Review of: "Formal Verification of a Change Control Process in Project Management"

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Potential competing interests: No potential competing interests to declare.

By offering a formal approach for proving the characteristics of Integrated Change Control (ICC) processes, the paper "Formal Verification of a Change Control Process in Project Management" significantly advances the subject of software engineering. In organizational processes, compliance with internal policies and external requirements must be vital, but manual audits for compliance can be laborious and error-prone. This article addresses this critical challenge. The authors establish important ICC process characteristics, such as prerequisites, reachability, definiteness, and cycles, using temporal logic, more especially Computation Tree Logic (CTL), and then confirm them using model-checking methods. In comparison to informal methods, this formal verification methodology offers a stronger assurance of accuracy, thereby improving the dependability and compliance of change control processes.

The paper gives a thorough and organized overview of the issue area and makes it obvious how crucial formal verification is in the context of change control procedures. While the paper offers a strong rationale for the study, it might go further in-depth and provide more particular instances or case studies of the difficulties organizations have in assuring compliance with change control procedures.

The methodology part of the paper does a good job of outlining the formal verification procedure using CTL and NuSMV. For readers who might not be familiar with these formal procedures, it could be useful to give a brief overview of them. The report should also go into detail on why CTL was chosen as the temporal logic and why it is appropriate to be used for this verification.

The discussion and conclusion sections briefly state the paper's major findings and contributions. But they should be divided into separate sections. However, they might gain from better clarification of the suggested methodology's restrictions and potential directions for future study. The paper notes the simplicity of the model's limits, but it should elaborate on this point to give a more thorough grasp of potential constraints.

The study correctly identifies the need for addressing the restrictions and emphasizes the significance of software implementation in the section on future development. However, it should offer more precise advice on the areas that require further study, such as looking at methods for dealing with concurrent changes, factoring in priority levels, and modifying the approach for uses outside of the model that is now being given.