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NEW COMMUNICATION TECHNOLOGIES AS THE CHALLENGES FOR THE CONTEMPORARY CIVILISATION

Stormy development of new communication technologies determines deeply changes in business, social life and human beings. All these processes are on a global scale and make ground for new civilization: information- communication civilization. In this paper authors present theoretical and application aspects of new communication technologies, especially in the business area.

1. INTRODUCTION

The turn of the second and third millennium in the people's development is a time of the great economic and social changes.

With respect to economy, the main signs of changes are: a) macroscope market reorientation, b) the rationalization of economic competition rules, c) the acceleration of the economic innovations, d) the modification of the management strategy principles.

In society, the main signs of the changes are; a) developing consciousness of the priority of the civilization progress instead of economic progress, b) the active counteraction of the business environment against the pollution of the natural environment, c) thinking that information is the most valuable resource of social development (*The Global...* 1992).

In human development there appear intensive trends towards: a) the accumulation of theoretical knowledge and practical skills, useful in professional and private life, b) direct participation in public activities, c) the

highest humanism and the life aesthetics, using widely the advantages offered by advanced technologies.

All these processes are common and very profound. Individual economic decisions, social choices and private preferences can be insignificant, but their accumulating gives defined global effects. It rates spontaneously the new civilization shape of people development. It is the **information civilization** – as the defined state of the material and nonmaterial culture, which plays the part in the economic, social and human evolution in the long term.

The major part in the contemporary civilization processes, on the technical side is especially helped by the new business communication technologies.

2. BUSINESS COMMUNICATION

Business communication is the knowledge and application domain which links all goals, factors, activities, methods, media and systems, which serve for multi-platform information interchange between different personal and organizational objects in economic area: institutions, offices, enterprises, groups of interests. These objects have different economic, social and personal relations (Anderson 1987, p.37).

Business communication basic problems, analysed from the technical and technological point of view enabling efficient processes of the information sending and receiving, belong to business communication technology. This field has developed in the last decade very rapidly for two reasons. First, the business environments are open and very receptive to all technological news, which help their in the professional activities. Second, the communication technological market is developing very dynamically and offers more and more perfect hardware and software tools and solutions (Potts 1993).

We can observe here two main trends:

- a) „old” communication service exists with „new” technological execution;
- b) „new” communication service is based on „new” technological execution.

The media, which belong to the first trend deal with so-called electronical addition services in the narrow sense. It means the solutions, in which the communication medium, thanks to technical improvement, could play the basic role, works more effectively, „friendly” and tends the right way towards multifunction. The media, which belong to the second trend deal with so-called electronical addition services in the wide sense. It means the addition to the basic application of a really new kind of the communication service. It

does so by interfacing the different communication devices in one functional entirety, which serves an effective message interchange. It should be emphasised, that actually all new business communication technologies are computer technologies. Now we select and describe in brief several technologies, afterwards we will analyse some examples of the applications, as Fig. 1 presents:

No	Communication technology	Application field
1	Electronic data interchange	Electronic transactions
2	Tele(video)conferencing	Electronic negotiations
3	Information networks	Electronic services
4	Multimedia systems	Electronic education

Fig. 1: Application domain of communication technologies

3. NEW COMMUNICATION TECHNOLOGIES

New communication technology is a specific kind of the computer communication system in the economic-social environment, which is functioning on a macro- or microscale. The computer communication system is- in simplification- a structure of ordered elements, working on the common hardware and software platform, in general, in very advanced technologies operating, dedicated to different practical goals.

According to Fig. 1, we describe the following kinds of communication technologies:

1. Electronic data interchange,
2. Tele(video)conferencing,
3. Information networks,
4. Multimedia systems.

Electronic data interchange (EDI) is the technology of direct sending of electronic information, which are equivalents of paper documents, between computer systems of the economic partners, by using telecommunication networks. Technical and organizational standardization of the information carrier and the whole information interchange process is the base of the EDI functioning. EDI standards are observed in many areas of economic activity (the trade, the transport, the industry, the administration, etc.) and in territoriality (the country, the continent, the world) (Niedźwiedziński 1995; Hanna 1988).

In electronical exchange only the special documents take part- e.g. orders, bills, invoices. These documents record automatically the financial results of the transactions (debt, payment, settlement). Sometimes the regular files of business information are sent – from sender to receiver – by using electronic mail.

The sending and receiving of the information between the sender and the receiver application) can be operated in EDI technology by two means: semi-automatically (in hybrid way) and automatically. In the first way the sender and/or the receiver take direct part – they see the information being send and received. In the automatic communication the informations are transmitted between the applications without sender or receiver participation. They can, eventually, review executed transactions (from time to time) (Małachowski, Niedzielska 1994).

EDI intensive development could -entirely- change „the philosophy” of operating many market processes , especially the method of their operation, so called electronic transactions. We talk about this in a separate part of this paper.

Teleconferencing (videoconferencing) is a form of communicating between business partners in various locations, within the audio-video technologies or (and) computer technologies based on telecommunication networks (Steinbrink 1993). It is possible to use two main technologies:

1. Audio-video (TV, radio, videophones),
2. Computer based (videotext, e-mail, multimedia).

Today videophones and computer based technologies give usually a series of still images rather than a continuously movie (Cawkell 1993). Very important for transmission is the use of compression techniques to reduce the redundant information that has to be sent. The partners can participate in teleconferencing in two modes: directly, with connection point-to-point and indirectly the teleconferencing management centre. In business, teleconferencing is very useful for:

- data interchange within one organization,
- negotiation between the business partners,
- informal information interchange in relatively small group of business partners (conferences, seminars, meetings, discussions, interwievs, etc.).

One of the most interesting fields of application of teleconferencing is a distributed office. Messages that will be sent in this technology are: text (written and speech) and pictures (photo, sequences of pictures, movies) (Floyd 1991; Keller 1987).

Hardware in computer-based technology for teleconferencing includes strong and fast PC with the videocard, CD-ROM with biggest capacity, voice input-output devices.

To avoid relatively expensive applications teleconferencing is not popular in all kinds of business activity. Very likely fields of applications for teleconferencing in the future will be electronic market and electronic negotiations.

Information networks are very intensively developed contemporary communication technologies. Main function of these technologies is a message transmission from sender to receiver in public or private telecommunication networks (Awad 1988; Potts 1993; Floyd 1991). The development of information networks splits two technical streams: telecommunication technologies and computer networks technologies. The first includes such „traditional” technologies like: telephone, telegraph, telex, telefax. The second technology components are: computer networks, e-mail, EDI, multimedia.

Computer networks work by establishing the connection between two or more computers (terminals). Channels of communication are public or private communication networks (cables, wireless-radio, TV, via satellite). In practice we have two classes of computer networks:

1. local area networks (LAN), organized for short distance data interchange (an area up to 10 km),
2. wide area networks (WAN) operating in a country or continental and global territories.

More interesting class of WAN networks are metropolitan area networks (MAN) recently developed for communication over intermediate areas (e.g. between LAN's in the big city). Another one is the class of global area networks (GAN) linking computers in the whole world.

Multimedia systems – in brief – mean enriching primary computer „intelligence” with some additional possibilities in „seeing and hearing”. Multimedia technology integrates three fields (kinds of means): the computer hardware, desktop publishing technology, and commercial electronic (TV set, video camera, voice and music recorder) in a common medium used to the business information interchange (Steinbrink 1993; Carter 1992).

The main of contemporary business applications of multimedia systems are:

- organizational management,
- marketing and promotion of organization,
- simulation and computer special effects,
- market and information services,
- technical service and management of products,
- production control,
- personal skills and education,
- „archiving” of information (long term databases).

It seems, that we live at the start of dynamic development of this communication technology. The next step will be realization of the idea of „home telecommunication environment” with interactive TV, videophones and multimedia microcomputers.

Main communication channels in this technology are public or private communication networks (cables, wireless-radio, TV, via satellite).

4. THE APPLICATION FIELDS OF THE NEW COMMUNICATION TECHNOLOGIES

The described kinds of the technology have the following fields of the applications:

1. Electronic transactions,
2. Electronic negotiations,
3. Electronic services,
4. Electronic education.

Electronic transactions – as we call the market operations executed by the different economic subjects with the advanced technology of EDI application. Generally speaking, these operations relate to the production and distribution of different kinds of productive and consumer goods and services. Development of goods and capital markets globalization in the last decade caused the urgent increment of the international commercial and financial turnover. That process strongly increases the number of the paperless services in the form of the different settle, dispatch, transport, custom, tax, banking, and security transactions. Thanks to EDI the full service of market transactions is held in the economic virtual space; it means, it has no defined location and it operates without time limits- sellers and buyers can use it practically 24 hours a day and 7 days a week (Niedźwiedziński 1995; Małachowski, Niedzielska 1994).

Electronic negotiations – as we call the specific method of the economic partners communication in the different business problems by using the advanced technologies of the tele- and videoconferencing. The traditional way of business negotiations requires the direct, physical presence of all partners in the same place and at the same time. That requirement is hardly met when the communicating partners (negotiators) are geographically distanced. Although we have comfortable telecommunication connections and we can travel very fast, after all distance is still important planning and holding negotiations. We can observe that the global business phenomena are still increasing; the negotiations on the international and global markets are

very widespread. All obstacles could be eliminated in the electronic negotiations, which can profit by the possibilities of teleconferencing. It enables the direct, though remote contact between the communicating partners. The common negotiation table is replaced by separate conference studios, in which the negotiators take part and the settlements are carried out in the telecommunication space.

Electronic services – as we call the certain public services of a commercial nature, offered to potential buyers in remote mode, by using the special information networks. Electronic services give to the users not only the convenience but some kind of the processes of executing the professional duties, shopping, receiving the medical assistance, travelling, and so on. The public services catalogue has the following kinds of services:

1. Homebanking. These are the financial transactions operated by clients in the special banks („banks without the counters”) or electronically in the administration office without contact with „a live” clerk.

2. Teleshopping, means ordering the different goods, in remote mode, without direct contact with a salesman.

3. Healthcare services, means a new form of medical assistance e.g. in the electronic consulting cases of rare illness, telesurgery operation or the fast information about the transplant organs bank .

4. Travelling. Electronic services in this field give potential tourists many possibilities: search for new interesting places, comfortable hotels and restaurants with good service and relatively cheap food, good links of communication, reservation of tickets and so on, naturally, without „face-to-face” contact with the travel office.

Electronic education – as we call the education or the self-education process (professional or private) using both the computer and communication systems. We live now in a time of the very deep and fast social and economic changes, which are influenced by science and technology. They both help to gain and maintain of the knowledge in different branches.

Multimedia systems in electronic education are offered in two business environments:

1. „Active professionally” business environment, knows the direct correlation between the increment of the professional knowledge and economic development. First of all possibilities of permanent learning and training are addressed to the managers of middle level management: of course, this type of education is very useful for very high class specialists.

2. Temporary workers. e.g. unemployed, part-time, „contract” workers take part in different kinds of the electronic education; they want to increase their existing science or to gain new professional skills. Multimedia education

system is very effective, because shortens the time, extends the scope and variety and speed of the knowledge acquisition.

Generally speaking, electronic education has great importance as the acquisition, presentation, and knowledge accumulation technology for the needs of the economy and for the correct speed of the social development.

5. CONCLUSIONS

The problem of the relation between the new communication technologies and the economic and society progress is very wide and therefore difficult to cover in full one paper. Thus we – in one hand- have emphasized these elements, which in the business communication market are very new, on the other hand we have presented these fields, where the selected technologies have the most complete application.

Our analysis of the new communication technology influences upon contemporary civilization development has 4 conclusions.

1. The maintrends of the major economic and social changes have their „mirroring” in the tendencies of the common development of the information and communication technology.

2. The new communication technologies have applications simultaneously in economy, social life and in the private development of a person (and their self- realization).

3. The new communication technologies are the great hardware-software innovations, which can be treated as civilization challenges.

4. The increase in the structure and in the applications of the communication technologies, which can be observed at the turn of second and third millenium, creates the frame of the new **information-communication civilization**.

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