Requirements prioritization techniques focusing on agile software development: a systematic literature review

ABSTRACT

Requirement prioritization plays a crucial role in the software development process. In Agile Software Development (ASD), requirement prioritization (RP) is challenging to maintain and requires a more formal process. It is essential to prioritize the requirements for making the correct decision for either single or multiple releases of a product. Ignorance of critical requirements during prioritization results in poor quality and unsatisfied clients. Various techniques have been proposed to prioritize requirements based on specific criteria. This SLR aims to identify the RP techniques focusing on Agile Software Development, as well as the issues or limitations of previous works. It will serve as a guideline for the practitioners to develop an effective RP process that can produce high-quality requirements that are expected to meet the needs of the intended users. Search terms with appropriate keywords were utilized in several online databases to recognize primary studies mostly related to RP in ASD. This SLR also shows the significant research gaps regarding techniques and issues for requirements prioritization in ASD. The researchers identified that a total of 25 papers report complete empirical results. Some critical issues of RP in ASD include severe limitations in terms of scalability, complexity, uncertainty, time consumption, starvation issue, dependency issues among requirements, limited research focused on the non-functional requirements and a lower automation approach. There are some significant challenges of RP techniques in ASD, such as a conflict between the stakeholders, changes in the priority list lead towards rework, and requirement selection factors during the RP process.

Keyword: Requirements prioritization; Prioritization techniques; Prioritization factors; Agile software development; Systematic review