



Modelling business processes with workflow systems: an evaluation of alternative approaches

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Abstract

Effective business process management necessitates a consistent information flow between the participants in the process, the smooth integration of the flow of work, the timely sharing of data and information during the planning and implementation phases and harmonious support for the collaborative aspects of work. The recent trends in the development of advanced workflow management systems and technologies seem to be of crucial importance for facilitating these tasks within the process management context. However, workflow management systems (WfMS) follow various approaches in modelling the flow of work and hence present varying functionalities when supporting enterprise processes. The present paper examines the ways in which workflow technology may facilitate the implementation of process management, reviews the pros and cons of adopting alternative workflow representation techniques in modelling business processes and provides guidance to managers as to the characteristics, the similarities and differences of the various workflow modelling schemes. © 2001 Elsevier Science Ltd. All rights reserved.

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1. Introduction

Today's dynamic business environment is driving a new extended organisation, which competes globally focusing on low prices and customer customisation of products and services. As a key

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success factor for effective competing one could identify the management of core business processes, which deliver value to their customers, suppliers and internal staff. Thus by focusing on automating, optimising, and continuously improving the core business processes, organisations can make commitments to those customers, employees, partners, and suppliers establishing a solid competitive advantage.

Since the 1980s, Information Technology has provided a wide range of applications supporting automation and management of the business process. Workflow management systems (WfMS) are the most evolved of those applications providing consistent information flow between the participants in the process, smooth integration of the flow of work, timely sharing of data and information during the planning and implementation phases and harmonious support for the collaborative aspects of work.

However, WfMS follow various approaches in modelling the flow of work and hence present varying functionalities when supporting enterprise processes. The implications of these approaches to the real-world management of processes and projects are not always clear and transparent to managers. As the different techniques match more or less to different types of processes, managers have to identify which approach to adopt.

The objectives of the present paper are: to examine the ways that workflow technology may facilitate the implementation of business processes; to review the pros and cons of adopting alternative workflow modelling techniques in modelling the processes; and to provide guidance to managers as to the similarities and differences of the various workflow modelling schemes and their characteristics.

This paper is organised in the following manner. Section 2 of the paper reviews current approaches in WfMS, while Section 3 outlines the alternative workflow modelling techniques. Section 4 illustrates a comparison of applying the two major workflow modelling techniques in a case-study. The case refers to the project management of a multi-annual European Union (EU) Operational Programme for Greece. Finally, Section 5 provides the conclusions and lists issues to be taken into consideration by managers when examining the adoption and use of one or the other workflow modelling system.

2. Workflow management systems

The workflow concept has evolved from the notion of the process in manufacturing and the office. Such processes have existed since industrialisation and are products of a search to increase efficiency by concentrating on the routine aspects of work activities. They typically separate work activities into well-defined tasks, roles, rules, and procedures, which regulate most of the work in manufacturing and the office; see also Georgakopoulos, Hornick, and Sleth (1995); Agostini, DeMichelis, Grasso, and Patriarca (1994); Mentzas (1993, 1999); Swenson, Maxwell, Matsumoto, Sahari, and Irwin (1994) and Dinkhoff, Gruhn, Sallmann, and Zielonka (1994).

A workflow can be defined as a collection of tasks organised to accomplish some business process (e.g. processing purchase orders over the phone, processing insurance claims). One or more software systems, one or a team of humans, or a combination of these can perform a task. Human tasks include interacting with computers closely (e.g. providing input commands) or loosely (e.g. using computers only to indicate task progress). Examples of tasks include updating a file or

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