

Promotion of Administrative Modernization through Processes Dematerialization

Liliana Ávila

University of Aveiro - Campus Universitário de Santiago, Portugal

Leonor Teixeira

University of Aveiro / IEETA - Campus Universitário de Santiago, Portugal

Pedro Almeida

University of Aveiro - Campus Universitário de Santiago, Portugal

INTRODUCTION

In today's information society, many organizations are looking for new approaches to improve the production, organization, handling and retrieval of information processes, using new Information and Communication Technologies (ICTs). The dematerialization emerges as one of the solutions, promoting clear, structured and transparent processes, especially when the problems are associated with the existence of documentation in paper format. It comprises a range of practices as, workflow and electronic documents management, aiming the elimination of inefficiencies caused by the circulation of information in paper format, as well as the elimination of resources associated with maintenance and retrieval of information in that format. The increase in productivity, which often results from processes dematerialization, comes from the decrease in the amount of time to perform the tasks, the effectiveness of human resources attached to those tasks, the quick access to information, and also from the improvement of communication flow between different services.

The dematerialization concept is not new and it is already implemented in some organizations, particularly in the Public Administration, but the scientific literature related with its implementation process is somehow unexplored. Thus, it happens that each organization makes their own interpretation of the dematerialization and adopts ad-hoc methodologies, since there is no common framework. On the other hand, the lack of a methodology to guide the implementation of dematerialization practices sometimes leads to the abandonment of the

project and consequently its failure. In technological terms, the paradigm is favourable. Currently there are some solutions strategically adaptable to the size, type and business challenges, using open-source technologies and, thus, making available to organizations low cost solutions. The popularity of these technological solutions (open-source) represents a way to reduce the initial investment by organizations, and may also offer advantages in terms of mobility and collaboration, so it can be a good ally to the implementation of this type of projects. However, despite this possibility, there are few organizations that benefit from administrative modernization through processes dematerialization.

This article aims to contribute to that knowledge area, providing a theoretical framework in order to clarify some concepts, methodologies and tools relating to promotion of modernization based on processes dematerialization and thus being able to help organizations understand the benefits and commitments that arise with its adoption.

BACKGROUND: DEMATERIALIZATION PROCESS

The Main Concepts Associated with Dematerialization

Generally, the concept of dematerialization can be defined as the process of scanning paper documents to obtain electronic documents, in order to eliminate

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the circulation of paper (e.g. the electronic invoice). According to Siatiras (2004), in the current context, the information is probably one of the most important assets in an organization and therefore its efficient management is very important.

The concept of electronic documents management describes the tools and processes associated with managing documents and records in digital format, allowing the decrease of some risks, such as the loss of time in finding the required information, the use of some outdated or incomplete data (Siatiras, 2004). An electronic documents management system is the software used to manage unstructured information (emails, images, spreadsheets, text) in a controlled and consistent manner. Some authors list several features associated with this type of systems, highlighting the fact that there is a central repository for all electronic documents, the ability to search through this repository, the more effective control of multiple versions of a document, as well as the use of a common vocabulary in the organization (a consistent terminology to describe the information). He also considers the existence of good security protocols to protect individual rights to access and edit documents, retention and automatic deletion policies, standardized classification structures and audit trails. However, the use of digital documents implies the existence of a substitute to the traditional signature, with assurance of integrity, authenticity, non-repudiation and notarization. In this context, it is essential the role played by the electronic signature.

However, the dematerialization process is not limited to scanning and managing documents; it also allows the organization to manage its workflow processes. Therefore, this concept refers to the optimization of circuits of information through technological applications, where the information is communicated and stored in digital format in order to expedite and facilitate the monitoring of processes, always ensuring the electronic documents legal value. Thus, it can be said that dematerialization results from the fusion between the concepts of electronic document management and workflow management.

Mentzas, Halaris and Kavadias (2001) and Hollingsworth (1995) define workflow as a set of tasks organized to perform a business process. In turn, a task can be performed by one or more software systems and/or carried out by one or more collaborators. Furthermore, a workflow defines the order or the conditions on which a task should be executed, its synchronization

and information flow. From this concept arises the workflow technology that enables an organization to automate their business processes more efficiently. A workflow technology distributes the work items by users, indicates how the task should be performed, tracks the progress of the work item throughout the process, and generates statistics on how different steps are carried out. According to Aalst and Hee (2009) a workflow management system is a generic software package that supports the management of business processes, taking into account its information logistics. The email is frequently used as a tool to share information between different people involved in the execution of a task. Every day each person receives in its email box lots of information and sometimes do not timely respond to requests. A workflow system is similar to an email box, but allows people to easily identify what is the deadline to perform a task, what information is needed and forward the information to the person responsible for the next task of the process. In other words, this type of system ensures that the right information is given to the right person, at the appropriate time.

On the other hand, Hammer and Champy (1993), experts in the field of reengineering, defined this concept as the rethinking and redesign of business processes, in order to achieve significant improvements in key performance indicators (KPI), as are, for example, costs, quality, service and speed. Achieving this goal requires, in most cases, the implementation of drastic changes and abandoning all pre-established procedures in the organization (Attaran, 2004; Aalst & Hee, 2009). Weerakkody et al., (2011) refer that the first projects developed in this area had a large failure rate and that process reengineering is often criticized for its radical approach. Nevertheless, these authors concluded that the accumulation of small improvements alone will not result in significant changes in the organization, so if we really want that to happen, it is essential start with a more radical step, such as process reengineering suggests.

As mentioned previously, the process reengineering is a concept closely related to the workflow system (Aversano et al., 2002; Hollingsworth, 1995). They are often confused, although they have different definitions. The term of workflow system, discussed above, is in general associated with the technology used for automating business processes. Thus, a company can automate their processes without conducting its

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