

User Feedback Practices in Continuous Software Engineering

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Abstract: We summarize the paper *How do Practitioners Capture and Utilize User Feedback during Continuous Software Engineering?* [Jo19], which was presented at the 2019 edition of the IEEE International Requirements Engineering Conference (RE) in Jeju Island, South Korea.

Keywords: User Feedback; Usage Monitoring; Usage Data; Practitioners; Continuous Software Engineering; Tool Support; Experience Report; Interview Study

1 Overview

Continuous software engineering (CSE) is a process for software evolution that enables new capabilities for developers to gain insights. For instance, with the help of continuous delivery, CSE promotes user feedback on the latest changes to a software increment.

Reports on practices of how practitioners capture and utilize user feedback in industry are sparse. As a result, the interaction with users in CSE environments is less understood and there is an identified research gap for mechanisms that make use of feedback. For that reason, we strive to investigate current user feedback practices with the goal to identify improvements and benefits during requirements engineering.

In 2017, we conducted a semi-structured interview study with 24 practitioners from 17 companies. The group of interviewed practitioners consisted of multiple developers, technical leaders, CSE specialists, project managers, and an executive director. We relied on a questionnaire supported by a guideline to ensure comparability between the interviews. The interviews' transcripts served as the starting point for a two-step analysis, in which we allocated answers to research questions (RQs) and then applied fine-grained codings.

As outlined in Section 2, we created three RQs that address general user feedback considerations as well as its capture and utilization. We further divided them into nine sub-RQs. On the basis of the interviews' results, we derived five recommendations which we summarize in Section 3 with the goal to improve continuous user feedback capture and utilization.

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2 Results

Which user feedback do practitioners consider for CSE? All practitioners rely on explicit user feedback during CSE. None relies solely on implicit user feedback, but almost half of them use it to support explicit user feedback. Many practitioners report to relate user feedback to both the application itself as well as to specific features. However, they lack a systematic approach which results in less actionable insights derived from the user feedback.

How do practitioners capture user feedback in CSE? Most of the practitioners do not continuously capture user feedback; instead, they rely on either event-based or periodic capture processes, such as the release of a new version or on a monthly basis. More than half of the practitioners employ tool support to capture user feedback and predominantly rely on standard software. At the same time, many practitioners noted to rely on manual capture approaches. Feedback capture from external sources dominates internal sources. Technical limitations hinder practitioners from capturing the context of user feedback.

How do practitioners utilize user feedback in CSE? Practitioners utilization of user feedback spans across planning activities, support activities such as bug fixing, as well as the improvement of existing features. Practitioners barely exploit changes in the user feedback over time as they already struggle to cope with basic user feedback utilization. While only a few of the practitioners combine different user feedback types following a pragmatic approach, many other practitioners would welcome this possibility as well.

3 Recommendations

We derived five recommendations to achieve continuous user feedback capture and utilization to benefit requirements engineering during CSE. First, internal sources, such as team members or colleagues from other teams, should be systematically approached, as they provide a rich source of user feedback. Second, existing tool support should be adapted and extended to automate user feedback processing with the goal to ensure requirements elicitation in a timely manner. Third, a lightweight concept for creating reference points should be established in order to relate user feedback to individual requirements. Fourth, the utilization of user feedback for requirements validation should be increased to improve existing and explore new requirements. Fifth, the communication between developers and users should be enabled to enhance the quality of requirements.

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Bibliography

[Jo19] Johanssen, Jan Ole; Kleebaum, Anja; Bruegge, Bernd; Paech, Barbara: How do Practitioners Capture and Utilize User Feedback during Continuous Software Engineering? In: Proceedings of the 27th IEEE International Requirements Engineering Conference. RE, September 2019.