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# Work Based Learning and Knowledge Management: An Integrated Concept of Organizational Learning

Sabine Seufert
*University of St. Gallen*, sabine@unisg.ch

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Dr. Sabine Seufert
Institute for Media and Communications Management
at the University of St. Gallen
Müller-Friedbergstrasse 8,
9000 St. Gallen, Switzerland
Email sabine.seufert@unisg.ch
Phone +41 71 224 3025
Fax +41 71 224 3058

***Abstract* - Organizational learning requires individual learning. Individual learning has to interact in a dynamic social environment in order to contribute to organizational learning. *Work-based learning* as a new concept and understanding of learning at work place and *knowledge management* conceptualized as a spiral of knowledge creation by enabling the dynamic knowledge conversion process between the individual and the organization, and between the tacit and explicit knowledge deliver the grounds for organizational learning. The objective of this paper is to give an overview of both concepts related to organizational learning and to show their complementary in an integrated concept of a continuously learning organization which is finally illustrated with the case "Swiss Re Group", a global acting Insurance Company in Switzerland.**

## I NEW REQUIREMENTS FOR MANAGEMENT EDUCATION

Nowadays, we often hear the justified complaint that in Management Education a large amount of knowledge is imparted additively, i.e., in broad contexts without any attempt being made to interlink them by means of questions arising from the reality of actual daily business practice and experience. Such knowledge remains in many cases knowledge which has not been truly understood and assimilated, because it has been merely learnt by rote during seminars away from the work office, very abstract and isolated from their daily business and cannot therefore be consciously disposed of, or summoned up to help its possessor to deal with concrete situations. In Management Education a direct connection between conventional frontal teaching in seminars and the real work life has not yet been achieved. A new understanding of learning at workplace is necessary. Learning has to become a way of life in our organizational systems and should be introduced as an organizational property that extends to all managers.

Furthermore, new skill requirements for managers arises forced by changed leadership and communication skills which are demanded at their workplace (CF. Fig. 1).

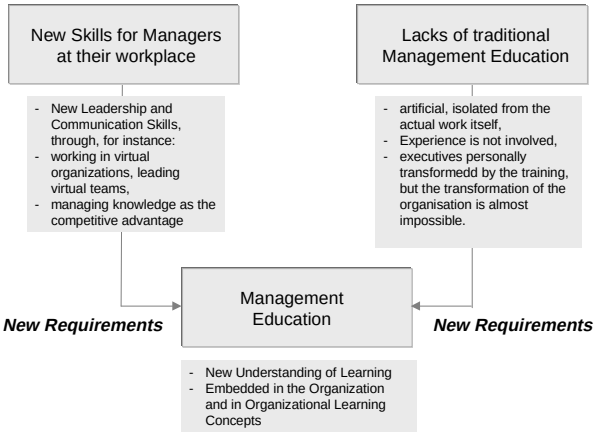


Figure 1. New Requirements of Management Education

On the evidence of the demands described above, new approaches and models in Management Education in an organizational context would appear to be required. In the following, we present a contribution towards this.

## II ORGANIZATIONAL LEARNING

### *A. Theories of Organizational Learning*

The key to obtaining long-term competitive advantage is increasingly found by modern organizations in the ability to continuously learn from experiences, to generate new knowledge, and to move on to new products and services. This is thought of as a "continuously learning organization"[1]. Organizational learning are visible as activities that go on in a learning organization which is a type of organization whose internal structure and process is marked by imaginative flexibility of style in its leadership and by empowered contributions from its membership. Its members engage in a continuous process of discovery and experimentation. In such organizations, learning becomes a way of life. Members feel free to challenge the governing values of their practice. In a learning organization the company doesn't force the employees to learn, but creates a context in which they will want to learn. [2]

Organizational learning is often divided into two types, which are called single loop and double loop learning [3], or adaptive and generative learning [4]. In single loop learning, new knowledge is applied for routine, to improve the quality and efficiency of existing operations. Double loop learning leads to new practices and to innovation within the organization.

As outlined in the following, Work-based Learning and Knowledge management are complimentary concepts which can establish the grounds for Organizational learning, especially in the sense of double loop learning, and nurture a flourish environment of Learning Organizations.

### *B. Work-based Learning and Organizational Learning*

Work-based Learning is concerned with both types of organizational learning, but it is particularly interested in providing a setting for double-loop learning. As such, learning-to-learn will become more critical than learning specific topics. Work-based learning might be considered the engine of organizational learning in that it furnishes the developmental activities and educational efforts to help an organization establish a culture of organizational learning [5].

Work-based learning expressly merges theory with practice, knowledge with experience. It recognizes that the workplace offers as many opportunity for learning as the classroom. Work-based learning allows us to learn from lessons learned in the practice by expressly examining the exchange of knowledge and experiences.

Such learning, however, needs to be centered around reflection on work practices. Reflection with others offers the key to competing successfully in the twenty-first century marketplace.

As Figure 1 shows, Work-based learning can provide a learning cycle within the manager has different roles in a learning process. At first, the process begins with activities. In the role of an "activist" the manager undertake an new or unique experience followed by reflection-oriented learning which means that the manager is recommended to reflect his acting and his experiences through dialogue and conceptualization. It helps to tackle new and different problems in different contexts. The manager in the role of a "theorist" role draws important conclusions from his experiences to obtain new knowledge as lessons learned. In the last stage of the learning process, the manager act as a "Pragmatist" uses the new knowledge to implement some of these new ideas in his work setting so that action-oriented learning takes place.

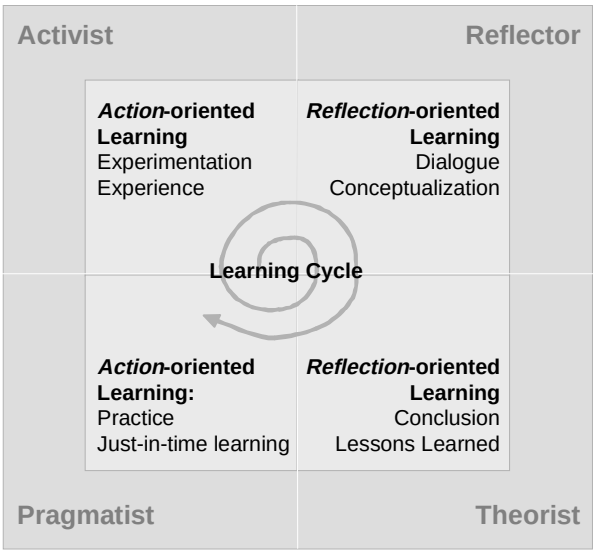


Figure 2. Learning Cycle of Work-based Learning

Therefore, Work-based learning differs from conventional training in that it involves deep and conscious reflection on actual experience at the work place. Fundamental to process is the concept of "metacognition" [6], which means that one constantly thinks about one's problem-solving processes. Good metacognition leads to better learning performance and strengthens one's self-concept (the ability to develop one's powers to the full and recognize one's limitations). People will need to replace the idea of skill or competence with the "meta-competence" of learning by that is meant the most important skill: the skill of "learning-to-learn".

### *C. Knowledge Management and Organizational Learning*

Organizational learning emphases in activities that stress the generation of new knowledge through free exchange of information, experimentation, and the sharing of existing knowledge. According to *Nonaka* and *Takeuchi* [7] double loop learning is not a special, difficult task, but a daily activity of knowledge creating organizations. Organizations continuously create new knowledge by reconstructing existing perspectives, frameworks or premises. The capacity of double loop learning is built in within a knowledge creating (“continuously learning”) company. Whereas incremental process innovations as it takes place within a stable organization can be created through single loop learning, turbulent environments require for continuous learning in a double loop mode.

Knowledge is increasingly recognized by modern organizations as their most important source of lasting competitive advantage. However, the key for obtaining long-term competitive advantage is not to be found in the administration of existing knowledge, but in the ability constantly to generate new knowledge, and to

move on to new products and services [8]. Rather than viewing firms as devices for processing information, making decisions, and solving problems, one should realize that they are based increasingly on knowledge-seeking and knowledge-creation.

Organizational learning requires individual learning. On the other hand individual learning has to interact in a dynamic social environment in order to contribute to organizational learning. This relationship between individual and organizational learning can be conceptualized as a spiral of knowledge creation where companies can turn into continuously learning organizations by enabling and managing the dynamic knowledge conversion processes between the individual and the organization, and between tacit and explicit knowledge. There are two main dimensions of knowledge which are decisive for knowledge creation. The first dimension describes the levels of knowledge distinguishing who holds the knowledge: individual level, group level, organizational, as well as interorganizational level.

The second dimension is the type of knowledge. There are two types of knowledge: explicit knowledge and tacit knowledge. Explicit knowledge can be expressed in words and numbers and shared in the form of data, specifications, manuals, product descriptions, and alike. This kind of knowledge can be transmitted formally and systematically between individuals. Tacit knowledge is highly personal and difficult to formalize, making it difficult to communicate or share with others. Subjective insights, intuitions, and hunches fall into this category of knowledge. Tacit knowledge is deeply rooted in an individual's actions and experience as well as in ideals, values, or emotions he or she embraces. There are two dimensions of tacit knowledge. On the one hand the technical dimension which means the kind of informal personal skills or crafts often referred to as "know how". On the other hand the cognitive dimension. It consists of beliefs, ideals, values, schemata, and mental models which we often taken for granted. While difficult to articulate, this cognitive dimension of tacit knowledge shapes the way we perceive the world. Figure 2 gives on overview of the different types of knowledge.

| *Types of knowledge* | *Levels of Knowledge* | Individual Level | Group Level | Organisational Level | Inter-organisational Level |
|---|---|---|---|---|---|
| | Explicit Knowledge | Facts about Products, Customers , „Know what" | Collective Knowledge in a team, „who knows what" | Handbooks, Guidelines, Product Des-critptions, Documentations, Yellow Pages | Knowledge about Market, „who to contact, who sells/ buys what" |
| | Tacit Knowledge – Technological Dimension | Communication Skills, Problem Solving „Know How" | Team Skills, „Know How in a high-per-formance team" | Principles, „unwritten" Rules for knowedgle distribution and transfer | Know How in Bying, Selling, cooperating |
| | Tacit Knowledge – Cognitive Dimension | Values, Product Qualities, Image, perceived by the employees | Values, Product Qualities, Image, perceived by the group | Company Culture, Knowledge Vision, Code of Ethics | Branding, Company Image, perceived by customers, suppliers, competitors |

Figure 3. Types of knowledge

These types of knowledge do not exist independently but can be converted into one another. Following *Nonaka* and *Takeuchi* there are four conversion modes that can be distinguished: socialization, externalization, combination and internalization.

Socialization comprises the exchange of tacit knowledge between individuals in order to convey personal knowledge and experience. Joint experience result in new shared implicit knowledge, such as common values or technical skills. In practice, this could mean, for instance, gaining intuitive and personal knowledge through physical proximity and attaining direct communication with customers or a supplier. Externalization describes transformation processes. On the one hand, this means the conversion of implicit into explicit knowledge, and on the other, the exchange of knowledge between individuals and a group. Since implicit knowledge is difficult to express, the conversion process is often supported by the use of metaphors, analogies, language rich in imagery, or stories, as well as visualization aids, like models, diagrams or prototypes. In order to stage a constructive discussion and reach creative conclusions, a deductive or inductive mode of argumentation is also very important. The transformation of explicit knowledge into more complex and more systematized explicit knowledge represents the stage combination (recently Nonaka renamed this stage Systematization,[9]). It is necessary to combine different fields of explicit knowledge with each other and make new knowledge available on an organization-wide basis. The systematization and refinement increases the practical value of existing knowledge and increases its transferability to all organizational units. Internalization comprises the conversion of organization-wide, explicit knowledge into the implicit knowledge of the individual. This requires from the individual that she/he should be able to recognize personally relevant knowledge within the organization. Continuous learning and the gathering of one's own experience through "learning-by-doing" may support employees in these internalization processes. In this way both capabilities and skills ("know-how") as well as firm visions and guidelines may be internalized and therefore shared throughout the whole company. This tacit knowledge and the experience gained on an individual level can be shared again (socialized) with others to become organizational knowledge, so that the knowledge spiral may be set in motion once more.

The concept of "ba" (Japanese expression for "place") defines the building foundation for knowledge creation [10]. Ba can be thought of as a shared space for emerging relationships and provides a platform for advancing individual and/or collective knowledge. Knowledge is embedded in ba (in these shared spaces), where it is then acquired through one's own experience or reflections on the experiences of others. If knowledge is separated from ba, it turns into information, which can then be communicated independently from ba. Information resides in media and networks. It is tangible. In contrast, knowledge resides in ba. It is intangible. Corresponding to the four phases of knowledge creation there

are four types of ba. Each category describes a ba especially suited to each of the four knowledge conversion modes. These ba – as shown in Figure 3 - offer platforms for specific steps in the knowledge spiral process.

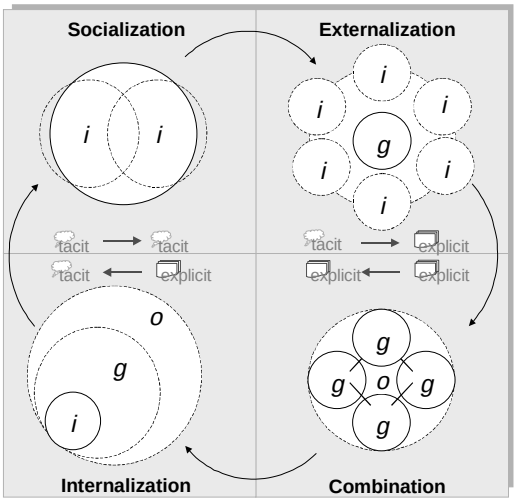


Figure 1. Shared spaces for knowledge creation

### D. *An integrated Concept of Organizational Learning*

Both concepts, Working-based learning and Knowledge management, can be seen as complementary grounds for organizational learning. Whereas Work-based learning focuses the learning process more at an individual level, Knowledge management focuses knowledge creating processes and conversion between different types and levels of knowledge in a learning organization. Figure 4 summarizes the integrated concept for organizational learning.

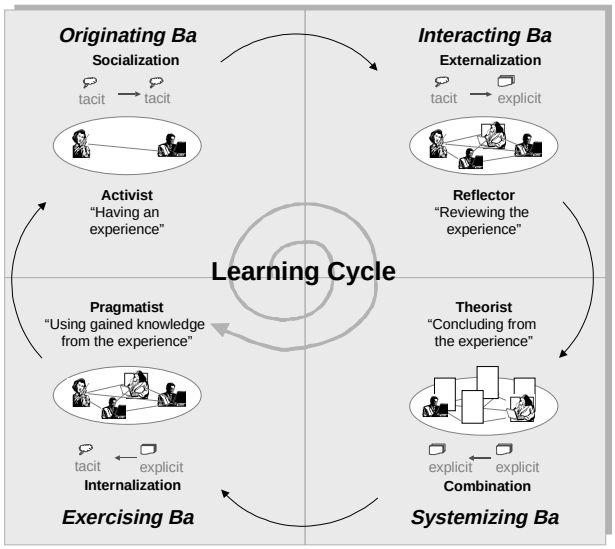


Figure 4. Integrated Concept of Work-based Learning and Knowledge management

## III CASE "SWISS RE GROUP"

### A. *Overview*

Swiss Re (Reinsurance) is a reinsurance company in Switzerland with more than 70 offices in 30 countries and 8,000 employees. Due to their global presence (Swiss Re Group) the company is able to offer their clients and colleagues a worldwide service. "Excellence based on knowledge" is one of the guiding principles of the Group's corporate philosophy commitment to being a knowledge-driven and learning company.

The Swiss Re Group created different types of "ba" and learning spaces so that the knowledge which each and every employee of the Swiss Re Groups holds should therefore no longer used as a measure for strengthening internal hierarchies. Instead, through adequate communication at all levels, this knowledge should be made accessible and flow unhindered from and to all relevant sections within the company. Since all services of the company are based on knowledge and experiences, creating, selecting, preserving, disseminating and consolidating knowledge will be decisive for the future success. In future, Swiss Re will encourage and demand knowledge and networked thinking worldwide.

Figure 5 provides an overview of the different networks in the Swiss Re Group corresponding to the four categories of ba which will be outlined in the following.

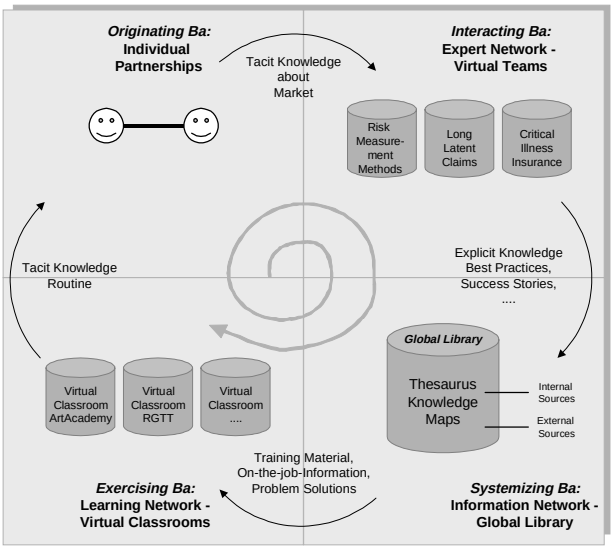


Figure 2. Concept at Swiss Re Group

## B. *Originating Ba: Individual Partnerships*

Originating ba is the primary ba from which the knowledge-creation process begins and represents the socialization phase. Swiss Re creates spaces, "bas" for individual partnerships between mentors and new employees, promoters and team members as well as close relationships between product managers and customers. This kind of learning spaces supports individuals in sharing feelings, emotions, experiences, and mental models with other individuals. Physical, face-to-face experiences are the key to conversion and transfer of tacit knowledge. Swiss Re provides strong ecological stimuli through direct encounter between individuals, e. g., in brainstorming camps, lunch meetings, mentorship programs, cognitive apprenticeships as action-oriented learning processes [11]. The following figure summarizes key issues for originating ba.

| ***Originating Ba: Individual Partnerships*** | |
|---|---|
| Actors | Mentor – new employee, promoter – Team member, Front office manager/ Product manager – customer |
| Learning Mode and Processes | Action-oriented processes through common experiences, emotional relationship:<br>- Management by walking around,<br>- Cognitive apprenticeship<br>- Mentorship programs<br>- Brainstorming camps<br>- Lunch Meeting |
| Phase of Knowledge creation | Socialization, new knowledge through conversion from tacit knowledge between individuals |
| Key Factors | Common experiences and activities, stimulated through direct contact, physical face-to-face experiences, mutual trust, emphasize, and openness, removing barriers between the self and others |
| Newly created Knowledge | Tacit knowledge: Know how and skills, accumulated through experiences on the job, customer needs, image, company culture perceived by the organizational members, difficult to imitate, long-term competitive advantages |
| IT Tools | Difficult to use IT Tools, because tacit knowledge is connected with direct contact, to support exchange of experiences e.g.. electronic meeting systems, videoconferencing. |

Figure 5. Originating Ba: Individual Networks - Partnerships

## C. *Interacting Ba: Expert Networks – Virtual Teams*

The interacting ba is more consciously constructed and represented by expert networks of virtual dispersed teams. Knowledge can be generated, synergies can be fully utilized and, eventually, mistakes avoided. At the Group level, Swiss Re can push ahead with global best practices, which will inevitably lead to economic advances. Reflection-oriented learning processes through discussion and conceptualization are main issues in this learning space. One thing all networks have in common is a clear assignment of roles and responsibilities. Databases and goodwill alone are very seldom sufficient to achieve efficient knowledge management. For that reason, the following roles have been installed for virtual teams:

- *Knowledge managers*: find themselves faced with a comprehensive and highly differentiated task. They have to ensure that the virtual organizations (teams) come to life,
- *Key members*: virtual teams are supported by the „key members" – specialists who contribute knowledge and take advantage of the collective knowledge of other employees,
- The *network leader*: determines the strategic orientation,
- The *sponsor*: is usually a member of the executive board.

This network has members throughout the Group and is supported by knowledge managers in New York, London and Zurich. Three pilot networks have been set up with the objective to verify the knowledge management approach on a broad perspective:

- *Long Latent Claims*: This expert group is discussing, analyzing, finding new insights about reserving methods, legal practice and claims practice, for instance research topics like breast implants, tobacco, latex terms or lead paint.
- *Risk Measurement Methods*: Financial risk management is growing in importance for the entire finance sector. The main questions of how much capital a company owns and how much it needs to support its business are crucial to the management of any firm. The two concepts of risk-bearing capital (RBC) and risk-adjusted capital (RAC) have been implemented. At the same time value at risk (VaR) has been established in the banking and investment businesses as a basic tool for asset management. A comprehensive approach to financial risk management for an insurance company would most likely include both RBC/RAC

and VaR methodologies. New opportunities and challenges will result from this combination. The challenges/objectives being addressed by the Risk measurement methods project are to develop, consolidate and make available to Swiss Re methods for defining and measuring risk, determining and allocating risk capital, measuring risk-adjusted performance and calculating risk-based reinsurance rates.

- *Critical Illness Insurance*: Crisis cover, dread disease insurance or trauma cover provides a benefit in the event of the insured suffering from one of a number of specified serious illnesses, or if he or she has to undergo certain types of surgery. The illnesses ad surgery are collectively known as the „critical illnesses“. This type of insurance is a newcomer to the life and health product range and is now developing in many markets around the world. As a result, there are many opportunities for sharing experience and ideas across markets. As a new product, it is particularly vital that Swiss Re monitor their experience effectively and ensure that lessons learnt are shared quickly through best practice guidelines and interactions of specialists.

The following figure shows the summarized description of expert networks organized by virtual teams in the Swiss Re Group. The use of technology is extremely necessary for the discussion and interaction between the specialists all over the world. Each network consists of one customized Lotus Notes database for an asynchronous communication mode.

| ***Interacting Ba: Expert Networks – Virtual Teams*** | |
|---|---|
| Actors | Definition of different roles in each network:<br>- Knowledge managers<br>- Key members: world-wide specialists<br>- Network leader<br>- Sponsor (member of the Executive Board) |
| Learning Mode and Processes | Reflection-oriented processes through dialoging and exchange of information, expert groups of worldwide specialists on a topic., two processes are important: individuals share the mental model of others, but also reflect and analyze their own. |
| Phase of Knowledge creation | Externalization, new knowledge through conversion from tacit knowledge into explicit knowledge in a groups |
| Key Factors | Dialogue, selecting people with the right mix of specific knowledge and capabilities, complementary skills and expertise |
| Newly created Knowledge | Explicit knowledge: new concepts, products, new solutions, global best practices<br>Tacit knowledge: values, perceived product qualities, company culture perceived by expert members |
| IT Tools | Collaborative environment (Lotus Notes databases for each network) |

Figure 6. Interacting Ba: Expert Networks – Virtual Teams

## *D. Systemizing Ba: Information Network*

By combining explicit knowledge with existing information new explicit knowledge can be generated, systematized and spread throughout the organization. The use of new media and information technologies may enhance this conversion process dramatically. Swiss Re realizes the platform systematizing ba by means of an information network which connects and integrates internal as well as external information resources. The “global library” represents the main repository to organize this information network providing group-wide access to an organizational memory.

Starting in 1987 with the foundation of the department documentation and its integration with the central library, Swiss Re realized a leading edge innovative company wide information concept which integrates internal as well as external resources. At the core of this concept is the electronic “global library” which has been set up in a pilot phase this year. The roll-out phase is planned for the beginning of the year 2000.

| ***Systematizing Ba: Information Network - Global Library*** | |
|---|---|
| Actors | Definition of different roles in the section Information:<br>- Head of the section,<br>- Information Specialists (for searching and monitoring),<br>- Lectors, experts in indexing and organizing key words (for integrating),<br>- Editors (for publishing). |
| Learning Mode and Processes | Reflection-oriented processes through systematization of knowledge:<br>- Capturing and integrating new knowledge from internal and external sources,<br>- editing, defining thesauri,<br>- dissemination in the company, information researches for organizational members |
| Phase of Knowledge creation | Combination, new knowledge through conversion from explicit knowledge into more usable explicit knowledge organization-wide |
| Key Factors | Optimizing of knowledge, data structure, developing thesauri and knowledge maps |
| Newly created Knowledge | Explicit knowledge: formalized and categorized knowledge, easy access for each organization member |
| IT Tools | Global Library: Online Network/Intranet (Lotus Notes infrastructure) connecting all resources, unique thesauri and knowledge map, publishing tools |

Figure 7. Systematizing Ba: Information Network – Global Library

Initiating capturing new information can start in two ways: Firstly, an internal or an external customer requests for specific information at the service center, the information search desk. Secondly, information specialists are scanning relevant material and new information available in the market monitoring changes and new insights around the insurance branch like a “strategic radar”. The following figure shows the concept of the global library: the integrated resources of internal and external sources as well as the organizing processes (searching, lectoring/selecting, integrating and editing/publishing).

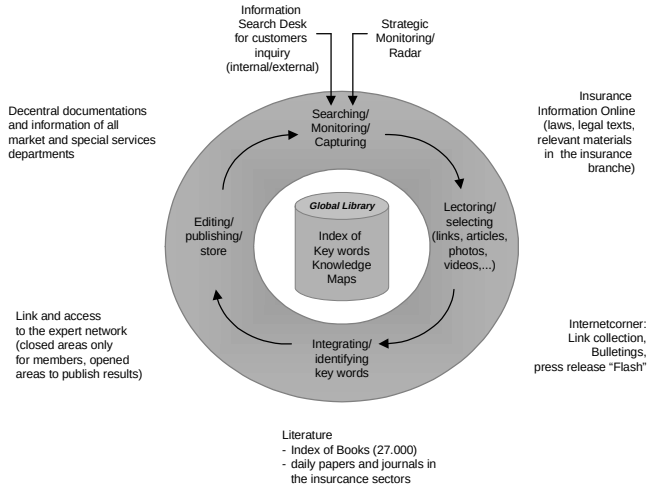


Figure 8. Concept of the Global Library

## *E. Exercising Ba: Learning Network – Virtual Classroom*

The exercising ba supports the internalization phase and facilitates the conversion of explicit knowledge to tacit knowledge. Rather than teaching based on analysis, learning by continuous self-refinement through on-the-job training or active participation is stressed. To provide on-the-job training and active, self-responsible learning processes in a global market the Swiss Re Group exploits electronic learning networks [12]. Swiss Re has been set up two pilot projects with online courses on the basis infrastructure Learning Space, a Lotus Notes application: one project in the ArtAcademy (Division New Market), the other in the division RGTT (Reinsurance Group Technology Training).

The main lessons learned are that in an electronic learning network or virtual classroom new learning methods are needed. This kind of teaching makes former instructors into learning advisors (see Figure 10). It also appears to be essential for successful learning that the teacher manages to create a favorable learning climate that allows the class to become a learning community. This is characterized by group-dialogues, work in groups and as individuals, with the aim of constructing knowledge, not merely receiving it, as this encourages the learners to understand for themselves.

| ***Exercising Ba: Learning Network*** | |
|---|---|
| Actors | Definition of different roles in a learning network:<br>- Instructors as Learning advisors, facilitators, "virtual coaches",<br>- Learning technologies experts<br>- Content manager, subject matter experts<br>- Student, student teams worldwide |
| Learning Mode and Processes | Action-oriented processes through active and experimental learning as well as on-the-job training, learner- and team-centered methods |
| Phase of Knowledge creation | Internalization, new knowledge through conversion from explicit knowledge into tacit knowledge of the individual employee |
| Key Factors | Practice oriented learning methods, integrated in the job, exercising and training |
| Newly created Knowledge | Explicit knowledge: Know what, operational knowledge,<br>Tacit knowledge: Know how, core competencies, skills |
| IT Tools | Online Network: Virtual Classroom on the basis of Learning Space (Lotus Notes Application) |

Figure 9. Exercising Ba: Learning Network – Virtual Classroom

One major result of the pilot projects has been to recognize that didactic guidelines for learning methods based on Internet-based environments are needed and therefore have to be developed. The didactic guidelines define a broad framework by means of which learning processes can be set up within a learning framework, and which provide guidance as to the planning of learning arrangements. The purpose is to show what kinds of didactical approach are to be recommended for what situations, which roles (e.g. subject matter expert, moderator) should be involved and what are the essential steps to plan, interact and evaluate the different learning methods. The main focus is to develop checklists and "recipes" for learning methods using new media.

Conceptually, one may distinguish between four main types of internet-based learning methods: *Online Teaching* (teacher-centered methods), *Online Tutorials* (teacher/system-centered / learner centered), *Online Assignments* (learner-centered methods), and *Online Discussions* (team-centered methods) as the following figure illustrates.

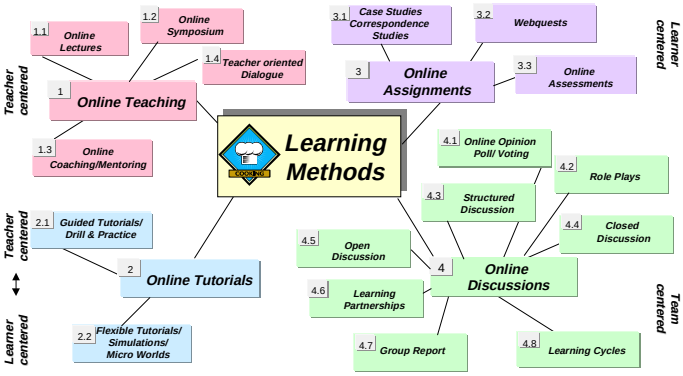


Figure 10. Framework for Learning Methods

- **Online Teaching**
  The methods of choice are instructor centered, such as online lectures, online symposium, or teacher-oriented dialogue [13]. The teacher is the expert and the learners are firmly guided and receive precise instructions as to what they are to learn. During the learning process, prepared knowledge- and thinking structures are imparted. The instructor assumes a very active role, as they are assigned the passive role of recipients of instruction.

- **Online Tutorials**

The interaction takes place between students and a learning system. Feedback is given by the system implemented in the program. Guided tutorials and drill and practice systems are more teacher-/system-oriented enabling a low degree of flexibility for the learners. Hypermedia and simulation systems provide a higher degree of flexibility and are more learner centered. Students can plan and supervise their own activities and learning processes.

- **Online Assignments**
  The interaction happens between students and tutors communicating via an internet based learning platform. With web course authoring tools tutors can develop assignments, webquests, or assessments very easily. The learning situations are framed in such way as to elicit more and more complex responses to questioning, for which particular information and materials must be to hand. The teacher gives individual feedback to the students but the teacher's function of guidance and assistance is gradually relinquished as the learners become more and more capable of learning on their own (indirect leadership [14]).

- **Online Discussions**
  The focus is upon group-learning and interaction among learners. Work in groups leads to critical reflection and can thus contribute to the building-up and maintenance of values [15; 16]. Examples of such team centered methods are several discussion formats, group reports, or learning cycles. The instructor works as a coach who makes suggestions and encourages the metacognitive development of the learners by reflecting the learning- and dynamic group-processes [17]. The individual members take a very active part, although the group-interaction is of chief importance.

## IV CONCLUSION

The objective of this paper was to illustrate the concept of a continuously learning organization based on an integrated view of Work-based learning and Knowledge management. Both concepts help to understand how learning organizations The projects within the Swiss Re Group were used to illustrate practical approaches and first experiences with the concept. Swiss Re aims to realize faster and more effective decision-making, the reduction of error rates and lower costs. The main benefits of these activities are to be seen in the value added it provides for clients - and thus also for Swiss Re, which may give the company a decisive competitive advantage in the long term.

One of the main issues is the rethinking of learning at the work place and the combination with knowledge management approaches. Being able to meet interdisciplinary and cross-functional challenges must be a matter of course for a learning organization. It is indispensable, for instance, to establish bridges to human resource management, technology departments and corporate education, as the design of learning programs and processes needs to be oriented towards organizational learning. Furthermore the linkage with Information and Communication (ICT) strategy needs to be improved. ICT can lead to non-exploitation of opportunities of the learning organization.

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