

**Chapter XXV**

Audience-Driven Web Design

Olga De Troyer

Vrije Universiteit Brussel, WISE Research Group, Belgium

INTRODUCTION

Today Web-related software development seems to be faced with a crisis not unlike the one that occurred a generation ago when in the 1970s. Computer hardware experienced an order of magnitude increase in computational power. This made possible the implementation of a new class of applications larger both in size and complexity, the methods for software development available at that time were not able to scale up to such large projects. The “software crisis” was a fact with its legendary stories of delays, unreliability, maintenance bottlenecks and costs.

Now we seem to be starting to deal painfully with a corresponding “web site crisis”. Over the last few years, the Internet has boomed and the World Wide Web with it. Web browsers are the basic user platform of the Internet. Because of the immense potential audience, and because publishing on the web is in principle very easy, the number of web applications has exploded. Most of the web sites are created opportunistically without prior planning or analysis. Moreover, even large mission-critical intranet projects are being started without any regard for methodology. The resulting problems of maintenance and development backlog, so well-known in “classical” information systems, can easily be predicted and will happen on a much larger scale. Because web sites are almost by definition required to adapt and grow, and have to interact with other sites and systems unknown at the moment of creation, these problems will also be much more complex and severe.

In addition to the predictable maintenance and development problems, a new problem unknown in classical information systems has emerged: competition for the user’s attention. Especially for commercial web sites it is important to hold the interest of the user and to keep them coming back to the site. If for some reason visitors are not satisfied with the site or cannot find (fast enough) the information they are looking for, there is a high chance that they will leave the site and not return. Much more than in “classical” software systems, the usability of web applications are primordial for their success.

A new discipline of *web engineering* is required, to provide structured approaches for design, development, interoperation and maintenance of web applications. A number of researchers have already recognised the lack of design methods for web sites, or more in general for web-based information systems. They have proposed methods:

- HDM (Garzotto, Paolini and Schwabe, 1993) and its successors (Garzotto, Paolini and Mainetti, 1993) and OOHDM (Schwabe and Rossi, 1995), (Schwabe et al., 1996; Schwabe and Rossi, 1998);
- RMM (Isakowitz et al., 1995);
- W3DT (Bichler and Nusser, 1996);
- the method for analysis and design of web sites in (Takahashi and Liang, 1997);
- SOHDM (Lee et al., 1998).

Older methods (HDM, RMM) were originally designed for hypertext or hypermedia applications and do not deal comfortably with web-specific issues. In addition, these methods are very much data-driven or implementation oriented. Some have their origin in database design methods like the E-R method (Chen, 1976) or object-oriented (OO) methods such as OMT (Rumbaugh et al., 1991). These methods may be able to solve maintenance problems to some extent, but they do not address the typical usability problems mentioned above.

WSDM, or Web Site Design Method (“WiSDoM”) is a new approach (De Troyer and Leune, 1998; De Troyer, 1998; Goedefroy et al., 1998) for designing web sites. Rather than taking an organisation’s data or database as a starting point and wondering how all of that should be displayed on the Internet (the so-called *data-driven* approach), WSDM takes as a starting point the needs and requirements of the intended audience(s) of the web site. This approach we call *audience-driven*¹. WSDM gives consideration to the fact that the target audiences of a web site may be composed of different “kinds” of visitors/users. Different kind of visitors may have different requirements (information requirements as well as functional- and usability requirements). Therefore, the target audiences are classified into *audience classes*. Each audience class has its own requirements and characteristics that may need to be reflected in the content of the site (not all information is relevant for all users) as well as in the “interface” of the site (like the language and jargon used, the look-and-feel, the existing browser capabilities, etc.). Each audience class will be targeted in an appropriate way by the site. This approach leads to web sites that are better tailored to these visitors’ needs and, therefore, may have a higher usability and greater satisfaction.

We also make a clear distinction between the conceptual design (which is free from any implementation detail) and the design of the actual presentation which takes into consideration the implementation language used, the grouping in pages, the use of menus, static and dynamic links, etc. This distinction is similar to the distinction made in database design between the conceptual schema, for example, an E-R schema (Chen, 1976) or Object-Role schema (Halpin, 1995) and the logical schema (e.g., a relational schema, Date, 1990). This distinction has proven its usefulness for more than fifteen years. This distinction also allows us to propose a method for web site design which is not biased by the diversity and rapid growing obsolescence of the web technology as well as by current implementation limitations.

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