The Organizational Context in the Use of a Workflow System

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INTRODUCTION

Organizations try to implement technological solutions that will improve the handling of relevant information in order to be able to respond more effectively to the opportunities and challenges presented by the environment, as they are aware of the importance of learning and knowledge management. Among the solutions offered to achieve this improvement are workflow systems (WS). The adoption of a new technology always means change but the implementation of the same information system (IS), by different organizations, does not usually result in the same changes. This implies that there are some factors that mediate the relationship between the adoption of an IS and the organization where it is implemented.

This article begins with a brief description of WS, their major characteristics and potentialities. Secondly, it describes the main organizational factors that might mediate the relationship between the technology and the organization where it will be implemented. This is followed by the description of a case study conducted with the intention of understanding, in depth, the influence of the organizational factors identified. Finally, we draw some conclusions and point up some future research trends.

BACKGROUND

Workflow Systems

WS are defined as proactive systems that manage the flow of work, during which documents, information or tasks are passed from one participant (persons, other systems, departments or even enterprises) to another, according to predefined procedures, which constitute the tasks (Plesums, 2002; WfMC, 2003). The main focus of these systems is the way the work usually evolves, that is, the *process* and not the specific information that may be contained in it (or in the documents used as a support that circulate in the process).

There are several types of WS. The categories most commonly used are: i) Production WS (these support rigid predefined rules and are used in critical processes where nothing should be allowed to fail); ii) Administrative WS (mostly based in electronic mail systems, characterized by the routing of reports, adequate for routine and low value processes), and, finally, iii) Collaborative WS (these focus mostly on the sharing of information and therefore allow joint working, used in areas with more creative needs).

Companies are especially interested in these systems because they enable changes in several organizational domains, namely: I) Economic, ii) Process Management and iii) Knowledge and Organizational Learning (see Table 1) (Hales, 1997; List, Schiefer & Bruckner, 2001; Orlikowski, 1996; Plesums, 2002; Sarmento, 2002).

These changes, although presented in isolation, should be seen as interconnected. For instance, the automatic routing of forms and documents (coordination) helps reduce task completion time (productivity). Also, the standardization of procedures and the capture and the performance of tasks according to predefined rules (coordination) contribute to the reduction of the number of mistakes (productivity), since all possible situations are analyzed and allowed for in the system.

Organizational Factors

The adoption of a new technology is usually mediated and conditioned by several organizational factors, namely technological, structural, social and individual, political and cultural (Bertrand & Guillemet, 1988; Bolman & Deal, 1997). These factors are summarized in Table 2.

The adoption of a new technology is a continuous process, as not all organizational factors have the same influence at the same time. Furthermore, all the factors mediating the adoption of a technology interact with each other, influencing the effects of the adoption and use of new IT. Thus, the complex relationships between these factors must be analyzed in a dynamic way. A new technology changes the organization (its structure and/or the individual roles and tasks) through the new technological characteristics it conveys and helps to establish new power relations. However, these changes themselves are also conditioned by the characteristics of the existing structure and the individuals who will regulate the choice of the technology.

Table 1. Synthesis of the most important changes due to WS, in the different organizational domains

Domains		Changes
Economic	Productivity	• Reduction of task accomplishment time, number of mistakes, costs, paper volume • Better product and information quality
Process Management	Coordination / control	• Automatic routing • Division of work • Standardization of procedures • Performance of tasks according to predefined rules • Decentralization • Control improvement • Monitoring
	Collaboration	• Possibility of collaboration, amongst distant participants, in time and space • Possibility of working from home
	Communication	• Elimination of time and geographic constraints • Elimination of human barriers • Computer mediated communication
Knowledge and Organizational Learning	Knowledge	• Capture rules and procedures of processes and tasks • Gather, process and distribute information • Make quality information available • Contribute to the constitution of a partial organizational memory • Help update organizational memory easily

Table 2. Summary of the organizational factors able to influence the use of an IS

Technological factors	Characteristics of the technology to be adopted and the technology already existing in the organization
Structural factors	Organizational design, the complexity, the number of hierarchical levels, the number of departments, the centralization or decentralization of power and decision making, the coordination of tasks, the formalization of procedures, the design of tasks and jobs and the degree of specialization
Social and individual factors	Multidisciplinary work teams, their distribution in time and space, their education, training, work satisfaction, skills and individual characteristics
Political factors	Who decides on the kind of technology to adopt, its design and implementation, who is going to use it, its purposes and objectives
Cultural factors	Culture, norms, rules and the reaction to change, knowledge and organizational learning capacity

LESSONS FROM A CASE STUDY

We have conducted a case study with the aim to identify changes that occurred due to the adoption of a workflow system and the organizational factors that enabled and constrained such changes. Results are summarized in Table 3.

As already stated in the introduction to this article, organizational changes that occurred due to the adoption of a workflow system are influenced either by the characteristics of the organization itself and the nature of the technology adopted, or by the relationship that is established between all the factors involved that can act as constrainers or enablers. The following paragraphs describe and discuss the role of the organizational factors that acted either as constrainers or enablers of changes.

Constrainers

The use of the WS in this organization was not implemented entirely without problems. For instance, there was an employee that had difficulties in using the system, as her computer crashed constantly due to system overload. Besides, this person also had some difficulties in understanding the functioning of the system at the beginning. Especially problematic was the system requirement of formally finishing any purchase process by expressing satisfaction. This step, although relatively simple, was, in fact, creating some difficulties, and was seen as unnecessary.

The educational background of the employees, as well as the state of their previous knowledge of how to operate computers may also have constrained the use of the

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