Managing Occupational Knowledge in the Learning Society

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This paper starts with the description of the characteristics of the learning society. Further on, four different knowledge assets, as defined by Nonaka and Takeuchi, are presented: experimental, conceptual, systemic and routine. Based on personal experiences gained in a newspaper, examples of knowledge assets of the two occupations, namely the journalist and the commercialist, are identified. We explain that some knowledge assets are in the domain of many occupations or even the whole organization (by the term 'organization' we refer to the multi-occupational organization, e.g. firm, and *not* to the occupation that can also be seen as a dispersed form of an organization). On these assumptions the knowledge management model is constructed. It integrates knowledge management strategies, tools and practices for the creation, dissemination and utilization of knowledge assets on both the occupational and the organizational level.

The Context of the Learning Society

Knowledge as a cumulative stock of cognitive skills and information that every individual can apply to work or other activities has always been the basis for every society. The Accademia dei Lincei in Rome (founded in 1603), for example, the Royal Society in London (founded in 1660), and the Académie des Sciences in Paris (founded in 1666) were all concerned with the routinization of discovery and dissemination of useful knowledge (Shapin and Schaffer in Boisot 2002, 65). We could go back as far as to the first Greek schools or even to the knowledge sharing between Barbarian tribes. Therefore all societies could be labeled as knowledge societies, e.g. pre-industrial, industrial and service society, to mention just a few. However, it is only in the last few decades that several important shifts have been identified (see Grant 2002): from land and capital towards knowledge (in terms of factor production), from tangible assets towards intangibles, from hierarchical organizational structures towards networks, from material organizations and businesses towards virtual ones, from a stable environment towards a turbulent one and from local towards global cooperation. These shifts distinguish our society from all those that existed before. Lundvall (2004, 15) pointed out that in the learning society the most important change is not in a more intensive use of knowledge in the economy but in the fact that knowledge becomes obsolete more rapidly than ever before. This is why a creation of new knowledge and a permanent adaptation to the environment must take place.

The most well known international organizations like APEC and OECD recognized that in the learning or knowledge society a rapid development of the ICT infrastructure, human resources, innovation systems and the business environment have become the main generators of wealth creation and growth. The new *knowledge based industries* (high-tech, medium high-tech manufacturers, and financial services) and *knowledge workers* (managers and professional workers) in developed countries are contributing the largest proportion of the GDP. These are the reasons why our society can be named the knowledge based society or the learning society.

One of the main characteristics of the knowledge society can be found in the shift from a linear knowledge model to the interactive knowledge cycle. On the individual, organizational and societal level there is an interdependence and interaction of knowledge production, mediation and application (OECD 2001, 44). In the industrial society knowledge was first produced, afterwards mediated (disseminated and transferred) and finally applied; in the learning society all three processes are overlapping. This fact has become most obvious in work situations where flexibilities of all kinds have jeopardized the occupational identity. In this turbulent environment schools are no longer capable of providing specific skills for specific jobs but rather general competencies and tools for learning.

Occupations, defined as institutionalized (schools, certificates, chambers etc.) interpersonal entities of related jobs that have developed a common identity, are in large numbers being upgraded by the communities of practice (COP). These structures are referred to as 'a group of practitioners working on the similar topics but not (necessarily) within the same projects'. Only they are becoming capable of an effective creating, disseminating and using knowledge assets of organizations and between them. However, most of the COPs are being created around certain occupational clusters. A huge challenge is to find a way to manage different occupation workers (managers, professionals, sales people, technicians, etc.) and COPs performing interrelated tasks in one organization:

to manage and build a string orchestra where the players of different musical instruments will play in harmony.

To illustrate the above propositions I will present the case of a newspaper. Based on my own professional experiences a comparison between two rather common occupations will be made: the journalist and the advertising commercialist. The focus is on the interrelation of their occupational knowledge. In this framework I will also examine the relationship between the occupational and organizational knowledge by applying the Theory of Organizational Knowledge Creation. I will conclude the paper by developing a hopefully useful model for managing occupational knowledge.

THE JOURNALIST AND COMMERCIALIST KNOWLEDGE IN A MULTI-OCCUPATIONAL ORGANIZATION

Since the times of Adam Smith only few organizations have employed only one occupational profile. Most organizations are multi-occupational, composed of managers, accountants, lawyers, engineers, sellers etc. to name just a few. Our case is not an exception as it is built upon two occupations working under the same roof: the journalist and the commercialist of a newspaper.

Journalists write articles and the commercialists try to acquire advertisements for these articles. At a first glance their work does not have much in common. How could it have? Journalists and commercialists usually have different educational backgrounds, they have developed different mentalities and identities; the job of a journalist is highly creative while the advertising commercialist is repeatedly trying to attract new advertisers. The product of a journalist is a professionally written article, while the output of a commercialist can be typically expressed in financial terms.

Nevertheless, those who are a bit familiar with the newspaper business know that there could be also many similarities between the two occupations. Both, journalists and commercialists quite often work in the same office. They report to the same manager, plan together which topics should attract readers and advertisers. The selection of the style of writing and themes to be covered are also very important: they should be interesting for the readers and should not offend the advertising shareholders. Finally, both journalists and commercialists have to make a decision on what percentage of the newspaper pages will be devoted to both the content of the articles and to the advertisements. They create the final product together by sharing knowledge from their different occupational backgrounds. This is how their knowledge inputs are reflected in a hopefully attractive and highly profitable newspaper. What we want to emphasise here is not that their tasks are similar but that they are interconnected.

At this very point we have come to the logic of managing knowledge from the organizational perspective on one side and from the occupational perspective on the other. From the organizational perspective the journal should be both highly attractive and at the same time contain a high number of expensive advertisements, from the occupational perspective there are some differences. The commercialist tries to maximize the number of profitable advertisements. This goes together with modest and likable newspaper articles where the possibility for some forms of 'hidden advertisement' exists. The journalist does not like advertisements at all. They limit the space for articles. The journalist attempts to write provocative and attractive articles and does not care if some groups of potential advertisers feel offended. The main goal is to give a qualitative and objective information on the basis of which his occupational or professional references are built upon. On the contrary, what gives credit to the commercialist is a large number of newspaper place sold to the advertisers.

What do we actually mean when we talk about managing group or organizational knowledge? Let us first take a look at The Theory of Organizational Knowledge Creation.

Occupations and the Theory of Organizational Knowledge Creation

The theory of organizational knowledge creation proposed by Nonaka and Takeuchi (1995) points out that learning and knowledge creation are no longer external functions in contemporary knowledge organizations but rather a vital activity integrated into a greater part of organizational processes. The theory is based on the concepts of tacit and explicit knowledge. Explicit knowledge can be codified expressed in words, numbers, sounds, written documents or a product specification. On the contrary tacit knowledge is not easily visible and expressible. It is a highly personal knowledge and rooted in individual actions, hard to formalize and share with others. Nonaka and Takeuchi profess that *knowledge is both explicit and tacit:* individuals and organizations create and utilize knowledge mainly by converting tacit knowledge into explicit or vice

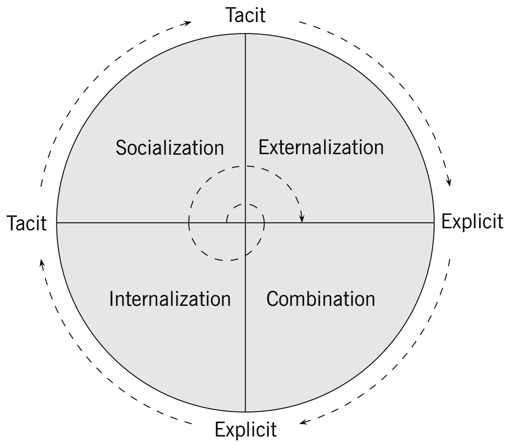

FIGURE 1 Knowledge spiral and the SECI process (Nonaka and Takeuchi 2004)

versa. So, we get four (SECI) modes of knowledge conversion (Nonaka and Takeuchi 2004, 9):

- socialization: sharing and creating tacit knowledge through direct experience;
- externalization: articulating tacit knowledge through dialogue and reflection;
- combination: systemizing and applying explicit knowledge and information;
- internalization: learning and acquiring new tacit knowledge in practice.

The knowledge spiral usually moves up the ontological levels: socialization from individual to individual (e.g. from mentor to apprentice), externalization from an individual to a group (e.g. from a worker to his service performed), combination from the group to the organization (e.g. the exchange of different product specification) and internalization from the organization to the individual (e.g. learning on the basis of a product specification). Numerous examples and ideas have been made on the basis of this model. The one that is particularly useful for our discussion is the idea of knowledge assets pointing to different dimensions that knowledge comprehends (fig. 2). Knowledge assets can be seen as input or output elements of SECI processes and the knowledge spiral.

Both the individual and the organization are involved in SECI processes. Knowledge assets are always the reflection (input-output) of

FIGURE 2 Four categories of knowledge assets (Nonaka 2003, 502)

EXPERIMENTAL KNOWLEDGE ASSETS	CONCEPTUAL KNOWLEDGE ASSETS
Tacit knowledge shared through common experiences • skills and know-how of individuals • care, love, trust, and security • energy, passion, and tension	*Explicit knowledge articulated through images, symbols, and language* • product concepts • design • brand equity
ROUTINE KNOWLEDGE ASSETS	SYSTEMIC KNOWLEDGE ASSETS
Tacit knowledge routinized and embedded in actions and practices • know-how in daily operations • organizational routines • organizational culture	*Systemized and packaged explicit knowledge* • documents, specifications, manuals • database • patents and licenses

knowledge processes (fig. 2): experimental knowledge assets are build through a process of socialization, conceptual knowledge assets through externalization, systemic knowledge assets through combination and finally routine knowledge assets through internalization. One (a group of) knowledge asset always supports the creation of the other. *And these knowledge assets are exactly the objects that knowledge management is targeting upon.*

Nonaka and Takeuchi (1995; 2003; 2004), along with most contributions in the field of knowledge management, have omitted the question of *what kind of organizational and occupational knowledge their spiral processes are targeting.* Is it the knowledge of a pharmaceutical factory, an automotive service, a post office, a confectionery or the knowledge of a newspaper, like in our case? Do we mean knowledge assets of journalists, commercialists or of both occupations at the same time?

Let us now consider the differences/common points between the journalist and the commercialist. If one tried to identify the knowledge assets of the two, he/she would find several distinctive but also some common features. The journalist masters the skills of writing, information selection, personal interviewing, reporting, different sources of information that he is using when writing etc. The commercialist masters other skills: a variety of persuasive techniques, skills of working with specific computer programmes, organizing finance and accounting procedures, the ability of collaboration with graphic designers who shape the advertisements etc. The commercialist is mostly using other types of informational resources than the journalist. However, there are also knowledge assets that are common to the commercialist and to the jour-

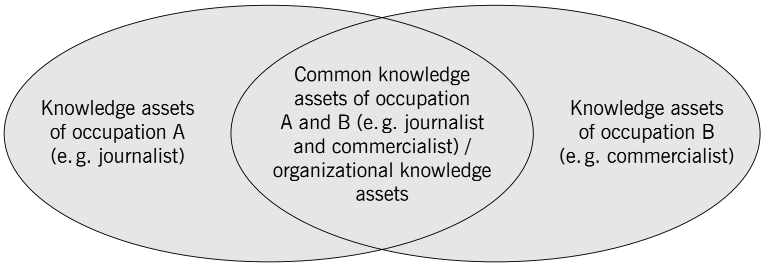

FIGURE 3 Creation of organizational knowledge assets

nalist working on the same topic. According to Nonaka (2003) they could be the following ones: trust, energy, passion (experimental knowledge assets gained through a common experience at the work place), newspaper concepts and design (conceptual knowledge assets articulated through conversation), know-how in certain daily operations, organizational routines and culture (routine knowledge routines) and common databases (systemic knowledge assets).

We have shown various knowledge assets in the organization embodied in different occupations (in our example in that of the journalist and the commercialist). There are also knowledge assets that can be attached to both occupations at the same time. When the fusion of the occupational assets emerges the organizational knowledge assets are created (fig. 3).

If a new practitioner entered into the system, his or her occupational knowledge would have to adapt to the previously established knowledge assets. It wouldn't be appropriate to call this process tension or conflict but rather accommodation and synergy. At the same time this person would also have impact on the organizational knowledge (fig. 4). The smaller and younger the organization, the larger are the chances of a single occupation to contribute to the organizational knowledge and to the protection of the related occupational knowledge. However, most authors agree that apart from a very few professionalized occupations such as doctors, lawyers or soldiers, who have succeeded to build and institutionalize their own professional organization, the majority of other occupations will have to accommodate to organizational knowledge and practices of the host organization (see Freidson 2001).

We have shown that certain knowledge assets of different occupations overlap. Those can be described as group, organizational or COP's knowledge assets. At this very point we come to the question of how to manage

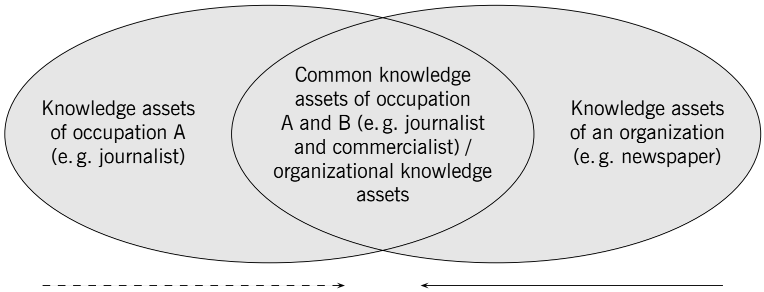

FIGURE 4 Interrelation between occupational and organizational knowledge assets

occupational knowledge in the organization. Should more attention be paid to the occupational specific knowledge assets or to the common – organizational knowledge assets? Should there be a separate focus on the journalist and on the commercialist or should both be considered simultaneously on the ground of a common organizational knowledge?

Mintzberg (1979) defined the organization as the total sum of ways in which labor is divided into distinct tasks and the coordination among them. However, recent trends emphasize coordination and lessen the division. A mutual adjustment, the empowerment of employees and their cooperation are in most organizations replacing direct supervision and standardization of processes. 'New' principles enable the knowledge spiral to move from one occupation to the other. That is the only way how new knowledge assets are created, disseminated and utilized. Therefore both the organizational knowledge assets and the knowledge assets of occupations could be managed. A distinction between them should be made. Separation as well as integration of management processes should be carefully planned for each of the two groups (occupational and organizational). Otherwise both integrities and knowledge assets are endangered: the occupational and the organizational ones. So in our case the newspaper would get journalists not able to write professional and critical articles and commercialists who would not acquire skills helping them to bring money to the organization. This means that the newspaper would lose the readers as well as the advertisers. As we have shown there is not only one knowledge spiral. In our case there are at list three: one for the journalist, one for the commercialist and the third one is common.

In the next section we will propose a model for developing and managing occupational knowledge starting with the occupational perspective, shifting to the organizational perspective and reverting to the occupational one. First we present and develop the general model of knowledge management in an organization.

TOWARDS THE DEFINITION AND FRAMEWORK OF KNOWLEDGE MANAGEMENT IN THE ORGANIZATION

Most definitions of knowledge management refer to the creation, dissemination and utilization of knowledge. We can apply strategies, tools and daily practices to these organizational processes. There are plenty of possibilities to identify knowledge management practices as there is no strategy that would not be based on knowledge in one way or the other. However, when talking about *knowledge management strategies* most authors including Nonaka and Takeuchi (2004) point out that codification and decodification of knowledge are the most common strategy frameworks. The interpretation of this two processes are numerous but most often codification means putting data on the intranet and decodification means training or knowledge sharing among employees. Lundvall (2004, 14) is more specific by focusing on three main knowledge strategies: 'hiring and firing', 'internal competence building' and 'networking and alliances'. Gamble and Blackwell (2002), in the general book of knowledge management, describe a variety of other strategies like learning from customers, transfer of best practices, just-in-time information access etc.

One of the most original and known knowledge management concepts or tools is Community of Practice, defined by Wenger (1999) as: people who are working on the same topic but not on the same task. Another group of knowledge management tools refers to the organizational yellow pages, intranet programmes and different software packages and tools. The implementation of those in the most known systems like Microsoft, AT&T, Ernst & Young, Hewlett Packard is described by Carter et al. (2000). Further on we must also mention two other approaches to knowledge management tools: competency management (see for example Dubois 1998) and HRM tools and concepts (see for example Poole and Malcolm 2001).

Finally, there are *knowledge management related practices* – ways of how strategies, tools and concepts live in organizations. One of the best overviews so far has been prepared by the OECD (2003). It emphasizes the utilization of knowledge management tools and strategies as already mentioned in this chapter. The research is especially efficient in the identification of cooperation and knowledge sharing between workers. By

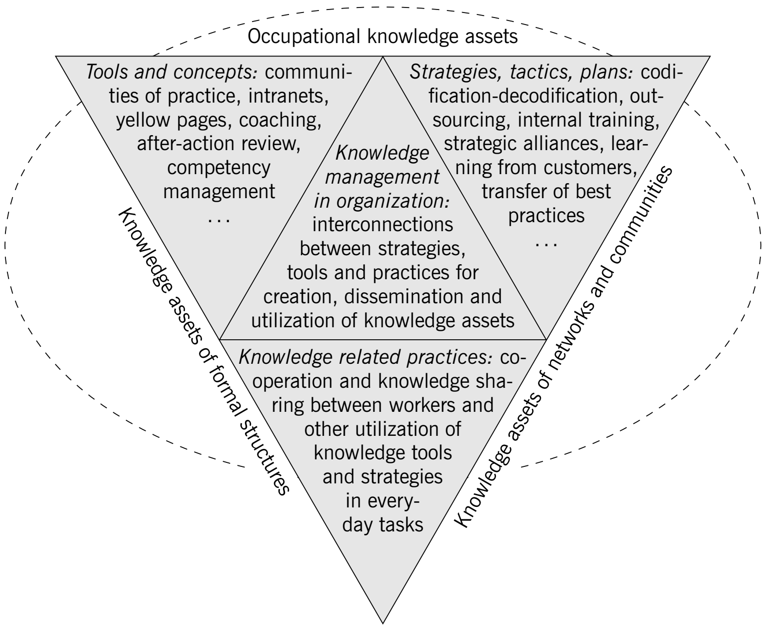

FIGURE 5 Definition and framework of knowledge management

linking the three components tools, strategies and practices, we come to the definition and framework of knowledge management (fig. 5).

As one can see from fig. 5 there are different sources that produce and utilize knowledge assets: occupations, a formal organizational structure and networks with communities. The organization should consider each of them separately and should also deliberate synergies and incompatibilities. Practical methods for doing this have not been developed yet.

Only one of the three sources (occupations, a formal organizational structure and networks with communities) usually prevails in determining the knowledge processes in an organization. This depends on the type of organization we are talking about. Alice Lam (1998) distinguishes between organizations that are based on explicit knowledge and those that are based on tacit knowledge. Further on she identifies four organizational types: professional bureaucracy that is based on embrained knowledge (universities, hospitals and craft production), machine bureaucracy that is based on encoded knowledge (mass production firms), operating adhocracy based on embodied knowledge (knowledge intensive firms that are assessed on market based outcomes that draw their competencies from individual capabilities not integrating the knowledge to their own organizational structure) and finally the J-form type of organization based on embedded knowledge (Nonaka's knowledge creating companies). According to this classification, we can assume that the vast majority of organizations in the learning society are either adhocracy based or they form a J-form type of organization. The latter is less individually and more collectively oriented. The knowledge management principles of these two types, such as flexibility, openness, interconnectivity, empowerment, etc set standards also for the professional and machine bureaucracy type of organization (see Freidson 2001).

We can assume that professional bureaucracy is based mostly on occupational knowledge assets and knowledge assets of formal structures, machine bureaucracy mostly on formal organizational structures, while operating adhocracy and the J-type organization mostly on networks and communities that are formed from occupational knowledge assets.

However these are only ideal types of organizations. In reality an organization will usually mix elements of different types. Newer theories integrate occupational knowledge assets through networks and communities into what Nonaka and Takeuchi (1995; 2003; 2004) but also earlier authors like Argyris and Schön (1978) call organizational knowledge. The importance of managing occupational knowledge assets is neglected in this regard.

Towards the Model for Managing Occupational Knowledge in the Learning Organization

The learning organization can be defined as an organization where all core employees are involved in a sustainable learning and knowledge creation. This can be done by engaging 'technologies' like personal mastery, shared vision and team learning (Senge 1994). In the learning societies learning organizations, not schools, take the main responsibility for managing occupational knowledge. The organization that is most adaptable to change knows how to balance and integrate occupational and organizational knowledge assets.

Let me refer again to the case of the journalist and the commercialist. Each occupational profile creates, disseminates and utilizes its own knowledge assets as skills, know-how, feelings, product concepts (to repeat a few) and others. One of the most important knowledge assets of a journalist would probably be the ability to write a professional and highly readable article, while the commercialist should have the ability to sell newspaper contents to proper advertisers and acquire advertisements for the highest price possible. We have also stated that there are knowledge assets common to both occupations like developing a column that would be interesting for both the readers and advertisers. Due to a simplification we call the knowledge assets of the two occupations the organizational knowledge asset. The structure of a professional publishing house is in reality far more complex.

We assume that it makes no sense to start building the knowledge management model from the organizational basis by assessing common organizational knowledge assets. *It is the occupational profile that should be started with.* In our case we first focus on the journalist and try to enumerate a few examples of each category of knowledge assets:

- writing ability and interviews performance (experimental knowledge assets);
- articles and concepts written (conceptual knowledge assets);
- newspaper documentation, specifications for writing (systemic knowledge assets);
- professional and ethical behaviour in daily operations (routine knowledge assets).

The enumerated knowledge assets are the exact product of SECI knowledge processes where one knowledge asset supports the creation of the other. As already said, these knowledge assets are exactly the objects that knowledge management is focused on.

At this point we can classify knowledge assets that are common to more occupational profiles: in our case to the journalist and the commercialist (due to a simplification we call common knowledge assets of the two occupations the organizational knowledge assets). The two examples of the organizational knowledge assets (assets of the journalist and the commercialist) are the following:

- common personal expertise in the field covered by the journal and personal attitude towards work (experimental knowledge assets),
- newspaper blueprints and concepts of columns (explicit knowledge assets),
- databases for general information of the column and the specification of the column outlook (systemic knowledge assets),
- redaction procedures and practices, organizational norms and behaviour (routine knowledge assets).

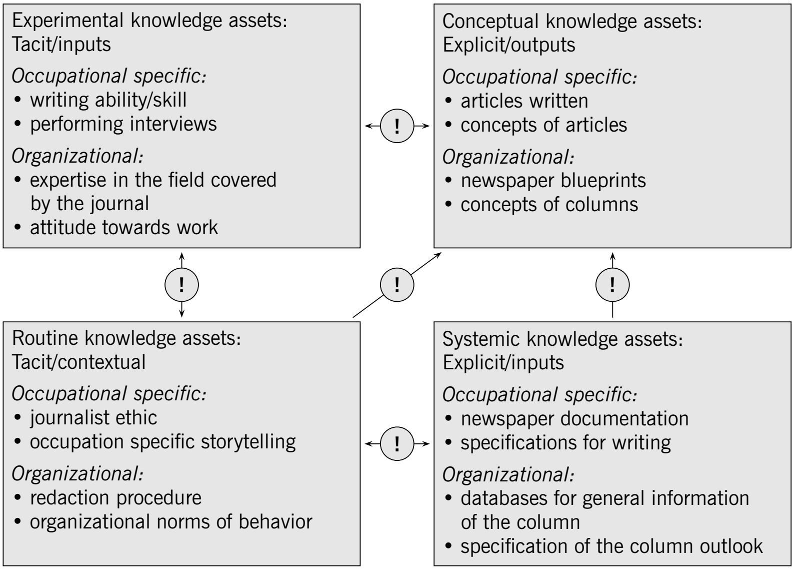

FIGURE 6 Assessing knowledge assets in the case of the journalist

Once the main knowledge assets for the journalist are defined the same procedure should be made for the next occupational profile, in our case the commercialist (fig. 7). Organizational knowledge assets that are, due to simplification, in our case presented only by a journalist and commercialist can be in more complex cases upgraded and then replicated for both occupational profiles.

In defining knowledge assets for all core occupational profiles (occupational specific or multi-occupational or organizational) their assessment and interrelations should be considered (exclamation marks in fig. 6 and 7). Some example questions that are the outcomes of these efforts are:

- Are the writing abilities of the journalist sufficient for newspaper standards?
- How to leverage the outputs (articles written) of the journalist?
- In what way the existing databases of the commercialist influence his/her achievements? What attention should be paid to them?
- Should cooperation between the journalist and the commercialist in the preparation of column concepts be strengthened?
- How organizational norms influence the attained advertisements? What can be done in this way?

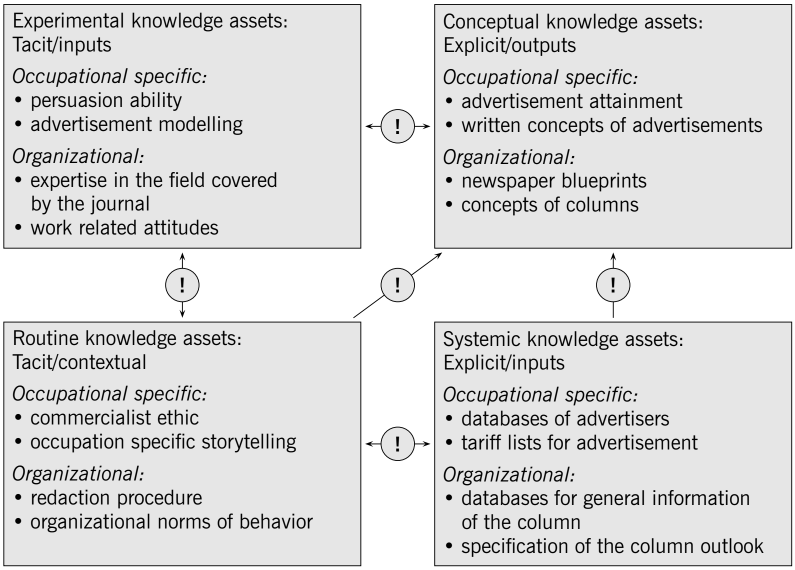

FIGURE 7 Assessing knowledge assets in the case of the commercialist

- Is the expertise of the commercialist in his field sufficient (e. g. does he know what the advertisers want)?
- How strengthen cooperation between commercialists?

These questions refer to knowledge management practices that can be identified by the analysis of the rotation of tasks between oneself and the colleagues and between different occupations, the ability to change working methods and the speed of work, direct control, etc. Common portfolio models could be used to detect the gaps between existing and desired conditions. For diminishing the gaps of the existing knowledge management issues the knowledge management *tools* such as communities of practice, intranets, yellow pages, coaching, after-action review, etc. and *strategies* such as outsourcing, internal training, strategic alliances or learning from customers for performance improvement should be considered.

I would like to emphasize that it is disputable to prepare knowledge management tools and strategies assessment only for the entire organization. There are three different groups of knowledge assets to be considered separately:

- Occupational
- Inter-occupational or organizational
- Networks and community (inter-organizational)

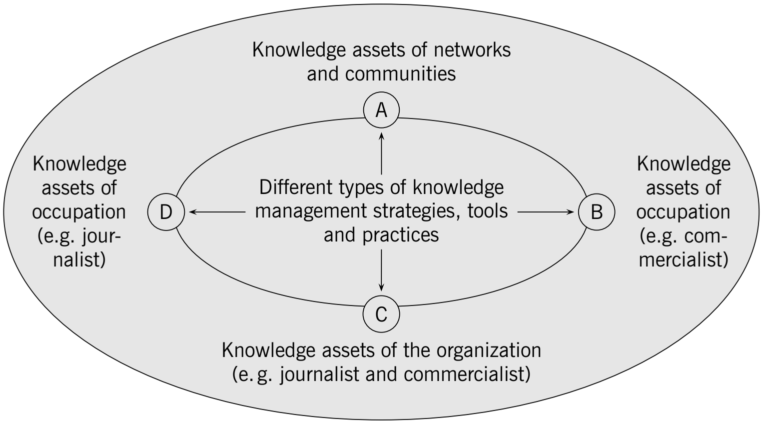

FIGURE 8 Integrative knowledge management model

Through identification and assessment of the key occupational groups in the organization the whole picture of the most important organizational knowledge management assets can be constructed. When managing organizational knowledge assets, selecting knowledge management tools and building a strategy, it would be proper to start with occupations. As we have shown only some of the knowledge assets are common to all employees, others are only in a domain of one or the other occupational group. Finally, there are knowledge assets that are in the domain of the communities and inter-organizational networks. It would be a good idea to combine their knowledge management with occupational knowledge management as described in this paper (for further principles of managing COP see Wenger et al. 2002). The integrative knowledge management model is shown in fig. 8.

In preparing knowledge management strategies and selecting knowledge management tools, hopefully on the basis of previous identification and assessment of knowledge assets, we shall consider three important issues. Firstly, which occupational profile will be affected and to what extent. Secondly, what will be the impact of newly introduced knowledge management methods on the most important organizational knowledge assets (final products or services for example). And thirdly, we should assess what tensions and what synergies can we expect by introducing changes in organizational knowledge management.

SUMMARY AND CONCLUSION

A learning society can be characterized by the shift from linear knowledge model, where the knowledge is first created, afterwards disseminated and finally utilized, to the interactive knowledge where a stronger interdependence and interaction between knowledge processes takes place. This is of utmost importance on the individual and the organizational level where knowledge creation and dissemination are integral functions of all organizational routines and processes. Although tasks of core employees are fluid and flexible they are still dependent on their basic occupational profile. Nowadays, organizations are more responsible for managing occupational knowledge than schools.

Usually, the organizational knowledge is based on multiple occupations. Most often it is still the occupation of the individual that determines the perspective of his/her working goals and professional development. In general, these goals should be synchronized with the goals of other occupations in the organization. Nevertheless, quite often, different tensions emerge. This fact should not be neglected when introducing knowledge management strategies and tools.

When we say that we manage knowledge, we have to bear in mind that we are only capable to manage directly our own knowledge, while when we talk from the perspective of the organization, it is more proper to say that we manage organizational knowledge assets. As defined by Nonaka and Takeuchi (1995) there are four different knowledge assets: experimental, built through a process of socialization; conceptual, based on externalization; systemic, based on combination; and routine, based on internalization. We have stated that each category of these knowledge assets can be occupation based. Some knowledge assets, irrespectively of the category of knowledge, refer only to one occupational profile while others are in the domain of many occupations or of the whole organization.

Our main consideration is whether the organization should focus on managing occupational or organizational knowledge assets. Despite the fact that most organizations in the learning society are operating adhocracy or a J-type as defined by Alice Lam (1998) we assume that organizational knowledge assets are in their foundations occupationally based. The integration of strategies, tools and practices for the creation, dissemination and utilization of knowledge assets, as we have defined knowledge management, should be identified and assessed on the occupational level before moving to the organizational one.

Based on personal experiences a few examples of knowledge assets of the journalist and the commercialist are listed. These are then divided between those specific for only one occupation and those specific for both occupations. Some attention has been given to the importance of knowledge assets' identification and assessment. We have emphasized relationships between different knowledge asset types and their relationships that were connected to different knowledge management tools and the strategy selection. Finally, the integrative knowledge management model based on premises and interrelations of occupational, inter-occupational and networks or communities perspective was built. The implication of the model should wait for the research to follow.

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