

Applying the ISO/IEC 25010 Quality Models to Software Product

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Abstract. The software development process focuses on the delivery of a software implementation – its ‘product’, whether COTS or bespoke. However, potential acquirers are attracted by the promise of a future ‘service’ from that product: those aspects of the software’s behavior visible outside it, particularly those that deliver value in the real world. ISO/IEC 25010: 2011 provides the leading models for assessing software product. This is an important contribution towards establishing the delivery performance of software processes and proposed improvements. This paper explores the scope and interpretation of the ISO/IEC 25010 quality models, in the light of this broad, lifetime service-oriented view, also identifying other significant aspects of product that concern acquirers of software, and for which quality requirements and quality evaluation are potentially needed. Suggestions for refinement and extension of the standard complete the paper.

Keywords: Software product quality·Software behavior·Digital service·ISO/IEC 25010·SQuaRE·Quality models·7Ms

1 Introduction

The value of software to users and organizations arises from its actual behavior in use, rather than from any qualities of the source code or the intended behavior as described in design documents etc. As Hofemann [1] says: “It requires a change in the mindset to consider software as a service rather than as a product. It is more than a change in business or delivery model, as in the case of changing to SaaS.” Furthermore, most applications of significant value will go through a series of maintenance releases, thus the simple model of software development producing software product (e.g. Sjøberg [2]) must be extended to cover post-delivery support and maintenance. In considering Software Process Improvement, we need to include post-delivery activities.

2 ISO/IEC 250xx series: SQuaRE

The ISO/IEC 25000 to ISO/IEC 25099 series of International Standards is entitled Systems and software engineering -- Systems and software Quality Requirements and Evaluation, hence the acronym: ‘SQuaRE’. The guide to the series, now in its 2nd edition [6] states that “the general goal ... was to ... [cover] two main processes: software quality requirements specification and system and software quality evaluation; supported by a system and software quality measurement process. The purpose ... is to assist those developing and acquiring systems and software products with the specification and evaluation of quality requirements.” The traditional ISO 9001 position was that quality concerned “conformance to specified requirements”. This has been broadened to “satisfy stated and implied

needs". As the universe of such needs is not well-defined and standardized, evaluation of quality is ultimately purchaser-dependent.