



Q-Rapids

How can quality requirements be integrated into a rapid software development process to significantly increase the productivity of the development team and shorten time-to-market of software products and services whilst ensuring appropriate levels of quality?

Answering this question is the motivation for the Q-Rapids project

AT A GLANCE

Project title

Q-Rapids: Quality-aware Rapid Software Development

Project coordinator

Universitat Politècnica de Catalunya (ES)

Partners

Universitat Politècnica de Catalunya (ES)
University of Oulu (FI)
Fraunhofer-Institut für Experimentelles
Software Engineering (GE)
Bittium Wireless Ltd. (FI)
Softteam (FR)
ITTI S.p. zo.o. (PL)
Nokia Solutions and Networks OY (FI)

Duration

11.2017 – 10.2019

Total cost

4.497.590 €

EC Contribution

4.497.590 €

Programme

H2020-ICT-2016-1

Further information

www.q-rapids.eu
@QRapids

Context and motivation

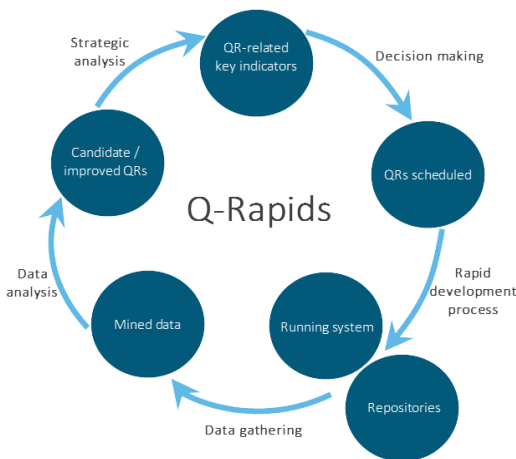
A recent evolutionary step from Agile and Lean software development is rapid and continuous software engineering. It refers to the organisational capability to develop, release and learn from software in rapid parallel cycles, often as short as hours or days. In this highly demanding context, **faster and more frequent release cycles should not compromise quality**. Thus, a full understanding about the quality of the product is essential to ensure that users perceive only improvements rather than experience any loss of functionality.

Challenge

Neglecting quality requirements is one of the top ten risks in requirements engineering, since not addressing quality requirements properly leads to most expensive and problematic corrections later in the development process. Besides budgeting issues, neglecting quality requirements jeopardises the security, usability and maintainability of the system, for instance. Knowing this, quality requirements still get less attention in requirements engineering process than functional requirements and Agile methods tend to overlook quality requirements. Furthermore, technological breakthroughs pose new challenges for the quality of the software development process.

Solution

Q-Rapids defines an evidence-based, data-driven quality-aware rapid software development methodology. Quality requirements (QRs) are incrementally elicited, refined and improved based on data gathered from software repositories, project management tools, system usage and quality of service. This data is analysed and aggregated into quality-related key strategic indicators (e.g., time-to-market delay related to not including the implementation of a given requirement in the next development cycle) which are presented to decision makers using a highly informative dashboard. QRs scheduled for the next cycle are integrated with functional requirements for their uniform treatment in the rapid software development cycle.



Expected impact

Q-Rapids will increase the levels of quality in software products and services by promoting QRs at the same level of functional requirements in rapid software development processes. Q-Rapids will support the management of QRs by analysing runtime data and software repositories, bringing a significant productivity increase to the software life-cycle. The reduction of maintenance effort due to less quality-related defects, together with better decision making in the planning of release cycles, will shorten time to market.