

Chapter 13

Workflow as a Tool in the Development of Information Systems

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ABSTRACT

This chapter proposes a cooperative methodology for information system (IS) development, focusing on the end user's collaboration in the process, providing the training and tools required to obtain the characteristics of the processes in which he/she is involved and actively integrating the user in the IS development team. Each of the steps involved in IS development is coordinated by a meta-CASE tool based on a workflow management system (WfMS). An important characteristic of the authors' methodology is the utilization of tools that allow to realize functions of reengineering to adapt existing systems allowing to add new functionalities or modifying the already existing ones. This methodology provides a high degree of reliability in the development of the system, creating competitive advantages for the organization by reducing times and costs in the generation of the information system (IS).

INTRODUCTION

Across the time, the organizations have improved according to new technologies, therefore it's been necessary to invest large amounts of money in the

acquisition of computer products, undoubtedly this has brought along many advantages, however, not like it would be expected, because in the majority of these organizations it's been automatized an amount of ordinary tasks in isolated ways, in other words, these are not interconnected, which leads to

DOI: 10.4018/978-1-60566-856-7.ch013

a non – optimal productivity in the organization. To avoid these kinds of problems it is necessary to make an adequate analysis and automatization process, which take us to a total integration from the processes conforming a unique automatized information infrastructure, and perfectly coordinated processes and resources, with the sole purpose to offer better services to the clients and to increase in this form the productivity of the business.

The complexity of information systems (IS) for business has now increased considerably, due to customer demands for a better quality of service. For IS to meet all the necessary quality requirements, their development must be based on a method guiding the whole process of development. Different tools, techniques and models have been created to facilitate system generation while attempting to prevent common problems associated to quality, cost and development time; to mention just a few: Métrica, RUP (Rational Unified Process) (Arlow & Neustadt, 2005; Booch, Jacobson & Rumbaugh, 2004), UML (Unified Modelling Language) (Booch, Rumbaugh & Jacobson, 2005), MDA (Model Driven Architecture) (Kleppe, Warmer & Bast, 2003). IS must satisfy the necessary quality requirements, for which their development must be based on a method guiding the entire process, from the definition of their requirements, a fundamental aspect of all IS, to their implantation. There is a growing need for information systems and technologies with the sufficient flexibility to adjust to the constant changes demanded by the environment. The new technologies must focus on managing large volumes of information from management systems integrated in a corporate platform, providing a global information model of the organisation and thus defining cooperative work models. It is very important to create cooperative methods to guide IS development in order to obtain high-quality, error-free and easy-to-maintain software tailored to the customer's needs, in which all the agents involved use the same tools to understand the entire product. Although there are some models, they do

not fully satisfy all the aspects of cooperative IS development, such as work teams including the end users and models enabling easy understanding of communications between different parts of the system, among others. The purpose of this chapter, then, is to present a cooperative methodology for IS development, using different technologies which can be linked to help companies guarantee customer satisfaction by providing the best possible service. We aim to active involve all the system's users, from managers to operators. Also, due to the rapid evolution of computer systems, the appearance of new platforms and the logical needs of future workflows, many systems either become aged or at least require maintenance to adapt them to organizations' needs. Software maintenance is not always possible, due to multiple difficulties, such as:

- Size and storage space constraints.
- The tools with which the system was created are no longer used.
- The changes made to the information system to adapt or improve it have made it less structures and less consistent with current specifications.
- Impossibility of contacting with the engineers who developed the system.
- Having used a traditional software engineering method based on supposedly correct specifications.

One solution for the problem is the use of re-engineering and reverse engineering techniques, examining and reconstructing the system in order to guarantee satisfactory communications between the users and the experts. Our method involving the user in system design and analysis, to adapt the specifications to current requirements and help both users and experts to obtain specifications of the system's external design and to define the workflows or functions involved.

The technology workflow and the systems of management workflow (WFMS) stems from

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