INTRODUCTION OF AGILE PRACTICES
STRATEGIES AND IMPACTS

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Abstract

Background: Software development organizations frequently face changes that require them to be flexible. The principles and practices of Agile software are often associated with improving software organizations’ flexibility. However, introducing Agile practices have its benefits and limitations. To amplify benefits and alleviate challenges, Agile adoption guidelines are being proposed to provide strategies for introducing Agile practices. One instance of such guidelines is known as Agile Maturity Models (AMMs). AMMs typically suggest that Agile practices are introduced in certain orders. However, AMMs provide contradictory strategies. Thus it is not known whether one strategy to introduce Agile practices is better than others.

Objective: The objective of this thesis is to gather and examine the evidence on the different strategies of introducing Agile practices, particularly on the order of introduction as suggested in the AMMs. The thesis seeks if one order for introducing Agile practices is better than others.

Method: Combination of empirical studies were used in this thesis. The data collection was done through a survey and semi-structured interviews. This involved analyzing the introduction of Agile practices over time, i.e. the start and/or end of Agile practices. A qualitative method like qualitative coding was used to analyze data obtained from the interviews. Different quantitative methods like inferential statistics and social network analysis were also used. Literature studies were also conducted to provide background and support for the empirical studies.

Results: The examination of the evidence indicates that there is not one strategy to introduce Agile practices that would yield better results than others. The lack of conclusive evidence could be caused by the lack of consideration on reporting the context of empirical studies, particularly on the baseline situation, i.e. situation prior to Agile introduction. A checklist is proposed to capture a baseline contextual information focusing on internal organizational aspects of a software organization: the constellation of team members’ skills and experience, management principles, existing practices and systems characteristics of the software under development. The checklist was validated by seven experts in academia. The experts who participated in the validation perceived the checklist to be useful and relevant to research.

Conclusion: The studies presented in this thesis can be a useful input for researchers who are conducting an empirical study in Agile software development. The checklist proposed in this thesis could be used to help researchers to improve their research design when evaluating the extent of improvements from introducing Agile practices. If researchers use the checklist, consistency across empirical studies can be improved. Consistency in reporting empirical studies is desired for comparing and aggregating evidence. In turn, this will help practitioners to make a fair assessment whether research results are relevant to their contexts and to what extent the results are helpful for them.