

Requirements Bazaar: Experiences, Added-Value and Acceptance of Requirements Negotiation between End-Users and Open Source Software Developers

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Abstract: *Open Source Software (OSS)* developer and end-user communities mutually benefit from, but also depend on each other. End-user communities generate innovative ideas for software, but lack technical capabilities for their realization. OSS developers realize software, but need to access and prioritize an abundance of ideas to maximize impact. Requirements Bazaar, a Web-based tool for *Social Requirements Engineering (SRE)* brings both groups together to negotiate requirements in mutual interest. After an introduction to SRE and Requirements Bazaar, we report on experiences, added value and acceptance collected over two years of productive use in EU-funded research.

End-user communities collaboratively generate an abundance of needs and ideas to improve their practice with software. Research has shown the high value of end-user involvement in innovation processes [Hip86, Che03]. However, many communities lack technical capabilities to realize their ideas. Instead, they make best possible use of *Open Source Software (OSS)* products. However, in many cases they do not share their particular needs with the OSS developers. Developers of popular OSS products strongly depend on such input from end-user communities. Abundant ideas and needs on the end-user side and scarce development resources on provider side typically create an imbalance. In particular we face such imbalance in the so-called Long Tail [And06], consisting of many rather small, specialized communities, often with high innovation potential. Consequently, end-user and developer communities must be brought into a collaborative process of *Social Requirements Engineering (SRE)* [LCRK12]. In SRE, both stakeholder groups negotiate needs and ideas, i.e. elicit, communicate and prioritize in mutual interest, which ideas should advance to official requirements. Traditional requirements elicitation techniques such as focus groups do not scale in such distributed scenarios. Instead, OSS developers use common Web-based tools like issue trackers for elicitation and negotiation of requirements. The direct application of such tools is however problematic. While the communication via issue trackers is best practice among developers, end-users reportedly refuse these tools due to excessive formality, technical jargon, and unmatched user experience. The result is low end-user participation in innovation processes. To lower entry barriers, end-user communities must receive intuitive and easy-to-use tools for the distributed

elicitation and negotiation of requirements. Importantly, such tools must seamlessly and unobtrusively integrate into working processes and software used on both sides to find mutual acceptance.

These observations motivated our research [KJHR11] towards Requirements Bazaar, a Web-based Open Source social media tool supporting SRE between end-user communities and OSS developers. Participants express, discuss, negotiate, and trace requirements, ideally resulting in a realization. Developers discover relevant innovative requirements from an abundant set of end-user requirements and thus maximize their impact with a realization [RBKJ13].

In our talk, we first discuss the above motivation, leading to our approach of Social Requirements Engineering [LCRK12]. We then derive the four main concepts of Requirements Bazaar, i.e. *intuitive requirements specification*, *co-creation workflow*, *workspace integration* and *personalizable requirements prioritization* [RBKJ13]. Finally, we report experiences, added value and acceptance as well as common misconceptions and challenges from both end-user communities and developers using Requirements Bazaar in OSS development for two large-scale EU integrating projects over two years of productive use [RK14]. We finally give an outlook to future work on Requirements Bazaar. Interested readers are referred to <http://requirements-bazaar.org/info>.

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