An Empirical Study into Social Success Factors for Agile Software Development

extended abstract

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***Abstract*—Though many warn that Agile at large scale is problematic or at least more challenging than in smaller projects, Agile software development seems to become the norm, also for large and complex projects.**

Based on literature, we constructed a conceptual model of social factors that may be of influence on the success of software development projects in general, and of Agile projects in particular. We also included project size as a candidate factor.

We tested the model on a set of 40 projects from 19 organisations, comprising a total of 141 project members, Scrum Masters, and product owners.

We found that project size does not determine Agile project success. Rather, value congruence, degree of adoption of agile practices, and transformational leadership proved to be the most important predictors for Agile project success.

I. Background

Agile Software Development methods are originally applied by, and considered successful for, small teams and projects, and scaling up these methods is challenging [1]–[4]. However, larger organizations are also facing the challenges that Agile methodologies address [1]. Since most projects do not fail due to technology, but due to social and organizational problems, and a lack of effective communication [5], it is important to gain understanding about which social factors are of significant influence on Agile project success. Specifically, we are also interested in project success at larger scale.

II. Goals and Methods

The aim of our study was (1) to independently verify earlier identified success factors; and (2) to develop and validate a new, more comprehensive conceptual model by examining relationships between various candidate success factors and Agile project success. Hypotheses regarding these relationships were tested using data from 141 team members, Scrum Masters and product owners from 40 projects from 19 Dutch organizations. A conceptual model was developed based on existing literature and on explorative interviews that were held with practitioners involved in successful (large) Agile development projects. The model includes five candidate success factors: (1) transformational leadership; (2) communication style; (3) value congruence; (4) degree of agility; and (5) project size. Subsequently, this conceptual model was empirically tested and refined. Full details in the study can be found elsewhere [6].

III. Results

Results from regression- and mediation analyses showed that value congruence, degree of agility and transformational leadership were the most important predictors for project success in this model. Value congruence was a mediating factor between candidate success factors and project success. Project size was not found to influence project success, suggesting Agile methodologies could be applied successfully on larger scale as long as there is high value congruence, high degree of agility and transformational leadership.

IV. Discussion

This study contributes to the empirical identification of (new) communication-related success factors in Agile Software Development, by providing a validated conceptual model. The model provides insights into which social factors contribute to Agile project success. We also find that project size does not play a role. This implies that the focus of managers should be on increasing value congruence, agility and transformational leadership. The result that Agile methods can indeed work for large project, is a surprising outcome, since Agile puts so much emphasis on small teams and short sprints. More research is needed to verify and analyse our findings. Future research should be conducted on a larger scale, over a longer period of time in order to validate the model (in other domains).

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