2nd QuASD Workshop: Managing Quality in Agile and Rapid Software Development Processes

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Abstract.
The QuASD workshop aims at investigating product and process quality in the context of agile and rapid software development. The objective of the workshop is to exchange challenges, experiences, and solutions among researchers and practitioners to bring agile and rapid software development processes a step further to seamless integrating quality management activities into their practices. In this second edition of the workshop we expect to foster the exchange of ideas between researchers and industry and consolidate a research agenda and collaborations.

Keywords: Quality, Agile Software Development, Rapid and Continuous Software Development.

1 Introduction

Welcome to the Second International Workshop on Managing Quality in Agile and Rapid Software Development Processes (QuASD).

The QuASD workshop aims at investigating the current challenges that companies using agile software development and rapid release cycles face when integrating quality management activities into their practices. The objective of the workshop is to exchange experiences and solutions to bring agile and rapid software development processes a step further towards seamless integration of quality management activities into their practices. To strengthen this objective, QuASD 2018 is held in the context of one of the top-recognized software development and process improvement conferences: the International Conference on Product-Focused Software Process Improvement (PROFES 2018) on November 28, 2018, in Wolfsburg, Germany.

2 Keynote: Data Science for Software Quality Management – Examples and Challenges

The keynote focuses on the application of data science for managing quality in software projects. As we know, software has become part of our daily life: whether we drive a car, sit on a plane, use our washing machine, perform a bank transaction, or file our tax return, software is involved in all of these activities. To develop such systems, software engineers must take many decisions in their daily work. The quality of their decision-making is crucial for the success of every new software system deployed to the market. Unlike other engineers, software engineers cannot rely on the laws of nature but must base their decisions to a large extent on experience and empirically derived models. During the last decade, with the emergence of what is now called Data Science, automated approaches for managing quality in software projects and products have come into the focus of research and practice, often using techniques from the realms of Artificial Intelligence and Machine Learning (ML). In this keynote, Dietmar Pfahl (a) presents two examples of using ML in the context of software quality management, (b) discusses some of the associated challenges, and (c) lists questions that should be answered when using automated approaches to software quality management.

Dietmar Pfahl earned his Master (1986) and PhD (2001) degrees in Germany, at the Universities of Ulm and Kaiserslautern, respectively. Before joining the University of Tartu in 2013 as an Associate Professor, he worked eight years in industry (Siemens AG, Germany), and held appointments with the University of Calgary, Canada, the Lund University, Sweden, and the University of Oslo, Norway. He also worked for the German Aerospace Research Establishment near Munich, Germany, the Fraunhofer IESE in Kaiserslautern, Germany, and the Simula Research Laboratory near Oslo, Norway. He was the founder and director of Pika Research, Inc., Claresholm, Canada, from 2009 to 2015. Since 2008, he is Adjunct Professor with the Schulich School of Engineering at the University of Calgary, Canada. In spring 2017, he was appointed Professor of Software Engineering at the University of Tartu, Estonia.

3 Industry Talk: The Q-Rapids Approach from the Bittium Perspective

Bittium (www.bittium.com) is a Finnish company specialized in the development of reliable, secure communications and connectivity solutions leveraging its 30-year legacy of expertise in advanced radio communication technologies. Bittium provides innovative products and services, customized solutions based on its product platforms and R&D services. Complementing its communications and connectivity solutions, Bittium offers proven information security solutions for mobile devices and portable computers. Bittium also provides healthcare technology products and services for biosignal measuring in the areas of cardiology, neurology, rehabilitation, occupational health and

sports medicine. The company is characterized by its continuous looking for more efficient ways to work and shorten the time to market (release time), starting to use Agile methods more than a decade ago.

The industry talk focuses on their experience on the Q-Rapids approach (http://www.q-rapids.eu/) to improve quality in agile software development processes. The Q-Rapids approach consolidates the developer tool chains to a modern way of working to manage nonfunctional and functional requirements. They will highlight how the Q-Rapids approach is integrated to a company systems and development as well as data visualization tool chains is introduced.

The presentation will bridge good developer practices like Developer Continuous Integration into proper software development life-cycle management, modern software tool chains and up to non-functional requirements management. In particular, the talk focuses on how Bittium has been developing the Lean and Agile Way of Working (WoW) to be able to adapt the models for Continuous Deployment from software developer point of view. To be able to introduce faster pace of development several experiments have been executed. These experiments include finding common company level models for Continuous Integration, experimenting and deploying the model across the product and solutions areas, developing the Way of Working from developers point of view by introducing Developer Continuous Integration and introducing models of DevOps to just name a few. These highlight also how the requirements from the functional and non-functional point of view have been managed in a context of more than 10 teams working for the same scope.

4 Accepted Papers

After a revision process by at least three members of the Program Committee, five papers were accepted for this second edition of the workshop. These works address issues on quality in agile software development from different perspectives. The effort and dedication of the Program Committee and the additional reviewers who collaborated in the revision process were outstanding and deserve recognition (see Section 5).

The accepted papers composing the QuASD workshop program are:

- **3 technical papers** (12 pages long) describing beyond-state-of-the-art methods, tools, or techniques in support of the management of quality in agile and rapid software development and continuous software development contexts:
    - Simon Andre Scherr, Frank Elberzhager and Lisa Müller: "*Quality Improvement of Mobile Apps – Tool-supported Lightweight Feedback Analyses*".

  - Nuno Santos, Jaime Pereira, Nuno Ferreira and Ricardo-J. Machado: "*Modeling in agile software development: decomposing use cases towards (logical) architecture design*".
  - Philipp Hohl, Sven Theobald, Martin Becker, Michael Stupperich and Jürgen Münch: "*Mapping Agile to Automotive Software Product Line Concerns*".

- **1 experience report paper** (9 pages long) describing first-hand experience and lessons learned related to the management of quality in agile and rapid software development :
  - Marcus Ciolkowski and Florian Lautenschlager: "*Making Runtime Data Useful for Incident Diagnosis: An Experience Report*".

- **1 vision paper** (6 pages long) providing arguments for new directions to follow in managing quality in agile and rapid software development :
  - Raquel Ouriques, Krzysztof Wnuk, Richard Svensson and Tony Gorschek: "*Thinking Strategically about Knowledge Management in Agile Software Development*".

5 Program Committee

The program committee was composed of prominent researchers from several universities and the industrial sector.

- Jan Bosch, Chalmers University of Technology, Sweden
- Michal Choras, ITTI Ltd., Poland
- Javier Criado, University of Almería, Spain
- Oscar Franco-Bedoya, Universidad Nacional de Colombia, Colombia
- Matthias Galster, University of Canterbury, New Zealand
- Juan Garbajosa, Universidad Politécnica de Madrid, Spain
- Lidia Lopez, Universitat Politècnica de Catalunya, Spain
- Paulo Motta, Numina, Brazil
- Elisa Nakagawa, University of São Paulo, Brazil
- Anh Nguyen Duc, University College of Southeast Norway, Norway
- Marc Oriol Hilari, Universitat Politècnica de Catalunya, Spain
- Paulo Sérgio Santos, PESC/COPPE/UFRJ, Brazil
- Martin Solari, Universidad ORT Uruguay, Uruguay
- Davide Taibi, Tampere University of Technology, Finland
- Dan Tofan, Digital Science & Research, Romania
- Guilherme Travassos, COPPE/UFRJ, Brazil
- Anna Maria Vollmer, Fraunhofer, Germany
- Agustin Yague, Universidad Politécnica de Madrid, Spain

6 Activities

The workshop aims to promote discussions and interchange of ideas among participants from both industry and academia sectors. Thus, the keynote and industry talks are expected to shake the audience and foster fruitful discussions. In addition, the presentations of the accepted papers in various sessions will focus the discussions on their specific topics. In the last session, we will organize an open brainstorming space through a wall of ideas, where the participants will post their key messages on particular topics, followed by a plenary discussion on the hottest emerging topics.

All these activities are aimed to:

- Scope the current state of quality management in agile and rapid software development in both research and practice.
- Compile success and failure experiences.
- Continue on the research agenda from the previous edition.
- Establish a community to foster long-term collaboration.

We hope that the workshop participants will enjoy the topics presented here and perhaps find the inspiration to push the field a step further, or open the door for new collaborations.

Finally, we would like to acknowledge all the people who have enabled the organization of QuASD 2018: the authors, who submitted their papers; the Program Committee members, who made possible the conference program; the invited speakers for the keynote and the industry talk for being willing to share their experiences on quality and quality requirements in the context of agile and rapid software development; and the organizing committee members, who handled all the complexity of arranging an event such as PROFES 2018 and the associated workshops.

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