

Seminar work

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**E-learning in the Knowledge Economy: Concurrent
Implementation in the Business Environment**

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1. Introduction

In recent years e-learning emerged to an inherent part of corporate education. In the peak of the new economy boom, e-learning received wide attention. Now, in the aftermath of the boom e-learning sees a constant development and improvements and gained already wide spread use in the economy. Technological and pedagogical concepts advanced as e-learning is an efficient training approach to fertilize the resources of the newly evolved knowledge economy in its participants – the employees.

The degree of utilization of electronic learning by firms still varies heavily in the economy. On the one hand there are many companies conducting successful e-learning, and on the other hand especially some small and medium enterprises still don't even think about electronic training. This stands in contrast to the "traditional" education programs that have been well established and conducted for decades. It is the purpose of this paper to enlighten the current issues of this development.

The introductory chapter starts with a review of the current situation as the basis for e-learning: the knowledge economy and its driving forces. This is followed by an overview over the e-learning market. Next, the third chapter gives an introduction of corporate e-learning in particular and finally the analysis of the framework, which is necessary to conduct e-learning and the description of current trends. How the implementation process of e-learning can be monitored will be characterized in the third part of the chapter.

Last, e-learning in practice will be demonstrated by interviews with DaimlerChrysler Group and Siemens Business Services; as well as feedbacks from the Lufthansa Aviation Group via e-mailed questionnaire. The result of these interviews and feedbacks provides an peek into the corporate training market.

2. E-learning in the knowledge economy

2.1. *Knowledge economy*

The United Kingdom Department of Trade and Industry (1998) defines a knowledge-driven economy as one in which the generation and exploitation of knowledge play the predominant part in the creation of wealth.

In opposition, for the last two centuries, neo-classical economics has considered two factors of production: labor and capital. The latter of those two are now superseded by information and knowledge as dominant factors of production. In the last decades physically-based work has been gradually replaced by knowledge-based labor. In a major part of today's post industrialized countries technology and knowledge are now the key factors of production.

The change in production factors was accompanied by a change in the economical and infrastructural environment. Accordingly, the knowledge economy has benefited from three driving Forces: First, **Globalization**, markets and products became global. Secondly, **Information and Knowledge Intensity** which means efficient production relies on information and know-how; over 70 per cent of workers in developed economies are information workers. Last, **Networking and Connectivity** have been with the help of the Internet and Intranet and its vast developed a major driver for the knowledge economy in recent years (Skyrme, 1997).

The transition processes is accompanied by a change in the definition of modern workplaces. The so called knowledge workers possess a production factor which is a highly professional expertise in intellectual capital (Edvinsson & Malone, 1997). They are identifying and solving problems, furthermore act as strategic agents e.g. as consultants (Reich, 1991). In recent years the proportion of knowledge workers has constantly risen as shown in figure 1.

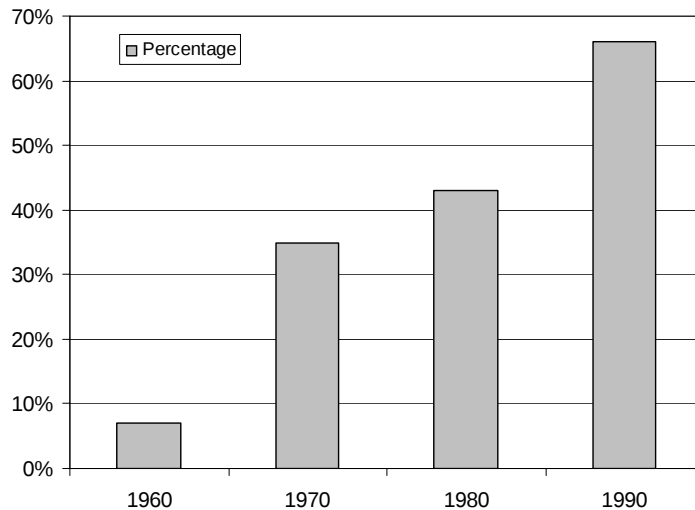


Figure 1. Proportion of knowledge based labor of all labor force (Wolff/Baumol, 1989)

For example, in Germany, more than 60% of all employees are actually knowledge workers and 80% of all jobs are located in knowledge intensive and service industries.

On the other hand many enterprises suffer from the effective and efficient usage of knowledge. In many cases companies are only using a fractional amount of the organizational knowledge resources (ILOI, 1997). Thus, the crucial factor in a knowledge-driven economy is the availability of information. In order to stay competitive and innovative no company can afford oneself to leave the knowledge, respectively the potential of its human capital untapped.

In addition, the volume of the worldwide available knowledge doubles every five years (Nacke and Naumann, 2002) and the speed in knowledge accumulation even further increases as the volume of available knowledge follows an exponential path (Magnus, 2001). This process is escorted by a need for employees to adapt to new knowledge even more rapidly. Today, within a range of ten years most job specific knowledge is aged out and consequently life long learning is indispensable in order to stay competitively.

Therefore, the focus of organizational learning and training has shifted from traditional, new employee orientation and personal development seminars to continuous learning and development programs designed and implemented to provide employees with the

knowledge resources necessary to successfully fulfill their roles and responsibilities (ENTERWeb, 2000).

In the knowledge economy, a company's competitive advantage lies in its intellectual capital - the talented people who make the company successful. As more companies begin to realize the value of intellectual capital, managing people, knowledge, skills and learning becomes a major challenge (New Straits Times, 2001).

Learning is no longer an isolated event but an enduring process. At the same time, employees' role in taking responsibility in learning becomes more important. Thus the critical question is how to speed up transfer of knowledge in companies.

Traditional forms of learning such as class-room training are becoming too slow in order to cope with the inflation of knowledge. Thus, new learning forms had to be developed in order to cope with the demands of the economy. E-learning is deemed as an important part in this transition process. It enables fast transfer of knowledge along with the quick adaptation to new knowledge.

2.2. E-learning market

By looking at the e-learning market, one gets an insight on how e-learning has already penetrated the corporate education segment. Looking at the market figures, e-learning is a rapidly growing economy. The US is significantly ahead of the rest of the world in terms of market size and valuation. By the virtue of its leadership the US e-learning companies determine market trends. The National Governors Association estimated a market volume of over US\$40 billion for the year 2005 out of a market volume for the total education market of US\$800 billion.

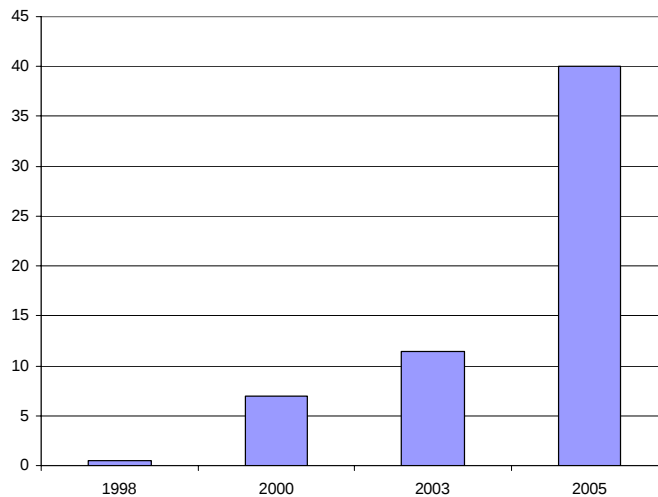


Figure 2. US e-learning market size in US\$ billion

Taking a closer look at the German market, the consulting company Berlecon Research estimated an growth in market value of €2 billion in 2005 back from a market value of €1 billion in 2001 out of a European market size of €4.0 billion. In 2002 the company identified 161 companies providing e-learning services on the German market, while the world market is covered by roughly 5000 companies.

As a result, while the US e-learning market shows a high pace in market growth, development on European and the German market is restrained. International Data Corporation (IDC) called e-learning the fastest-growing sales segment of the business-training market. Nevertheless, the technology research company revised its compounded annual growth rate projection for sales of e-learning software and other products to 24% between 2002 and 2007, down from an earlier estimate of 35%.

The early stage of the industry can be derived from the still highly fragmented market. Globally, the e-learning industry comprises nearly 5,000 suppliers, with no single vendor holding more than 5 percent of the total market (Report of the Commission on Technology and Adult Learning, 2001).

Although clearly being the minor share in corporate training, e-learning catches up. Mummert and partner estimated a proportion in German companies of 30% in 2005 back from a 10% share in 2001. Moreover, figures highly vary between the type of industry and size of the company.

Although some of these market figures provide an optimistic view it is important to consider the implied definition of e-learning the market predictions rely upon. Wang & Ross (2002) pointed out that many figures and predictions that have been released in the past have never been evaluated. A critical issue is the lacking data deriving from a yet to small market. Furthermore especially for the American figures, high estimates serve for attraction of venture capital which exceeded on the climax of the new economy boom the generated turnover of the e-learning market.

More critical studies that have been published recently for example the one from the Dekra Institute provide a more complex view Wang & Ross (2002). The often praised cost advantage could only be maintained for a minor extent of companies. The result was that out of 265 HR managers only 12% see a saving in cost, while even 25% consider e-learning to be even more expensive than traditional learning.

3. Concurrent e-learning implementation in the business environment

3.1. Corporate e-learning

After examining some market trends in the previous chapter, in the following view the focus will shift from the general market towards the specific usage of e-learning within enterprises. It is beyond the scope of this work to give an extensive definition of what e-learning actually is, as many ones do exist. Nacke and Neumann (2002) describe electronic learning as self-controlled learning by the help of multimedia and interactive learning modules, supported by a leeway to communicate with a tutor or trainer and a learning group.

For many years companies enhanced the knowledge of its employees by the means of “traditional” professional training. These traditional practices included presence seminars, classroom-based training, etc. In the end of the 1980’s firms started introducing e-learning into their corporate training programs. At this early stage, e-learning was conducted by rather technological simple concepts like video-supported training additionally combined with computer based exams.

The next stage in the development of e-learning was stamped by the introduction of computer based trainings (CBT), supplemented later on by web-based trainings (WBT). However, all these early concepts were somehow limited, both technically and pedagogically. Considering the pedagogical concepts, obviously sometimes they have been just a virtual copy of traditional methods like lectures and books. These concepts lacked revolutionary concepts that have become possible through e-learning (Magnus, 2001).

Advantages for the enterprise	Advantages for the employee
➔ Accessibility of all employees to ensure qualification of the entire staff ➔ Global accesses for all members to the corporate value chain, internally as well as externally ➔ Fast on-the-job training for large target groups ➔ Reduction of indirect cost of further training ➔ High effectiveness and efficiency ➔ Stabilization of the employee commitment by individualized forms of learning ➔ Creation of an internal knowledge platform as well as possibility of external cross-linking	➔ Stabilization of the commitment to the enterprise ➔ Temporal and local flexibility of learning ➔ Active inclusion into the learning process, interactive learning possibilities ➔ Possibility of the occupation-accompanying attaining of certificates ➔ Development of the employees' media competency

Figure 3. Advantages of e-Learning for enterprises and employees (Schwuchow, 2002)

The next challenge of e-learning is to introduce dynamic concepts, enabling the participants to choose individually from different learning ways and striving for a sustainable optimization of their personal performance by meeting demand orientated training services (Schwuchow, 2002). Consequently, e-learning is supposed to adapting to the employee, which is difficult to achieve with the means of traditional corporate training. The usage of e-learning provides significant advantages both for the company and the employee (Figure 3). Nonetheless these advantages can be only realized if e-learning is conducted in an optimal manner. Furthermore the benefits of e-learning usually increase along with gained experience the so-called learning curve effects.

A hybrid approach to meet the learner's demand was the introduction of blended concepts or the so-called blended learning. This is an effective approach to combine (multiple) learning units for teaching basic knowledge, and the use of trainers, for providing assistance and online support, and additionally conducting presence seminars. Blended learning consists of electronic, Internet-based modules augmented by a mix of face-to-face learning and personal interaction, such as classroom sessions and on-the-

job training. For effective results, trainers identify which methods of learning are best handled by e-learning technology and those most suited for more traditional approaches (Watson Wyatt Worldwide, 2002). This stands in line with a new insight where e-learning is used in a manner where it is a part of the corporate education framework and used whenever useful either pedagogical or economical.

Blended learning ensures social contacts and the human touch of learning in a virtual environment, overcoming inherent acceptance barriers. Moreover, it enables the seamless integration of the e-world into the real world.

Basic rules have to be set up in order to utilize efficient methods enhancing employees' knowledge via e-learning. First, employees must be released from daily work, ensuring that they are not disturbed while learning (e.g. by phone calls). Second, the company has to establish a learning culture, which enables continuous learning in an integrated education concept. Third, the role of trainers has to be adapted compared to traditional forms of professional training. The newly defined task could be called coaching, providing support and in depth classroom training. Finally, when having an online class completed the participant should be able to gain a certificate in a final assessment.

3.2. Framework for corporate e-learning

Due to the fact, that every corporate environment is different, there are no standard implementation processes of learning tools and the design of the technological and pedagogical infrastructure. In the market place today, there is a wide range of available tools, enabling the integration of e-learning into the corporate education structure. However, every corporate environment is different, so the concept has to be adapted to the circumstances of the corporate environment.

Basically, corporate e-learning consists of two different layers and an external interface. The foundation is provided by a learning management system (LMS), which automates the administration of training events and contains a database of the employees' records with administration and delivery of interfaces for learning. It handles the processes involved in training delivery and administration and is structured around the course and its content. An LMS can register users, track courses in a catalog, record data from students and provide reports to managers (Watson & Wyatt, 2002).

In addition, an LMS creates, manages, maintains, delivers and tracks web-based content. By this, it provides functionality such as content migration and management, learning object repositories, content reuse and individualized learning via learning objects, asynchronous collaboration, testing and certification, and interconnectivity with virtual classrooms. Company specific resources determine the design of the infrastructure. While it may not be suitable for a small or medium sized company to implement an LMS, large companies (app. 400 employees) with an extensive amount of e-learning content obtain a powerful tool enabling efficient management.

In the past, critical implications were the business models of gaining turnover by the sale of LMS systems. Depending on the System, prices for those systems can easily account US\$100,000. If not planned correctly, the total budget available is spent on the LMS itself, lacking any content. While popular vendors of LMS systems like Saba and Docent gained success with the installation of LMS systems in the United States, these systems have been oversized in the demand of European companies. This is due to the fact, that only a small fraction of the features could be used either because of legal issues (protection of privacy, regulations of the works council) or corporate culture related circumstances. The latter one became famous under the phrase "360° monitoring", which meant the whole evaluation of employees' learning records. In critical situations negative results could be used for employment policy.

The content layer provides serves the stored media. This is the most critical layer in corporate e-learning as the creation of appealing content is very costly. A lot of vendors offer ready-to-use WBTs for standardized applications (e.g. MS Office) for about 10€ for one hour of learning per user. Customized WBT are in comparison expensive,

ranging from €10,000 to €50,000 per learning hour depending on degree of interactivity, use of audio and video, and pedagogical complexity.

The external interface in the corporate environment, the learning portal, is provides the “visible” front-end for employees. A learning portal is a centrally located web site that provides courses, collaboration and assessment. It often incorporates learning management capabilities, and is accessible by the organization’s intra- or extranet. Moreover, a portal can provide an interface for blended learning. A well-created portal is decisive in the regard of overcoming acceptance barriers.

3.3. Controlling

After the installation of the corporate framework companies have to ensure an economical, cost efficient use of their e-learning system. Measuring the success of e-learning solutions is not an easy task to solve. Though the equation:

$$\Rightarrow \text{ROI} = \text{benefits of the installed system} / \text{total cost of the installed system}$$

seems to be rather simple not all impacts are measured. Easily determined are the hard savings including reduction in training budgets and materials, travel expenditures, instructors, physical facilities, administrative time and hours of lost productivity. These can be identified with the help of figure 6. A crucial a crucial cost element is the initial fixed cost for setting up e-learning. This leads to the fact that especially small and medium sized enterprise are often afraid of this entrance barrier.

What is not measured in the standard ROI equation is the improved productivity and proficiency, learning curve effects, and employee retention, satisfaction and reduction in absenteeism the so called soft factors (Harris, 2003). Firms fail to recognize many non-cost related benefits of e-learning solutions, such as accessibility, and flexibility (Bersin, 2001). Thus it is hard to evaluate the impact on the value of a company's human capital.

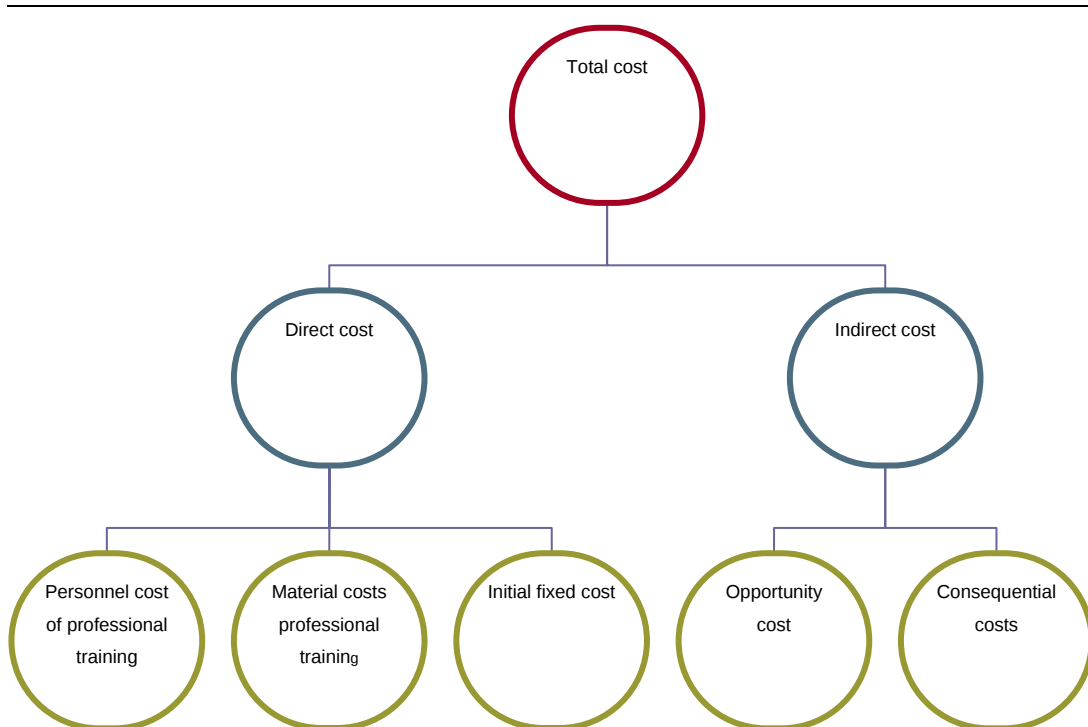


Figure 4. Division of cost for e-learning by cost element (Hasebrook & Otte, 2002)

To some extent this could be solved with LMSs if installed. They provide usually analytic tools for the compliance measurement and other factors. Unfortunately, few organizations consistently measure their training efforts. The ASTD 2002 SOIR found that only one-third of companies profiled try to measure learning effectiveness, and that 12 percent or less try to measure job and business impact. (Bersin, 2002).

Figure 7 shows the trade-off between efficiency and effectiveness of e-learning. Thus, it must be the aim to create high pedagogical value with a small amount of resources. Therefore, a successful solution must consist of both dimensions eventually including synergies from previous installed systems or systems that can be used for e-learning purposes, as for example collaboration tools.

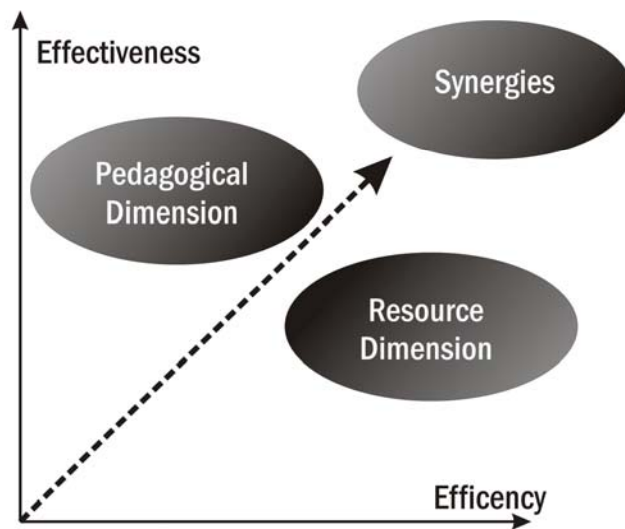


Figure 6. Effectiveness vs. efficiency of e-learning solutions

In order to cope with incomplete standard cost controlling process, additional information has to be include in order to provide an effective view on cost.

4. Case studies: E-learning in practice

The first three chapters covered e-learning from a theoretical approach, including an overview on the current e-learning market situation. In this chapter, three companies and their concepts will be introduced. All companies have already gained considerable experience in e-learning.

In the case of DaimlerChrysler and SBS the means for the case studies were interviews that have been conducted by phone. The contact persons for these interviews were the responsible managers for e-learning in the HR departments. Therefore, the case studies present an insider view upon the respective implementations at DaimlerChrysler and SBS. Concerning the last case, Lufthansa the data was received by a filled out questionnaire.

4.1. DaimlerChrysler

Daimler Chrysler is the third largest automotive manufacturer worldwide. With 362,100 employees (2003) distributed worldwide, the company possesses a large further education program.

DaimlerChrysler first introduced e-learning into its corporate training program in the late 1980's. At that point of time, the company started with the development of CBTs, and in the following years the company began to experiment with other forms of electronic training tools. Thus, many concepts have been tested with changing levels of success; the company adapted constantly to current e-learning trends, such as blended learning.

Considering the organizational structure of DaimlerChrysler's formal education activities, e-learning is as all training services is assigned by the human resource department. All activities can be divided into three organizational levels (figure 7).

Organization	Role	Tasks
Centralized	Enabler	Providing tools for ➤ e-communication ➤ e-collaboration ➤ e-Learning ➤ Virtual classrooms ➤ Virtual conference rooms ➤ Virtual project management ➤ LMS
Decentralized	Formal education structure	HR policy
Project management	Content creation	➤ Development of CBTs and WBTs ➤ Usage of e-Learning in factories and departments

Figure 7. DaimlerChrysler's organizational structure for e-learning

The HR department's role is enabling e-learning by integrating new media into the corporate training program. The department with its executive for the integration of new media into formal training acts as a service provider for the decentralized corporate education structure.

DaimlerChrysler's share of e-learning in its formal education is still low. However, it is expected to rise constantly within the next years. This has to be seen in the firm's context: e-learning is not used per se, but e-training is conducted whenever it enhances the learning process and productivity. Consequently, major motivations for the use of e-learning are boosting synergies between working and learning (workplace integrated learning), increased flexibility and team collaboration between different locations.

Accordingly, DaimlerChrysler's sales offices see already a moderate amount of e-Learning at an estimated share of 10%. Within the next years it is expected to rise for a contribution up to 25% of all training services carried out in the company's sales offices. In the production segment e-learning contributes a significant lower percentage to professional training.

Nevertheless, production sites are offering a high potential as size in terms of employed workers varies between 3,000 in small factories and 30,000 to 40,000 for the largest ones. Moreover, DaimlerChrysler is realizing a higher share in production work areas, compared to other firms in the automotive industry. Recently, a “Production and learning system” was introduced, which provides on-the-job training for employed workers in manufacturing. This program seamlessly links e-learning and formal training in a workplace integrated concept.

At the present time, DaimlerChrysler follows a modern concept of e-learning. The company is conducting “learning with new media” as an integrated part of the formal education structure. The company follows basically a blended learning approach, which is achieved due to virtual class and conference rooms in addition to WBT and CBT training.

Due to the nature of the decentralized training and education structure, Daimler Chrysler does not possess a unified pedagogical and technological infrastructure. Instead, the company adapts its training concept to the demand in its strategic business units. This led to the fact, that for example the installations of Learning Management Systems were only realized in those education segments, which necessitated the demand for advanced administration.

Whereas the infrastructure is the basis for self controlled learning with the help of WBTs and CBTs, DaimlerChrysler puts a special emphasis on the social component of e-learning. Consequently, the company offers its employees personalized services including the assistance of tutors and the contact with other learners. This is achieved by the access to synchronous collaboration environments (virtual classroom, virtual conference room) and asynchronous tools (newsgroups).

An example was the introduction of a time management online course. The lessons were held in a virtual environment, comprising online classes and tutor assistance. Individual support was given either directly in the learning environment or by phone. The focus during the course was on the individual employee’s needs of the learning, trying to maintain the social environment of traditional class-room-based training.

WBTs and CBTs were used for the training of sales personnel for the introduction of the new a-class model. Key points were the explanations of the differences compared to previous models plus the significant advantages of the new models, enabling the sales personnel to adopt quickly new knowledge. Due to the high amount of content specificity, the production was provided in-house.

Usually, in-house content creation is the common way to produce content. Moreover, external partners and agencies are assigned in the assistance of additional content. Standardized products (e.g. SAP R3 courses, Microsoft Office training courses) are purchased from various e-Learning providers such as Skillsoft or NetG.

Blended learning was used in a multiplicator training program for the purpose of educating training and qualification agents as well as multimedia trainers. In addition, Daimler Chrysler fosters the education of professional trainers, as the expectations for incorporating e-Learning into e-learning have increased. Thus, the implication, for the trainers shifts constantly from the conduction of class room training towards giving assistance in blended learning environment.

Trainers are major drivers in the implementation of a learning culture. At DaimlerChrysler a codified learning culture does not exist, nevertheless qualification efforts towards the enhancement of the employees' life-long learning are an essential in establishing a learning culture. Enabling life-long learning is one of the crucial issues in this process can be enriched with new media. Due to the fact that DaimlerChrysler does not hold a standardized trainer – participant relationship, other learning forms become possible such as expert groups, or groups supported by an expert. Learning is seen in a way to optimize processes and by this e-learning is only utilized voluntarily.

Basically, the three key questions have to be asked when tailoring an e-learning solution:

- Who learns? (Personalization)
- How does one learn? (Methods)
- How much does one wish to learn? (Effort)

Every employee is exempted for three days a year for professional education. Additionally, Training is also possible in leisure time, but job related training takes always place at work and consequently it is obligatory. Leveling of knowledge is ensured by final assessments but e-learning classes do not always end with a test.

DaimlerChrysler's consideration for the conduction of e-learning are measured at two dimensions (see chapter 3.2.). The first argument is that there are benefits from an increase in effectiveness which is achieved in a reduction of time for gaining the same amount of knowledge compared to classroom training. Regarding DaimlerChrysler the second argument, which is the reduction of cost compared to classroom training, is less important. Finally, DaimlerChrysler benefits from synergies in its technological infrastructure. Collaboration tools and new media can be used in a working environment as well as for the purpose of learning. Functionalities provided in implemented tools team facilitate the collaboration in different working locations such as inter factory collaboration and international collaboration

Due to the decentralized structure of education there is no standardized cost monitoring process for e-learning projects such as ROI. Instead decisions for the usage of e-learning are done when it provides a well trade-off between all dimensions. Depending on the training, questionnaires and online tools are used to measure the employees' contentment.

4.2. SBS

Siemens Business Services (SBS) is one of the world's leading IT service providers totaling some 34,600 employees (2003) in 40 countries including the United States. About 24 percent of the business is done for the Siemens Group. The approach is different in comparison to DaimlerChrysler, because e-learning services are utilized internally as well as externally. In contrast to the previous introduced company, SBS also acts on the corporate education market for providing e-learning services. Thus the company benefits from the internally gained knowledge, transferring it into external product solutions and vice versa.

SBS and Siemens have accompanied the evolution of e-learning since the early 1990's with different technological and pedagogical approaches. In this early stage this meant for example the conduction of e-learning with video training (video supported learning), completed by a computer controlled assessment. Later on, the company started to experiment with more advanced forms of training such as CBTs and WBTs.

SBS benefits from the Siemens corporate network and the size of the mother company. Considering the German market, SBS offers a comparative advantage by possessing local knowledge. Particularly, this is an important issue in security related concerns such for customers as the German armed forces (Deutsche Bundeswehr). Another important customer of SBS is f the Deutsche Bahn AG.

On the organizational level e-learning is carried out by the strategic business unit "Training and Services" within a decentralized matrix organization. The production of e-learning services is project orientated resulting in no fixed amount of employees assigned to the department. Customized e-learning solutions are produced in-house along with external delivery of content such as external scriptwriters. In order to adapt the content to the need of different cultural and language backgrounds SBS cooperates with its internal translation and localization department and its language center. Standardized solutions (chapter 3.2.) are provided by third party vendors e.g. NetG and Skillsoft to provide a complete the product portfolio.

In addition to consulting services SBS's focus is upon the content creation especially WBTs, CBTs and Online Learning. Considering the content level solutions are produced with tools from Macromedia such as Flash, Dreamweaver, and Toolbook. Anyway, the value derived from the final product lies in its pedagogical concept; the value of how to enhance the learning process of the participant and the impact on the increase of human capital. In practice this means that e-learning projects with a large number of participants allowing the use of audio and even video, using professional speakers and actors. On the administrative level SBS also installs LMSs, depending on the need of the customer. There might be also scenarios possible in which the installation of an LMS is not economical useful or demanded.

An e-learning product, which was created for internal use was a WBT “methods and processes framework” for project management. The purpose was that every employee at SBS involved in project management, gets a comprehensive guide into methods and processes of project management. Due to the large amount of regulations when conducting project management there is a necessity for a complete guideline of rules for a system for planning and conducting projects.

The WBT was also used in the North American subsidiary with the necessity of local adaptation as described before. The WBT replaced in this case class-room training. Thus, all employees who wished to participate in e-learning were obliged to use the WBT. Taking into account the economic results of the project, ROI was very high and consequently the product has been successful.

A second example for an e-Learning product was development of a CBT for the EXPO2000 GmbH. In contrast to implementations covered before, the main focus was not the enhancement of a life-long learning but rather the education of part-time workers. The CBT should cover all relevant aspects for temporary workers at the Expo 2000 in Hanover. This included imparting the knowledge of all points of interest, security related issues (loss, emergency), and dealing with difficult customers and schedule related issues.

The training program was virtually impossible to be realized in class-room seminars, mainly due to large number of employees (four shifts at 7000 employees, totaling 28,000) and the short planning phase of half a year. The final CBT lasted about 3 ½ hours finishing with an online test. All applicants attained certificates which were mandatory for employment. The EXPO2000 GmbH requested explicitly a non-web-based solution, because the target group consisted to a large extent of students, anticipating potential problems with unstable internet connections. In addition blended learning was used in order to train sensitive aspects of affective training for VIP visitors.

The implementation process differs somewhat between internal and external products. Regarding Internal projects SBS possesses a direct influence on the introduction of new training programs. It allows monitoring of results as well as setting schedules for the

completion of WBTs. In addition requirements can be set for employees to attain certain certificates in order to advance to specific positions. Considering external sold products there is no direct influence on the initial phase, and thus the success of learning may be doubtful. This might lead to a situation where a WBT is simply stored on a server with no one using it. E-learning is a constant process so it is surprisingly that updates and maintenance are usually not heavily demanded.

Considering the economic results, ROI is a very important figure. In comparison to DaimlerChrysler this indicator is also not seen as the only important controlling tool.

At SBS work related e-learning can be done while working, but some courses e.g. business English are intended for leisure time. When doing learning online employees have to be released from daily work so that they are not disturbed in the learning process (e.g. phone calls). Furthermore there is an inherent need of the acceptance of doing e-learning for in the working environment. This is especially important when a WBT is the only choice to attain certain certificate. SBS has received positive a very positive feedback from employees as well as from its customers.

4.3. Lufthansa

The Lufthansa Aviation Group, member of the Star Alliance is the largest German and one of the largest air carriers worldwide. Employing approximately 90,000 people worldwide, the company possess an extensive corporate training program. Currently, 11,000 employees participate in e-learning the company's training program as registered users. Nevertheless, the company has still large potential in the development of e-training as the target group consists of estimated 30,000 employees.

Distance learning concepts at Lufthansa have seen already an evolution period of 35 years, but only since the early 1990's the company has started to use multimedia based training programs in addition to offline CBTs first used in the technology department, Cockpit, Lufthansa -Passage, Cargo and Lufthansa -Systems.

Since the end of the year 2000 the company the concept advanced to the next level as Lufthansa set up their learning platform “LearnWay” and the corresponding learning portal “eBase 2.0”. All content such as WBTs are provided by “NESSY” - the learning management system. E-Learning is used whenever it is sense making and when the infrastructure is available.

The guiding motive for developing an e-learning infrastructure was to improve services for customers by optimizing internal workflows, fostering technological and organizational innovations. The preparations for this have been achieved with the means of traditional training in the process of preparation and consultation.

As shown in chapter 3.3. development of a corporate e-training program causes high initial and organizational cost, and so was Lufthansa. Nonetheless, by adding self-controlled learning tools (CBTs) to traditional learning, first steps have been taken in order to cope with the increased need and fluctuation of demand in corporate training. Increased use of e-learning created the need for a sense making integration of new media into the corporate training program in order to maintain a high level of quality.

Consequently, the aim is a redesign of the company’s professional training program, not just by choosing an additive approach, but rather an integrated one. This has been achieved with accomplished installation of an LMS and a learning platform, which was developed in cooperation with IMC GmbH and additional consulting services from IBM.

The company states that the key to successful e-learning is blended learning. On the other hand the share of self-controlled learning will increase, supplemented by the integration of new media. The final goal is the expansion of the training program towards the whole Lufthansa Aviation group

The implementation process was done by the departments Lufthansa -Passage and the Lufthansa School of Business which is the corporate training department. The developed learning environment is used by employees in several fields such as Flight Training, Technology, Passage, Lufthansa Systems and voluntarily training. Presently,

e-learning service are only available internally on the company's intranet, by 2005 Lufthansa will launch its corporate university on the Internet.

At the moment, employees have access to 40 WBTs, 10 CBTs, and 15 online classes and communities, totaling 1400 hours of CBT/WBT content. While the use of (corporate specific) software applications is mainly trained online (cognitive learning), Lufthansa uses a blended learning approach for teaching soft-skills (affective learning).

A main pillar for both ways of learning but especially the latter one is the assistance by tutors as they are responsible for questions, assignments as well as virtual class-room meetings and first-level Support. The focus in the tutor assistance is asynchronous communication (newsgroups, email support), and to a smaller extent synchronous communication (chat rooms). Moreover, tutors also conduct the classroom training enabling a seamless link to online learning.

E-learning at Lufthansa is mandatory when an employee chose to advance and train in certain topics. Furthermore voluntary education is also possible. In order, to ensure highest learning results, employees at Lufthansa should be released from work by superior while learning. In addition, Lufthansa offers the possibility to learn at special computers or computer rooms, resulting in low acceptance barriers.

Content at Lufthansa usually consist of WBTs comprising graphics, animation, audio, pictures and videos for CBTs, as well as online recourses such as list of links, glossaries, knowledge databases, documents and articles, and FAQs. E-Learning is an effective method for the preparation for the pilot's simulator training.

At Lufthansa e-learning is only conducted when it provides a significant advantage either in an enhancement of the learning process or in a decreased use of resources. As the implementation of e-learning into the corporate learning culture is showing progress and initial obstacles are overcome, e-learning at Lufthansa shows in terms of enhancement of its human capital as well as in ROI success.

5. Conclusion

As a result from the Interviews it can be pointed out that e-learning is clearly on the rise. All companies have implemented powerful frameworks of e-learning tools, enabling the enhancement of corporate training. It is interesting to see that those companies do not share the pessimistic view upon the German e-learning market covered by the media. They predict a steady increase in the use of e-learning especially in the regard of blended learning.

In recent years powerful technologies have been developed and the peak is still not reached. Besides the technical issues it is important to point out that technological innovation has to go hand in hand with pedagogical innovation. Furthermore it is important not to forget the target of all efforts – the employee. Thus concepts are needed that stress the social component of learning.

Concerning the market situation easy predictions are not possible; e-learning will cut its own path in the corporate training landscape. The advantages are significant depending on target. Cost reduction by e-learning is hard to achieve but moreover the true value lies within the pedagogical concept. Many fields of interest will be covered within the next years including simulation and motivation software.

As worldwide available knowledge increases, and at the same time existing knowledge gets rapidly replaced by new one, e-learning is maybe the only permanent solution to cope with this problem.

Appendix

Transcript of the conducted interviews and the received questionnaire

DaimlerChrysler

Introduction

1. Dr. Jakobs, before we start with the interview, please introduce yourself briefly.

I am the executive for learning concepts und new media within the HR department. My task is the integration of new media into the corporate training program. Our department acts as a service provider and enabler for decentralized corporate education.

2. What kind of access do you possess concerning e-Learning (pedagogical / technical / economical)?

I possess a pedagogical approach.

Organisation

3. How are e-Learning activities organized functionally within DaimlerChrysler (central / decentralized / project-orientated)?

E-learning activities are organized on all levels. On the decentralized level the framework for the general is set. I am part of the central level. We provide tools for e-communication, e-collaboration, e-learning, virtual class and conference rooms, and virtual project management. Departments request our services and we assist with providing tools but we are not delivering specific content. This is done by project

management within single factories with the help of CBTs and WBTs. In Germany DaimlerChrysler has approximately 170,000 employees plus 60,000 worldwide. Single factories see a range of 3000 up to 30,000 – 40,000 employees. On average, every employee at DaimlerChrysler is exempted for three days per year for further education.

4. What about the amount of staff employed in your department?

We do not have a specific amount of employees. Regarding the company, e-Learning is an integrated part of the further job education. E-learning at DaimlerChrysler is seen as “Learning with new media”.

Products/solutions

5. What kind of e-Learning products are used (e.g. CBT; Portals; Learning platforms; WBT; LMS; etc..)?

We use of LMS only a few SBUs which have purchased from US based companies Saba. We offer personalized services and support and we would like to improve the needs for contact with colleagues with the help of virtual class and conference rooms. Furthermore self controlled learning is achieved with the help of various tools such as WBTs and CBTs.

Concerning the content we use in house production for the company specific purposes such as for the new a-class model. It comprised the training of sales personnel and the targets were training the main differences to the previous models and the significant advantages of the new model. We do also cooperate with external partners and agencies for the content creation. Standardized products are purchased from various e-Learning providers.

6. To which extent is e-learning used at DaimlerChrysler. Since when is DaimlerChrysler using e-learning?

DaimlerChrysler is using e-learning since the late 1980's (CBT). Generally we still have a quite low use of e-Learning depending on the definition. Our sales offices see already

a quite high share of e-Learning (approximately 10%-25%). In the production we still have a significantly lower percentage of e-learning. Anyway, we coped with this issue by the introduction of a new program “production and learning system”. The program is still in its pilot phase and the final aim is to enable workplace related learning with the help of computers. In addition within learning with new media we have a high amount of blended learning.

7. What were the reasons for the usage of e-learning?

Cost advantages were only important to a minor extent (e.g. reduction of opportunity cost like travel and accommodation). In additions we wanted to gain synergies between working and learning, increase in flexibility for learning, workplaces integrated learning, and team collaboration in different working locations.

8. Can you describe further projects?

We used blended learning in the training of our garage and sales personnel. Furthermore we introduced multiplier training for the education of multimedia trainers, education agents and qualification agents. Another project was training for self and time management. It consisted of a virtual environment comprising online classes including tutor assistance, online meetings, and individual support either by phone or the learning environment. We stressed the focus on the individual needs of the learning employees.

9. How do you assess the further development of e-learning at DaimlerChrysler?

The share of e-learning will constantly increase at DaimlerChrysler within the next years.

10. Are there any particular target groups of special interest for e-learning?

We do not have any special target groups in particular. Particularly, the use of e-learning is very useful in the context of interfactory and international collaboration. Nevertheless, we are not covering all employees yet.

11. What about the processes in the pre-phase of an installation of electronic training?

Content specific e-Learning is solved within the decentralized structure. Further education requirements are determined in the individual SBUs, enabling qualification processes.

We set up learning environments, virtual classroom and cooperate with agencies for the production of CBTs and WBTs. We try to assess and describe the learning processes with the help of the available tools. It is important to state that there does not exist a standardized process due to the size of DaimlerChrysler's organization.

12. Are you observing current university research?

Yes, we are following current scientific research as we cooperate with public and private institutes.

13. What about classical class-room training in comparison to e-learning?

All employees at DaimlerChrysler are learning and within this process all methods are used that enhance the learning process. This includes presence seminars, self controlled learning, blended learning as well as online classes.

Performance measurement

15. How is the acceptance and success of the installed solutions (economically) monitored? Which indicators (ROI) are used for the controlling and/or the monitoring?

Success is measured at the customer, thus the same results have to be achieved but in a lower amount time and consequently lower cost. DaimlerChrysler does not possess standardized cost monitoring (ROI). This is due to the decentralized structure and the

nevertheless it is measured at two dimensions: Effectiveness which is the pedagogical dimension and efficiency which is the cost dimension resulting in more learning at the same time. Furthermore Synergies can be gained with the use existing tools in other working contexts such as the use of collaboration tools and new media.

16. Are training courses mandatory for employees?

Job related training is conducted always at work and consequently it is obligatory. Training in leisure time is also possible (open program) and e-learning classes do not always end with a test. These are important for the levelling and monitoring of knowledge.

17. How does DaimlerChrysler tries to enhance the process of life long learning and the raise of its human capital?

Human capital is raised with the help of new media. We are enabling life long learning with methods as described earlier. In addition we use expert groups, or groups supported with an expert in order to enhance the learning process.

Employees' Acceptance

18. How is the employees' feedback evaluated?

We are using questionnaires and online tools depending on the type of training.

19. How do you try to create and foster a learning culture?

In our qualification efforts there is no codified learning culture. Anyway we always ask how one learns, how much one learns and who learns.

20. What is the role of trainers?

There are special programs for trainers in order to train their multimedia competencies. The role of trainers is very important and expectation towards trainers that they use e-Learning have increased.

21. Germany is sometimes regarded as a difficult market for e-learning. Can you confirm these experiences? Where do you see problems?

There have been some issues at DaimlerChrysler especially with for use of WBTs and CBTs, too. Nonetheless I do not see the observed problems this much in corporate training.

22. Do the employees regard e-Learning as productivity gain or as a "waste of time"?

E-learning is a part of learning and employees are not forced to do e-learning. Learning is a way to optimize processes. E-Learning is used by groups which want to use e-learning.

23. Are employees happen to learn while working or rather at their leisure time

Both is used.

Siemens Business Services

Introduction

1. Dr. Helmert, before we start with the interview, please introduce yourself briefly.

I am 49 years old and I awarded a PhD in geography. By now, I am 15 years at Siemens and during this period of time I was responsible for topic e-learning. I have accompanied the evolution of e-learning in this time with all its different technological faces like video supported learning in the early stage and later on CBT . Currently, I am the responsible project manager for WBT and e-learning. SBS provides internal e-learning services as well as (SBS) services for external customers.

2. What kind of access do you possess concerning e-Learning (pedagogical / technical / economical)?

I have a pedagogical approach, and basic knowledge in technical issues, but programming is done by team members and/or external developers. My tasks are the acquisition of new customers and the developing of a rough and fine concept.

Organisation

3. How are e-Learning activities organized functionally within the SBS (central / decentralized / project-orientated)?

Our newly formed department “Training and Services” is part of the human resource department. We follow a decentralized organization, which is rather a matrix organization. E-learning is conducted project orientated and within this existing projects are used for the creation of new ones

4. Are the activities also internationally coordinated?

Yes, activities are internationally coordinated.

5. What about the amount of staff in your department?

Due to project orientation there is no fixed amount employees, thus usually I am the only fixed employee for the department. Other employees are assigned when conducting concrete projects.

Products/solutions

6. What kind of e-Learning products are sold (e.g. CBT; Portals; Learning platforms; WBT; LMS; etc..)? What kind of e-Learning of concepts do you use?

Generally, I believe e-learning is often conceived in a wrong manner, leading to a misunderstandings in terms. This can also been seen in the content creation. In our department products are for example created with Macromedia tools like Flash, Dreamweaver, and Toolbook. These rather cheap tools are not important, but in the end it is the final product is.

Additionally, LMSs are important although they have been used in the past for generating sales volume, while the learning content was still missing. This is due to the fact that learning platforms originate from the US market. In those systems a large Amount of control was possible, but not generally wished and requested on the German market due to legal issues.

Data could be in this sense collected for purposes of further corporate trainings and especially employee selection which was stamped under the term “360° monitoring”. This resulted in a development where only approximately 10 percent of the sold LMSs were actually used in German companies. Consequently, US products were oversized and LMS were mostly used for statistical purposes. Concerning the use of LMS in firms, it has to be said that they require a large number of WBTs and also employees in order to make those systems profitable

7. From which industries do your customers come?

One major project was the design of a CBT for the EXPO2000 GmbH. It incorporated the developing of a training program for all part-time employees; totalling a staff of 28,000 (four shifts at 7000 employees each). Knowledge was requested for the places of sites, security (loss, emergency), how to deal with difficult customers, and Schedules. In regard to this project, obviously classical seminars were impossible to conduct.

The product consisted of three and a half hours of CBT ceasing with a test. If successfully completed, participants attained a certificate which was mandatory for employment. The customer didn't wish to have a web-based solution, because the target group largely consisted of students, which sometimes don't have a stable internet connection. The duration of the project was half a year. Blended learning was used for training special aspects such as serving VIP visitors. Although technical issues were rather easy to handle, the creation of content (learning material, text ect.) was hindered by legal issues, e.g. intellectual property rights for the map of the location.

Internally at SBS e-learning was used for training project management. A WBT "Methods and processes framework" was produced, covering rules for a system for the conducting projects, coping with large amount of regulations. Moreover, the WBT was adapted for the North American subsidiary with assistance of the "translation and localization" department and SBS's Language center.

Economically, the project was a success as ROI was very high. Both projects were created by approximately 10 project members. Other important customers are the Deutsche Bahn AG and the Bundeswehr (German armed forces). Generally, SBS and Siemens are important partners for the public sector especially concerning security aspects. All Recent projects were done with audio and professional speakers.

8. How big is the turnover generated with e-Learning activities at SBS?

Due to confidentiality reasons I cannot give detailed information about the performance of e-learning. Accessing the costs of a WBT is done in learning hours. The cost for one hour of customized e-learning varies from 20,000€ to 50,000€. Moreover, one hour of e-learning is equal to two hours of seminars. For a simple economic comparison we compare the cost of a seminar for one day including the cost of travel, accommodation,

and proximity from work with the cost of three and a half hours of WBT for the given amount of employees.

On the low end we produce e-learning with simple text and vector graphics for online learning. These products do not allow personal interaction such as for example audio supported PowerPoint slides. On the high end we develop e-learning products comprising complex multimedia, audio (professional speakers) and enhanced pedagogical concepts. These WBT require the minimum of at least 400 employees and the content has to be constant for at least one to one and a half years.

9. How long is the duration for the development and installation on an average project (project times)? Could you give examples?

There is no fixed duration

10. Do you cooperate also with external partners or does the SBS develop all products in-house?

In this respect we have to divide between standardized and customized solutions. Usually, we produce the content in-house and when necessary we acquire externals such as scriptwriters for customized content. Concerning standardized content we cooperate with third party vendors such as NetG and Skillsoft as we are only producing customized solutions such as individual and project specific solutions.

11. Suppose you are given a job to promote the concept of e-learning in workplaces, will you buy any new technology or platform or any application offered by e-learning vendors? Or you will build on /customize what the company already has, for example, technology, knowledge, for e-learning purpose?

It depends on the wishes and needs of the customer. We try to adapt to existing content and concepts but extensive adaptation is often needed. In regard to cognitive content this adaptation is rather inexpensive, but affective content (e.g. sales training) is rather expensive. The same is true for blended learning.

12. Are you observing current university research?

We are not extensively observing university research, nevertheless we check current trend especially at the Distance University of Hagen and the Fraunhofer Institute.

13. The SBS also provides internally its e-Learning solutions. Are there substantial differences to the external customers (e.g. during the product introduction, progress control, etc..)?

On the internal scale we can monitor and if necessary influence the introduction of new training programs. We set schedules for accomplishing WBTs as well as requirements for certificates in specific positions. On the external scale we do not have direct influence on the initial phase, thus the success of learning may be doubtful. However, we can only advise companies and organizations in the realizations phase as updates and maintenance are usually not heavily demanded.

14. What can you state about the shares of e-learning in proportion to classical training?

I doubt survey's results regarding the proportion of e-Learning used in companies. For example, Lufthansa is massively using e-Learning in security related training, but the company doesn't give much publicity to these developments. Regarding SBS, I can clearly say the e-Learning is on the rise although I cannot define the exact amount of e-learning.

This is because of advantages of e-Learning. It provides anonymity and thus reduces the pressure of the learning group. I have experienced that questions for the self estimation are not always honest and participants do not dare to ask "stupid" questions. It also allows different initial levels of knowledge and individual speed of learning.

Performance measurement

15. How is the acceptance and success of the installed solutions (economically) monitored? Which indicators (ROI) are used for the controlling and/or the monitoring?

ROI is for us a very important figure although the corporate environment has
Seminars have to be replaced by e-Learning

16. Where do you see your company's competitive advantage?

We offer a rather heterogeneous product, however our main competitors for customized solutions are Accenture, IBM Global Services, MIT (Friedrichshafen). For standardized products we cooperate with NetG and Skillsoft. The factors for attracting customers are Quality, Price, Experience, Size of our company, Siemens network and the local knowledge we possess.

17. Blended Learning seems to be a current topic. Which trends do you observe at the market?

Surely, if implemented correctly, blended learning is the best solution. That's why we try to add for example chats and web forums. There are still some difficulties in realization, as there are trainer related problems. Previously trainers guided through the content, now they are just responsible for certain "remaining" parts like specific questions and so on. Thus the role of trainers has shifted and a new generation of trainers needed. WBT replaces in many cases personal training and it's difficult to get both sides together. Nonetheless the importance will increase.

18. At the climax of the e-Commerce boom at the end of the 1990's e-Learning was considered as the next "killer application". What's your viewpoint on e-learning today?

The public media mainly covered the setbacks and rather not the positive issues that do work in e-learning. It has been used in many sections of the industry but there is not much talk about positive aspects that are working. This is possibly due to threat of

imitation. The high tech industry and the military sector and armament are using already a high amount of e-learning and standards like the HICC norm aroused from the armament sector.

Speaking for e-learning at SBS, predictions for the whole market can not be done by regarding just the turnover of a single company. E-learning had its success in the past and will do so also in the future

19. Are training courses mandatory for employees?

At SBS e-learning is voluntarily, but sometimes a WBT is the employee's only choice to attain a certificate that is obligatory for certain positions. In addition the environment variables are very important.

Customer acceptance / feedback

21. Do employees see e-learning as a way to enhance productivity or rather just a "waste of time"?

We received very positive feedback and as mentioned before employees do in some cases only have a WBT as the only one choice to attain certain certificate. This surely helps to increase the acceptance level.

22. Are employees happen to learn while working or rather at their leisure time?

In the early stage: e-Learning was done while working and employees have not been exempted from daily work. They there disturbed by phone calls and this guaranteed a low level of success. There is an inherent need for acceptance in the working environment (learning culture). Job related topics can be covered at work, but some topics (e.g. business English) are intended for leisure time.

23. Are there industries with a high acceptance level of e-Learning?

Yes, the high tech sector and the military sector.

Lufthansa Aviation Group

1. Please introduce your company briefly.

Lufthansa aviation Group employs approximately 90000 people.

2. Since when is e-Learning offered at Lufthansa? Why did Lufthansa decide to offer this learning method?

We do possess approximately 35 years of experience with self learning media as a part of distance learning. Since beginning of the 1970's we were using program instructions and manuals. Furthermore we were using ASET systems which were decentralized host-supported teaching programs as training system for all Unisys applications. These allowed only text and input masks including very simple graphics, but no audio, and no pictures. These systems were used for Lufthansa passage.

Since beginning of the 90's we started to use multimedia tools such as off-line CBTs for the departments technology, cab and cockpit, Lufthansa passage, cargo, and Lufthansa system. Since at the end of 2000 learning in the Intranet with WBTs became possible. This is incorporated by the virtual company learning platform "LearnWay" and in the employee portal eBase 2.0. The system is accomplished by NESSY as a digital course administration on the Intranet.

3. What were the decisive reasons for this learning method?

In order to improve the workflow and optimize the services for our customers, technological and organizational innovations were pushed at Lufthansa stations, and sales and services. This process was accompanied by training courses with the classical equipment – such as class-room training.

However, the introduction of the program caused high organizational cost. By adding self learning media e.g. CBTs first steps were introduced to feed the rising demand of training courses and to meet large fluctuations in demand. The intensified usage of other

learning media made it however necessary to achieve a qualitatively sense making integration into corporate education.

The development required a solution that overcomes an additive approach. This is why Lufthansa decided to incorporate e-Learning as an important component in its employee training with the help of a learning platform on the net. A target is a completely restructuring of Lufthansa's trainings, which formerly mainly consisted of class-room trainings.

By the creation of a new teaching and learning infrastructure the class-room training will be supplement by additional media. The share of self learning phases will be extended and boosted by on-line learning. Our e-learning concept will be expanded on the entire Lufthansa Group.

4. Which targets does LUFTHANSA try to achieve with the help of e-learning?

Our target is to foster innovative, up-to-date, and cross linked learning as well as establishing learning communities in order to enable knowledge transfer and efficient coaching. Other targets are enhancing education controlling together with the establishment of a new learning culture. Furthermore we try to encourage self responsible learning and unified standards.

5. From which company did you acquire your e-learning system?

The system was developed in co-operation with IMC GmbH. IBM accompanied the process as a Consultant.

6. Why did you choose IMC for the development of the learning platform?

The company possesses a scientific background which goes hand in hand an sufficient amount of technical competent employees. In 1999 they had already good references (Daimler Chrysler, IBM), and in addition they developed a technically and optically appealing platform witch was adapted on the needs of Lufthansa.

7. How long was the duration of the introduction process and who was responsible for the introduction of the platform?

The introduction took approximately three years and was conducted by Lufthansa passage and the Lufthansa School of Business.

8. Which were the obstacles during the introduction process of e-Learning?

We encountered problems with the technical infrastructure, acceptance barriers, coaches and managers, integration in existing curricula, and missing contents.

9. What are the most significant differences between e-learning and conventional learning methods?

E-learning provides just in time training which enables us to train many participants in a short time. Other advantages are the self responsibility, local flexibility, and the reduction of the coaches' workload (coaches as a learning advisor – learning coach).

Furthermore a-learning allows the covering of training peaks without the need of new employment of coaches. Economic reasons are also very important, as e-learning allows providing consistent content, and e-learning results in a saving of time (four hours of CBT equals 6 hours of class-room training).

E-learning is an innovative, modern learning form which enables in the context of pilots' type ratings efficient preparation for simulator training.

10. For which ranges is e-Learning offered with LUFTHANSA?

We offer e-learning in the following departments: Lufthansa flight training, technology, passage, company, Lufthansa system, and voluntarily further training.

11. What kind of content is provided?

Regarding the content there is a differentiation between net based training, and blended

learning. Training of user software is mainly conducted over the net. Particularly this is of huge importance at the world-wide introduction of new applications, which concern a very large amount of users at the same time.

The training of Softskills is still a domain of mainly class-room training. Nevertheless, e-learning can be used for the preparation and distribution of learning media. Currently we offer 40 WBTs and approximately 10 CBTs completed by approximately 15 online courses and communities; altogether comprising 1400 hours of CBT and WBT.

12. Are your solutions offered in the intra, extra or Internet?

By now the content is only available on the Intranet and will be extended in 2005 on the Internet.

13. How many employees are using e-learning?

E-Learning is used by all employees of Lufthansa, where the usage is sense making and the technical infrastructure is provided. Currently the target group consists of an estimated amount of 30000 employees, while we have 11000 registered users for the learning platform.

14. How can the learning platform be used? On-the-job or at home?

The employees are intended to learn also on-the-job, if the working environment permits the usage. For effective training they should be exempted from their superiors for training purposes. In many locations it is also possible to use learning computers and/or to EDP training halls.

15. Is the use of the program voluntary?

Yes and no: If the training is necessary for the job it is obligatory otherwise it is voluntary.

16. Which learning times are intended? How can the participants communicate? Is there additional class-room training?

In the on-line phases the class participants are supported by tutors, which provide assistance and distribution of test exams. The focus is on asynchronous communication (e.g. newsgroups and email). In addition, synchronous communication is provided by chatrooms. For the future synchronous communication solutions over point-to-point or multi-point solutions are already examined.

In principle tutors cover the classical tasks of coaching in class-room trainings. This creates a personnel linkage between the class-room training and on-line elements. The tutors also provide roof ridge level support. Administrators are responsible for technical questions.

17. What was the amount of cost that had to be invested for the initiation phase?

The expenditures and costs are distributed on implementation of a learning platform and its corresponding communication tools and the development of WBTs. A WBT is realized only if it ensures economic advantages compared to conventional class-room trainings.

Regarding the WBT production we identified approximately 20,000€ to 30,000€ per learning hour, depending on the degree of the interactivity and complexity, the video and audio proportion for the learning time plus expenditures our own personnel (e.g. project management: planning, conception, support, acceptance).

18. What about the motivation of the participants?

All our WBTS contain multimedia (graphics, animations, audio, pictures) and correspond to the highest quality standards. In addition there is in the multimedia library, freely accessible including WBTs, CBTs, link lists, glossaries, knowledge data bases, documents and article and FAQs. There is a good acceptance by our employees because we offer in the framework of the courses and communities self controlled learning assisted by tutors.

19. Does e-learning possess the same importance as traditional training?

Yes, this is what we would like to achieve.

20. Is there training for the usage of the learning platform offered?

No, but we offer a guided to route and extensive assistance within the learning platform.

21. What about the feedback of the employees?

Overall quite well resulting in low acceptance barriers. We identify rather technical and organizational problems.

22. Is LUFTHANSA satisfied with the recent development of a-learning?

Yes, we are.

23. Since introduction of the e-Learning, is there an apparent difference in learning success?

At least, we have the same success in learning with e-learning, but with smaller usage of resources.

24. Are there concrete plans for the development of the “LearnWays”?

Yes, in the context of eHR and the Lufthansa School of Business.

25. Is a use of your learning platform possible by external customers?

No, not yet.

26. Do you generally believe that e-learning has a future in Germany?

Yes, absolutely; if e-learning is pedagogically meaningful and target group oriented used, interesting and work supporting contents provided, and technical problems are solved. Within the corporate framework of education e-learning provides a significant economic contribution.

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