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COMPUTER SUPPORTED COOPERATIVE WORK SYSTEMS. CONTINUED EXAMINATIONS

Abstract: The article is the short introduction to the questions relating to the teamwork and software which supports collaborative work. The main goal of the presented article is the introduction to the forecoming research on a wide class of groupware software. In the article also a synthetic comparative analysis of the current research and the previous studies has been made. It allowed the author to draw certain conclusions of general nature concerning development trends that are taking place.

1. Introduction

The question of computer support of collaborative work constitutes the current research field which interests representatives of many disciplines, also those scientists who deal with economic informatics. However, it seems that the role of groupware and its computer support as the factor providing an enterprise with a competitive advantage over others is not fully appreciated by economy practitioners.

The objective of this article is the presentation of the most crucial terms of computer supported group-work, and especially presenting the most important research results concerning the problem of practical use of group-work support systems in Polish enterprises.

2. Basic definitions

We will begin our analysis from the presentation of several chosen notions which establish the basic terminological groundbase for the described subject matter. The most important term is **computer supported cooperative work (CSCW)**. This term was first coined by I. Greif and P.M. Cashman in 1984, at a workshop attended by individuals interested in using technology to support people in their work [Grudin

1994, pp. 19-26]. On the one hand, many authors consider that CSCW and groupware are synonyms. On the other hand, different authors claim that while groupware refers to real computer-based systems, CSCW focuses on the study of tools and techniques of groupware as well as their psychological, social, and organizational effects. The definition of Wilson expresses the difference between these two concepts: “CSCW is a generic term, which combines the understanding of the way people work in groups with the enabling technologies of computer networking, and associated hardware, software, services and techniques” [Wilson 1991].

Other names sometimes used for groupware include collaborative software (computing) or group support systems. **Collaborative software** is software designed to help people involved in a common task achieve their goals. Collaborative software is the basis for computer supported cooperative work.

CSCW systems can be divided into three basic categories: groupware, workflow management systems and electronic document management systems. The detailed division of systems can be found in the research study [Wójtowicz 2001, p. 309].

Mutual relations between the three basic categories of CSCW systems are presented on Figure 1.

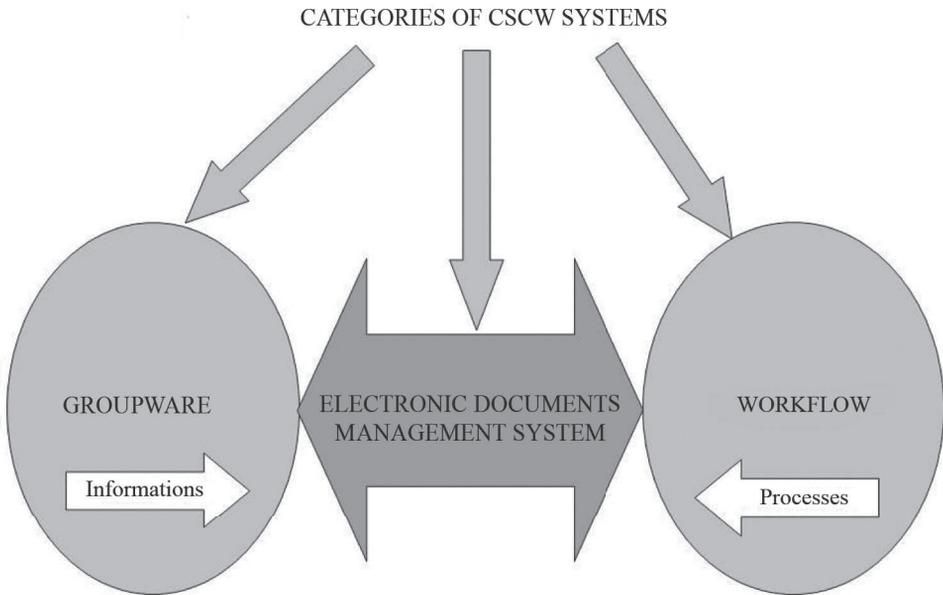


Figure 1. Categories of CSCW systems

Source: own study.

Groupware is a wide variety of information technology products, which is directed at supporting exchange of information between members of those groups. Within this category we can distinguish the following types of systems: mailing,

shared calendars, conference timetables, multi positional office packets, communicative and application platforms. Groupware is a tool that helps people work together more easily or more effectively. It typically allows them to communicate, coordinate and collaborate. Communication helps people share information, coordination helps people coordinate their individual roles with each other and collaboration helps people work together [Hills 1997, pp. 45-47].

The second category of CSCW systems is **workflow management systems**. These systems enable defining, creating and managing of workflow, therefore, they are directed at modeling and controlling of economic processes.

The third and the last of the abovementioned categories of CSCW systems are **electronic document management systems**. These systems are directed at both supporting exchange of information as well as automation of certain economic processes. Therefore, we can say that they establish a kind of bridge connecting systems for work groups and those which manage workflow.

CSCW systems can be used in many businesses which can be divided into two main groups.

1. Enterprises in which success depends on efficient delivery of data to its users (publishing media, film and music companies, training and distant learning companies, portals and online shops).

2. Enterprises based on knowledge (design offices, brokerage firms, investment offices, law firms, insurance companies, consulting companies, IT companies).

The abovementioned entities (and also others) can gain big advantages from an implementation of CSCW systems. The advantages can be divided into two major groups:

- direct cost savings connected mainly with lowering expenses for paper, document copying, and its distribution, etc.
- indirect cost savings concerning shortening time needed for task realization, faster access to information and increasing workers' efficiency.

It should be highlighted that gaining the abovementioned advantages is certainly possible, however, it needs to be remembered that there are many difficulties and obstacles that have to be overcome while implementing groupware support system in an organization. Apart from quite common, in case of information technology systems implementation, workers' resistance towards changes, we can also encounter additional difficulties of organizational and psycho-sociological nature during the implementation of new solutions as well as during their later exploitation.

3. Analysis of results

In this part of the article we will concentrate on the description of methodology of examinations and presentation of results.

The main objective of the research was defining the current state and development perspectives in the field of using computer software supporting groupware

and information management in medium and large enterprises. The research took place at the beginning of the year 2008. The researched entities are 41 enterprises of various trades located (or having their branches) in Lower Silesia. The research method was a questionnaire in the form of text editor which was sent by e-mail to the enterprises' representatives. The questionnaire consisted of five sections covering as follows: the characterization of the enterprise, profile of the person filling it, characterization of the software used for group-work, evaluation of the extent to which groupware software is being used, and evaluation of the development perspective for groupware software in the enterprise.

Now we will continue with introducing the detailed research results, partly illustrated by histograms. We will focus on the most important results concerning the characterization of an enterprise and types of the software used.

The main activity profile of over one third of the examined enterprises is production industry, almost 30% are services and the most of examined enterprises (over 36%) deal with commerce. Over half of the enterprises employ between 50 and 249 workers so they are medium companies. Over 75% of the examined companies operate in the whole country or on the international market.

The office software suites used in the enterprises and their proportional share is presented by Figure 2. As it could have been predicted, the biggest share of the office suites used has Microsoft and its Office. However, free OpenOffice, which has been present on our market for a relatively short time, is second with the share of 26%.

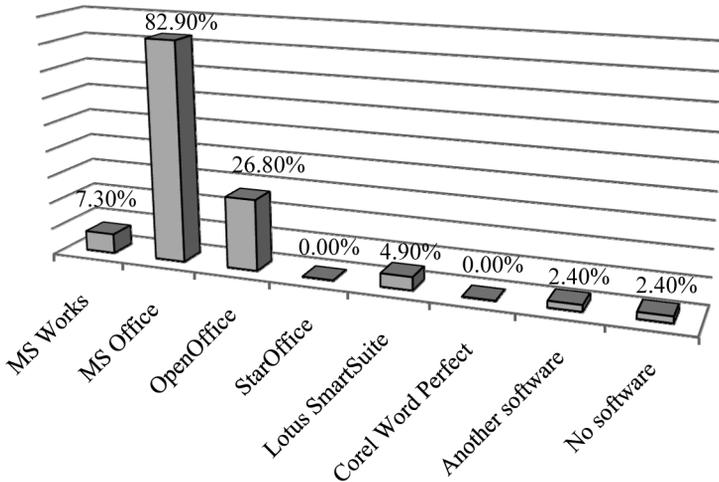


Figure 2. Office software suites used

Source: own study.

Figure 3 presents proportional share of communicative-application platforms. Almost 40% share in this software category belongs to Microsoft with its Exchange

system. What is characteristic is the fact that nearly one third of the examined enterprises do not own this type of software.

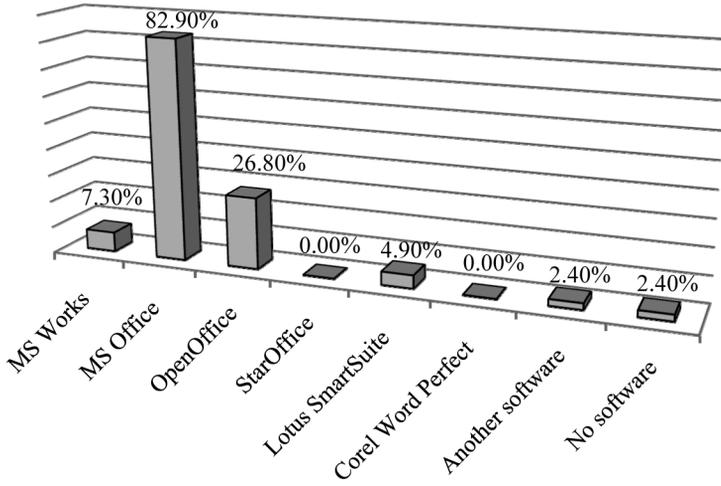


Figure 3. Communicative-application platforms used

Source: own study.

Figure 4 shows the structure of specialized software used in the enterprises. The most commonly used specialized software is the software used for files archiving, and the second is software used for documents scanning.

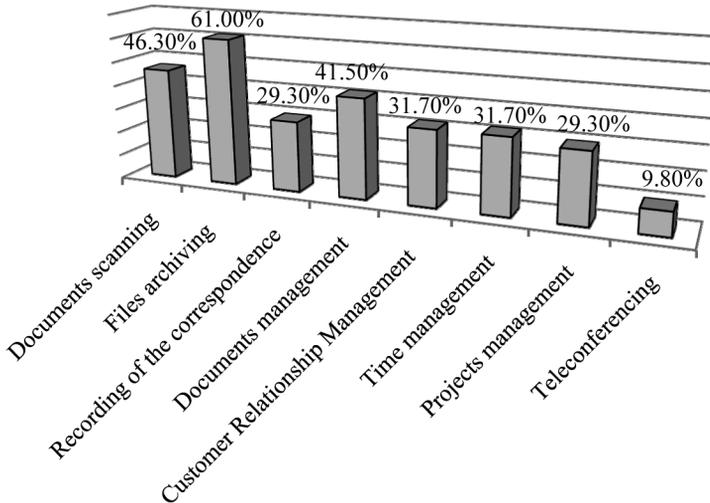


Figure 4. Specialised software used

Source: own study.

Figure 5 shows the proportional share of the systems supporting information exchange in the examined enterprises. It shows that the most popular solution supporting the internal information exchange in an enterprise is intranet. However, also substantial and technological development of intranet which is corporate portal is used in 26% of enterprises, which seems quite good result taking into account relatively recent launch of popular portal technologies.

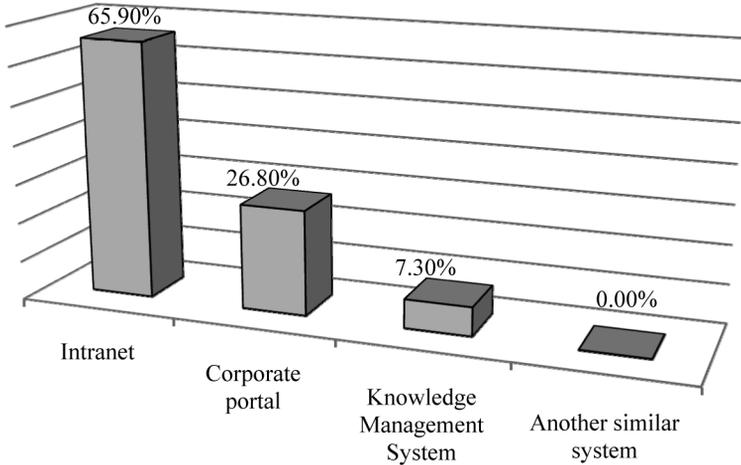


Figure 5. Systems supporting information exchange used

Source: own study.

We will continue now with presenting synthetic conclusions of the presented research results.

4. Conclusions

Comparing the results with the previous, initial study [Wójtowicz 2006, pp. 276-283] it can be stated that software supporting group-work is becoming more and more popular in medium and big enterprises. Office software suites, which producers try to substantially increase their functionality as far as work with documents is concerned, remain to be the software used practically in every enterprise.

Communicative-application platforms, often described as proper groupware systems, are also relatively frequently used. Previously the percentage of companies that did not own any communicative and application platform was almost 42%, and now it is only slightly above 31%. The share of MS Exchange has also increased significantly (currently 39%, previously 14%), which occurred mainly due to decreasing popularity of Lotus Domino/Notes platform (currently slightly above 12%, previously over 25%).

As far as specialized software is concerned the most popular is software used for archiving data and documents, and scanning, while the share of the latter one has decreased slightly. The biggest increase (by over 17%), though, has been noted in case of systems supporting contacts with clients (CRM).

Among systems supporting information exchange in enterprises still the most important place is occupied by solutions based on intranet technologies. The percentage of companies using corporate portals has also increased. Therefore, it can be concluded that those technologies are well-implemented in the examined enterprises and successfully used in routine activities.

Summing up the presented observations, it should be stated that the study results give basis to claim that modern information technologies, which certainly include systems supporting group work, are becoming present in Polish medium and big companies in a bigger extent. Only until recently in big multinational corporations and their Polish branches systems such as Lotus Domino and Notes were used. Currently the situation is changing, and the potential of the IT sector which deals with creating and implementing CSCW class solutions will certainly dynamically grow in the nearest future.

References

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