Evaluation of Web Portals

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INTRODUCTION

Evaluation of Web portals is an important issue in Web engineering, taking into consideration the Internet explosion and the exponential growth of Web sites and online information sources. Web portals present nowadays a significant variety of features, complexity of structure, and plurality of offered services. It is therefore important to adopt evaluation frameworks that go beyond the simple assessment of the different operational aspects of Web portals, and that address issues such as quality monitoring and analysis of the assessment results, in the direction of interpreting the factors that affect users' satisfaction. Moreover, there is also a need for supportive evaluation methodologies that can integrate the results of the assessment of every portal aspect being evaluated, and provide measurable, synthesized results to the key decision makers (being either those financially supporting the service or those involved in the design, development, operation, and/or exploitation of the service) aiming to facilitate the improvement of the offered services.

In general, a Web portal offers a variety of services in a continuing development and therefore, it is desired to adopt an evaluation methodology that allows for monitoring the progress of performance over time, and identifying weak aspects that could be enhanced along with strong aspects that could be taken advantage of. Hence, a challenging objective in the evaluation process of a Web portal is setting up an assessment methodology that allows the calculation of a set of monitorable *quality performance indicators* to be defined, and provides the key decision makers with a dynamic, flexible, and scalable framework for their analysis.

The main objective of this article is to study the issues previously introduced by adopting a quality-oriented approach in Web portals evaluation. Such an approach considers the Web portal as the *product* and the user as the *customer* of the Web portal services and focuses on the analysis and assessment of the multiple Web portal features that affect the overall user's satisfaction, whereas it allows contextualization both in terms of services in use and in terms of user group categorization.

BACKGROUND

Web Portal Elements

There are several generic definitions of a Web portal in the recent literature mostly defining Web portals as a gateway to information or Internet services providing a single point of access to information. Others also address the communication and community aspects of Web portals. In general, Web portals are defined as a general breed of Web sites offering a blend of information, applications, and services (Tatnall, 2005).

A key step toward defining a well established evaluation framework for Web portals is the identification of a set of common elements (or components) that most portals have at one degree or another and the definition of the most important dimensions (or characteristics) of each of those elements. Based on a careful review of the literature, we identified the following four main elements of Web portals and analyze them in their most important dimensions.

Content is identified as the first important element of Web portals. The content-related component of a Web portal may include a number of different aspects to be taken into consideration such as:

- **Content Organization:** This aspect refers to the categorization of information so as to enable efficient search and retrieval.
- **Content Creditability:** This aspect refers to the trust and reliability of the information and the content provider, and has multiple facets such as the accuracy and clarity of the content, and the trustworthiness, recognition, and reputation of the content author or provider.
- **Content Usefulness:** This aspect concerns the use of appropriate language, focus, and usefulness of information according to the needs of the directed audience.
- **Content Integration:** This aspect concerns all content services related with the integration of external sources of information and the provision of links to external resources.

Design is the second important element of Web portals. Closely related with the basic principles of generic Web design, this element consists of several important dimensions. Some of these dimensions are more related with the Web portal architecture design and some with the technical development and integrity of the portal:

- **Information Architecture:** An important aspect concerning several issues related with organizing information in the portal (structure, grouping, and labeling of information) (Ivory & Hearst, 2002; Rosenfeld & Morville, 1998).
- **Usability:** An equally important aspect in Web design, addressing all issues related with the interaction and navigation of the user in the portal (Nielsen, 2000; Pearrow, 2000).
- **Graphical Design:** It can be considered as a separate dimension of a Web portal design since it should be subject to periodical revisions and redesigns from time to time with the minimum possible effect to the portal operation.
- **Technical Integrity:** The dimension concerned with proper operation of the Web portal services and the satisfactory performance of the overall services. It addresses several issues related with the technical performance such as availability and download times, stability of system, compatibility with different browsers, broken links, etc. (Ivory et al., 2002; Shedro, 2001).

Personalization is another element specifically highlighted in the context of Web portals. It can be examined at three different levels:

- **Personalization of Navigation:** All issues related with the adjustment of the navigation mechanisms and functions to the needs of individual users.
- **Personalization of Information/Content:** All issues related with notifying users about new relevant content and providing them with information tailored to their needs and preferences.
- **Personalization of Interface:** All issues related with the adaptation of the interface to the needs and preferences of the users and the properties of their equipment.

Community support is another essential element of a Web portal. Tools and services that allow virtual community building by providing users with similar needs and interests with communication and collaboration tools (e-mail, discussion forums, chats, audio/video conferencing facilities, message boards, newsgroups etc.) that enhance the community bonds.

Web Portal Stakeholders

As previously identified, there are a number of key elements comprising a Web portal. Each element is related to different and diverse dimensions, so it is important to take into consideration all these elements and their dimensions during the process of evaluating Web portals. On the other hand, it is equally important to take into consideration the variances in focus and importance of each category of actors that are involved in the development and/or operation of a Web portal. The main stakeholders in the development and operational life cycle of a Web portal:

- **The Portal Policy Makers and Funding Team:** The actors responsible for defining the Web portal objectives and for providing the resources necessary to design, develop, and operate the Web portal.
- **The Portal Senior Management Team:** The actors responsible for the management of the teams involved in all aspects of the portal's development and operation.
- **The Portal Technical Development and Support Team:** The actors involved with the design, development, update, and proper functioning of the portal services from the technical perspective.
- **The Portal Operation Team:** The actors concerned with the content selection, development, and provision for the Web portal. Moreover, actors related with other specialized services offered by the portal such as a help-desk service.
- **The Portal Dissemination and Exploitation Team:** The actors related with the marketing aspects and commercial exploitation perspectives of the Web portal.
- **The Portal Users:** The different categories of end-users, the final "customer" of the Web portal.

EVALUATION FRAMEWORK FOR WEB PORTALS

Evaluation can be viewed as a continuous, interactive process, which concerns all key actors in Web portal design, development, maintenance, operation, and exploitation aiming at the identification of the strengths and weaknesses of the portal services toward taking strategic decisions about further enhancements or developments. The diversity of the different design considerations for Web portals, the multiple features and functionalities required, and the variety of context in use and end-user groups call for a flexible and analytic evaluation framework. Such a flexible evaluation framework should achieve the following goals: