Ursula Fleckner, Mona Baschlau, Klaus-Jürgen Rupp, DAA Mittelhessen

The age of the InterNet
From the e-Commerce to the knowledge management

Content

1	Introduction	2
2	Internet	3
2.1	The Development of the Internet	3
2.2	Use of Internet and its Importance for the Commercial Sector	4
3	E-Commerce	6
3.1	E-Commerce - an Overview	6
3.2	Chances and Risks for Companies through E-Commerce	9
3.3	Targetgroup-Specific Training and Further Training	12
3.4	Knowledge Management –Importance and Chances for employees and Companies	15
3.5	Outlook: The Importance of Knowledge Management for Commercial Training and Further Training	17
4	Glossary	19

Objectives:

This module is intended to give an overview of the topic of "Internet“ and "E-Commerce“. In addition, based on the described problems and assessments, different aspects of training and further training can be developed.

As an introduction to the topic of "Internet" and "E-Commerce", the following sources of information are recommended:

- *Hafner/Lyon: ARPA KADABRA: Die Geschichte des Internet, dpunkt - Verlag, Heidelberg 2000 (www.dpunkt.de/arpa-kadabra/geschi2. html)*
- *Die Broschüre " Elektronischer Geschäftsverkehr- Ratgeber für kleine und mittlere Unternehmen", published by the Bundesministerium für Wirtschaft und Technologie (BMWi). A free copy can be ordered from: Bundesministerium für Wirtschaft und Technologie, Postfach 30 02 65, 53182 Bonn or on the internet at www.bmwi.de*
- *http://europa.eu.int/ISPO/ecommerce/Welcome.htm*
- *www.ecin.de*

1 Introduction

"Even if our experiences so far do not yet offer us any certainty, we are expecting that the computer networks will become the third mass media, beside press and broadcasting. As the two old ones have done, this technical medium will diversify concerning its contents according to functions (information, entertainment, communication, transaction), according to topic areas and target groups. But as in the case of the traditional media, this information has to be created with considerable input of complex production structures with much technology and with even more human commitment and the quality of this information has to constantly ensured." [1]

Prognoses about the development of the internet predict almost an exponential growth. By now, for most companies access to the net is part of their regular office equipment, like the telephone or fax. Whether it is on the news, in the print media or in private contacts, the topic of the internet, information age or data highway always receives much attention. Despite the fact that critical voices are also being heard, warning against security risks and future visions of the web that are all too euphoric, more and more small and middle-sized companies are entering the net. In private contacts also it is almost as common that people ask for somebody's e-mail address as for their telephone number.

Thus it is inevitable that companies as well as employees in Germany, and likewise in the whole of the EU, face up to the topic of the internet. For many companies to think of their own presentation on the internet, perhaps even to transact their business, including payments, via the internet, is pie in the sky. What most small and middle-sized companies have in common is that they lack suitable specialists. The topic of internet and e-commerce has not yet become a standard part of the curriculum in commercial training. Also in further training opportunities or specialist training for managers, there is as yet no common standard, no common quality requirements and no EU-wide harmonised training and further training opportunities.
The aim of this module is to propose this, to introduce existing opportunities for further training and to specify these for the target group this file is compiled for. This includes the introduction of the medium of internet as well as a description of what e-commerce means today and what chances and risks have to be considered. In addition, there will be a description of the skills and qualifications trainees and employees are expected to have, today and in future, in order to be able to offer and make use of the service of e-commerce to competitive advantage EU-wide.

[1] *Kubicek, Herbert* und *Taube, Wolfgang*, Auf dem Weg zu informativen Informationssystemen: Inhalte, Organisation und Technik am Beispiel eines Stadtinformationssystems, <http://infosoc.informatik.uni-bremen.de/internet/fgtk/OnlineInfos/Klagenfurt/Klag15.html>

2 Internet

> *"The true value of a network proves itself less by its content than by its community spirit. The data highway is more than just a shortcut to all the books in the Library of Congress. It creates a completely new social structure world-wide."*[2]

In order to afford an insight into the topic of the internet, it is not enough to describe the current situation of this net. Since it is constantly changing it is impossible to take a snapshot of it that can describe this phenomenon comprehensively. Internet can only be understood as a dynamic development which displays a great speed of change. The following description of the historical development may serve as an attempt to characterise this dynamism which, in the last forty years, has led from the linking of a few computers to the establishment of a world-wide web. Without the background knowledge of the creation and development of the web one cannot do justice to the internet of today with its many facets. If this picture was reduced only to its commercial use and the presentation of prognoses and trends, it would be incomplete. The internet is a new form of communication the opportunities of which are not exhausted by the current situation. The speed of change is represented in its history, but also in the prognoses relating to its extension in the coming years.

Explanation of the term

The internet is the largest computer network world-wide and consists of more than 100,000 international, national and regional networks in more than 100 countries with altogether more than 50 million computers. This is what is expressed by the term internet itself, because it is the abbreviation of "Interconnected Networks".

2.1 The Development of the Internet

The history of the internet goes back to the early 60s of the 20th century and was first of all used by the military and by scientists. Commercial use came relatively late.

The ARPA-Net

In 1958 the US Defence Ministry founded a research department called "Advanced Research Projects Agency" (ARPA). A "child" of the cold war, the ARPA was to organise and finance scientific research projects to develop new technologies. Thus it was to be ensured that the USA would stay ahead of the former Soviet Union in the area of science and technology. At the end of 1969 this led to the ARPA-Net, which at first connected four research institutes (University of California, Stanford Research Institute, University of California, University of Utah) with each other via rented telephone lines. The rapid exchange of data between the different institutions and places led to a rapid growth of the ARPA-Net. By 1971 there were altogether 15 computers at different places connected in the ARPA-Net. The standard of ARPA-Net communication was NCP (Network Control Protocol), which at that time was the most advanced in the field of networking of computers.
The idea of creating a network structure to ensure that data can always be transferred, even if one place might not be available anymore, proved to be a significant development. The fact that there were possible links to other places meant independence from direct neighbours, because contact could be kept to enough other places. They, in turn, had links to further places and thus unhindered data transfer was guaranteed.

The network of science

In the 70s the American NSF (National Science Foundation) started the CS-Net (Computer Sciences Research Network), which was open to all computer science academies. In 1973 the first network was created with the University College of London via Norsar in Norway. What made the network very attractive was that it allowed cooperation over long distances without loss of time. At this time, it became clear that beside the opportunity to exchange data quickly, the network especially also developed the function of electronic mail. What was sent was personal news, gossip and jokes as well as information about personal areas of interest. Among the first mailing-lists there were titles like "Science-Fiction Lovers". Users had their personal access and an address for their e-mails. This type of use was tolerated and led to further development and establishment of various user-orientated services in the internet.

The TCP/IP-Protocol

In 1974 the ARPA-Net Protocol (NCP) was replaced by the highly developed "Transmission Control Protocol" (TCP). This transmission protocol, TCP/IP (Transmission Control Protocol/ Internet Protocol), which was developed in 1974 and is still valid today, in 1983 became the standard for the ARPA-Net.
It is the task of the TCP-Protocol to divide the data that is to be transmitted into data parcels and to number them, so that on the receiver's side they can be put together again in the correct sequence.

The IP-Protocol, on the other hand, is responsible for supplying the data parcels with address information (comparable to the function of the receiver's address on the envelope of a letter). This transport information is not only limited to the address but also helps to find a suitable path through the networks. The route the data parcels take is not neces-

[2] *Negroponte, Nicholas,* Total Digital, Die Welt zwischen 0 und 1 oder Die Zukunft der Kommunikation, München 1997, S. 223-224

sarily fixed, but goes wherever there is a path open without disturbance. Thus a flexible transmission of data parcels is guaranteed.

"Today's" Internet

In 1981 the ARPA-Net consisted of 213 computers linked with each other. The military part was separated into its own sub-network, the MILNET. In the course of time scientists from other departments also showed increasing interest in the net, so that in 1984 the CS-Net was transformed into the TCP/IP-based NSF-Net, which could be accessed by all American universities and their scientists. Since about 1983 the ARPA-Net as a whole has increasingly been called "Internet". In 1990 the NSF-Net completely replaced the ARPA-Net.

The increasing networking between universities world-wide resulted also in the networking between non-university institutions, such as companies, public bodies and private persons. At that time, private users had computers that can be compared to the forerunners of games consoles (C64). If they were equipped with a modem, users could access mailbox systems (discussion forums). Thus, communication with other users became affordable.
The internet experienced an enormous upsurge through the development of the document description language "HTML" (Hyper Text Markup Language) and the High-Level-Internet-Protocol "HTTP" (Hypertext Transfer Protocol) in 1989/1990. This protocol allows the transfer of documents that include text, graphics, animation or sounds. Pages are described in the form of HTML control commands and are displayed on the screen by means of the browser. Well-known browsers come from software forges Netscape and Microsoft. In addition to these there are further browsers depending on the platform.

The "Web" was developed so that scientists who were working at various universities round the globe had immediate access to information and thus were able to work together on most diverse projects. A new computer era began at the end of 1990 with the establishment of the first web-server, "Apache" in Switzerland. This server for the first time used both concepts to link up text documents world-wide (Hyperlinks). After this initial impulse, pictures, videos and audio documents were added to the protocol and the concept was expanded to the "multi-media-platform". From there it developed to the "World-Wide-Web" (WWW), which has been open to the public since the end of 1991. By now, "surfing" – i.e. moving between the various pages in the internet – has become natural for users.

Today, the internet and its best known services, such as the www, e-mail, newsgroups and IRC (Internet Relay Chat), have become standard for private users, institutions or commercial users.

It is only in recent years that there has been a greater focus on commercial use of the internet. For example, terms like "e-commerce", "online shopping" and "online banking" belong to our modern vocabulary; they have even found their way into the latest edition of the Duden.
A detailed description of this aspect can be found in the next chapter.

HTML as the language of description is constantly being further developed. By now there are extensions that make it possible to expand the static presentation internet pages in such a way that they have dynamic links to data bank systems. The integration of programming languages like, for example, "Java Script", offers even better user-interaction; e.g. "cascending style sheets" allow users to edit HTML documents more efficiently and change their design more quickly. These developments describe the ongoing process, the end of which is nowhere within sight as yet.[3]

Further reading and internet tips:

- *Hafner/Lyon: ARPA KADABRA: Die Geschichte des Internet, dpunkt - Verlag, Heidelberg 2000 or on the internet: http://www.dpunkt.de/arpa-kadabra*
- *A good overview of the history of the internet as well as the development of hypertext can be found at http://member.tripod.de/rapidwien*
- *At the following internet address one can find all the most important terms connected with the topic of internet: www.glossar.de*
- *The following link offers a very clear and informative internet crash course: www.akademie.de/gratiskurse/crashkurs/internet1.html*
- *This is a very interesting link for newcomers to the internet, which, among other things also offers a "Web-Führerschein" (web licence).* http://web-fuehrerschein.web.de
- *A really impressive door to a collection of information, history and especially pictures of the internet can be found at: www.geog.ucl.ac.uk/casa/martin/atlas*

2.2 Use of Internet and its Importance for the Commercial Sector

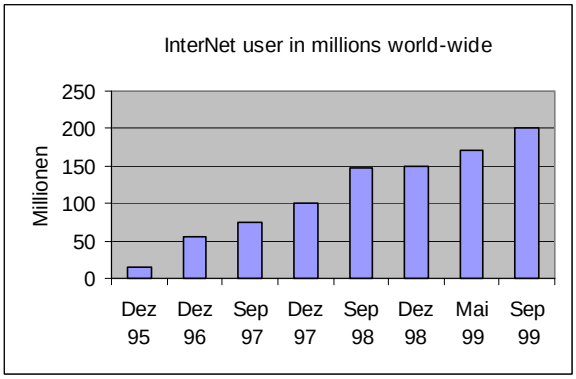
"About 35,000 virtual inhabitants [live] in this town, everyone of whom can design their own 'house' according to their wishes. ... One can move through the places and

[3] Wireless Mark-up Language (WML), which is used for modern mobile phones, is used to display information on WAP mobile phones (Wireless Application Protocol) and is a sub-group of the mark-up languages, which HTML also belongs to.

streets by bicycle, Metro or on foot, can talk to passers-by and go shopping.“[4]

The internet has a become a mass medium. At the beginning it was used to pass on information and as self-presentation, but also for contact and exchange between people. In the meantime, trade has conquered the net and has discovered the many ways – also that of a digital town - it can be used for commercial purposes.
Europe's rise in the commercial use has been described in a just published report by the American "Forrester Research", called "Europe. The Sleeping Giant Awakes.". According to Pro Active (a market research institute), in summer 2000, altogether a little more than a third of the population (34,1 %) was connected to the internet. In absolute figures this is 107.8 million. However, the distribution of access is very different in comparison of north and south: Sweden – Stockholm is the most linked-up town in the world – had 60 (IDC) or 65 (Pro Active) per cent internet connections; Portugal has all of 11.4 per cent. [5].

The USA has progressed much further than Europe as regards connections to the net. The same changes will also take place here with a delay of about one to two years. The use of the internet is made easier in the USA because of low or absent telephone charges for local area calls. Often enough employers pay the costs for the internet connection. The Americans recognised very early on that it was essential that the internet be accepted and accessed by the majority of social groups as a fundamental prerequisite for a wide use of the internet, which would then also be economically interesting and successful. This is also the reason why suppliers of telecommunications support the USF (universal service funds) more than they are required to do, in order to ensure the expansion of information infrastructure and access to information and communication services also in remote areas. The following chart shows an overview and also the outlook of the use of the internet world-wide. With 201.5 million users in 1999, an estimated 400 million today and a predicted continued increase it is expected that in as little as four years – that is in 2005 – the number is expected to break through the billion barrier.



Source: NUA Internet surveys / IDC 1999
http://www.ecin.de/marktbarometer/daten/nutzer.html

Promoters of the development and use of the internet are the most developed economic areas of Northern America, Western Europe and Japan. Within the EU, however, the picture is a very heterogeneous one in regard to how far citizens are connected to and use the internet. With not quite ten million users, Germany takes second place in the European ranking, after Great Britain with over twelve million users. Only France with 6.2 and Italy with five million users play any significant role. Although Iceland with only just 121,074 users takes last place within European comparison, the penetration of the market is nowhere greater in the world as they represent 45 per cent of the total population. For this reason all member states run different promotion schemes to establish better national structures of the internet.

[4] In August 1994, due to the success of the pilot project, the foundation 'De Digitale Stad' *(http://www.dds.nl)* and the initiative xs4all (access for all; http://www.xs4all.net) was founded, which now received support not only at the regional level from the city of Amsterdam, but also from the Dutch Home Office. The digital town finances their 12 full-time staff and the system costs to a large degree from revenue gained through renting out virtual business space. Businesses on frequently visited sites are more expensive than in side streets and whole office blocks [...] can also be erected."
[5] *http://www.ecin.de/marktbarometer/europa/index.html*

3 E-Commerce

From internet to e-commerce

It was the development of the internet, as described in the last chapter, from the former military and science net to today's unlimited linking up of people world-wide which has made increasing commercial use possible at all. But the simple form of implementing a company-related market strategy, for example through creating a homepage, is not sufficient any more today. Only a few years ago, offers were just placed in the net and this was called e-commerce, in the sense of electronic trading. By now, e-commerce is taken to cover all business processes, starting with advertising, initiation of and carrying out a transaction to after-sales services and online banking. Should this trend continue, it would mean that companies will have to re-orient completely their plans of their market strategies, their customer orientation and interaction with customers and competitors.
In this connection direct customer contact by means of the internet plays a role that must not be underestimated. The internet offers new opportunities to ask customers directly about their habits and thus to investigate customer profiles without loss of time. On the net, information from users can be ascertained and evaluated online through questionnaires. Thus access frequency and customer profiles can be created easily and can be compiled for the purpose of analysis. In the area of market research the net offers low-cost opportunities in comparison to traditional methods. User habits and possibilities of specific promotion of use can be recognised, which on the internet will further advance the development of e-commerce.

A survey by B. Batinic (1996) gives an insight into the possibilities the net offers for research (see also Internet für Psychologen. B. Batinic). Users were asked what they were using the internet for (multiple answers were possible). The survey shows that German, Japanese and also American users use the internet mainly for getting information. In comparison German users visit commercial pages less often than the other two groups; however, the figure of 39% shows a clear tendency here also. In total the Japanese use the net more intensively than Germans and Americans.

The table represents answers to the question: "*I am using the internet for ....*".

	Germany	Japan	USA
General current news	47.2%	76.0	51.5
Booking of holidays	5.3%	7.0%	15.2%
News of the computer sector	54.4%	75.4%	62.8%
Company information/ Commercial pages	39.3%	69.9%	57.3%

B. Batinic, Internet für Psychologen

Internet tip:
On the following web sites:
- *http://www.emarketer.com*
- *www.ecin.de/marktbaromter/index.html*

one can find up-to-date data and information on the topics of internet/e-commerce.

In order to give an insight into the potential of e-commerce, the following chapter will offer a short overview of the different ways the net can be used, trends and risks.

3.1 E-Commerce - an Overview

E-commerce (electronic commerce) is the general term of business that is transacted through data networks.

In particular e-commerce takes place between, for example:

1. Supplier and consumer
   (Business-to-Consumer; B2C)
2. Companies
   (Business-to-Business; B2B)
3. Consumers and public institutions
   (Consumer-to-Administration)
4. Companies and public institutions
   (Business-to-Administration)

Without doubt, the two most important relationships in e-commerce are the areas of business-to-business (B2B) and business-to-consumer (B2C).

Business to business (B2B)

This is the category where electronic trading between business partners (companies) takes place. Goods are ordered and paid for via the internet. The electronic links with suppliers, customers and carriers offer companies considerable cost advantages. Prices for goods and services can be adjusted world-wide. Stock levels are replenished only when it is actually necessary. At the same time, production and distribution processes are speeded up and costs for procurement, stock keeping, personnel and information are reduced. By now, it is also possible for small companies to link up and take part in these electronic business relationships, because they do not have to set up their own networks any more and, in addition, the costs for access to the internet are decreasing constantly.
Innumerable platforms have already established themselves, which are used by small and middle-sized companies to group their business activities. For example, products and services are traded through platforms together with competitors, or purchasing activities on international markets are coordinated.

Business to consumer (B2C)

The B2C area is addressed especially to the private customer/retail consumer. This area is mainly concerned with the potential, conditions and results of marketing as well as of distribution. Customers can order goods or services directly per internet from a supplier. The consequent processing of the order and delivery to the customer is arranged by the central computer. The goods are paid for on the basis of an invoice or through online banking (*payment systems will be introduced in the next chapter*). Thus, in the case of B2C the focus is on being easy to use and on attractive multi-media presentation of the company in the foreground. In addition, direct contact to customers allows companies to interact with their customers and to tailor their offers specifically to customers' needs.

Selected trends of e-commerce

The extension of e-commerce is taking place at a terrific speed. Almost every day, internet-based product and process innovations are changing traditional markets in the private and business customer areas. Virtual shopping centres are revolutionising trade and banking business. Private customers, for example, use their mobile phones to take part in online auctions, to hunt for bargains (mobile-commerce; m-commerce). Because the mobile signature can be used as a signature for purchases, it is a medium that is predicted to have a special future in e-commerce.
The media and telecommunications sectors will go completely digital. Through the computer, bookshops (e.g. Amazon) and whole libraries are available round the clock. In fact, there are books now that can only be bought in digital form and not printed on paper.

Further reading:

- *The brochure " Elektronischer Geschäftsverkehr-Ratgeber für kleine und mittlere Unternehmen", published by the Bundesministerium für Wirtschaft und Technologie (BMWi). A free copy can be ordered from: Bundesministerium für Wirtschaft und Technologie, Postfach 30 02 65, 53182 Bonn or in the internet at www.bmwi.de (can also be downloaded!), Updated: September 2000*
- *Management- Handbuch Electronic Commerce. Grundlagen, Strategien, Praxisbeispiele. Arnold Hermanns, Michael Sauter 1999. Gebundene Ausgabe. Vahlen, Mchn.; ISBN: 3800623234*

Internet tip:

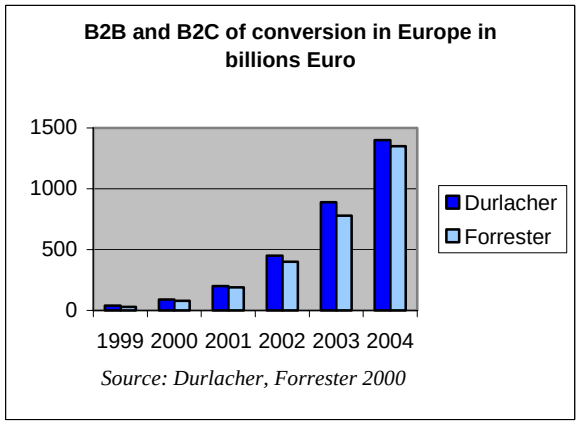
- *http://europa.eu.int/ISPO/ecommerce/Welcome.html*

Trends of e-commerce in Europe

A vision of the future

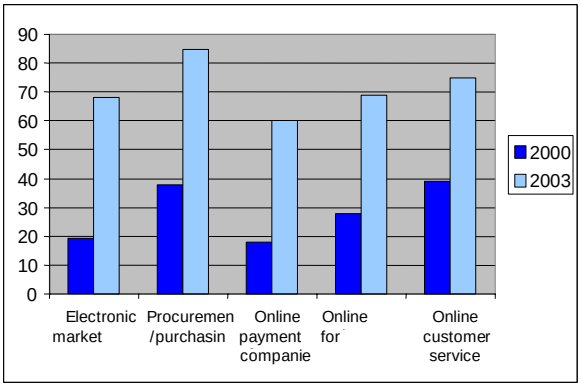
> *The internet is a virtual community of people with the most diverse needs which can generally be fulfilled by the supplies in the internet. If company A is not available to buy lamps at, clothes etc, one just accesses company B. Shop hours, routes to shops or parking is of no importance any more; transnational or international business contacts are no longer the exclusive province of larger organisations; every internet user can establish contact with people in Japan, Africa or Brazil. Borders only play a role in the subsequent payment transactions; time zones are of no importance, either for distribution or for the development of products. Shopping habits are changing and require availability round the clock; the internet market place never closes.*

There are different assessments as regards the potential development of e-commerce. Analysts and market researchers seem to agree only in one point: B2B is considered the area with the best future prospects and a larger growth potential in comparison to the B2C area. The market researchers of "Forrester Research", for example, have made very positive prognoses for Germany and Europe. According to their estimation, at the latest by 2004 Germany will be the largest e-commerce market by far in Western Europe. The turnover is put at 1.08 trillion DM. Cautious estimations speak of a turnover of 75 billion DM in internet sales in 2002 in Germany alone.



Until the end of 2003 European e-commerce is expected to increase by 100% per year and will probably reach 1,6 trillion Euro (1.600.000.000.000 $) in 2004, which is 6.3% of total world trade.
Prognoses of world-wide turnover for 2002 range from 800 billion dollars (Gärtner Group) to 2.18 trillion US$ in B2B (IDC). Depending on the institute asked, the trillion dollar mark of turnover may be reached as early as 2002. The prognoses show extreme variations at times, depending on the analysis institute consulted.

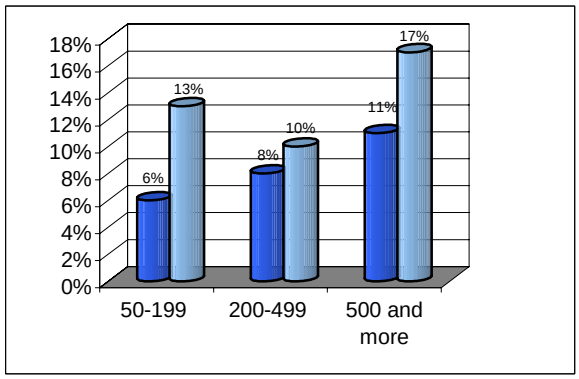
In order to illustrate how companies assess the development of e-commerce in Europe, there now follow a number of graphs that have been created by leading consulting firms (KPMG Consulting and Consulting Partners) after evaluating interviews with employees and executives of European companies.



Source: KPMG Consulting 2000 (www.kpmg.de)

This graph shows very clearly that online customer service and purchasing will more than double in comparison to how much it is used today. The trend shown corresponds with the prognoses regarding the B2B area mentioned earlier. For the area of "procurement/purchasing" using the internet is gaining increasing importance. The same is true also for online orders for customers and the whole of the electronic market place; they will all gain in importance in the next three years.
What is becoming particularly apparent is the development of the areas of B2B and B2C in Europe, which are drifting apart. The turnover of business transactions between companies in 2004 is predicted to reach 1.3 trillion DM, whereas the retail turnover will probably only amount to about 230 billion DM.

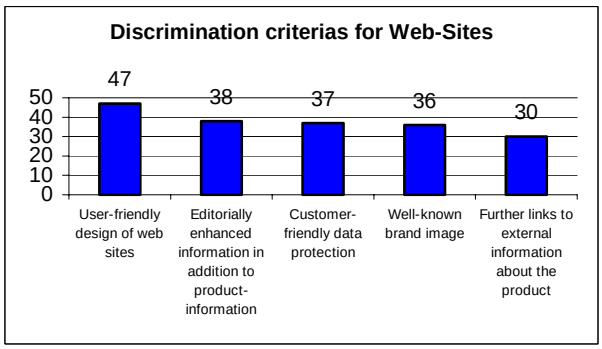
In accordance with this development many companies have already entered e-commerce; however, many small and middle-sized companies are planning to make their entrance onto the internet in combination with e-commerce in the near future. The graph shows – differentiated between small, middle-sized and large companies – the demand for the coming years:



Classified according to number of employees these companies
have already joined e-commerce
have concrete plans to join e-commerce

According to this demand companies have been enquiring at multi-media agencies for specialists who will prepare their appearance on the internet, but the companies themselves also need their own specialists. From 100,000 job offers that were evaluated, more than 30% were seeking for specialists for the e-business/e-commerce area. Another important area is the need for software-developers/programmers, which accounts for 26% of job offers, followed by the need for screen-designers, project managers and specialists for marketing and distribution.

The increasing demand by companies and service providers in the e-business area, as well as the changed needs of customers, is leading to highly professional e-commerce solutions, which can only be implemented by specialists with corresponding training. The predicted growth in this sector in connection with increasingly specialised marketing strategies is setting high standards for the implementation of internet appearances. The following table shows an extract of the minimal demands on internet solutions, which demonstrates that these specific interaction platforms cannot be implemented by employees without the correspondent training or further training.



Source: Consulting Partner 2000 (www.consulting-partner.de)

It goes without saying that good web sites must offer integration of information, interaction opportunities together with easy to operate data protection. Also important are links to partners, further information or simply funny or interesting information. It is easy to move from site to site, therefore a site must be interesting enough so that the customer lingers there and, especially, that he comes back.
In summarising the essential findings about the development of the internet, it becomes clear that it is not enough simply to regard e-commerce as a marketing concept. Rather, companies need comprehensive concepts that integrate their corporate culture, their personnel development and examine their complete system of distribution channels. More and more companies, some start-ups and especially big concerns, are already designing their companies as e-corporations, which is leading to considerable adaptation problems and, in the long term, also to a different identity and corporate culture. These companies do not only use the internet as a medium to approach new markets and consumers in a new way, but as something which combines the use of technology, suitable soft ware and appropriate distribution channels to make a completely new kind of company.

Internet tip

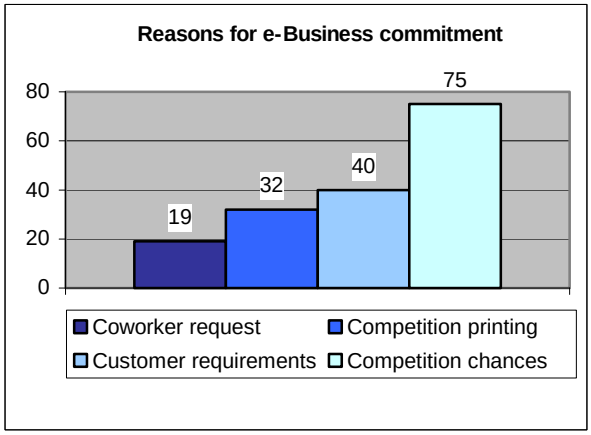
- *Anyone who wants to look at the figures more closely can find tables and estimates for the coming years at:*
  http://www.ecin.de/marktbarometer/daten/umsatz.html

3.2 Chances and Risks for Companies through E-Commerce

Advantages through e-commerce from the company point of view

For companies e-commerce holds savings potentials amounting to billions. Through linking-up of computer systems of suppliers and (business) customers, materials only need to be ordered when they are needed, which means short storage times. In the case of, for example, office supplies, orders can be placed directly and do not need to be collected throughout the firm in large companies, which also means enormous savings. Business can be transacted on the most diverse electronic platforms world-wide independent from place and time. Business processes are also made easier because lengthy negotiations are speeded up through direct and fast communication. Easier access to the internet is opening up new opportunities also for small and middle-sized companies, beside the large concerns, to position themselves in the "global market places". However, the above-mentioned savings are a factor that carries real importance only for large companies. It is the question, therefore, how small and middle-sized companies assess the potential of e-commerce and where the border zone is from where efficient use is possible.
A recent examination by "TechConsult GmbH" of 2000 shows the following result for small and middle-sized companies in Germany:
Almost two-thirds - 62 % - of small and middle-sized companies today have at least a homepage. Asked about why they are engaged in e-business, three fourths of the companies say it is because they want to take advantage of the competitive opportunities. Customer-stated requirements take second place and competitive pressure only after that.

Source: http://www.ecin.de/marktbarometer/daten/e-mittelstand-2.html



The most important improvement sought through e-business is communication with customers and suppliers, followed by corporate image and customer satisfaction. In comparison, establishment of new distribution and procurement channels as well as winning new customers is regarded as less important. It seems that now as before middle-sized firms (especially in the trade and services sector) are still mainly region-orientated. A pointer for this is that there are low expectations as regards expansion of foreign business – and perhaps this also explains why there seems to be so little fear of globalisation in this sector.
Asked about the success of their involvement in e-business, it emerges that it has already paid off for many middle-sized companies. In addition to increasing their turnover, which was reported by no less than half the companies, firms could often realise shorter delivery times, stabilising and savings potentials. Especially professional users stress savings.

There are additional reasons why it is practically inevitable for companies to make their entry onto the internet. For example, the WWW has by now become an important source of information and product counselling, in business as well as in private life. The internet gives decisive support when deciding what to buy, even if the actual purchase is not made electronically. Of course, such advantages are not contained in turnover statistics; neither is the promotion generated by a company's good web offer.

Advantages from the customer point of view

From the point of view of the customers (B2C) e-commerce is a very convenient way to receive information about products, online counselling (e.g. via e-mail) and finally to "go shopping" on the internet independent of time and place (world-wide) and they can do this from home, seven days a week. In addition, the transparency of the electronic market allows customers to compare offers and prices. When selecting the most reasonable offer the customer can get support from what are called price agents, who have professionalised price comparisons and this is a service that can also be found on the net.

Despite this colourful picture of opportunities, online buying is still very hesitant. Goods cannot be touched, tried on or tasted before purchase, while for many customers this sensuous experience of the product is essential, not so much the low price or the convenience of shopping. In addition, the display on the screen does not give a real impression of what the ordered product actually looks like. However, the increased transparency of the market remains a major advantage for the customer, which has already been brought home to banks, insurance companies or the car market, for example, very clearly.

Risks of e-commerce

> *"Small and middle-sized companies say that the most important obstacle for joining e-commerce is customer reserve, followed by the issue of costs and lack of personnel. Security aspects rank as high as fourth place. A quarter of the companies interviewed agreed with this."*[6]

Consumer resistance is partly due to a similar assessment of the lack of security. However, in contrast to this evaluation, statistics of the Bundeskriminalamt (BKA) [Federal Bureau of Investigation] in 1999 registered altogether 2,795 cases of crime on or related to the internet, but only 120 cases were related to fraud in connection with e-commerce. On the other hand, the BKA thinks that the number of undisclosed cases is considerably higher. Companies do not publish security problems in payment transactions. Some of them try to contact the "hackers" to correct mistakes in their security net together with them. Very few offences are actually reported to the police, because of their extremely damaging effect on the company image and because they destroy the trust of the customers.

Ways of payment currently available for online shopping on the internet:

- *Credit card (the credit card number is entered on online forms)*
- *Cash on delivery (goods are paid for when they are delivered)*
- *Invoice (goods are paid after delivery and receipt of invoice)*
- *Direct debit (account number, bank code and debiting authorisation is entered on the online form)*
- *Cash before delivery (payment is made in advance)*

Electronic cash (e-money; e-cash)

While paying by credit card when online shopping is widely accepted by now in the USA and Great Britain, in Continental Europe payments on the internet do not yet fulfil expectations. The result of an enquiry by the Deutsche Multimedia Verband (DMMV) addressed to the large credit card institutes of VISA and Eurocard shows that in Germany the number of reported incidences of unauthorised use of credit card information when shopping and paying online is no greater than when shopping in shops and department stores. There is also low acceptance of electronic money (e-cash), because the system of payment alone is difficult to understand and is therefore more likely to meet with distrust..

- More detailed information about electronic payment systems can be found on the internet at:
  www.ecin.de/zahlungssysteme/index.html

Users of online shopping have every right to demand that payment methods companies offer are safe. Security-companies have formulated minimum requirements for payment transactions on the internet, which companies must guarantee if they wish to retain the trust of their customers:

- ***Integrity:*** Aggressors must not be able to manipulate or delete data, for example, by hacking into a web site and placing their own passwords there.
- ***Availability*:** Information must at all times be available to authorised persons, for example, customers, and must be accessible through the web
- ***Authenticity*:** it should be possible to identify the communication partner without doubt, for example, through PIN numbers or fingerprints.

[6] www.businessUser.de Survey by the Industrie- und Handelstag among 22,000 members of the chamber 1999

- ***Confidentiality:*** Only authorised persons must be allowed access to data. Operators of e-shops must protect customer data effectively against hacker attacks.

Providers of e-commerce must examine different methods of attacks: *Distributed Denial of Service* (***DDoS)*** attacks, as they are called, which lead to the target server being overloaded, are the most recent form of interference with data transfer. DoS-programmes, which come by means of Trojans (programmes which are disguised as games or videos), are distributed to other computers and can, once they have been started, stretch the computer to its full capacity by issuing many simultaneous link commands. During this time it is not possible to process any more regular enquiries. For the customer this means that the computer is not accessible. In a survey of 800 European companies 15% stated that they had fallen victim of such DoS attacks. The consequences might not only be enormous damage to their company's image but also a sustained decline in turnover.
New viruses and the just-mentioned Trojans are the "usual" kinds of attack on a server. In addition, fraudsters can use false identities and redirect transactions into their own pockets. Attacks are also carried out by "Script-Kiddies" – who are comparably harmless (they use ready-made hacker programmes, but have no real knowledge of the system) – who always try the same methods and ways to break into computer systems. It is much more difficult to fend off professionals, who have much more know-how and a much larger repertoire and pose a real danger for the security of the networks.

Security experts estimate that placing Trojans, through which the attacker learns the PIN and TAN number, is the most widespread and also easiest form of enrichment through the internet. Large companies normally have a security barrier (Firewall), which takes much effort and cost to overcome. The transmission path of data is often not proof against tapping; there are, for example, plug-in connections between keyboard and computer, which pass on which keys have been pressed, and thus reveal passwords.
Security precautions are constantly improved in order to make payments on the internet safe. One of the new features is the introduction of biometric measures, where the fingerprint is identified, or payment through one's mobile phone (paybox), which can be identified through its serial number. However, nobody is immune against losing their mobile.

Much can be done to increase security in companies by following simple rules, which even large companies often disregard. Using the latest anti-virus software and applying it every day will help to detect Trojans quickly. Another effective protection against attacks from the outside is the installation of a firewall. Another very simple but effective protective measure is frequent changing of personal passwords (one's own name of those of one's children should never be in it!).

There are more reservations against the introduction of e-commerce than lack of trust on the side of customers because companies are exposed to attacks from hackers. Many companies fear that it will lead to a complete change of their image if they present themselves on the internet in connection with e-commerce.
Source: TechConsult

When choosing how to present their offers not all companies consider it top priority to examine the new marketing forms on the net and adapt their image to new technologies. Customers would like to keep their "old" firms, they want to pay according to traditional – secure – methods and think of the e-boom rather as a passing phenomenon.

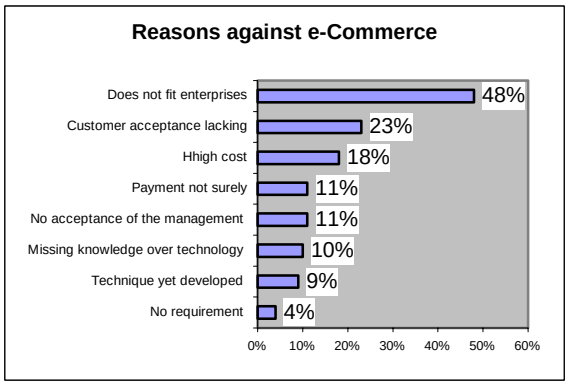
Internet tip

- *The initiative "Sicherheit im Internet und in der Informationsgesellschaft (security on the internet and in the information society)" offers a central information platform for all national and international questions connected with IT security. It can be found at: www.sicherheit-im-internet.de/*
- *The network of the initiative "Kompetenzzentrum Elektronischer Geschäftsverkehr (competence centre electronic business transactions)" for the support of small and middle-sized companies as well as craftsmen's businesses can be found in the internet at: www.ec-net.de/info/iinfo-aktuell.html*
- *Further information about security on the internet can be found on the following sites:*
  www.bsi.de
  www.virusbtn.com
  signatur.ihk.de

Legal problems of e-commerce

Legal basics

So far there are no specific legal provisions for questions of contract in connection with e-commerce. For example, questions as to the validity or proof of a contract are answered according to general legal provisions. So, in fact, it is the familiar laws that are applied also to online business, that is especially the Bürgerliche Gesetzbuch (BGB) [German Civil Code] and die Zivilprozessordnung [rules of civil practice].
In commercial trade the Allgemeinen Geschäftsbedingungen (AGB) [standard terms and conditions] apply.



Legal development in e-commerce 2001 – an outlook

In order to guarantee better consumer protection the government in Germany is planning new laws ranging from the implementation of the guidelines for e-commerce and electronic signatures to reforms of copyright, data protection and company law. It has become clear from the many court judgements and legal initiatives that the internet is no longer an unlegislated place.

There was, for example, at the turn of the year 2001 an initiative of the German legislature in agreement with the European Commission: Not only the German legislature but also the European Commission is setting the fundamental course. There is, for example, a consultative document drafted jointly by the Federal Ministry of Economic Affairs and the Federal Ministry of Justice (dated: 01.12.2000), the "draft of the law on fundamental legal principles for electronic business transactions" (Elektronischer-Geschäftsverkehr-Gesetz - EGG), which has become public through the internet.
Furthermore, for example, the companies of the initiative D21 in cooperation with the Federal Ministry of Economic Affairs and consumer protection agencies are drafting a list of quality criteria in order to set quality standards for internet offers.

Internet tips:

- *www.ecin.de/recht/rechtsentwicklung-2001/index.html*
- *www.ec-net.de/Recht/index.html*
- *www.e-commerce-ratgeber.de/*

Further reading:

- *More detailed information about legal questions in connection with electronic business transactions can be found in the brochure "Marktplatz der Zukunft - Elektronischer Geschäftsverkehr - Ratgeber für kleine und mittlere Unternehmen", p.60-61. Published by the Bundesministerium für Wirtschaft und Technologie (BMWi). A free copy can be ordered from: Bundesministerium für Wirtschaft und Technologie, Postfach 30 02 65, 53182 Bonn or at www.bmwi.de (can also be downloaded!), Date: September 2000.*

3.3 Targetgroup-Specific Training and Further Training

It will need special efforts in providing training and further training in order to meet the highly sophisticated and heterogeneous requirements of the internet and e-commerce. It is especially due to the globalisation of the markets that it would be necessary to harmonise training and further training programmes at a trans-national level, even if this scheme seems like pie in the sky considering that there is already a sheer deluge of national further training programmes and titles. All the same: due to the complexity and dynamization of work processes caused by the internet and e-commerce, the knowledge and skills that have been taught so far in commercial training will not be sufficient any more. Employees who do not only know the work in their departments but also understand the objectives and strategies of their company, its management culture, its structures and processes, who are flexible and accept responsibility in their work, are better equipped to respond to the challenges and potentials of the internet. Increasingly, what is needed is not the specialist, for example a specialised accounts clerk, but employees who can make complex connections and who have media and social competence in addition to their commercial knowledge. It is this development from companies to e-corporations and the reorientation of market strategies towards e-business which brings home the necessity of adjusting training and further training programmes accordingly. If one also considers that these changed requirements, caused by this trend towards e-commerce, can also overtax participants in training and further training programmes and contains a tendency towards disintegration, it makes it very clear what enormous responsibility rests with trainers and institutions and training and further training programmes.

Therefore, at this point it is absolutely necessary that especially the European unions and management accept responsibility and set a forward-looking course. What has to be done in this connection is to determine nomenclatures and requirement profiles with Europe-wide validity, perhaps

following the example of the European computer-operating licence.

The attempt, in the Federal Republic of Germany, to counteract the inflationary creation of new titles for further training courses in the IT sector through harmonisation, may serve as an example of what could be done at European level in terms of coordination of requirements and nomenclatures in the dynamic internet/e-commerce business. These "flagstones in the restructuring process of vocational further training in the IT sector" have been agreed on by the unions and management concerned, and there is therefore much likelihood that they will achieve their structuring function. In accordance with this initiative, the ideas of the unions and management should also be developed at European level in order to draw up different level requirement-profiles for training and further training programmes to keep pace with internet and e-commerce developments.

For our target groups we will here determine a rough structure of what such training should contain and will enrich this by examples of further training that have already been tested in practice. Thus we will offer suggestions as to how vocational requirement-profiles in the area of e-commerce should be designed and developed in a forward-looking way.

Initial commercial training

In recent years, the Federal Republic of Germany has carried out a restructuring programme of office jobs and other commercial occupations and has also created new IT occupations. Thus it has created important fundamental principles which are necessary to adequately meet the requirements of the internet age. Training is on the right course now with practice-orientated teaching, development of interdisciplinary competence, development of social and communication competence (development of key qualifications) as well as stronger integration of DP training. Initial commercial training programmes with this fundamental structure need to be expanded by basic knowledge throughout the whole area of e-commerce. This would include especially: knowledge of security problems of electronic payment transactions, basic information about the application of graphics and the possibilities there are to design web sites. Trainees should be familiar with search and information services and legal aspects concerning media, data protection and competition. To complement initial commercial training by basic internet/e-commerce training would meet especially the requirements of small and middle-sized companies, which cannot afford to employ many e-commerce specialists due to their size, their cost structures and their range of offers. They rather need staff with commercial all-round skills who also have basic internet/e-commerce training.

2nd Threshold

For young people and young adults who do not enter the labour market after their initial commercial training (2nd threshold), the e-commerce development will open up new opportunities on the labour market through goal-directed further training.
The basic commercial training gives them, first of all, a sensible qualification in marketing and/or design of internet pages as an additional specialist skill with regard to the "new labour market". Participants in this target group are those who often have problems deciding on a career, who need consider again where they are going after their initial training, and who are poor students. For both groups a combination of developing key qualifications and opportunities to learn aspects of e-commerce must be offered.
In this context, the DAA Mittelhessen has started an exemplary project, which is currently running in its third year. The objective of this project is to give young people who have finished their commercial training further qualification in the area of web design and project management. They develop their own projects of web sites and concepts for internet appearances for small non-profitmaking associations which cannot afford or which do not have the skill to create their own home page. In order to make this possible they receive qualifications in different areas: the main focus is on the areas of text design and graphics, project management and fundamentals of EDP, internet training, web-design and business English, followed by public relations, discourse management and communications theory. What is just as important is the teaching of key qualifications which cover the range from development of social competence, the capacity for teamwork and cooperation to self-management.
Under guidance of supervisors who are specialised in these areas, participants work independently on their projects, which give them the opportunity to apply and test their knowledge and use their key qualifications. The acquisition, presentation and execution of projects requires the combination of the above-mentioned subjects and offers participants experience that gives them vocational direction and clarity. This project is successful in every respect: participants can integrate existing and newly acquired knowledge, can adjust their vocational orientation to their abilities. The associations make an excellent internet appearance and not the least part of it is that the educational institutions have successful participants.
Leaving this example aside, the internet and the New Economy surrounding it, offers especially young people, also those at the 2nd threshold, an identification core which focuses professional and personal interests and this way considerably increases their self-motivation to organise their vocational training process. It is the central concern of trainers to use this motivational power of the internet and channel it towards successful training, i.e. to open the door to the first labour market for these young people.

Specialists and executives

The development towards e-commerce carries an enormous qualification potential for specialists and executives. It is quite clear that for many companies being on the internet is not just a vogue any more, it is not enough to be "blindly present". Companies are beginning to concentrate on the way the internet can actually be used to support the objectives of the company. Up to now, due to lack of qualified staff, they have mostly farmed out the establishment of online-shops or their internet presentation to outside agencies. But these features need constant attention and updating, which has often led to considerable and unnecessary increase in costs. Therefore, more and more are recognising the necessity of having their own specialists to create and maintain internet presentations and online-shops. This enables them to keep business transactions on the internet always up-to-date and flexible, which corresponds to the demand for closer customer contact and customer-orientation which is increasingly becoming a decisive factor in competition.
The developments described above and the resulting requirement of personnel and qualifications have contributed heavily to the lack of specialists on the IT sector in Germany, which has been complained about by politicians and business representatives. The companies affected by this lack are especially small and middle-sized firms because they do not have the specialists who can design digital trade platforms and maintain them, who have the ability to apply web-publishing concepts to target-oriented establishment of e-commerce solutions or who have administrative skills in basic internet technologies. Anyone who qualifies early on in any of these fields and makes a name for himself or herself will find excellent vocational opportunities.

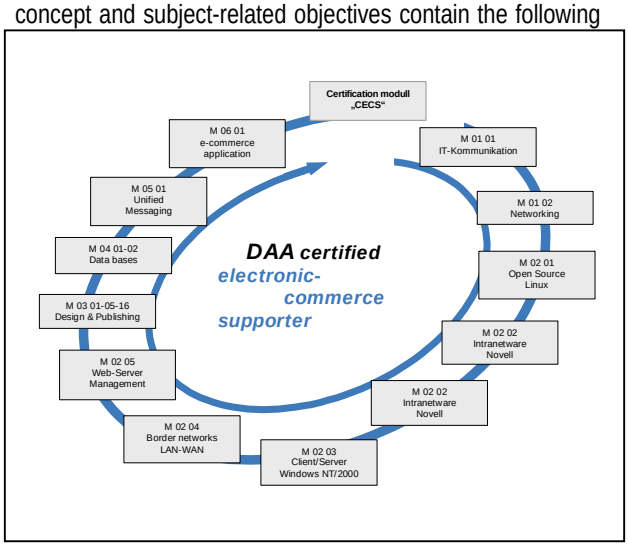
Today, there exist a great number of qualification concepts in connection with the World Wide Web and modern demands of e-commerce. Increasingly, they are being consolidated and transformed into a modular system of further training. On this basis, qualification courses can be offered that are oriented towards the participants, towards individual requirements and the current requirements of the labour market.

Corresponding to the increasingly commercial and scientific use of the medium of the internet, three or four lines of development and therefore also lines of qualification in the area of e-commerce can be identified. These are qualifications that mainly cover the technical area, qualifications concerned with planning and development of online shops or – requiring a lot more qualifications and therefore suitable especially for executives – qualifications which unite both aspects. Finally, as a result of e-commercialisation of companies, a fourth line of qualification: knowledge management is emerging clearly. This is why the following section is devoted to this development.

Taking the above-mentioned flag stones as orientation for the restructuring of vocational further training on the IT sector the following relevant courses of further training in the e-commerce area can be picked out:

- e-commerce coordinator (main focus marketing)
- internet/web administrator (main focus technology)
- e-commerce supporter (main focuses technology, marketing)

In the Federal Republic of Germany the Deutsche Angestellten Akademie can be considered an example for successful implementation of these qualification requirements. It has developed a flexible, modular concept that covers all three areas and offers participants individual qualification courses. Existing know-how is taken into account and it is possible to join at any stage. External certificates which have an internationally acknowledged standard of quality are recognised. Within the DAA certification system: Certified Electronic Commerce Supporter (CECS) students can choose individual modules, thematic groups of modules (a little more technology or marketing/distribution) or take the complete range of modules. This CECS qualification concept was awarded the Weiterbildungs-Innovationspreis 2000 (further training innovations prize 2000) by the Bundesinstitut für Berufsbildung (BiBB) (Federal Institute for Vocational Training) together with the magazine "managerSeminare“ of the Deutsche Angestellten Akademie Münster. The modular concept and subject-related objectives contain the following



main qualification elements:

The certificate CECS (DAA) can be achieved by a final examination, which, among other elements, consists of a project including the technical installation of a web-server and the development of an online-shop.

The possibilities of commercial usage of the medium of internet have not yet been fully disclosed and are subject to constant further development. Therefore, the curriculum must be flexible and lead to qualifications that meet the demanding requirements as described above. Thus, it is

especially the fourth pillar within the range of qualifications, which has evolved from the development of e-commerce – the professional knowledge management – that is gaining increasing company-specific relevance: in view of the globalisation of the markets, of constantly increasing speed of innovation, it is not sufficient any more if specialists and managers only have specific online-marketing or web-server skills. Rather, they must have mastered – and this is particularly true for executives – structural connections, the competitive situation as a whole and the management of knowledge in order to operate successfully on the market. The central element is not the opportunity to research information on the internet (info-broking), but the opportunities offered by the internet and intranet to develop company specific knowledge banks, to maintain and distribute them. This means employees at all levels of a company are included in this process of knowledge management. Although the acquisition of knowledge as an important resource of a company is an individual process, the distribution of knowledge is a social one which requires communication and interaction and thus depends on employees and can only be achieved through them. Looked at this way, qualification in this area is a holistic process, which must be integrated into company culture and the development of structures. For employees this also means: to be willing to develop multimedia key competences and especially: to be willing to embrace lifelong learning.

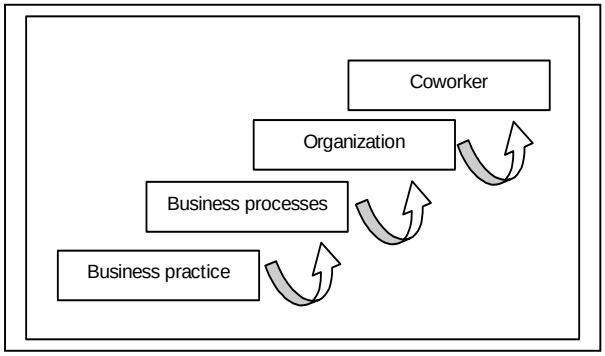
3.4 Knowledge Management –Importance and Chances for employees and Companies

> *Therefore, it is a task that concerns society as a whole, and it is urgent. [...]It is to be assumed that an area-wide establishment of data networks does not only change the manner of communication, but may also lead to new ways of working and learning, which will also require different and new skills. Hopes and expectancies that multimedia and data networks will one day facilitate the distribution of knowledge and education and thus optimise equal opportunities, can only be fulfilled if all members of society receive the kind of education which will enable them to profit from new technologies and information systems to the same degree.*

The consumption of information, which is available on the internet million-fold, needs structure, selection and decision as to which part of this information is relevant for one's own individual use, necessary for structural changes in the company or valuable for corporate culture. In order to be able to make this decision the consumer needs knowledge. The ability to differentiate between what is important and what is not is learned early on in life and is refined through the years of schooling and professional development. The learning of theories, their application in practice, testing and restructuring throughout long years of professional experience form the basis for decisions through which information is transformed into knowledge.

Companies live off the knowledge of their employees and of the knowledge of who knows what. To make this available and to link it up is the task of executives, of knowledge managers: they are specialists who organise the internal and external networking of knowledge according to structural and user-specific considerations. They also organise learning from the net. However, e-learning – as well as other activities on the internet – follow different kinds of logic than the traditional way of acquiring knowledge through books and texts. *Linked learning and working, education portals, Corporate University or Knowledge Networks* are only some of the keywords that indicate the direction of future developments.

Source: SIEMENS Qualifier

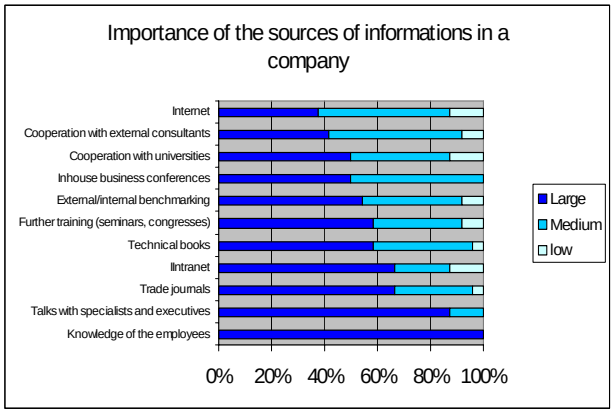


A study by Siemens demonstrates the changes for companies brought about by e-commercialisation: at first it only affects business processes, then the processes in a company, next the organisation itself and lastly the employees. They form the centre of the development to an e-coporation.

A further study confirms this point of view: it makes especially clear that the knowledge of employees as the most important resource ranks highest. Other sources of information and knowledge play a subordinate role.

Source: Dr. Jäger Management Beratung

The importance of "knowledge" for the success of compa-



nies in the "knowledge society" is uncontested, but it has only recently been taken seriously as a management task. Knowledge management deals with those parts of the learning processes that are considered to be formable. What is needed is targeted interventions to change and maintain the structural knowledge basis or concepts and methods suitable for this.

One of the definitions of knowledge management is: knowledge management is a holistic, integrative concept, which contains psychological, organisational and information technological factors to guarantee effective development and transfer of knowledge.

Knowledge is created in a person (individual level), is collected there (internal knowledge pool) and from there it is transferred to the next higher, the collective level, i.e. to a team or a group. This one could call an external knowledge pool because the knowledge exists outside the individual. In order to allow knowledge to develop a multidimensional intelligence is needed.

Knowledge contains:

- Information. It is the "raw material" for knowledge
- Processed ("understood") information. Only this can turn into usable knowledge
- Emotional in addition to rational processes (multidimensional)
- Experiences, perceptions and attitudes

Consequently, what is needed is not only measurable intelligence in the sense of the classic intelligence quotient (IQ), but also emotional intelligence. Personal and social competence means to have a feeling for dealing with other people, for meanings of situations and actions; beside the professional competence it plays a major role in the selection of information for the knowledge pool. In the same way that professional knowledge can be extended this competence can be learned and trained.

At the level of the group or the team or even the whole organisation, communication and cooperation are decisive factors without which knowledge can neither be created nor passed on. So that this resource can be used throughout the whole organisation, i.e. across all departments, transfer through institutionalised forms of communication must be ensured by the management.

This is where information technology helps. Communication paths are established through realising transfer structures in an intranet. In addition, the internet as the world-wide information pool provides fresh supplies of potentially useful information.

Since the internet only supplies information that can only turned into knowledge by the user, efforts are being made to facilitate this work for the individual. For example, a cooperation of 11 different partners of industry and research, called "adaptive read", has developed a method to develop document development systems of the next generation. These are information systems that largely automatically adjust to the actual information requirements of a company or a user. With the help of the anticipated new technologies a great number of complex fields of application are to be opened up which could not be dealt with so far for reasons of efficiency. The system is supposed to be able to open up the content of documents and to adjust to the requirements of the user. In addition, the system

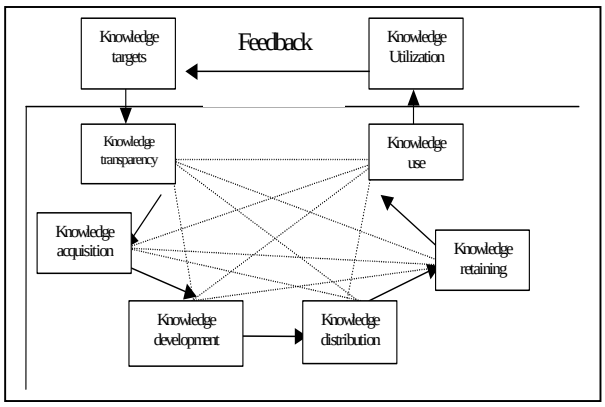
is also said to make possible automatic learning processes (http://www.adaptive-read/start.html).

This example shows the future potential of the integration of world-wide and individual knowledge into the knowledge structure of an organisation. However, first of all the individual must learn how to acquire knowledge, whether it is structured or chaotic, unstructured. By now, the medium through which we learn is not any more only the book or the lecture. Information can be appropriately processed and offered at the right time in electronic networks inhouse or world-wide. Printing and distribution are redundant, which means that the content tends to be more up-to-date. As a consequence the learner is required to learn individually, independently as well as cooperatively, in groups (e.g. distance learning, virtual seminars, cross institution projects). Learning from the internet offers flexible teaching and learning experiences (the information pool of the internet is more up-to-date and various than school text books could ever be). Provided they are willing, teachers can become learners and vice versa (students help to design lesson contents because they often have more technical know-how than their teachers, teachers create a learning atmosphere based on partnership; students have increasing opportunities to practise teaching and teaching techniques themselves). In addition, it is often necessary to develop completely new problem-solving strategies, because the interactivity of computer networks demands activity from the learner and promotes it; the multiplicity of information and its classification demands new methods and learning techniques.

There is no uniform model of knowledge management. In fact, different observer perspectives and interests lead to different attempts at systemisation. The following experiment has been developed in close cooperation with field workers and has proved useful in the work with transfer projects.

The following figure shows that there are two knowledge cycles: the outer cycle with the elements setting objectives, implementation and assessment, which shows the traditional management process. This cycle show clearly the importance of setting objectives and their subsequent evaluation. The connections in the inner cycle show the necessity that no part of this process must be neglected: without transparency, for example, of market research results this knowledge cannot be used in the product development process. If the individual steps of a problem solving process are not documented, they can get lost from the organisational memory of the company and the successful process may not be able to be repeated. With the help of such modules, which make the complete process manageable and allow it to be illustrated, field workers are able to classify and understand the knowledge problems of their organisation better. It also makes the selection of suitable tools easier. Thus the guiding principle of "better treatment of the resource of knowledge" can be divided into small manageable parcels of measures which can be implemented.

Probst, G., Romhardt, K., Bausteine des Wissensmanagements - ein praxisorientierter Ansatz, 1999



3.5 Outlook: The Importance of Knowledge Management for Commercial Training and Further Training

Knowledge management must be rooted in the structure of the organisation and in the corporate culture.

The integration of "knowledge targets" into company strategy and project planning depends on whether knowledge management has become part of corporate culture. In order to be able to use the resource of knowledge there must be awareness of its importance and it needs employees who, at the managerial level, transfer this awareness into strategies and communication networks. In addition, the organisational structure must be adapted to the necessary transparency of company specific knowledge so that the flow of information does not stop at departmental boundaries.
Because of the changes in information paths world-wide, specialists and managers who work in transnational or international companies are called upon to make use of the new opportunities for their company and, with the help of the new information technologies, to implement knowledge management.
In the commercial area also transparency of decisions, information and transdepartmental strategies is gaining increasing importance. Therefore, trainees, young people at the 2nd threshold as well as specialists and managers, must use all opportunities offered in their company to increase their knowledge, right from the beginning of their training or employment. For this reason, the integration and linking-up of knowledge as well as the transformation of information into knowledge must be part of all training and further training and will be a central component of the development of key qualifications.
Today, the intranet and internet offer opportunities which have only been developed in part as yet. The possible consequences are many. It may be that all transactions in the B2B sector will be carried out through them; it may become common for many people to learn and work from home and, finally, there may be virtual firms and schools, development of completely new sectors which exclusively concern themselves with the use and marketing of the internet.
For this reason the initiative *eLearning* has become part of the comprehensive initiative *eEuropa*. It aims to increase digital competence and for this purpose to provide schools, teachers and students with the necessary equipment, professional qualification and technical support. Effective use of information and communication technology can be a significant contribution to lifelong learning.
Employees who increasingly think and work in globalised connections must be trained and motivated for this. Therefore, trainers and advanced trainers are called upon to foresee this development and to implement corresponding learning arrangements.

As the "memorandum on lifelong learning" of the EU Commission explains, the professional image of the teacher will undergo fundamental changes in this process. Teachers and trainers will become counsellors, mentors and mediators. Some of their future tasks will be to support students in organising their learning themselves. The ability to develop and practise open and interactive teaching and learning methods will then be one of the basic competences of teachers and trainers. Motivation to learn is a prerequisite of active learning. It also needs critical discernment and the knowledge of how to learn. It is a forward-looking challenge for trainers, teachers and advanced trainers: to train these human abilities to acquire and use knowledge.

Further reading and internet tips:

- *Reinmann-Rothmeier, G. und Mandl, H., Auf dem Weg ins Informationszeitalter? Was Wirtschaft, Politik und Öffentlichkeit bewegt, was auf die Gesellschaft und auf die Bildung zukommt (Forschungsbericht Nr. 54), Lehrstuhl für Empirische Pädagogik und pädagogische Psychologie der Ludwig-Maximilians-Universität, München*
- *SIEMENS Qualifier. Das Magazin für Qualifizierungslösungen. Nr. 11 Dezember 2000*
- *Goleman, D., Emotionale Intelligenz, 1997*
- *Kehr, R., Jansen, M., Soziale, kulturelle und politische Aspekte neuer Informations- und Kommunikationstechnologien am Beispiel Internet, unter Berücksichtigung von Perspektiven für die Soziale Arbeit. 1997.*
- *http://www-public.rz.uni-duesseldorf.de/~kehr*
- *http:://www.cck.uni-kl.de/wmk/papers/public/Bausteine*
- *http://www.fraunhofer.de/german/profile/iao.html*
  http://www.webstudie.de
- *http://www.Internetmanagement.ch*
- *http://www.diktion.de*
- *http://www.dlr.de*
- *http://www. emarketer.com*
- *http://www.golem.de*

4 Glossary

Internet Tipps

On the following pages you find English-language glossaries about the InterNet:

- *http://www.englishclub.net/help/internet/g/g.htm*
- *http://www.ravanda.net/English/glossary.us/glossary.html*
- *http://www.warwick.ac.uk/EAP/correcting_your_work/glossary.htm*

@	Das Zeichen @ (gesprochen "ät") verbindet in einer E-Mail-Adresse Benutzernamen und Domain-Namen
Account	Die Zugangsberechtigung zu einem Computersystem, Netzwerk.
Archie	Recherchesystem; Datenbank mit Informationen über Dateien auf FTP-Servern
ARPA, ARPANET *(Advanced Research Project Agency)*	amerikanische Militäreinrichtung, die seit Ende der sechziger Jahre die Entwicklung des ARPANET (Vorläufer des Internet) forcierte.
Backbone	Rückgrat; Bezeichnung für Netzwerkleitungen mit großer Kapazität; Hauptstrang eines Netzes
Back-Office	Unternehmensinterne Verarbeitung aller Prozesse, wie z.B. die Weiterverarbeitung von Bestellungen oder Reklamationen. Das Back-Office dient als Schnittstelle zu Front-Office-Systemen wie zu ERP-Lösungen
Betriebssystem	Die Software eines Computers, die angeschlossene Geräte, Dateien und Programme kontrolliert, steuert und überwacht, so das ein Arbeiten mit dem PC erst möglich wird. Betriebssysteme sind Windows 98, Unix, Linus oder DOS.
Browser	(engl.: to browse/ blättern) Programm zum Anzeigen und Verarbeiten von Websites
B2B *Business to Business*	Elektronischer Handel über das Internet zwischen Geschäftspartnern (Unternehmen)
B2C*, Business to Consumer*	Elektronischer Handel über das Internet zwischen Unternehmen und Privatkunden /Endverbrauchern
BMA	Bundesministerium für Arbeit und Sozialordnung
BMBF	Bundesministerium für Bildung, Wissenschaft, Forschung und Technologie
BMWi	Bundesministerium für Wirtschaft
Chat / Chatten	Bezeichnung fürs "Unterhalten", "Plaudern" in so genannten Chatrooms. Chatten funktioniert wie das Telefonieren mit dem Unterschied, dass die Beiträge per Tastatur eingegeben werden müssen.
Client-Server-Prinzip	Nach dem Client-Server-Prinzip gestaltete Anwendungen verwenden auf der Benutzerseite ein Clientprogramm (Client), das mit einem bestimmten Rechner im Netz (Server) Daten austauscht. Der Server ist dabei i.d.R. für die Datenhaltung zuständig, während der Client die Präsentation dieser Daten und die Interaktion mit dem Benutzer übernimmt. Dazu bedienen sich Client und Server eines genau definierten Protokolls. Alle wichtigen Anwendungen im Internet (z.B. WWW, FTP, Newsgroups) basieren auf dem Client-Server-Prinzip.
Cookie *Keks*	Formulareingaben aus dem Internet, die auf dem eigenen Rechner gespeichert werden. Bei einer zweiten Einwahl werden diese Inhalte automatisch eingefügt.
Cyberspace	Populäre Bezeichnung für das globale Netzwerk
Domain-Name	engl.: Domäne; Gruppe von Systemen mit weltweit eindeutig zuweisbarer Adressierung im Internet.
E-Business *Electronic Business*	Elektronischer Geschäftsverkehr über das Internet zwischen Unternehmen und Unternehmen (auch B2B)
E-Commerce *Electronic Commerce*	Elektronischer Geschäftsverkehr über das Internet zwischen Unternehmen und Kunden (auch B2C)
EDI *Electronic Data Interchange*	Austausch von genormten Daten zwischen zwei Computersystemen verschiedener Geschäftspartner. EDI ist Bestandteil des E-Business.
E-Mail *Electronic Mail*	elektronische Post; dient der persönlichen Kommunikation im Internet
Emoticon, Smiley	Einfache Zeichenfolgen, die wie Piktogramme eine Information (hier Gefühle) veranschaulichen.
ERP *Enterprise Resource Planning*	ERP verbindet Back-Office-Systeme wie z.B. Produktions-, Finanz-, Personal-, Vertriebs-, Materialwirtschaftssysteme. Bekanntestes Beispiel ist die betriebswirtschaftliche Standardsoftware *SAP R/3*.
Extranet	Ein auf Internet-Technologie basierendes geschlossenes Netzwerk von Unternehmen, das aber nicht nur firmeninternen Benutzergruppen Zugang gewährt (vgl. Intranet), sondern auch authorisierten externen Teilnehmern wie z.B. Händlern und Zulieferern.
FAQ *Frequently Answered Questions*	Sammlung von Antworten auf häufig gestellte Fragen, findet häufig Anwendung im Usenet
Firewall	Eine elektronische Sicherheitsbarriere, ein Schutzsystem für das Netzwerk einer Organisation oder eines Unternehmens gegenüber unberechtigten Dritten (z.B. Hacker). Sie verhindert die direkte Kommunikation der Computer des Firmennetzes mit netzfremden externen Geräten (und umgekehrt). Statt dessen
FTP *File Transfer Protocol*	Protokoll zum Transfer von Dateien
Gateway	engl.: Brücke; Gateways bilden Schnittstellen zwischen verschiedenen Netzwerken; sie übersetzen Übertragungsprotokolle und ermöglichen so den netzwerkübergreifenden Datentransfer.
Gopher	Recherchesystem; Protokoll und gleichnamige Anwendung, Textsuche mittels einer hierarchisch aufgebauten Menüstruktur
Homepage	engl.: Heimatseite; mittels HTML gestaltete Start- und Begrüßungsseite eines WWW-Angebotes im Internet im WWW. Von der Homepage gelangt man dann über Links *zu* den weiteren Inhalten des WWW-Angebotes.
Host	engl.: Wirt, Gastgeber. Host-Rechner sind über Standleitungen mit dem Internet verbunden und halten als Netzknoten die notwendigen Kommunikationsfunktionen aufrecht; sie stellen dem Benutzer die Internetdienste zur Verfügung.

***HTML** Hyper Text-Markup-Language*	Verweis-sensitive Programmiersprache mit der die Seiten im WWW gestaltet werden
***HTTP** Hyper Text Transfer Protocol*	Protokoll zum Versenden von Text, Bildern, Videos und Audiodateien
Internet	Weltweites Netzwerk von Netzwerken mit dezentraler Struktur; dem Benutzer stehen für unterschiedliche Zwecke verschiedene Dienste zur Verfügung
Internetdienste	die unterschiedlichen Anwendungsebenen im Internet: WWW, Mail, News, FTP, Telnet, IRC, Gopher, Archie, etc.
Internet-Phone	Technik, die es ermöglicht, das Internet für Telefongespräche zu nutzen
Intranet	Organisationsinternes Netzwerk unter Verwendung von Internet-Technologie (TCP/IP)
***IRC** Internet Relay Chat*	Internetdienst zur schriftlichen Online-Kommunikation in Echtzeit
***ISDN** Integrated Services Digital Network*	digitales Telekommunikations-Hochgeschwindigkeitsnetzwerk
Laptop / Notebook	Tragbarer Computer
Link / Hyperlink	Kontextueller Verweis auf eine andere Stelle / Ressource (Bilder, Sounds) innerhalb eines Webdokuments oder auf ein Dokument an einem anderen Ort (auch auf andere Dienste innerhalb des Internet)
Logfile	Logfiles protokollieren Nutzer-Aktivitäten, so .z.B. Verbindungs- und Übertragungsdaten, Empfänger von E-Mail, bevorzugte Online Adressen, u.a.
Mailbox	Privat oder kommerziell betriebener *elektronischer Briefkasten*, der - je nach Struktur - für angemeldete User (oft auch für Gäste) öffentliche und persönliche Nachrichten, Software, u.a. bereithält. Kann im Verbund mit anderen Mailboxen vernetzt sein und über sog. Gateways Daten mit anderen Netzen austauschen.
Mailingliste	Auf E-Mail-Technik basierende verteilte Diskussionsliste, oft zu spezifischen Themenbereichen; eine der ursprünglichen Kommunikationsformen zwischen Gruppen von Nutzern im Internet
***M-Commerce** Mobile Commerce*	Einkauf über Handys (sinnvoll: WAP-fähig)
Message-ID	Eindeutiges Identifikationsmerkmal von elektronischen Nachrichten; jeder Artikel erhält eine spezifische Msg.-ID, die ihn (neben anderen Merkmalen wie Absender und Subject) identifizierbar macht.
Modem	Modulator-Demodulator; Computerperipheriegerät, zur Übertragung von Daten über Fernsprechleitungen
Multimedia	Die Kombination unterschiedlicher Medien, bzw. das Ansprechen verschiedener Sinne durch die gleichzeitige Verwendung von Texten, (bewegten oder unbewegten) Bildern oder Klängen auf der technischen Basis eines Mediums.
Netiquette	Informelle Interaktionsregeln; Empfehlungen für die Umgangsformen insbesondere im Usenet
Newsgroup, News, Netnews,	Diskussionsforen im Internet (s.a. Usenet); Anfang 1997 existierten weltweit mehr als 30.000 Newsgroups zu den unterschiedlichsten Themenbereichen
offline	unterbrochene Datenverbindung
online	bestehende Datenverbindung mit einem Netzwerk.
Onlinebanking	Englische Bezeichnung für die Möglichkeit, Bankgeschäfte wie Überweisungen und Daueraufträge per PC und Modem zu erledigen.
Onlineshopping	Einkaufen im Internet
Onlinedienst	bietet neben dem Zugang zum Internet über sog. Gateways ein eigenes Informations- und Serviceangebot mit proprietärer Oberfläche
Provider	Internetdienste-Anbieter mit regionalen Zugangs-(Einwahl-)punkten zum Internet
Proxy-Server	Computer oder Prozess auf einem Computer, der häufig angeforderte Inhalte zwischenspeichert, um sie bei Bedarf zum schnellen Abruf bereitzustellen; dient der Geschwindigkeitsverbesserung und Netzentlastung
Search-Engine /Suchmaschine	sog. Suchmaschinen dienen der Recherche von Internetinhalten
Server	engl.: to serve - (be)dienen; Rechner oder Prozesse auf einem Host(-rechner), die über spezifische Kanäle von den Clients der Benutzerseite angesprochen werden können (Client-Server-Prinzip). Es existieren unterschiedliche Server für jeweils spezifische Internetdienste.
Surfen (im Internet)	Das „Sich-treiben-lassen" im WWW, indem man sich, inspiriert durch die gefundenen Inhalte, von einem Hyperlink zum nächsten bewegt, ohne ein festes Ziel zu haben.
Subject	Die Betreff-Zeile (Überschrift/Topic) eines Usenet-Artikels oder einer E-Mail
***TCP/IP** Transport Control Protocol / Internet Protocol;*	TCP dient der eindeutigen Bezeichnung der Datentransportmethode, IP bezeichnet die Art der Adressierung angeschlossener Rechner durch die sog. IP-Nummer; TCP/IP stellt als Protokoll die Basis dar, auf der alle Internetdienste aufsetzen und mit dessen Hilfe die Kommunikation zwischen den verschiedenartigen Rechnern im Internet erst möglich wird.
Telematik	Zusammengesetztes Wort aus Telekommunikation und Informatik; elektr. Telekommunikations-Anwendungen
Terminal	Bildschirmarbeitsplatz in einem Netzwerk
URL *Uniform Ressource Locator*	; eine weltweit eindeutige Adressierung im Internet
Usenet *Unix-user-network*	(„a poor mans's ARPANET"); thematisch strukturierte weltweite Hierarchie von Newsgroups; entstanden als Alternative zum ARPANET
User	Computer- oder Netzwerkbenutzer
WAP *Wireless Application Protocol*	Protokoll zum Versenden und Empfangen von WML-Seiten auf Handys dargestellt werden können
WML *Wirless Markup Language*	Sprache zur Darstellung von Internetseiten z.B. auf Handys
Website / Site	Site: engl.: Platz, im Zusammenhang mit dem Internet wird mit Site ein komplettes Web-Angebot bezeichnet, das aus mehreren / auch sehr vielen untereinander verbundenen Seiten bestehen kann
WWW, Web, W3 (World	Internetdienst; ein Hypertext- und Hypermedia-System; WWW ist die grafische Benutzerober-

Wide Web)	fläche des Internet, unter der verschiedene andere Internet-Dienste zusammengefasst sind.

Key words: digitalization,e-commerce, digital convergence, information asymmetry, Principal Agent Theory, digital consumer, omni-channel retail. Preface. Digitalization is all around and the buzz word in the business world. I have been inspired to write about this topic in the context of its business impact for 3 reasons.Â TodayÂ´s importance of the Internet is surely due to the fact, that there is mature and sufficiently high number of Internet users globally, that content depths and range of rich media is available and that capabilities of mobile applications and devices is supporting 24 h online availability. 1.4 Media and Device Usage. The history of the Internet has its origin in the efforts to build and interconnect computer networks that arose from research and development in the United States and involved international collaboration, particularly with researchers in the United Kingdom and France. Computer science was an emerging discipline in the late 1950s that began to consider time-sharing between computer users, and later, the possibility of achieving this over wide area networks. Independently, Paul Baran proposed a e-Commerce as Knowledge Management. Rachel McLean and Nigel M. Blackie R.McLean@pgr.salford.ac.uk. Centre For Networking and Telecommunications, University of Salford, UK. Introduction. Research shows that many consumers use the Internet to research products before purchasing through a more traditional channel, â€¨integrating e-Commerce services into their current consumption practices rather than rethinking the way they shopâ€™ (Lunt, 2000). This suggests that a companyâ€™s web presence needs to be more than just another retail channel. We are only at the dawn of the Internet Age. In the years ahead, the Internet will have an even more profound effect on the way we work, live and learn. By enabling instantaneous and seamless communication and commerce around the globe, from almost any device imaginable, this technology will be one of the key cultural and economic forces of the early 21st century. Why is the Internet such a powerful and compelling technology? Advantages of E-Commerce. We are living in the Information Age. Internet has changed our lives and these changes are irreversible. Slowly every home is being taken over by Internet. People have switched over to paying all their bills online, banking online and even shopping online. Internet is being used by people for various purposes.Â The cost of marketing online across the globe is miniscule when compared to the actual cost of marketing in the conventional ways. The cost per transaction works out to be very cheap. More over E Commerce promotes paperless offices and processes thus contributing to savings in terms of resources too. These and many more advantages make obvious business sense for Companies to market their products and services online.