

Quality Modelling of Web Portals

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Abstract

Web Portals appeared in the late 1990s as a new type of Internet website construction specifically designed to provide adapted online services.

Several quality models especially for portals, have been published categorizing different dimension. The success of Web portals depends on their ability to provide precise content and useful services specifically tailored to individual users according to their requirements. They do not take the account of the same portal physiognomies. For success the web portal, a quality model highlights the relevant property of a web portal and specifying how to measure them as requirement. From the software point of view there is a widely accepted standard proposed by ISO/IEC (the ISO/IEC 9126) which proposes a quality model for software products. The important thing is that highlighting a relevant property of relevant web portals, and also tells how to measure them. The Chosen criteria are easily comprehensible to the users and therefore web users can easily access them. Furthermore this model could be helpful for web developers to improve the quality of a web portals from users point of view. In this paper a brief overview of some proposals of web portal quality is presented.

Keywords: Data Quality, Information quality, web portal.

Introduction

Web Portals is defined as “a web site that offers a broad array of properties and services, such as communication, forums, search engines and on-line shopping malls (Webopedia, 2005). Quality is Meeting and /or Overdoing Customers’ Probabilities etc. The quality means that no one is compromising with any second

rate, it means that all the users should get the same quality of web portals. They provide personalization, single sign on and content aggregation from different sources (Java Community Process, 2003). Several quality models, specifically for portals, have been broadcast, isolating different dimensions. They have not taken the same portal personalities. Since organizations throughout the world invest time and money in order to develop and maintain users' perceived websites, gauging their quality is necessary to understand whether websites comply with the user needs and expectations (Grigoroudis et al. 2008). A Web portal is defined as "a Web site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and on-line shopping malls (Webopedia, 2005)". According to (Marshak and Seybold, 2003) portals can be divided into generations like first initiation, second generation other initiation. The portals have only the relevant content of websites.

DQ/IQ, Frameworks on Web Portals

The notion of DQ has been widely studied in prose and is commonly approached as a multi-dimensional concept (Wang and Strong 1996; Redman 2000; Cappelletto et al. 2004; Gertz et al. 2004). We can, furthermore, observe that various DQ attributes have been proposed, according to an author's philosophical view-point (Knight and Burn 2005). There is usually more than one classification, even when narrowed down to a specific field or branch. According to Juran and Gryna (1988) quality is "Fitness for use". Reeves and Bednar (1994) suggest that quality has four different roots of definitions:

- Quality is Excellence
- Quality is Value
- Quality is Conformance to Specifications
- Quality is Meeting and /or Exceeding Customers' Expectations

Works for dissimilar areas in the Web environment were selected. Among these are: data integration (Naumann and Rolker 2000; Bouzeghoub and Peralta 2004), e-commerce (Katerattanakul and Siau 2001), Web information portals (Yang et al. 2004), cooperative e-services (Fugini et al. 2002), judgment making (Graefe 2003), organizational networks (Melkas 2004) and data quality on the Web (Katerattanakul and Siau 1999; Eppler et al. 2003; Gertz et al. 2004; Moustakis et al. 2004). As a result of this review, it was possible to define a basic set of one hundred DQ attributes suggested for different domains in the Web. According to the ISO standards there are

different goals of quality :both Internal and External.In the domain of a web portals if a user is not feeling safe to use then it is difficult for them to achieve their objectives, whereas in web portals if a user does not feel safe then they can switch to some other web portals and it may disappear therefore. According to ISO standards there are three different types of views to evaluate the quality of websites are identified :usersview,developers view and the managers view.

The first view is the users view so we have to design it in keeping mind that how it will appear to the user.The user view should be in the way that all the users can easily do their work without any of the misunderstanding. Users should also get the accurate results.The second view is the developers view the quality based on the implementation characteristics of web site,such as functionality,efficiency,maintainability and portability. The managers view approach evaluates the quality of web sites based on the economic criteria as cost and productivity.These last approaches draw an internal quality perspective(Signore et al.,2005).They do not require the involvement of a general users.

Proposals of Data Quality dimensions

There are different DQ proposals, the most widely handled proposals are given below:

In (Wang and Strong,1996),has amassed nearly 179 different data quality dimensions from the survey of user point of view.Author selected only 15 different sizes among all.Later these dimensions are grouped into four different categories such as Intrinsic,Accessibility,Contextual and Mimetic

The data quality is often defined as “fitness for use”,i.e,the ability of collection of data to fulfill users requirements.

- Intrinsic DQ:it means that what degree of care was taken in the creation and presentation of information.
- Representational DQ: It means that what degree of care was taken in presentation and organization of the information for users.
- Accessibility DQ:It means that what degree of freedom do users have to use the data,define and/or refine the manner in which information is inputted,processed or presented to them.

- Contextual DQ: It means that what degree does the information provided meet the needs of the users.
- Service interaction quality: This encompasses service quality constructs, trust, personalization and access to the organization (Herrera et al., 2007).

In (Naumann, 2002), the author initiates four unlike categories of DQ dimensions that play an important role in cohesive web information system. Those four categories are as follows: content related, technical, intellectual, instantiation-related measures. Out of several measures, some measures will be more important for a particular application domain than other criteria to attain high quality of data.

In (Lee et al., 2002), in this proposal, the authors consider a number of DQ scopes that can be used to consider the DQ. While this proposal does not contain any model or framework, the scopes discussed here are shown to be of particular interest and importance to many organizations. The proposed dimensions are as follows: free of error, completeness, consistency, believability, and applicable amount of data, properness and accessibility.

Need of quality models

A quality model can be used to understand, control, recover a product or a process. For example,

1. To determine a baseline for comparison (for example, determining the current levels of usability of a product before moving to the following release).
2. To assess the progress (for example, benchmarking the espousal of a new technology in the product)
3. To envisage certain attributes from others (for example, envisaging reliability -- mean-time-to-failure -- from convolution).

DeMarco's [1982] statement in the context of (early 80's) software engineering applies equally well to nowadays website engineering: "you cannot control what you cannot measure."

Quality Models:

Eminence is known as the property of a product (i.e. it applies to the same entity, like the website, or some prototype, or its information architecture) defined in terms of a

system of powers, like readability or combination. Finally a number of measurement methods have to be defined in order to assess the attributes that a certain product possesses. These aspects taken together are called quality model (Fenton and Lawrence Pfleeger, 1997). A quality model may involve a lot of interdependent attributes and has, of option, to take into account the particular usage of product for which quality is being molded.

Importance of quality models

A quality model can be used to recognize, control and increase a product or a process.

- To determine usability complications; or perform the bottlenecks.
- To determine a baseline for assessment.
- To assess the progress.
- To predict certain attributes from others.

De Macro's (1982) statement in the context of (early 80's) software engineering applies equally well to nowadays website engineering. "you cannot control what you cannot measure".

In (GQM: Goal-Question-Metric - Basili and Weiss, 1984), this is a useful scaffold to guide the designation of a quality model which is based on three steps: list the major goals of the enlargement or preservation process, derive from each goal the questions that need to be answered in order to determine if the goals have been met, decide what must be measured in order to answer the questions and how. The goal and questions determine the quality factors that are more important and those that should be discarded.

Conclusion

Web portals are requests, which have, over the last decade, established their position as communication sources and/or as a means of accessing information. Of course those who look for information by means of these portals need some means by which to ensure that this information is indeed suitable for the use that they require. In other words, they really need to assess the level of the quality of the data obtained. However, within the literature studied we have found no specific proposals for data quality models for Web portals. Conventional approaches are based on crisp set, which are useful for precise data. But data attributes of web portals are imprecise and

ambiguous. Conventional approaches can't deal with indecision. Fuzzy approach allows for representation of imprecise data. A better approach is needed using fuzzy membership function. Fuzzy techniques can manage the elusiveness and ambiguity efficiently. Fuzzy Logic is a mathematical tool for dealing with uncertainty and also it provides a technique to deal with roughness and information granularity. Fuzzy logic deals with fuzzy sets. A fuzzy set or subset is a simplification of an ordinary or hard set. The domain belonging function is fixed, usually the set of real numbers.

Future Scope

As future work, we will present the expansion of a process through which to obtain of a set of attributes for web portal DQ, which emphasizes on the data consumer's point of view. The process will have been built by using three basic elements: a set of Web DQ attributes found in the relevant works, DQ prospects of data consumers on the Internet, and the functionalities which a Web portal may offer its users. Our set is collected of some DQ attributes which, from the data consumer's perspective, can be used to assess the DQ in Web portals. We consider the proposed set of attributes to be an important step towards achieving a DQ model for Web portals, as they can be used in the definition of a quality assessment process. Some case studies will have been carried out to show the validity of these attributes within a concrete domain of Web portals (the bank portal domain), thus demonstrating that the set of DQ attributes is correct and complete. Fuzzystyle will be used to explore and prove properties.

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