

EXAMENSARBETE Establishing Feedback in Continuous Delivery – Benefits and Approaches**STUDENTER** Emanuel Eriksson, Keiwan Mosaddegh**HANDLEDARE** Lars Bendix (LTH)**EXAMINATOR** Emelie Engström (LTH)

Closing the Feedback Loop in Continuous Delivery

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High-velocity software systems like Continuous Delivery put strict requirements on the surrounding development infrastructure. This thesis work explores the purpose and value of feedback within CD, focusing on the benefits of robust feedback delivery systems and approaches to practical implementations.

The goal of many modern software development paradigms is to reduce the length of development cycles until terms like "cycles" or "iterations" lose their meaning. Instead of planning and micro-managing the release of a product at a set monthly or weekly time, software systems like *Continuous Delivery* enable programmers to push their contributions directly to end users, essentially at any time. To support this, a robust technical infrastructure of tools and inter-connected systems allows for code to be built, tested and deployed automatically without sacrificing quality.

However, the relatively extreme speed of these systems leads to both many competitive advantages and greater risks. To mitigate these risks, practitioners often point to feedback from tools and people alike as an important part of the CD puzzle. When software velocity is high, continuous feedback can ensure that quality is maintained without sacrificing throughput. However, the precise impact and value of feedback in modern development paradigms like CI/CD is not thoroughly explored. Distinctions between different types of feedback, as well as descriptions of how a feedback loop is to be established, are incomplete in literature. Why exactly is feedback so valuable, and how should it be approached in practice?

Based on literature analysis and data gathered from a company transitioning to CD, we have attempted to categorize and evaluate the urgency and utility of different types of feedback within CD – specifically distinguishing between process and product feedback. We also explored the value of feedback by analyzing feedback-related problems at the company. To address a subset of these problems, a number of approaches to feedback design in practice were evaluated.

Overall, our results show that any generalizable feedback system, even a rudimentary one, is an extreme necessity to achieve sustainable Continuous Delivery. This is especially true when multiple teams cooperate, as one improvised ad hoc solution per team is likely to hinder comprehension across teams. In practice, this system should be centralized but tailorable after specific team needs.

