Proceedings of the
International Workshop on
Software Quality and Maintainability
(SQM 2014)

Preface

3 pages

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SQM 2014, the 8th International Workshop on Software Quality and Maintainability took place in Antwerp (Belgium) on February 3, 2014. The workshop was co-located with the CSMR-WCRE 2014 Software Evolution Week. The latter is a merger between the successful international conference series CSMR and WCRE, which both focus on research related to software maintenance, reengineering and reverse engineering.

SQM focuses on the boundaries between theory and practice of software quality. It tries to address questions like:

- What determines the quality of a software system?

- What determines the costs of operating and maintaining software?

- What quality attributes in a system are desirable in practice?

- How can these quality attributes be measured?

The special theme of SQM 2014 was "Bridging the gap between end user expectations, vendors' business prospects, and software engineers' requirements on the ground." The quality of software has lots of impact on the involved users, developers and their organisations in several respects: on one hand the correct and consistent behaviour of software systems, and on the other hand the time-to-market, agility and cost-effectiveness of production, maintenance, and operation of the software systems. As a result, the demand for high-quality software is increasing and it is becoming more clearly a differentiator for the success or failure of a software product. Many views have been expressed about software quality attributes, including maintainability, evolvability, portability, robustness, reliability, usability, and efficiency. These have been formulated in standards such as ISO/IEC-9126, its successor ISO/IEC 25010 (SQuaRE) and CMMI. However, the debate about quality and maintainability between software producers, vendors and users is ongoing, while organisations need the ability to evaluate the software systems they use or develop from multiple angles.

The SQM 2014 was a successful workshop, being the second most attended workshop co-located with CSMR-WCRE 2014, with around 30 participants. We received a total of 18 initial submissions. Six of these were rejected because they were of insufficient quality or deemed out of scope. Five submissions were accepted for presentation only. The remaining seven, which are included in the present volume of ECEASST, were selected for presentation and inclusion in the postproceedings of the workshop. This corresponds to an acceptance ratio of 38.9%. All these articles underwent a rigorous peer review process, and were required to take into account the feedback received from the reviewers and from the workshop participants.

The topics addressed in the accepted articles are quite diverse:

- In "An Initial Quality Analysis of the Ohloh Software Evolution Data", Bruntink investigates the quality of the historical data available in Ohloh, a large online index and analytics platform for open source projects, and provides a cleansed version of this dataset.

- In "Analyzing Gerrit Code Review Parameters with Bicho", Gonzalez-Barahona *et al.* enhance Bicho, a tool to retrieve data from issue tracking systems, with information obtained

from the Gerrit code review process. In addition, the authors provide some examples of how this information can be analysed and exploited.

- In "Comparing Communication and Development Networks for Predicting File Change Proneness", Wiese *et al.* use a set of metrics to statistically compare process and social metrics considering file change proneness.

- In "Software Language Engineering by Intentional Rewriting", Zaytsev attempts to apply software language engineering methods to design a language for grammar mutations capable of applying uniform intentional transformations in a corpus of software language grammars.

- In "The Implementation of the CHA-Q Meta-Model: A Comprehensive, Change-Centric Software Representation'", De Roover *et al.* present the CHA-Q meta-model, a first-class representation of changes to software artefacts that is intended to be used in change-centric quality assurance tools.

- In "A Model-Based Approach to Impact Analysis Using Model Differencing", Müller and Rumpe carry out a feasibility study of an approach to impact analysis in which explicit impact rules are specified in a domain specific language (DSL). These impact rules define consequences of UML class diagram changes on software artifacts.

- Finally, in "Implementing a Model-Driven and Iterative Quality Assessment Life-Cycle: a Case Study", Vanderose *et al.* assess the feasibility and relevance of a model-driven iterative quality assessment methodology in a professional environment.

SQM 2014 also featured an invited keynote on "Challenges to Free Software Dependability" by Stefano Zacchiroli, associate professor at the University Paris Diderot. Stefano was project leader for the Debian open source Linux distribution for a period of 3 years, until April 2013. He took care of many tasks, ranging from package maintenance to distribution-wide quality assurance. The abstract of his keynote talk reads as follows:

Free and Open Source Software (Free Software for short) is pervasive, you can't possibly be using any significantly large software assembly today without relying on hundreds of Free Software components. By and large, Free Software is delivered by vendors (GNU/Linux distributions, "app store" maintainers, appliance editors, etc.) who do not write most of the code they distribute themselves, but rather polish and integrate Free Software developed by others. We depend on the existence of those vendors on the market and rely on their ability to shield us from the hectic life cycle of Free Software components. In this talk we discuss Free Software dependability, focusing on the role of intermediate software vendors. We discuss recent research results in the area of Quality Assurance for large component repositories and the challenges ahead in the area.

We would like to thank the SQM 2014 program committee for their excellent reviewing work: Nicolas Anquetil, Arpad Beszedes, Goetz Botterweck, Magiel Bruntink, Alexander Chatzigeorgiou, Florian Deissenboeck, Jürgen Ebert, Neil Ernst, Jesus Gonzalez-Barahona, Naji Habra, Peter Hegedus, Liguo Huang, Siket Istvan, Slinger Jansen, Robert Lagerstrm, Julio Cesar Leite, Sotirios Liaskos, Lin Liu, Christos Makris, Nan Niu, Xin Peng, Daniele Romano, Joost Visser, Yijun Yu, and Vadim Zaytsev.

We hope you enjoy reading this volume of ECEASST, dedicated to SQM 2014.

The SQM 2014 Chairs, February 2014
    Tom Mens (University of Mons, Belgium)
    Lodewijk Bergmans and Steven Raemakers (Software Improvement Group, The Netherlands)