„Communication goes Europe" - new paths in the web

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original article published in German:

WEIDINGER-MOSER Maria (Ed.) (2004). Communication goes Europe. Österreich-Brüssel und retour. Innsbruck: Studienverlag.

Europe is in flux. The European knowledge society is networking via Internet.

Networks, greatly supported by the European Union, are forming in knowledge intensive areas such as science and research-based business between individual experts, organizations and the public area. These networks usually develop in the course of real events such as conferences, fairs, seminars and others. However, with respect to effective collaboration, the usage of the Internet gains attention.

This development constitutes a challenge for organizations as well as so-called knowledge workers. On the one hand, political, economic or scientific organizations are faced with the task of creating environments which enable the development and continuous functioning of these networks. On the other hand, the ability to find relevant information, to exchange knowledge across networks and thus quickly react to and solve problems means that the individual knowledge worker is challenged with a new form of communication and a new way of dealing with information. These changes are serious in such a way that it is legitimate to talk about the necessity of learning a new cultural technique.

Below, the current inter-connectedness via Internet will be described in detail on the basis of two examples. Moreover, general conditions under which networking takes place as well as future developments and resulting challenges will be illustrated. Subsequently, the most important instruments which are currently used will be listed and explained.

I.   EU projects

The area in which networking via Internet has gained enormous significance is in EU projects. These transnational research projects are supported by the European Union in the course of different programmes, the most important of which is the Sixth Framework Programme for Research and Technological Development.

The European Union supports transnational projects due to two major reasons: On the one hand, the collaboration of organizations of different European countries is intended to contribute to the reduction of linguistic and cultural barriers and to strengthen relationships across national boundaries (political, peace-assuring aspect). On the other hand, the EU aims at becoming the "most competitive and most dynamic, knowledge-based enconomic area worldwide" (economic aspect). As a result, the increase of innovative ability is essential.

Subsequently, institutes, companies, NGOs etc. join forces Europe-wide due to support from the EU in order to do research and make use of the results together. Without the possibilities offered by the Internet relating to communication and availability of information, these kinds of

projects would be unthinkable.

There is not much to say about the significance of email in this context. The sending of electronic mail is by far *the* most used method of communication in the Internet. However, the email is not the answer to all problems and has serveral disadvantages. In case of decentralized projects, the email is not sufficient for the co-operation between several partners. Communication and information management become plainly inefficient (see below, chapter IV.a.).

On the occasion of EU projects, the use of Internet platforms needs to be considered upon application. The importance of Internet platforms for project co-operation and communication is increasing.

Internet platforms usually incorporate a variety of functionalities (e.g. document management, discussion forums, chat etc.; see below chapter IV.b.) which give the possibility to complete different tasks centrally via a common infrastructure. Basically, Internet platforms act as a central information pool, a communication infrastructure and a website (see below, chapter IV.b.).

a. Which factors need to be attended to during the use of Internet platforms in the course of EU projects?

A decisive factor for the functioning of Internet platforms is to use them in an early stage of the project. This is due to the fact, that each project develops a specific communication culture which, once established, is difficult to change. As for EU projects, a difficulty already arises during the application phase while creating the project application, thus before funding has been aproved, which requires project partners to co-operate closely. Ideally, the communication and information structure envisaged for the project should be already used for this task.
In reality however, the creation of an Internet platform does not begin until the project starts. Until it is finally ready for usage, other ways of communication have already been established. Thus, it is absolutely crucial to build up and actually use a platform in an earliest stage.

Another point to consider, is the fact that, similar to real group discussion, an efficient exchange of knowledge can only be achieved with targeted moderation. For all planned communication and working processes an accompanying moderation needs to be scheduled.

Hence, when using an Internet platform costs for support need to be scheduled besides costs for technical implementation and creation of content. What is important, there is only an „all or nothing" approach. The operation of an Internet platform without continuous support does not only not work but has, in most cases, a counterproductive effect.

An aspect which is moving to the center of attention when it comes to EU or other decentralized projects is the possibility to use an Internet platform as a website. This function is particularly significant in EU projects for the so-called dissemination.

The EU's objective of supporting research co-operations is not only to ensure that know-how with high usage potential is developed. It is also decisive to inform potential users about it. This is why the EU does not only put a focus on the delivery of usable results. Instead, the EU also demands, as a precondition to receiving support, to develop strategies for distributing the know-how to a wide audience: "dissemination". The Internet constitutes the perfect medium for this.

It makes sense to provide the public with access to content, which has been developed in the internal area of the Internet platform, on the same platform. This way, the development of an own infrastructure (portal, platform) is no longer necessary and the requirement for dissemination is fulfilled simultaneously.

Another interesting aspect is that the usage of such an Internet platform makes it possible to start with the dissemination at an early stage by publishing general information about the research project. This means one is spared the effort of gathering and processing content after the end of the project. Moreover, the chance of getting into contact with other research projects, the interested public or potential users and to include their input is increased.

In July 2004, an EU project was started which is intended to implement the above mentioned aspects and exemplify the use of an Internet platform:

POSEIDON
The EU-project POSEIDON (**P**artnership **O**n **S**ocio-**E**conomic and **I**ntegrated **D**evelopment **O**f Deprived **N**eighbourhoods) deals with the analysis and improvement of social and economic structures in disadvantaged districts. Vienna is in charge of the leading part of this Interreg IIIc project. The Vienna Centre for Urban Knowledge Management (WZW) is responsible for the international process coordination between the six partner cities (Vienna, Genoa, Stuttgart, Stockholm, North Kent and London-Haringey).
see http://www.poseidon-partnership.net

b. „Knowledge board – The European KM Community"

Another attempt, in which Europe is currently highly visible in the Internet, is the assembly of different experts around specific topics. Here, the EU also supports initiatives such as the virtual topic network „Knowledge Board" (http://www.knowledgeboard.com).
It is a declared objective of the European Council to turn Europe into the most competitive and most dynamic, knowledge-based economic power by 2010. How do you communicate this objective to the interested public? In the beginning of 2000, the communication platform www.knowledgeboard.com, a virtual, topic-oriented knowledge network about knowledge management, was created.

virtual:
The first contact with Knowledgeboard almost always takes place via Internet: while

searching for information concerning a specific topic in the Internet, you come across an article or a discussion forum. If style and content appeal to you, you delve into the numerous conversations. Suddenly, you find yourself in a workshop dating back several months which has been conducted by an expert in the area, such as the Swede Karl-Erik Sveiby, professor for knowledge management and author of numerous publications. Reading his arguments in a discussion instead of a textbook opens up new perspectives and offers an interesting, learning effective, supplement.

network:
In order to be able to ask questions and make contributions to the discussion, you leave the "lurker" stadium, the phase of being a silent observer, and register. Thus, you become a part of a network without having intended to do so in the beginning. This open approach is typical, participation is free of charge and input driven: Those who have something to say are invited.

topic-oriented:
It is the common interesent in a topic that connects everyone. The majority are the "seller" in the area: scientists and consultants. The "buyers", the companies to which the topic should appeal, are rather passive. Nevertheless, an increasing knowledge pool on the topic "knowledge management" is at the public's disposal. Quality is ensured by the living community by quickly reacting to contributions, sometimes in a corrective manner: a self-regulating and transparent system.

Exchange on the Knowledgeboard takes place in every thinkable way. Various instruments are used. Discussion forums are available, articles are published regularly, wikis are used and weblogs are kept (detailed description see chapter IV). On Knowledgeboard many of these initiatives have established, some of which are true treasure chests of well-organised information. For instance, the weblog of Lilia Efimovna (http://blog.mathemagenic.com) is worth seeing.

II. General framework

Regardless of specific projects, networks or used instruments, it is important to give some thought to the general framwork in which knowledge and competence networks function.

The first decisive factor for the continuous functioning of these kinds of networks is trust. This is a basic precondition for people's willingness to contribute to the exchange of knowledge in the course of such networks. It is necessary to deal with the persons, with whom knowledge exchange takes place, and with the knowledge in a responsible way. This climate of trust is above all established through a transparent environment in which one can communicate openly (above all uncensored) with specific (ideally identified by name) persons and in which motivators and goals of the initiators are clearly demonstrated.

A further aspect, which is significant to the development of a suitable framework, is the highly increasing proportion of work which exceeds the boundaries of an organization as well as the increasing mobility of knowledge workers on the job market. These developments call for the creation of possibilities for dislocated knowledge work, which are independent from organizational departments, as well as openness and flexibility as regards personnel. These requirements need to be considered from an orgnizational point of view when it comes to contemplating choosing a technology.

In order to ensure continuous functioning of knowledge work, it is essential to make information, which is created in the course of the knowledge exchange, usable on a long-term basis. If the mostly written or rather explicit knowledge remains available for the involved knowledge workers, the motivation to contribute to the knowledge exchange is naturally increased.

This topic will move to the center of interest in the future.

III. Communication goes future – What does the Internet hold for the future?

With respect to the goal to increase the efficiency of co-operation via Internet, two interconnected aspects will gain significance in the future: the possibility to link information (hypertext) as well as its reliable availability.

It will only be possible to integrate information sustainably in a continuously developing knowledge environment and thus turn it into a knowledge resource which is usable on a long-term basis by considering the above mentioned aspects. This is rarely possible in the Internet due to the momentariness of information.

The possiblity to link information and its reliable availability are also essential to Internet communication because efficient knowledge exchange requires the possibility to quote information and reference other information sources – as it is naturally done in printmedia.

A major cultural change which will be caused by the Internet relates to our understanding of text. In the future, text will be mainly published online in hypertext format. Contrary to the linear creation of content known in printmedia, individual pieces of information are connected via references (link) forming a network. This way, complex, dynamicly changing pieces of content can be connected without nearly any redundancies resulting in an associative structure ressembling human thinking behavoir.

Subsequently, contrary to the current situation, the motto "context instead of volume" will apply more and more often in the future when working with digital information. Island solutions will be avoided. During the creation of information, the usability for others will be considered.

A major precondition for the contextualization of information and thus for the creation of hypertext is the guaranteed availability of data. In order to put created text into context with external information, as is the case when integrating specific information in one's own text, it is necessary to ensure that references will function continuously.

At present, these preconditions are not fulfilled in the Internet yet. "Dead links" (links to wrong or unavailable information) are the order of the day. At the moment, information on the Internet ressembles a phantom which disappears and changes continuously. Due to the increasing significance of the Internet to the co-operation of knowledge workers, it can be anticipated that solutions to the problem will be found. Several approaches already exist. On a small scale, integrated link management systems are a remedy.

In general, it can be assumed that specific functionalities will be less important when it comes to choosing a software system. Instead, the ability to adapt to a dynamic environment, system-independent content and concepts for the availability of information will be emphasized.

The biggest obstacle to a general and natural work with hypertext is certainly the enormous difference to the creation and reception of linear texts in which human kind has centurylong experience. The retrieval of informatin or the navigation in hypertexts consitutes new challenges to the indiviual which he or she might not be up to. It is necessary to learn a new cultural technique.

A further futur topic relevant to knowledge work is the development of the semantic web, an initiative which has been created in 1998 by Tim Burners-Lee the inventor of the World Wide Web. In the future, information will be provided with meaning which will be clearly readable and understandable by machines. Huge advantages can be anticipated for the retrieval of information. It will not only be possible to search for specific terms, which possibly have several meanings (e.g. "bank"). Instead, it will be possible to rely on the support of "intelligent machines" which put similar information from different sources into context.

Apart from semantic search, it can be anticipated that the dimensions space and time will be increasingly considered. This postulates that information on the Internet is provided with location data and a timestamp. It will be possible to relate information to a certain location which will be of utmost importance for developing plans or discussing about geographical topics with the help of a map.
By providing information with a timestamp, an answer to the currently difficult question "What was new in 1999?" is provided.

IV. Currently used instruments

Whether you are the manager of an EU project or the initiator of a knowledge network does not matter. As soon as several persons communicate regularly with each other, work

together on common information repositories or try to appeal to a large interest group via Internet, the task of choosing suitable instruments and avoiding mistakes which arise due to lack of knowledge of possibilities and risks of the respective instrument needs to be mastered. In reality, many mistakes are made here. The mistakes are profoundly because instruments which are wrongly used do not only lead to a decrease in efficiency but also act counterproductively. At present (possibly again), the usage of Internet technologies encounters scepticism among users which can turn into complete rejection in case of a malfunction ("It does not work anyway.").

The most important instruments which are currently in use as well as the advantages and disadvantages of different applications will be described below.

a.   E-mail

The e-mail has changed modern communication. To this day, the e-mail is *the* most popular Internet application. Nearly 80 % of all European Internet users use the World Wide Web to send e-mails. The reasons are obvious. The benefit of sending messages, pictures and documents in a matter of seconds is immense.

However, a look on the negative aspects of this communication method is worthwhile.

The attractivity of the e-mail is significantly reduced by the flooding with spam and the snowball-like distribution of computer viruses. They are preferrably sent in masses and account for 40 % of all e-mail traffic. Subsequently, cleansing the e-mail inbox of spam is an annoying daily routine for most e-mail users. Automatic solutions alleviate the effects at best.

While it is hard to tackle these profound difficulties, other disadvantages can be avoided by using e-mail correctly.

The e-mail is the ideal application for written communication between two persons (one to one). However, it is only suitable to a certain extent for the exchange of information within a group, or from many to many.
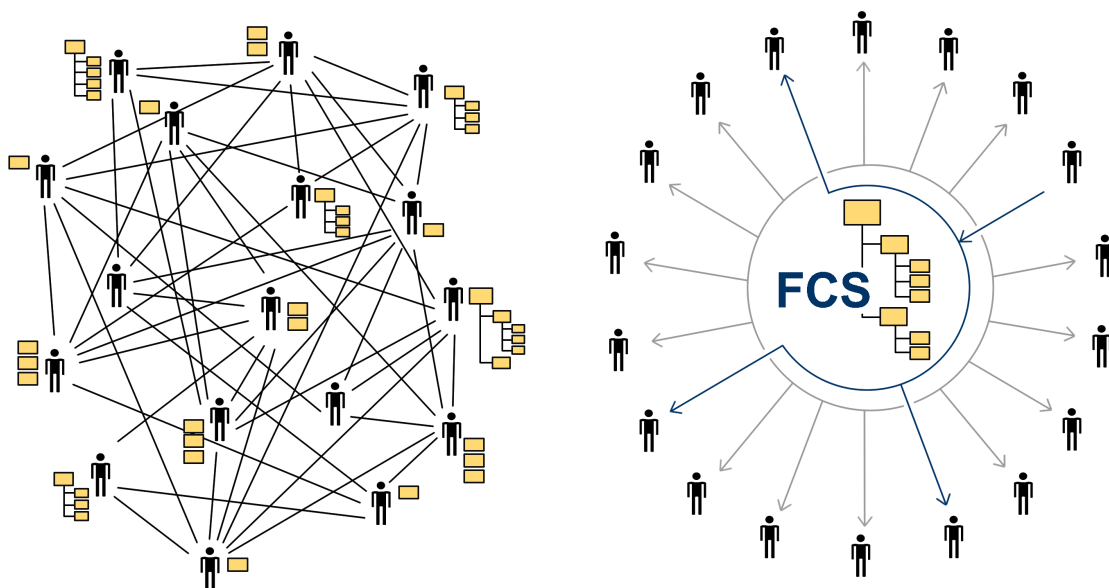

fig. 1: increase of efficiency due to the usage of an Internet platform (central structure and archive) as opposed to e-mail

Separating discussion threads are inevitable in group discussions via e-mail. Some contributions refer to a statement which has been answered by a group member long ago. Other contributions cannot be matched at all. Due to the separation of individual contributions in different messages, it is impossible to maintain an overview of the whole discussion or to keep all contributions in a chronological order or in context to each other. A simple example: Try to arrange a meeting with five persons via e-mail.

An emerging problem, above all in projects, is the habit to send information to everyone which might be concerned. The reason for this: It is easy to hand over responsibility, "You ought to know. I also sent the message to you." By sending an e-mail the sender is absolved from responsibility. If the message is actually delivered (i.e. read and understood) is the receiver's business.

Subsequently, more and more e-mails arrive in the inbox which cannot be designated as spam in a narrower sense but which cannot be handled anymore once a certain amount has been reached and are thus ignored. The original intention, that is to inform the receiver, is not fulfilled anymore.

An important part of teamwork is the co-operative work on central documents (reports, articles, tables etc.). On many occasions, e-mail is used for this. Someone develops a draft, fowards it, another person adds something, a third person corrects and some other person comments – what he or she comments on is usually unclear at that time.
It is nearly impossible to manage the different versions and to ensure that each team member accesses the most current version.

Moreover, the sending of documents per e-mail means that each receiver is responsible for storing, organising and saving them. This refers to an amount of work which should not be underestimated and which concerns each team member individually.
A central repository could offer effective support (see chapter IV.b).

One final remark, e-mails are sent uncoded in most cases which means that they can be read on each server they pass. Transferred to classical mail, the e-mail actually corresponds to postcards and not to letters enclosed in envelopes.

The disadvantages of working with e-mails described above bring about a decrease of acceptance in professional usage.
In the meantime, the main goal is the reduction of the number of received messages to a bearable amount. The appropriate usage of the instrument e-mail can make a significant contribution.

b. Internet platforms

The following chapter is complementary to the section in the beginning dealing with the management of EU projects. On the basis of the three major elements "central information management", "knowledge exchange/communication" and "website", the functions of an Internet platform will be described and the specific usage will be illustrated.
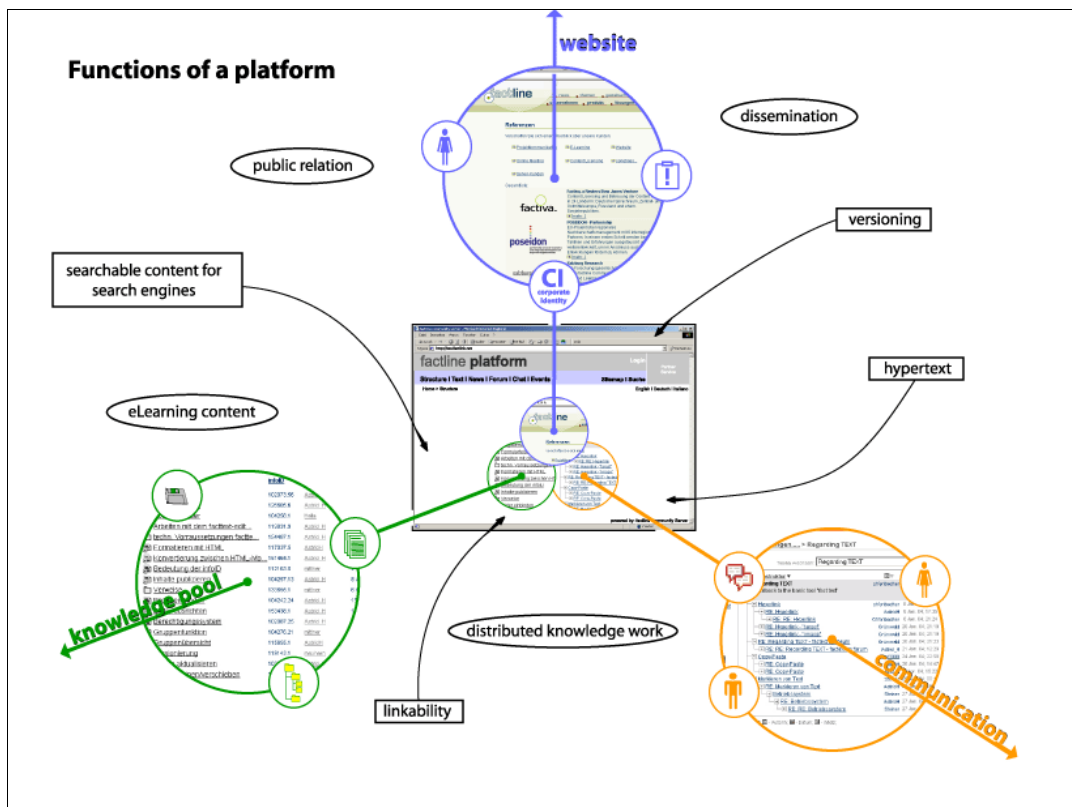

fig. 2: Illustration of the three functions of an Internet platform

Central information management:
Internet platforms are ideally suited for the central storage and management of documents. Moreover, documents are made available from any Internet access point. Access takes place via a permission system which ensures that only authorized persons are granted access to the information.

The difficulties caused by the sending of files via e-mail (see above, chapter IV.a) are avoided.

In order to enable work on shared documents, special functions are available which are usually summarized under the terms document management and content management. Of course, the usage does not require programming skills and can be handled by any user.

Basically, the following functions have proved indispensable for central information management:

- version control: Each version of a text or file is provided with a version number under which it remains available. The history of the text or file is thus traceable. The

possibility to either link to a specific version or to the most current version of a document has proven practical.

- development of a file system in a tree structure: Documents can be assigned to specific positions in a structure.

- search funtion: All texts should be available in full text in order to allow those who are not familiar with the file structure to quickly retrieve documents.

- up- and download of files in different formats (.doc, .xls, .pdf etc.)

- possibility to reference: Good software solutions provide link management which allows you to either link within platforms or from outside (e.g. in e-mails) to specific information. Moreover, link management guarantees that links remain intact or at least inform the user in case the referenced object has been moved or deleted.

- permission system: Access to information is limited. Read or edit permissions can be either assigned to individual users or to user groups.

- meta data: Each piece of information is provided with metadata which is either created automatically or by the author and facilitate the retrieval and management of documents. At least the author of the document and the publication date should always be indicated obligatorily.

Knowledge exchange/communication:
Within an Internet platform different applications for the communication in a group as well as with the public can be integrated. They constitute a major supplement to the, otherwise overstrained (see above, chapter IV.a.), e-mail.

The most important applications are discussion forums (see chapter IV.c.) and chat (see chapter IV.d.). Sometimes, instant messaging systems (see chapter IV.e.) and video conference solutions are included. Via comment functions (i.e. comments on individual texts as is the case in many news portals) or poll services, some systems offer further possibilities to participate.

Website:
The possiblity to use Internet platforms as a website is moving to the center of interest among inernational research projects. As already mentioned in chapter I.a., this function has a significant meaning for the dissemination of results of research projects.

When it comes to choosing a suitable software for an Internet platform, some further aspects need to be considered:

Application Service Providing (rent model):
Application Service Providing (ASP) helps to avoid the need for development and operation in one's own company. Instead the application can be rented from a central Application Service Provider. This alternative offers serveral advantages and increasingly asserts itself – though under another name – on the market:

- The application is already developed, is ideally used in many places and tested in

advance. You do not buy a pig in a poke.

- The software is available. Delays in delivery are not anticipated.
- The costs ("total cost of ownership") can be calculated.
- No high initial investment for hard- and software needs to be made.
- Extension and reduction of functionality is possible at any time for good products.
- The guaranteed standards regarding availability and security are usually hard to achieve in one's own system environment.
- The Application Service Provider takes care of hard- or software, backup and updates.

What needs to be taken into account is that a product offered in an ASP-model is standard software. Many systems can be adapted to one's wishes to a certain degree. However, there are limits.

In principle, it is not advisable to develop one's own softare solution or to let develop. If one does not seek exhausting adventures, it is better to make use of the advantages of the division of labour in economy and to consult specialists with tested software. Tasks relating to content and organisation during the development of a platform are usually challenging enough.

comptability of browser, operativeness on PC and Mac:
Good software solutions support all prevalent browsers (Internet Explorer, Mozilla, Opera etc.) and run on PC as well as Mac.

Notification:
A central tool for the operation of Internet platforms is the notification of content-related changes via e-mail. The notification has proved decisive for the usage of a system provided that users are informed in a *personalized* way about the latest changes on the whole platform. If the changes can be accessed directly via a link in the e-mail, users do not need to actively visit the platform and inform themselves about changes, which practically never happens anyway. Instead, they are "picked up" where they usually look, in their inbox.

fitted for search engines:
The most common method to search for information in the Internet is the usage of search engines (e.g. Google or Yahoo). Those who are not present there will not be found. This aspect needs to be considered during the content-related and technical development of Internet platforms and, above all, during the planning of the dissemination. With regard to technical aspects, it is vital that the used software supports so-called "robots" (automatic programmes which read web content). Unfortunately, this is not the case for many technologies.

c. discussion forums

Discussion forums are ideally suited for exchanging thoughts and experiences within a group. Thus, they are widely used in the Internet and are a fixed part of every Internet platform.

Communication in a discussion forum is asynchronous or "delayed". Users leave postings (contributions to the discussion) behind, which can be read and answered by interested users later on.
In order to illustrate relations between questions and answers, two different possibilities have established themselves: "threaded-view" forums and "flat-style" (or "linear"style") forums. "Threaded-view" forums display the relations between individual postings within a topic in form of a tree structure. A hierarchical structure, which shows the course of discussion, develops. Subsequently, it is possible to trace which answer relates to which posting. "Flat-style" forums show all contributions within a topic in strict chronological order according to their publication date.

Contrary to e-mail (see chapter IV.a.), online discussion forums offer decisive advantages for groups:

- All contributions are stored centrally. Every (authorized) user can get an overview of the whole discussion and its current status.

- Question-answer relations are clearly illustrated.

- Users are not overstrained with undesired contributions, as is the case with e-mails. Instead, they can choose whether they want to participate in the discussion or not.

However, the usage of a forum does not necessarily trigger a discussion. Usually, the exchange of knowledge needs to be actively fostered and moderated, at least in the beginning.
At the beginning of a co-operation, it is crucial to make sure that exchange takes place in the discussion forum. According to experience, especially the average Internet user is tempted to use the daily used and thus familiar e-mail to send messages to the group. A further decisive factor is the response time to postings. If response time is not successfully kept short, frustration sets in which can quickly turn into a negative attitude towards this form of communication.

d. Real-time communication (chat)

"Chat" describes a direct (written) communication between two or more persons in the Internet in real-time. The designation "chat" already indicates the origin and most common use of this technology. As a matter of fact, this form of communication established itelf in the fun area in the beginning. Contrary to popular opinion, chat communication does consitute a valuable supplement to the communication spectrum even in a business environment.

Major advantages are:

- *low costs:*
  Contrary to telephone and video conferences, chat technologies are a more flexible alternative: little technical effort, simple organization and cost-effective

implementation.

- *automatic logging:*
  The otherwise necessary task of taking the minutes of a meeting is needless for chats. The system automatically stores all written contributions. A further interesting aspect is that chat participants usually limit their contributions to the gist.

- *faster information exchange without media discontinuity:*
  If several different types of media (language, paper, Internet etc.) are used during an exchange process, media discontinuity is caused each time the type of media is changed. Media discontinuity causes costs, mostly in form of transformation and editing efforts. The Internet can help to avoid these costs, by providing a chat as a dialogue tool on the website. Users can elaborate on web information directly without any media discontinuity.

Unfortunately, the conventional (linear) chat technology which is currently in use and displays contributions in chronological order constitutes obstacles for users. These mainly relate to unclear question-answer relations, parallel discussions and a lack of guidelines or rules regarding the exchange of words.

However, solutions have already been developed among which are the "threaded-chat" and the "fachtchat". (see also: Beißwenger, M., & Storrer, A. (Eds.) (2004). Chat-Kommunikation in Beruf, Bildung und Medien: Konzepte – Werkzeuge – Anwendungsfelder. Stuttgart.)

At present, chat technologies are mainly used in the following areas:

- *project communication:*
  In this area, chat tools are used in combination with instant messenger programmes (see chapter IV.e.). Thus, the function "presence awareness" is integrated which informs about the availability of individual team members. "Presence awareness" is a decisive factor for the usage of chat technologies for project communication. This function makes it possible to save time which would need to be spend on reaching a colleague (via telephone, real-life meeting).
  More and more specifically arranged meetings take place in chatrooms.

- *group discussions in market research:*
  In market research, chat technologies are used for online group discussions. Advantages are cost-savings, reduction of socially desired answers (due to increased anonymity) and automatic creation of a protocol.
  Boundaries result from limited representativeness (no area-wide coverage), reduced communication possibilities (no body language, non-verbal techniques are not applicable) and the increased effort to moderate and conduct the discussion successfully.

- *recruiting:*
  Companies such as Siemens use chats as a preliminary stage to job interviews or assessment centers. A larger number of interested candidates is advised and informed about required qualifications before the job application. Moreover, this form of direct dialogue offers the possibility to find out which questions and topics are currently important to applicants.

All described areas of application have in common that they are used as a part of a bigger,

more extensive communication solution. Spontaneous communication in chatrooms happens seldomly. Most of the time, chats are dedicated to specific topics and are announced beforehand. The integration of experts (expert chats) has proven appealing in this context.

e. Instant messaging

Instant messaging (IM) is closely related to chat communication. With the help of a little programme, an instant messenger, it is possible to communicate with others, send short messages or exchange files in real-time.

As already mentioned (see chapter IV.c.), the major function of this application is presence awareness. A self-created "buddy list" (selected users with whom one wants to or must have contact regularly) stores addresses and announces when others are at their workplace and available via Internet. Instant messaging is ideally suited for short, quickly answerable requests for which one would not normally pick up the telephone or write an e-mail. Presence awareness of instant messaging fosters direct exchange between persons at different locations and thus creates an atmosphere of co-operation even across bigger distances.

Some IM systems (e.g. ICQ) can be used freely via Internet. Others are integrated into, oftentimes, bigger collaboration solutions for internal use.

f. Weblogs

A weblog, also called "blog" , is a website with chronologically ordered and regularly updated entries (similar to a diary), which can be commented by readers in most cases. Behind each weblog stands (at least) one specific author ("blogger") who writes the entries and presents his personal view and selection of information. Subsequently, a weblog is usually strongly associated with a person.

What is also important is that a weblog is never isolated but strongly connected to other weblogs via links. A precondition for this is the usage of so-called RSS feeds which enable users to easily trace changes in a selected weblog and display content independently from used software.

Weblogs are ideally suited for publishing research results and providing others with access to them in a regular information flow. In reality, weblogs are used as personal diaries, for presenting a specific topic, as a means of communicating in projects, as a public relations tool and as an information medium within organizations.

Weblogs owe their attractivity to their comparatively high attraction and binding character which is, on the one hand, created through a strong social component (identification with the author) and, on the other hand, through a strong connection with other weblogs in a big network.

g. Wikis

Wikis (also called WikiWikis or WikiWebs) are collections of websites which cannot only be read by users but also changed in an easy way. The name "wiki" originates from the Hawaiian word for "quick".

The creation of texts is easier than the widely spread HTML, and thus allows computer laymen to participate without any major learning or writing effort.

Every reader is an author at the same time and can – either with or without registration – edit or create texts. Old versions remain available and the history is traceable.

As the individual articles are oftentimes connected via links, wikis allow for the development of complex networks of interconnected texts (hypertext nets). Wikis are often used for a co-operative development of knowledge databases and a collaborative medium for developing new topic areas.

An interesting example for the usage of a Wiki is the free encyclopedia Wikipedia which has been developed by a wide community and is open to every Internet user.