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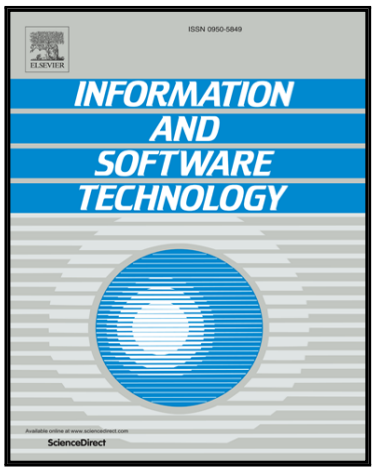

Systematic literature reviews in agile software development: a tertiary study

Rashina Hoda , Norsaremah Salleh , John Grundy , Hui Mien Tee

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Systematic literature reviews in agile software development: a tertiary study

Rashina Hoda[a,*], Norsaremah Salleh[b], John Grundy[c], Hui Mien Tee[a]

[a]*SEPTA Research, Electrical and Computer Engineering, The University of Auckland, Auckland, New Zealand*
[b]*Department of Computer Science, International Islamic University Malaysia, Kuala Lumpur, Malaysia*
[c]*School of Information Technology, Deakin University, Melbourne, Australia*

ABSTRACT

Context: A number of systematic literature reviews and mapping studies (SLRs) covering numerous primary research studies on various aspects of agile software development (ASD) exist.

Objective: The aim of this paper is to provide an overview of the SLRs on ASD research topics for software engineering researchers and practitioners.

Method: We followed the tertiary study guidelines by Kitchenham et al. to find SLRs published between late 1990s to December 2015.

Results: We found 28 SLRs focusing on ten different ASD research areas: adoption, methods, practices, human and social aspects, CMMI, usability, global software engineering (GSE), organizational agility, embedded systems, and software product line engineering. The number of SLRs on ASD topics, similar to those on software engineering (SE) topics in general, is on the rise. A majority of the SLRs applied standardized guidelines and the quality of these SLRs on ASD topics was found to be slightly higher for journal publications than for conferences. While some individuals and institutions seem to lead this area, the spread of authors and institutions is wide. With respect to prior review recommendations, significant progress was noticed in the area of connecting agile to established domains such as usability, CMMI, and GSE; and considerable progress was observed in focusing on management-oriented approaches as Scrum and sustaining ASD in different contexts such as embedded systems.

Conclusion: SLRs of ASD studies are on the rise and cover a variety of ASD aspects, ranging from early adoption issues to newer applications of ASD such as in product line engineering. ASD research can benefit from further primary and secondary studies on evaluating benefits and challenges of ASD methods, agile hybrids in large-scale setups, sustainability, motivation, teamwork, and project management; as well as a fresh review of empirical studies in ASD to cover the period post 2008.

Keywords: *Agile software development, tertiary study, systematic literature reviews, mapping study.*

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