ABSTRACT

Software becomes ever more feature-rich and thereby harder to distinguish based on its functionality. Instead, quality is starting to differentiate between similar software products. Specifying, constructing, and assuring quality has been under research for several decades and continues to be a long-term research area because of its many facets and its complexity. Current national and international initiatives show that there is an active research community in academia and industry. This workshop builds on the rich experiences of a series of previous workshops and aims to bring this community together to discuss current issues and future developments.

Categories and Subject Descriptors
D.2.9 [Software Engineering]: Management—Software Quality Assurance

General Terms
Management, economics, measurement, performance, reliability, security

Keywords
Software quality, quality management

1. INTRODUCTION

The software market has become huge in the new millennium. There are numerous applications out there and it has almost become impossible to keep track of them. The download site Softpedia\(^1\) registered at the beginning of 2011 more than 900,000 free applications. The Apple App Store sells more than 350,000 for the iPhone alone. Wikipedia\(^2\) lists more than a hundred different web browsers.

All these web browsers serve all the same purpose, however, to display pages from the World Wide Web. They differ only slightly in the features they provide. Nowadays the non-functional properties of the browsers become more and more important. The users are more interested with what quality they can provide these features. The recent successes of Google’s Chrome browser is at least partly due to its reputation of high performance. One of the reasons why Mozilla’s Firefox initially gained many users. The other reason was that in the early 2000’s, several security vulnerabilities in Microsoft’s Internet Explorer 6 were published damaged its position and drove many users to alternative browsers.

Quality, however, is not a fixed and universal property of a software. It depends on the context and goals of its stakeholders. Hence, the first step is a clear and precise specification of quality for a system [1]. Even if we get this right and complete in the first specification, we can be sure that it will become invalid, if we do not control quality over the complete life cycle of the software.

Software is clamped between the business and technical processes it has to support and the technical platform (hardware, operating system, or database system) on which it runs. Both, the process as well as the platform will inevitably change over time. Hardware becomes obsolete, operating systems are upgraded to new versions, and business processes need to support new and changed businesses.

Hence, software quality is at the heart of software engineering. A software engineer’s goal is to deliver software on time, in budget, with the right functionality and quality. A new research and practical interest, especially in software product quality, can be seen by several current projects and initiatives. First of all, the ISO started a large project to build a new standard as successor to ISO 9126. The ISO 25000 series will be far more comprehensive than the old 9126. Especially, ISO 25010 was recently finalised and it now defines a new quality model.

The SEI and OMG started CISQ [2], an initiative to define a measurement framework for software product quality, which shall integrate with the new ISO 25000. In France, there is the Squale project [7], which defines a quality model with an analysis framework. In Germany, the Quamoco consortium [6] of key software companies (Capgemini, SAP, Siemens) and academic partners builds a detailed quality model, using activity-based quality models [5], which is extendable by several domain-specific models together with an evaluation framework based on ConQAT [3, 4]. These initiatives show that there is a research community for software quality that is intensively working on new quality models and evaluations. WoSQ is the perfect venue to bring these together.

There are many different challenges in software quality, tackled on many different levels. For example, it is still challenging to specify meaningful and testable quality re-
quirements. Then, it is also an extremely difficult task to estimate the current level of software quality of a system [8] and find the roots of quality problems. It goes as far as specifying and analysing the safety of systems containing software, for example, by using safety cases [9].

At present, there are few venues that look explicitly at the bigger picture of software quality. Instead being specific for security or maintenance, we bring together researchers, who look at quality more comprehensively. We aim to discuss the state-of-the-art as well as the state of the practice and new developments. From these discussions, new ideas and collaborations can be formed.

2. WORKSHOP THEME AND TOPICS

The general theme of the workshop is achieving and controlling software quality. This involves product as well as process quality. Specific topics are:

- Software quality engineering
- Software quality management
- Software quality control
- Quality assurance techniques (testing, inspection, reviews, code analysis)
- Software product evaluation and certification
- Quality attributes and trade-offs
- Software quality for evolving systems, SOA-based systems, or in the cloud
- Models of product or process quality
- Software process evaluation and improvement
- Quality metrics
- Tool support for all of the above
- Case studies and empirical results

3. WORKSHOP FORMAT

We have three types of sessions: invited talk (keynote), position paper presentations, and a discussion session. We especially have group discussions on selected topics for which the discussions after the paper presentations are too short.

We propose first possible topics for discussions, collect further topics from the participants, and then let the participants vote. The number of topics and groups depends on the number of participants. Then we break into groups and work on the selected topics. Members of each group will then present the results in the plenum.

The keynote talk is given by Prof. Motoei Azuma from Waseda University (Japan) and he talks about the advances of the SQUaRE project, which works on the new software product quality standards series ISO 25000. Then we will have seven research paper presentations spread over three sessions. The contributions range from empirical analyses of in-process metrics and beta-release bugs over process improvement and product quality to a quality model for SOA. After the paper presentations, we have the final session for the group discussion.

4. SUBMISSIONS AND REVIEWING

Overall, we received 11 submissions from eight different countries. All paper received 2–3 reviews from our international programme committee of 16 software quality experts. In total, they wrote 27 reviews including a review by an additional external reviewer. After some online discussion, we decided to accept seven out of the 11 papers for presentation at the workshop. This is an acceptance rate of 64%.

5. WORKSHOP HISTORY

The workshop has had seven previous instances, all held together with ICSE from 2002-2009. You can find all information about WoSQ 2011 together with links to the previous instances at:

http://www.sites.google.com/site/wosq2011/

6. REFERENCES