Choosing the “Rightweight” Model for Web Site Quality Evaluation¹

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Abstract. One of the most critical decisions in a quality evaluation project is to establish the level at which to analyse the characteristics of the Web sites. This choice should be driven by the underlying goals of the evaluation. Scalability and flexibility are thus desirable features of the models used to evaluate the quality of a Web site. In this paper we describe two separate studies of Regional Tourist Boards in the Alps that were conducted using the meta-model 2QCV3Q. Specifically, we will show that the results of the first study - based on a lightweight model - are consistent with those obtained with the more detailed heavyweight model in the second study.

1 Introduction

To use a frequently cited metaphor in methodologies for software systems development, this paper aims to deal with the problem of choosing a “weight” for the model to be used to evaluate the quality of a Web site. In the software engineering field this implies comparing and choosing between lightweight (often called “agile”) and heavyweight methods [2]. The right question is not so much which of the two approaches is the better, but rather which method has the “right” weight for a given project. Several models and frameworks for evaluating the quality of Web sites currently exist.² Nonetheless, it would be useful to have a theoretical reference framework or meta-model to serve as a conceptual schema for the quality criteria used in an evaluation project. This framework must therefore be (a) scalable, to allow for an evaluation at varying degrees of detail, based on the “evaluation purpose”, the sponsor’s requirements and the user’s needs (see for example [7]); (b) domain

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² An extensive bibliography is available at <http://www.cs.unitn.it/WebSiteQuality>.

independent, applicable in diverse sectors, from the tourist sector to non-profit organizations, from service companies to the public administration; (c) general purpose, whether corporate or individual, educational or for electronic commerce (B2B, B2C, etc); and (d) user-friendly, to facilitate its comprehension and application by people with different skills. In studying the need for and possibility of having a common conceptual base for the evaluation of quality in Web sites, we will refer to the 2QCV3Q framework, which we developed using classical rhetorical principles [4] and which can be seen as a meta-model for classification of diverse criteria for Web site quality. The results of the evaluation projects realised thus far have shown that it indeed satisfies the requirements listed above. More recently, we have used the 2QCV3Q meta-model to carry out two studies of the quality of the Web sites of Regional Tourist Boards (RTB) in the Alps, having different objectives and the sites included in the first group were a sub-group of the second.

2 Evaluating the Quality of Web Sites of the Regional Tourist Boards (RTB) in the Alps

In our Web site evaluation projects we refer to an original framework, or meta-model called 2QCV3Q (in Latin *V* stands for *U*), which takes its name from the initials of the Ciceronian loci of classical rhetoric that it is based on [1], [6] (table 1). Using the Ciceronian loci made it possible to identify the fundamental dimensions of a Web site, resulting in a general framework of the “quality models”, which is independent of the sites under analysis. For purposes of this paper, the most important activity is the "instantiation" or calibration of the 2QCV3Q meta-model (also called 7Loci), which gives as output the specifications of the characteristics for each *locum* and determines the level of detail at which each dimension must be analysed. From a project management point of view, the "weight" of the resulting model determines the resources (time and financial) necessary for the evaluation project. For this reason it is very important to adapt the evaluation method to the different projects, tailoring it to their goals.

Table 1. Dimensions of the 2QCV3Q (7Loci) meta-model

QVIS? (Who?)	Identity
QVID? (What?)	Content
CVR? (Why?)	Services
VBI? (Where?)	Location
QVANDO? (When?)	Maintenance
QVOMODO? (How?)	Usability
QVIBUS AVXILIIS? (With what means?)	Feasibility

To evaluate the quality of the Web site of the (public) tourist boards is the principal objective of one line of study of a triennial research project on tourism in the Alps

(www.cs.unitn.it/etourism/). In this context we realised two different projects evaluating Web site quality; in short, the aims for each project were, respectively:

1. to compare the principal Web sites of the alpine regions, to identify possible benchmarks [3];
2. to identify guidelines and recommendations for the design or re-design of the Web site for a tourist destination [5].

Both the projects were carried out with a consideration that the tourism offering in the Alps is based on the activity of hundreds of small- and medium-sized enterprises (SMEs) and focusing on the importance of the “do it yourself” tourist. In such a context, we focused on the Regional Tourist Boards (RTB). Scouting the official alpine RTBs' sites we identified 26 Web sites distributed as follows: 7 in Italy, 8 in Austria, 6 in Switzerland, 3 in France, 1 in Slovenia (the national Tourist Board site was considered, given that there are no RTBs) and 1 in Germany.

Starting from a consideration of the role of the RTBs, the general aim of the first quality evaluation project can be formulated as follows: “to analyze the diffusion and practical application of DMSs in the alpine tourist regions in order to identify the best RTB Web sites, taking into account both organizational and technological aspects”. Considering the purpose of the evaluation and the results of a preliminary survey of the RTBs, for the first evaluation project we used a standard model that instantiated the 7Loci meta-model as a table with 24 questions, from 3 to 6 for each dimension (excluding in this phase the last dimension – feasibility). The table was adapted from one used in projects with similar objectives and constraints. In addition, each question was assigned a weight that reflected its importance. We focused on ten RTB sites (Tirol, Ticino, Valais, Zentralschweiz, Freiburgerland,³ Piemonte, Valle d'Aosta, Trentino, Alto Adige, Veneto). As regards the evaluators, we involved four experts in the tourism sector, two of whom were also expert in marketing, one in statistics and one in quality evaluation.

Given the aim of the second evaluation project - to identify guidelines and recommendations for the design or re-design of the Web site for a tourist destination – in the first part of the research we gathered more information on the needs of the “do-it-yourself” tourist and those of other categories of users (local operators and tourists, as well as the professionals and technicians involved in designing and maintaining the Web site). We then analysed and classified - following an iterative approach - the requirements on the basis of the first six dimensions of the 7Loci meta-model. Then we reformulated them as Boolean questions, resulting in a detailed model to support the assessment of the quality of the Web sites of these organisations. The end result was a table with about one hundred “elementary” questions for the dimensions of the 7Loci framework and as such it represents a “heavyweight” model in respect to that used in the project described above.

³ A deeper analysis of tourism data for Freiburgerland showed that the alpine sector played only a secondary role, and was therefore not included in subsequent studies.

3 Comparing the Results of the Light-Heavyweight Models

Both evaluation projects revealed that the quality of the RTB Web sites is vastly different from one region to another. The nature of the evaluation tables used in the two projects differs greatly. However, in the comparison of the nine sites examined in both projects, the difference in scores using the two models were modest, with only one site shifting two positions while the others change only one or remain unchanged (table 2). Also more accurate comparisons showed that the two models divide the sites in a largely coherent and homogeneous manner (comparison results are given in [6]). The results obtained with the standard/lightweight version of the model in the first study are consistent with those obtained with the more detailed heavyweight model in the second study.

Table 2. Ranking of the sites

	Average scores for the dimensions		Ranking		Delta ranking
	2002	2001	2002	2001	
Canton Ticino	0,81	0,76	1	2	1
Tirol	0,80	0,86	2	1	1
Trentino	0,73	0,75	3	3	0
Alto Adige	0,70	0,68	4	6	2
Valais	0,70	0,74	5	4	1
Valle d'Aosta	0,66	0,72	6	5	1
Zentralschweiz	0,56	0,63	7	7	0
Piemonte	0,52	0,44	8	9	1
Veneto	0,46	0,57	9	8	1

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