

ELECTRONIC COMMUNICATION THE EFFECTS OF THE INTERNET AND TECHNOLOGY ON ENTERPRISE COMMUNICATION

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Abstract

The communication is constantly changing between individuals and companies. In this paper the author demonstrates the link between the communication and the applied tools. The paper gives brief overview of the communication tools, points out for the importance of electronic communication tools. The author emphasizes the role of internet communication and introduces a theory of electronic communication. He describes how the electronic communication influences the relationships between companies.

Keywords: e-communication, Internet technology, EDI

1. Evolution of Communication

The appropriate interpersonal communication, that contains both verbal and non-verbal elements, had a very important role as early as the time of barter. In order to make a successful business both parties had to state their own viewpoint as effectively as possible during the deal. However, we examine the customer's or the retailer's side, the effective mode of expression, getting information and factual knowledge is essential. Business communication shows differences according to geographical regions and industrial sectors too, which differences – not in an unchanged way – have not disappeared and are present nowadays. For a long time business relations had been taken care of orally. With the appearance of writing the tools of keeping in touch were expanded with letter writing. Besides letters, agreements and contracts were put down in writing. During long centuries tools of communication were restricted for the above mentioned modes of expression. The only possibility of improving communication was to make letter writing, and distributing faster and more reliable.

The technical revolution of the 19th century brought outstanding changes not only into every day life but also into several fields of business life. A great variety of new technical improvements appeared and spread. The discovery of

electricity triggered an unbelievable chain of development. The most important tools of electronic communication are summarised in *Table 1*.

Table 1. Historical view of the tools of electronic communication

Tool	Date of invention	Use
Telegraph	1896	not used
Telephone	1876	still in use
Telex	1933	not used
Telefax	1986	still in use
Beeper*	1995	still in use
Mobile phone	1980	still in use
Personal computer	1980	still in use
Radio	1921	still in use
Television	1930	still in use
Internet	1965	still in use

Forrás: Új Idők Lexikona, Budapest 1942; Encyclopedia Britannica USA 1971; Cambridge eciklopédia Budapest 1992; PATURI, F. R.: A technika krónikája;

* Hungarian introduction, www.easycall.hu

The improvement of communication is in a close relation with the technical development of the tools and machines that make it possible to communicate. The telegraph was able to send relatively short messages and its use required certain knowledge, so it was used for a short time. Telephone took over its role, which did not require any particular knowledge from the user, thus they could make continuous real time calls and its quality of voice was improving continuously. Telephone is the most widespread worldwide way of communication, although it was only able to pass the message when the customer was near the machine and made the contact by picking up the receiver. This problem was bridged over by telex, which was ready to receive messages and record them character by character on the customer's side in twenty-four hours of the day. It also meant that the message of the sender was recorded in written form. Only bigger companies could afford the machine because of its very high price. The 'mentality' of telex was improved into the telefax. Compared to telex, telefax was able to send graphic messages – within a short time – in a high quality.

Similarly to telex, fax could receive incoming messages continuously and its operation did not require expertise. A telephone line is needed to operate it and is widespread due to its favourable price. The above mentioned tools got a new meaning with the occurrence of personal computers (PC). The modular built up of PC makes it possible to build the fax into it and with the help of PC and a telephone line supply the possibility of faxing. The above described tools can settle business communication directly, which was an important criteria when they were improved.

Radio and, later on, television were primarily created to provide information and entertainment. The radio, not counting quality changes, is used in the same

format, is widespread and more of them can be found in a household. It is possible to use everywhere (at home, in a car, at a workplace, while jogging) and its use requires minimal knowledge. After the occurrence of tv, it has gone through several important changes that sometimes meant to perfect the appliance (colour TV, portable TV) or to find out new ways of use (teletext).

By the middle of the 90's television and radio became the most important channel of business communication (mainly publishing advertisements and information), especially for companies dealing with consumer goods. It can be concluded, that the use of these two media of communication provides a variety of new elements in the company consumer communication. The TV and radio user companies apply extremely fastidious techniques and abuse the possibilities of them maximally. They are not lack of different qualitative or quantitative methods either.

In the 90's, in our country mainly from the middle of the 90's, PCs spread in a great number and Internet becomes well-known and the possibilities it provides. Most of the cases, it seems that PC and Internet are two things that belong together. However, there are other existing solutions like Internet through TV, (it needs a supplementary module, a target computer) or Internet through mobile phone (it has restricted capacities and we do not have to think of an old type one but a new multifunction electronic appliance). According to our point of view Internet and PC are almost inseparable appliances, but we are only precise, when we say that the Internet and PC (according to the general interpretation) can always be interpreted in case of electronic communication.

If we want to make it clear the differences between the Internet or electronic communication and the traditional communication, we have to explain the process of communication. There are always two main roles in communication, a sender, who would like to send a message and a receiver, whom the message is for. The primary condition of communication is a common set of signs that is used by both the sender and the receiver in order to send their messages, because this is the only way for the successful process of coding–decoding.

2. The Traditional, General Model of Communication

There are always two main roles in communication, a sender, who would like to send a message and a receiver, whom the message is for. The primary condition of communication is a common set of signs that is used by both the sender and the receiver in order to send their messages, because this is the only way for the successful process of coding–decoding.

Depending on the make-up of the target group we formulate our messages differently and perhaps we choose a different channel to that message. Thus it is very important to create and code the appropriate message. In this process, as it is marked in the chart, different interferences can occur that decrease efficiency, moreover they can endanger successful message creation. In a similar way the successful destination of the message is endangered by interferences affecting decoding and

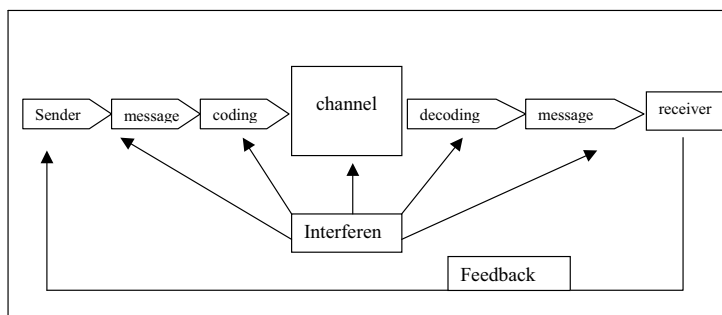


Fig. 1. The general model of communication (KOTLER, Műszaki Könyvkiadó, 1998. 658 p.)

understanding of the message on the other side of the channel.

It is basically a one way process, thus it is characterized by information transmission. Of course there is a possibility of feedback from the receiver's side, they try to provide the chance. The feedback is usually delayed in time and is accidental to happen. A distinct procedure must be worked out in order to establish feedback, which itself makes it uncertain to transmit usable, important and up-to-date information to the sender of the message.

The bibliography [14] stresses three main factors that may prevent the message from its destination: selective attention, selective distortion, selective memory.

In case of Internet or electronic communication the phenomena mentioned in the previous paragraph can be observed in a different form. The process of Internet communication (Fig. 2) is basically similar to that of traditional communication (Fig. 1), however, there are some characteristics that result in great differences.

Since the channel of communication is concretely defined, we have to count with less interferences which increase the possibility of successful destination of the message. There is a chance of almost immediate feedback, to react on what we saw during the communication. It is possible because of the technical background and the philosophy of the Internet the great degree of interactivity. There is no need to create a new procedure and the application of other tools in order to record reactions and opinions.

3. Internet (Electronic) Communication

Internet communication is suitable for eliminating the dangers of traditional message sending and the subjective factors that result in the damage of 'clear' message. Have a look at these factors again:

- We cannot do much with the great number of messages of the receivers, but there are some technical possibilities to filter the 'unwanted' or unimpor-

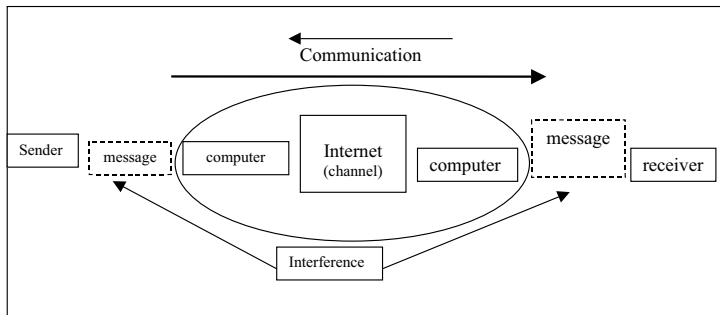


Fig. 2. The effect of Internet on the process of communication (Source: Based on Thomas J. NAGY, Strategisches Internet Marketing 2000. own elaboration)

tant information (eg. Filter of SPAMs, prohibition of COOKIES etc.). The quantity of unwanted messages can be decreased in this way.

- We do not need to use our memory so much, now that the computer remembers, stores information, data for us and when the time comes we can get it. Playing the radio, TV advertisement it vanishes, the poster glides us, we throw the newspaper out after a few days but message from the Internet remains, it can be played, watched, compared to other similar or identical messages whenever we want. If it does not help, I can choose from a great variety of search tools in order to find the missing information.

4. Business Communication

A company has to establish a two way communication day by day: within the company the employees among each other and outside with the partners, customers, rivals, investors. Nowadays it is a principle of business life that there is shorter time available for the improvement of a product, realisation of needs, or to solve a problem. The company has to establish the flow of information among people while completing its tasks. The flow of information means at least two ways, but according to the needs it can mean more ways (three, four, ten, twenty etc.) of communication. In many cases more colleagues with different competencies, experiences, from different fields have to co-operate.

Most of the cases, meetings are organised in order to discuss company matters, where everybody can tell his or her opinion about the topic. There are some difficulties when arranging a meeting: an appropriate time and place for every one have to be found, the agenda have to be checked sometimes the arrangement is not smooth. In spite of the greatest circumspection there always remain unanswered questions, untouched topics, so meetings have a restricted capacity with respect to the spoken topics.

Another applied method for the communication within the company is the circular, which is a one-sided information of the employees. The greatest weak point of the circular is that it hardly or not at all gets to everybody and the time of getting through is very long.

There were newer ways of increasing efficiency with the improvement of technology. With the help of telephone and answering machine a message can be sent to every employees concerned, onto their electronic answering machines, pager or in the form of SMS onto their mobile phones. These tools render very fast information transmission and ensure to get in touch with the target people. However they have some disadvantages: they are suitable for the transmission of relatively short messages, it is hard to archive the message and the further work with the message is problematic.

The occurrence and appliance of electronic letters resulted a qualitative change in business communication. It is a suitable way of transmitting optional sized, formed (picture, text) material. The addressed people get the messages fast and surely. The incoming material can be archived well, its use requires no or minimal efforts. The paper-based company newspaper can be replaced with well-organized electronic letter writing, moreover, in case of a company there is a possibility of taking into account the characteristics of the different divisions of the company and to make an own newspaper for each division. This 'match to the division' means minor extra expenses and with that it is more personal, and better fulfils the needs of the employees within the division. Computers and a network (generally inside the company) which is suitable for transmitting data are needed for its use.

Although electronic letter is a new tool it spreads very quickly. It is easy to get used to it, because it can be used easily and it is economical, and supplies a fast solution for its user. It can be used effectively in the solution of everyday problems. Communication experts of companies realised the possibilities behind it and they like using it for inside communication today. It is suitable for sending the decisions, orders of the management, but it is also suitable for settling the communication within colleagues too. For example a lawyer's office (Simbergt, Canada) started a new practice: whenever the workers had a problem or a question with their work, they did not go from room to room in the office until finding the right person who had free time for solving the problem, but wrote an e-mail to the colleagues. They define the problem shortly in the subject of the e-mail, then write the background information in detail. The colleagues who receive the e-mail decide within a moment whether it is their competence, they can help and only the colleague who is an expert and can help the most will deal with the problem.

As it was stated earlier, the reaction time available for the companies becomes shorter in different cases. Besides that the globalisation of markets is visible. Using a trendy term the world becomes a great market place, that is supported, if we have a look at the multinational companies in our close environment. These companies have representations, affiliated companies, partners in almost every region of every continent. It would be impossible to establish effective communication within these great companies with traditional letter writing. Traditional post is too slow and the telephone can fulfil restricted needs. For example, in the factory on one continent a

proposal is made on the modification of a product, that has to be sent in the morning to a factory situated on a different continent (Pfannenschwarz, Germany). The proposal is overviewed and the comments are sent back from the factory dealing with further assembling products within a few hours, plans are modified again with the help of these comments, remodified plans are sent for agreement late in the afternoon which arrives back in its final form late at night. The by-product factory can start making the new products or change over to the modified product.

Of course it would not have been possible to realize without electronic letter writing that ensures speed, makes it economical, easy to access, the easy use and archive of information. As it turns out from the descriptions e-mail can be used well for publishing information and discussing problems in all cases where there is objective emotion free communication. On the other hand, it carries on the deficiencies of normal letter writing originating from the restrictions of mode of expression. There is no possibility for the use of non-verbal elements, so it is absolutely not suitable in cases where verbal signals have an important role for example: discussion of personal questions [11]. It is especially important to pay attention for publishing of judging, criticizing opinion in e-mail, because it may easily give reason for misunderstandings.

In order to explain integrated company management systems go back to the development of computers, thus the change of inner organization of companies was in a close relation with the improvement of computers and software. At first function oriented programmes were made that performed some well algorithmed often repeated tasks like wage accounting, stockpiling etc. Once these procedures became well-known newer needs occurred for the total covering of each field with computer programmes. This way, in the stores, for example, not only stockpiling was followed by the help of computers but also the changes of supplies, out-incomings, moreover they were able to make statistics, forecasts different reports which supplied with useful basic data for supplies and production. The same can be said about finance, accounting and about the softwares carrying out the other functions of the company, they make their own field easier to perform and the other units of the company have an easy and quick access for the required information. An obvious need of a software that integrated all the separately existed programmes occurred, the softwares had to unite the previously separated programs in order to supply faster and more exact information transition and the access and recalling of data according to different views could be possible. It resulted in integrated software that are able to operate all the functions of the company. Widespread, payable and high-performance computers set up the possibility of the realization.

Thanks to the interwoven telecommunication and computer technology with this integrated company system software it does not mean a complicated task to view and follow the results of the factory working on the other part of the world. The improvement of cryptography makes it possible to get these data according to the requirements of modern times by the colleague – who has the appropriate rights – from everywhere at any time. More certain strategic decision making, up-to-date product development can be carried out with company data in hand. Concisely, the most important is the realization of effective information management, which is

essential for every company that wants to be successful in the world of globalisation.

The other way of communication points out from the company, keeping in touch with partners, customers, inquirers. Bibliography [3, 14] separates this activity into five parts: advertising, selling motivation, PR, personal sales, direct marketing. It is not an easy task to put the system consisted of computers and Internet as a new tool into one of these categories of business communication. It can be well applied for advertising, now that in Internet newspapers and magazines we can also place an advertisement like in a normal one. We can make a catalogue or publish a moving picture product demonstration for the inquirers. We can guide the user of the Internet through a virtual exhibition and can describe the advantages and the novelties of our product. We can please our guest with a present or product sample, or can invite him to a game.

The comparison of Internet and traditional communication shows that Internet communication contains elements from the tools of traditional communication. The question is whether it has its own typical characteristics that does not characterize any of the others and based on that we can state that we really have a new tool, not an integrated or modified version of previously available tools.

At the early phases of the use of Internet it was characterized by the transitions of previously known views and methods. After the software supporting the use of Internet became more perfect, easier to use, more effective and easier to learn their use, its special features were used more often. Graphical elements completed the firstly used characteristic display. The occurrence and spread of almost platform free HTML programming language gave a big push to the developments. It established the possibility of getting the information always in the right form independently from the computer of the user connecting to the Internet. First the users of Internet realized the interactivity of the new tool. When we are visiting a homepage of a company, for example, and we have some questions in connection with its products or activity, then we can let it know with the company or the expert of that field and we can be sure that we will soon get the answers for our questions. By the quick and professional answering of these questions the company can win the inquirer and becomes more appreciated. Not counting with the consequences of questions and notices which can be used at the planning of later strategies. Companies may start an own topic based forum – by the use of technical possibilities – at their own expenses, and this forum used independently from the borders of geographical place and restriction of time by the customers. Using these forums people of the same interest can exchange and publish their ideas, thoughts, experience, establishing the possibility of a brand new method of communication.

Companies producing (Atmel, Texas) and distributing (Codix) microelectronic parts, industrial units, for example, successfully operate a similar topic based forum like that. Their own customers have access to the previous comments, they can take active part in the discussion of the occurring questions and can raise question to the other participants of the forum. Partners and customers, above the help of the experts of the company, help each other in orientation and problem solving. Since, not only the experts of the company take part in the discussion of forum topics, but any of the members can intervene, information becomes more objective

and original. In return for the problems of operation the company can follow the success and duration of its products, can also survey in what extent the products are used according to their purpose. These are elementary information in order to manage the product, to form new strategies at the fields of improving and distributing it. The information available by this method would absolutely be not obtained or at least at the cost of serious difficulties with the methods of traditional market research. Besides caring partnerships, e-communication has another new feature that means making marketing research more effective. The operation of a topic-based company forum does not mean high costs of use and does not need any investment into expensive tools. This kind of application of Internet is the result of realization of needs originating from high interactivity. Software engineers were able to fulfil the needs of customers, taking the available hardware into account, without making any big efforts and within a relatively short time.

The company can be reached on its homepage in every hour of the day on every day of the week. It provides information, receives questions, notices and orders. In these days a lot of companies in Hungary have their own homepages where they inform the visitor about their activity and provide them with different services. Sometimes homepages of very famous companies are imperfect and are lacking for certain basic information and services, but the number and quality growth of homepages shows an increasing tendency. In the use of Internet techniques Hungary has not any deficiencies. According to the research of Carnation Research (September 2000), comparing the one hundred biggest companies we can conclude that there are 35% more homepages operated by the companies within the TOP100 than in 1999. In the spring of 1999 only 45 companies had appeared on the web that number increased to 61 by the spring of 2000.

So called electronic relations were established between business organizations which used EDI (Electronic Data Interexchange) to settle communication. EDI was developed to make commerce easier in the 1960's [5]. Standardization of commercial documents and procedures was the main purpose. Its precondition was to develop an electronic network for information transition between two companies. The use of EDI started in the USA in 1978. More and more branches of industry wanted to settle its use. The development of EDI standards needed great efforts and long harmonization. In 1985 the EDIFACT committee was formed, that worked on developing internationally accepted standards for computers, standards that all computers can equally understand, as a result of this the account formed standard was accepted in 1987. Communication was only realized physically through private networks. Only a few companies owned this kind of network, it obstructed – besides the standard syntactics – the spread of EDI technology.

A boom can be observed in the number of the users of technology in connection with the development of Internet in the 1990's. Internet provides a cheap network that can be accessed by everybody instead of the previously existed private networks. Wide spread TCP/IP protocol made simple and cheap access to the Internet possible. Unfortunately, because of the first private networks there were different EDI standards in use. Taking the consequences of EDI into consideration the ebXML was formed, that is a 'collection of specifications providing modular

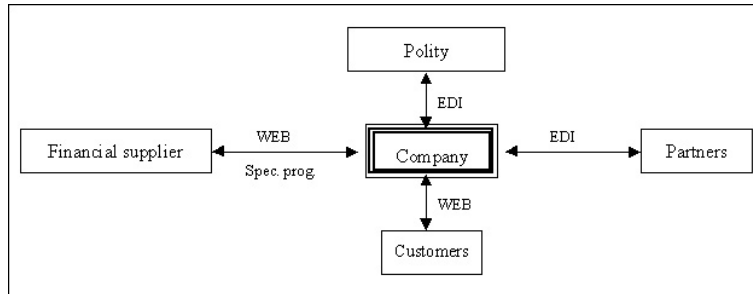


Fig. 3. Use of communicational surfaces at different types of interactions

e-business environment' in its concept. [URL:<http://www.ebxml.org>]. The point of the method is: the process of business – BOV (Business Operational View) – and the realization of the specification – FSV (Functional Service View) – are totally separated, it can be carried out by the application of a new prescriptive programming language – XML (Extensible Mark-up Language, XML 1.0 was introduced in February 1998). The application of ebXML was accepted (May 2000) at international level, which makes initiation of standard format business connections possibly independent of geographical situation. Future will answer to what extent this new trial is suitable for settling easier business communication. However, it is already proved [8] that companies can increase their efficiency and can decrease their expenses by the use of EDI. An overview of use of different communication platforms is shown in Fig. 3.

5. Afterword

Internet became a very important tool at the domain of business communication (We can state that it is essential). Internet, on the other hand, never works in itself, only with a network of computers. In case of computers, each company has to consider softwares and hardwares at the same time. At present the state of development, in case of hardware, is acceptable and provides a good basis for the application of a great variety of software. In case of software – in connection with communication – a significant development can be felt, which is particularly considerable at the field of integrated company management systems. Care has to be taken of the passage, compatibility of different programmes, without this information transition breaks down both inside and outside of the company. It is a personal view, that software will be in the focus of electronic communication from the system of Internet-hardware-software and new methods, such as artificial intelligence, are going to be used in the near future.

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