Chapter II
Web Information System Design Methodologies Overview

INTRODUCTION

In the previous chapter, an in-depth analysis of several methodologies used to model the business processes was provided. In detail, the analysis was direct to choose a specific methodology able to satisfy the requirement of simplicity and clarity needed for the design of the business processes.

In this chapter, the main methodologies of Web application design established into the international scientific panorama are presented. Each of these methodologies is characterized for its capability to suitably structure the informative contents and to define a navigational structure. These features allow the user an easy and intuitive navigation through the Web site contents, avoiding cognitive errors.

In a nutshell, these methodologies drive the designer in the project of the Web application. Many of these methodologies are born after the evolution of the simple sites into more complex applications that are in need of a specific design phase made before the technical development phase.

Between these methodologies in this chapter, we have analyzed WebML (Ceri, Fraternali, & Bongio, 2000), OOHDM (Schwabe & Rossi, 1998) and UWE (www.
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The IDM (Perrone, Bolchini, & Paolini, 2005; Bolchini & Paolini, 2006; Paolini, Mainetti, & Bolchini, 2006) methodology, which was established into the international scientific panorama and born as a natural evolution of W2000 (Baresi, Garzotto, Mainetti, & Paolini, 2002), is analyzed in more detail. IDM is a good starting point for the design task in the realization of a complex Web information system.

**IMPORTANCE OF THE DESIGN METHODOLOGIES FOR MODERN WEB-ORIENTED INFORMATION SYSTEMS**

The design is surely the core phase into the software development life cycle, and it allows for describing a complete vision of application requirements without focusing on development and technological detail. At the same time, the design is rigorous and formal.

The importance of the design into the analysis of the Web application is highlighted more than other kinds of application: in the development of a Web application, it is central to join the technical aspects and the user experience aspects.

The first generation of design methodologies considered the Web application as a display of static content, structured into a database, where navigational paradigm could be based on the relationship between the entities.

In a short time, the designers were aware that this content organization did not appeal to the user that became harder to please; thus, the introduction of a different kind of management of information content was essential. This new management was based not on the information structure, but on the user perception.

During these years, the designers discovered that, in order to make a good Web application project, different aspects must be considered; between these aspect, the information is surely the most important, but also the navigational and the transactional aspects must be properly considered during the design.

Thus, the “user experience” vision became widely accepted in the international scientific community. This concept allows focusing the attention on the dialogue between the user and the Web application.

In order to apply the user experience concept, it is essential to focus on the user; thus, the real application player is not the data but instead the way the users use these data.

The design methodologies of Web application are inclining to split the design into different “thematic” area and to focus the analysis every time on a different design aspect: the informative, navigational, and the transactional.

Indeed, very often, different analysis levels focusing on a specific aspect are present in these methodologies. This feature is common between the examined
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