for sharing and generating knowledge. This will involve particular relationships between particular people and not just the 'relational tone' of the organization as a whole. Paying attention to relationships can help the open organization to build trust, sociability, solidarity and commonality.

5.5 Reflection

The successful organization in the knowledge economy welcomes all opportunities to look at itself, since this is a source of vital knowledge (Bryans and Smith 2000). Processes of 'mirroring' are consciously put into place. They may occur through celebration, festivity, shared mourning (e.g. for a defunct project) as well as in more familiar ways such as appraisal and review. Reflection is sometimes non-verbal (the foyer display, the cover of the in-house magazine) and is the starting point for moving forward. It requires putting systems in place in organizations to ensure that it happens, that it becomes *second nature* in individuals and institutionalized in our organizations.

5.6 Reframing

Reframing occurs where the organization questions and moves its established boundaries (Bryans and Smith 2000). This process allows a long-term view to be taken and promotes the development of new knowledge.

5.7 Restoration

Restoration acknowledges that people need to have something 'put back', restored to them through their daily work (Bryans and Smith 2000). This is especially true where the knowledge economy denies people the familiar satisfactions of predictability and of the regular production of tangible goods.

6. Managing for knowledge

Xerox's corporate strategy director, Dan Holtshouse (Allee 2000) says managing for knowledge means 'creating a thriving work and *learning environment* that fosters the continuous creation, aggregation, use and re-use of both organizational and personal knowledge'. Five phases, Bhatt (2001) says, allow an organization to learn, reflect, unlearn and relearn.

6.1 Knowledge creation

Knowledge creation, Bhatt (2001) says, refers to the ability of an organization to develop novel and useful ideas and solutions. By reconfiguring and recombining foreground and background knowledge through different sets of interactions, an organization can create new

realities and meanings. The major part of knowledge is generated (created) through the process of sharing (Soekijad n.d.).

6.2 Knowledge validation

Knowledge validation refers to the extent to which a firm can reflect on knowledge and evaluate its effectiveness for the existing organizational environment (Bhatt 2001). This concept is similar to what Sinkula (1999) refer to as interpretation (the process by which distributed information/knowledge is given one or more commonly understood interpretations). Knowledge validation is a painstaking process of continually monitoring, testing, and refining the knowledge base to suit the existing or potential realities. As the realities change, so does the need arise to convert parts of 'knowledge' into 'information', and 'data', which may finally be discarded (Bhatt 2001).

Therefore, it becomes important for organizations to continually review, test, and validate their knowledge base to keep up with the latest knowledge in the discipline and discard outdated knowledge.

6.3 Knowledge presentation

Knowledge presentation refers to the ways knowledge is displayed to the organizational members (Bhatt 2001). Sinkula (1999) refers to 'organisational memory' (the means by which knowledge is stored for future use). Organizational knowledge is distributed and scattered in different locations, embedded into different artifacts and procedures and stored into different mediums such as print, discs and optical media. Each medium requires different means of knowledge presentation and because of these different presentation styles, organizational members often find it difficult to reconfigure, recombine and integrate knowledge from these distinct and disparate sources (Bhatt 2001).

6.4 Knowledge distribution

Distribution is the process by which information/knowledge from different sources is shared (Sinkula 1999) before it can be exploited at the organizational level. The interactions between organizational technologies, techniques and people can have direct bearing on knowledge distribution (Bhatt 2001). For example, he says, organizational structure, based on traditional command and control, minimizes the interactions between technologies, techniques and people, thus reducing the opportunities in knowledge distribution. Similarly, knowledge distribution through supervision and a predetermined channel will minimize the interactions and consequently reduce the opportunity to question the validity of the transferred knowledge. On the other hand, he continues, horizontal organizational structure, empowerment and open-door policy speed up knowledge flow between different participants and departments.

6.5 Knowledge application

Knowledge application means making knowledge more active and relevant for the firm in creating value (Bhatt 2001). However, the criteria of evaluating the usefulness of knowledge are not often readily apparent but, if a company believes in the usefulness of knowledge in supporting its practical, day-to-day activities, management should provide sufficient latitude to the communities of practice for experimentation to assess the potential of the knowledge. To direct individual knowledge for organizational purposes, an organization should therefore develop and nurture an environment of knowledge sharing, transformation and integration between its members (Bhatt 2001).

Sharing asks for interactive, participative dialogue. It seems to be a continuous process based on trust and a willingness to listen and learn. It is 'where opportunity, quality and value are added to the isolated idea' (Grey 1999).

7. Information management and information technology (IT)

Taking the organizational learning route is an important component of knowledge management success, but is by itself insufficient (Stoddart 2001). *Organizational learning, information technology (IT) and information management* are, she says, three essential processes that are intricately linked. Information management involves the *categorization, organization and access* to information and data in computer applications, databases and archives, while technology provides the *tools to facilitate* information flow and knowledge sharing. This tool can be used to enhance (or inhibit) the process of sharing knowledge.

7.1 Internet/WWW

The *Internet* is an information system composed of a massive network of computers around the world (Griffin 1999) or, as Reisman (1997) says, the public, global network of networks which is based on the IP and related standards.

An easy way to visualize the Internet is to view it simply as a permanent physical connection of tens of thousands of computer networks scattered around the world and where every individual computer on any of these networks can, if it has permission, communicate with any other computer. This ability to communicate allows all the connected computers to share a vast resource of information. This information may have an academic, commercial or general interest content and be available for unrestricted viewing, or it could involve the transfer of files between computers in a more controlled way, where access is on subscription and should be paid for. It is, says Kayser (2001), a company's 'electronic billboard' to the world.

The *World-Wide Web* (WWW), often confused with the Internet itself, is actually just another protocol for navigating the Internet or all the users and resources on the Internet using HTTP, allowing text, sound, graphics and video to be mixed together in a multimedia format.

Why use the Internet or WWW?

The WWW is, according to Griffin (1999):

- *global:* information is available from computers located in virtually every country of the world;
- *interactive:* the user of the Web can search for more information (surf) in countless ways - Web 'surfing' is done with a Web browser;
- *dynamic:* the information presented on the Web is always changing, because it is constantly being updated and new information is being added;
- *cross platform*: the information available is not dependent upon the type of computer used;
- *distributed*: it is impossible to store all of the information available on the Web in one location - the information is spread over thousands of computers that are hooked up to the Web; and
- a *hypertext information system:* information is not presented in a linear fashion, instead you can move from topic to topic at random with this method of cross-

referencing.

As a mission critical corporate tool, Internet technology has to support all the core business functions and it must do this more effectively and economically than is possible using other concept and tools. For example, in the new economy, global competitive pressures induce very short product/service development cycles (Goldmann 1997). In addition, the risk associated with misjudging clients' needs and partners' abilities to deliver is high. Therefore, the information infrastructure of the knowledge factory must also include its clients, suppliers and partners. It must support efficient feedback mechanisms to maintain service quality and automatically track changes in the environment and in customer preferences and priorities. In the knowledge economy, Goldmann (1997) continues, no competitive framework could be created once and forever. The knowledge factory's output must be uniquely positioned on the international market, thus satisfying individual needs of its clients. Its sales cycle has to be short but productive. The introduction of the feedback system is essential for the long term evolution and prosperity of the service. Moreover, every corporation has to vigorously protect its competitive information and is often obliged not to divulge private data on clients and partners.

Thus, every knowledge factory, Goldmann (1997) continues, has to resolve contradictions of:

- constantly sharing data with its existing and potential customers, partners and suppliers on new lines, thus discovering and addressing their evolving needs;
- gathering information on their abilities, needs and preferences; while
- protecting vital individual and corporate data from its competitors.

7.2 Intranets

The Internet, we have discussed, provides global access and is the conceptual start of both intranets and extranets (Askelson 1998). The concept of an 'intranet' took off when organizations realized they could take this easy-to-use open and well-supported vehicle and apply it, essentially as is, to their internal groupware needs (Reisman 1997).

An intranet is thus a private application of the same Internetworking technology, software and applications within a private network, for use within an enterprise (Reisman 1997). Although it may be disconnected from the public Internet, it is usually linked to it but protected from unauthorized access by *security firewall* systems. Firewalls, says Askelson (1998), are hardware and software applications used for security that help companies determine who should or should not gain access to private information from the company.

Horgan (1999) says an intranet can be defined depending 'on what you want it to be'. For some companies, he says, it is simply a way to get information to people - a replacement for the company newsletter. For others it is more extensive and includes access to information, processes and applications. Intranets can therefore be defined as 'internal versions of the Internet' (Barr 1998) or a 'networking state' (Voice Data 1997) or 'the term used for the implementation of Internet technologies within a corporate organisation' (Office.com,1999). Brown (1998) defines an intranet as 'nothing more than your existing corporate local- or wide-area network using the architecture of the Internet' - any site, therefore, based on Internet technology that is placed on private servers within an organization; a site designed not to allow outsiders in (Affiliate Solutions 2000). The key points are that intranets utilize *Internet and WWW* technologies to conduct internal communication and collaboration activities *within* an organization and provides some level of *integration and access.*

7.3 Intranet drivers

The growing enthusiasm for intranets is fuelled by several factors (Office.com 1999):

- *Universal communication:* any individual/department on an intranet has the ability to interact with any other individual/department. Beyond that, intranets are also valuable for communicating with business partners and markets.
- *Performance*: an intranet's ability to transmit audio clips and visual images increases the level of effectiveness of communication. Visual enhancements make presentations much more enjoyable to read and easier to absorb.
- *Reliability*: Internet technology has proven itself to be a highly robust and reliable way to transmit information. Regular backups also ensure that rapidly changing data are protected from occasional server crashes.
- *Cost:* compared with proprietary networking environments, Internet technology costs are surprisingly low and compared with paper-based documents, the cost of implementing, using and maintaining an intranet is minimal.
- *Speed:* with an intranet, documents of any kind can be updated with a few keyboard strokes.
- *Standards:* compression and transmission protocols in the intranet environment guarantee the delivery, construction, restructuring and enhancement of data to meet changing business needs.

7.4 Intranet inhibitors

The concern for *data security* and the risk of having *unauthorized access* to sensitive information will hinder the adoption of an intranet by organizations. This will especially be so for corporations which intend to allow external access to their intranets by customers and suppliers. (When part of an intranet is made accessible to customers, partners and suppliers, that part is called an extranet [Office.com 1999].)

7.5 Advantages of the intranet

An intranet is a robust internal information system that offers numerous benefits that go beyond a common interface or seamless access to resources, both vital considerations in their own right (Voice Data 1997). There are several strategic implications to the organization using this technology (Office.com 1999):

- *Information on demand:* the beauty of an intranet is that it allows employees to share documentation with colleagues, reduces paperwork and allows for quick access to the latest resources.
- *Organization dynamics*: in the fast changing business world organizations operate in, organizational flexibility is an important asset and competitive advantage. In addition, intranets have the potential to encourage informal workgroups to be formed and to get involved in solving problems of significance to the organization. Another big advantage of using the intranet involves its facilitation of decentralized decision making. This occurs because everyone has access to information and there is no reliance on a limited number of individuals who have access to different types of information from different departments within the company.
- *External linkages:* although the intranet serves primarily the internal needs of an organization, it can also be a way to improve and build relationships with both suppliers and customers. This can be done by linking the intranet to the Internet and allowing customers and suppliers to access certain information which are of interest to both parties. This can result in the lowering of perceived barriers between internal and external business affairs.

8. Different kinds of intranets

The purpose for setting up a company intranet will determine its content. Asking 'why?' will lead to an understanding of what the organization needs and what the users need (Barnes 2001). If the primary goal is 'because everyone else has one', the organization probably does not really need one (Office.com 1999).

It is vital for any organization to know what it expects to accomplish with the intranet *before* embarking on the installation or set-up. Often, however, the more extensive the needs, the more complex the intranet can become (Barnes 2001). Figuring out how to get the 'quick hits' in terms of usability and ROI, Barnes continues, is a matter of looking from the outside in to further determine what content and functionality will benefit users most, how this information will further help the organization's operational efficiency and, ultimately, the bottom line.

8.1 Communication tool

If the purpose of the intranet is to communicate and update (provide the latest) information to company employees, the following categories of information can be included on the intranet: company information such as company newspapers, organizational structure, profiles of key executives and financial reports - the list can be endless. The intention of this type of intranet is *one way communication.* Employees are informed and kept up to date on a regular basis but interaction and participation will not be part of the formula when designing this type of tool.

8.2 Application enabler

If the purpose of the intranet is to enable *two way communication*, such as logging help desk requests or enrolling for benefits, transactional content can be added to the intranet, for example personnel administration, internal advertisements and departmental information. The intention behind this type of intranet should be interaction and, to some extent, involvement of employees.

8.3 Collaboration facilitator

This type of intranet is a very dynamic tool that can be used not only to educate and inform employees, but increase corporate communication and establish and/or maintain a corporate culture the organization wants to nurture. It can also be used as a vehicle of change for the benefit of all employees. An intranet useful for sharing knowledge will certainly fall into this category as 'those [intranets] which are static and non-collaborative do not stimulate knowledge sharing' (Stoddart 2001).

Barr (1998) mentions a very important factor when discussing the philosophy behind this type of corporate intranet. He says the idea of an intranet is a technology that permits the organization to define itself as an entity, a group, a family, where everyone knows their role and everyone works on the improvement and health of the organization. If there is a collective will that needs to be communicated to all employees, the strategic objectives, Barr continues, become easier to achieve.

This type of intranet carries information vital for effective functioning in the organization by providing useful links to sites of importance and use to employees. This system provides not only access to information needed by employees, but encourages the participants to feed back information which can be vital to others in the organization.

Hall (2001) says the value of an intranet for managing knowledge is largely dependent on the calibre of the *content and tools* it provides to its users as well as their ultimate *application* in business operations. Employees will not, she says, feel encouraged to provide content until they believe that what they provide will be used, nor will they use an intranet if it does not provide useful content. The idea is to establish a network of champions who are legitimate *owners of the content* of the intranet (Affiliate Solutions 2000).

9. Intranets and knowledge management

Intranets by themselves do not create shared knowledge - good human networking makes intranets effective (Skyrme 1997). Top companies have learned that technology is the easy part of supporting knowledge creation and sharing (Allee 2000). The really hard part is working with people to improve collaboration and knowledge sharing.

9.1 Knowledge sharing

Intranets aid knowledge sharing - they can help to *'capture, organise, store and transmit'* source material from which an individual *may* acquire knowledge (Gundry and Metes 1996). This is the part of the intricately linked process mentioned earlier (Stoddart 2001) where the management of information refers to the *'categorisation, organisation and access* to information and data in computer applications, databases and archives'.

Whether an individual does require knowledge from source material depends, according to Gundry and Metes (1996), on a *dynamic interaction* in which two factors are important:

- the similarity between the person's context (his/her situation, assumptions, etc.) and the context described; and
- the degree of congruence between how the material is structured and how the structure of the domain appears to the reader.

To share knowledge, people must find meaning that all can accept and build enough context to allow information to be used effectively (Grey 1999). Therefore two aspects are important: *in order to share knowledge effectively, the provider of knowledge should be willing to share the knowledge and the vehicle that carries that knowledge should be structured in such a way that the receiver can identify with it.*

9.2 Culture of sharing

In the industrial economy, the thinking on knowledge was driven by the equation: knowledge is power - so, hoard it (Allee 2000). Today, Allee says, companies are embracing a new equation for success: knowledge is power - so share, and it multiplies. Changing this culture, says Skyrme (1997), is one of the biggest challenges today for, according to Soekijad (n.d.), knowledge sharing is not a spontaneous process; it has to be initiated, monitored, maintained, nurtured and guided. Getting an insight into the nature and dynamics of knowledge sharing is therefore crucial for effective knowledge generation and dissemination.

9.3 Sense making

The Jensen Group (2000) mentions three 'information age disciplines' that can assist with the process of sense making:

- Transforming data into information: Data ('the representation of facts') are of little meaning to the majority of the workforce. Without understanding, these employees find it difficult to see new patterns and relationships. All companies should therefore be in the understanding business - *bringing clarity, meaning and focus* to corporate data.
- Transforming information into knowledge: only 20 to 40% of employees can easily interpret, synthesize and design information for application. As long as knowledge management follows its current path, we are likely to perpetuate a dependency on the two or three people out of every ten that have the innate skills for transforming information into knowledge. Organizations should build *connections* between information and *organize it* in ways that most individuals can navigate through choices for themselves - the 'provision of appropriate tools', as Hall (2001) says.
- Transforming knowledge into learning: Learning is the ability to apply what we know and continually adapt, based on new feedback. Building a 'learning organisation' is the ability to have everyone learning their own lessons and gaining personal wisdom.

9.4 Intranet development

Electronic commerce is a rapidly evolving area that is continuing to penetrate into new application areas (Hawryszkiewycz 1999). Early systems emphasized transaction-based applications found in EDI or Web-based ordering and purchasing systems. These were followed by the more groupware-oriented applications, emphasizing workflows and document management. Current evolution, Hawryszkiewycz continues, is to emphasize more personalized services, and generally falls in the realm of knowledge management and sharing. It includes areas such as organizational learning, formation of focused multi-function teams to address problems or create new products and services, the building of communities and alliances, development of task and process knowledge and forming common ground on which further work can be based. Knowledge sharing processes differ from many existing processes in that they emerge rather than are being predefined. Because of this difference, emergent processes require *new modelling methods and technologies* to build systems that support them. What is needed are group ware supported systems and toolkits that dynamically evolve with process needs, rather than mapping from a predefined model.

Hawryszkiewycz (1999) mentions four major requirements that must be met by such toolkits:

- Easy construction and evolution of working context
- Support for flexible team formation and governance
- Provision of status support through awareness and common understanding of goals
- Generic tools and collaborative databases to support the generic actions needed in knowledge sharing and project support.

10. Communities of practice

Knowledge and learning are *social* in nature. No database or technology system can therefore fully capture and distribute all the knowledge that floats around a company (Allee 2000). Thus knowledge cannot be separated from the communities that create, use and transform it. In all types of knowledge work, even when technology is helpful, people require conversation, experimentation and shared experiences with other people who do what they do. As people move beyond routine processes into more complex challenges, they rely especially on their *community of practice* as their primary knowledge resource, Allee

says.

A community of practice is (Allee 2000) peers in the execution of work - with a common sense of purpose. What sets them apart from teams is that community members organize around a domain of knowledge; they function as a community through relationships of mutual engagement and build capacity by developing a shared repertoire and resources. This repertoire serves as a foundation for future learning.

Networking, Allee continues, does not make for a community of practice. Communities require a *sense of mission* - there is something people want to accomplish or do together that arises from their shared understanding.

The first challenge for any organization wishing to manage for knowledge is not to create communities of knowledge, but to simply *find* them. We need to first understand how knowledge sharing is already taking place before we begin strategizing ways to improve it (Allee 2000).

11. Strategic management component

Conversation is a core business process (Allee 2000). It is through conversation that decisions are made and work is done. If management has a true strategic orientation, the development and use of knowledge will be a systematic, integrated and planned approach to improve the effectiveness of intellectual capital, as it will be a process designed to solve problems that adversely affect operating efficiency at all levels (Carneiro 2000). Organizations have to convert their manpower into human resources: this transformation process (where the individual's goals have to be oriented towards organizational goals and the individual knowledge base has to become part of the organizational knowledge base) has to be part of an organizational strategy and has to be worked out in accordance with organizational goals and objectives (Mrinalini and Nath 2000). Change, they says, is not possible unless all the major decision makers are committed to *learn together.*

A major part of knowledge is created through a process of sharing: tacit knowledge is transformed into an explicit form and shared through a process of socialization. The development and use of *knowledge carriers,* either in the form of a common knowledge repository (knowledge encapsulated in *electronic* knowledge carriers (Soekijad n.d.) or simply human knowledge carriers*,* that is members of a community of practice, are vital components in this process.

12. Conclusion

Clearly identified business trends, such as globalization, technology, demographics and new social orders have become drivers for change. It has therefore become essential for organizations to continually create, validate and apply new knowledge to their products, processes and services.

Learning is the ability to create, recognize, integrate and implement new techniques and understanding - the process, therefore, of gaining knowledge. The organization that learns is a social system whose members have learned communal processes for continually generating, retaining and leveraging individual and collective learning to improve the performance of the system, to the advantage of all stakeholders. The management of this

learning (knowledge) is thus not a simple question of capturing, storing and transferring information but a comprehensive process of creating, validating, presenting, distributing and applying knowledge. It requires understanding, interpretation and organization from multiple perspectives. It involves creating a new culture and mind-set, which enables organizations to recognize their tangible and intangible resources and how they should be developed and managed.

Technology in general and intranets in particular, can assist in this process, but is simply an enabler. By themselves, intranets cannot create or share knowledge, but are the delivery vehicles for all the resources an employee might need. If management is serious about making knowledge management a priority in the organization, it will reconsider and analyse the balance between the technological and social facet of the organization. Putting too much emphasis on people or technologies is not sufficient. Only by understanding how *knowledge creation* takes place as well as changing the organizational *culture* can an organization gradually change the pattern of interaction between people, technologies and techniques. By changing this interaction pattern in their favour, managers will be able to leverage knowledge for the competitive advantages of their organization.

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