Customizing ISO 9126 quality model for evaluation of B2B applications

Behshid Behkamal A,*, Mohsen Kahani b, Mohammad Kazem Akbari c

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A B S T R A C T

A software quality model acts as a framework for the evaluation of attributes of an application that contribute to the software quality. In this paper, a quality model is presented for evaluation of B2B applications. First, the most well-known quality models are studied, and reasons for using ISO 9126 quality model as the basis are discussed. This model, then, is customized in accordance with special characteristics of B2B applications. The customization is done by extracting the quality factors from web applications and B2B e-commerce applications, weighting these factors from the viewpoints of both developers and end users, and adding them to the model. Finally, as a case study, ISACO portal is evaluated by the proposed model.

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1. Introduction

Software is being used in an increasingly wide variety of application areas, and its correct operation is often critical for business success. Developing or selecting high quality software products is therefore of prime importance. Comprehensive specification and evaluation of software product quality is a key factor in ensuring adequate quality. This can be achieved by defining appropriate quality characteristics, taking account of the purpose of usage of the software product [1]. It is important that every relevant software product quality characteristic is specified and evaluated, whenever possible using validated or widely accepted metrics.

There are essentially two approaches that can be followed to ensure product quality, one being assurance of the process by which the product is developed, and the other being the evaluation of the quality of the end product [2].

To evaluate the quality of the end product, a set of quality characteristics that describe the product and form the basis for the evaluation is required. This set of characteristics and the relationships between them is quality model [3] (which provides the basis for specifying quality requirements and evaluating quality). Examples of uses of a quality model are to:

- Identify software design and testing objectives.
- Identify acceptance criteria for a completed software product.

In this paper, we intend to customize a quality model (ISO 0126) to identify acceptance criteria and evaluate a particular application domain; B2B application.

The rest of this paper is structured as follows: To choose a base model, first the existing quality models are reviewed and compared. In Section 2, B2B electronic commerce is defined. Then, the need for customization is discussed, and in Section 5, our approach will be presented in details. In next section, the proposed model will be applied for evaluation of a case study. Finally, a conclusion and future works are given in Section 7. The research method used to extend the model is descriptive-analytical method based on library studies.

2. Review of quality models

The state of the art in software technology does not yet present a well established and widely accepted description scheme for assessing the quality of software products. Much work has been done since about 1976 by a number of individuals to define a software quality framework. According to ISO 9126-1 [4] quality is defined as a set of features and characteristics of product or service that bears on its ability to satisfy the stated or implied needs. A quality model is defined as the set of characteristics and the relationships between them, which provide the basis for specifying quality requirements and evaluating the quality.