ABSTRACT

Background: Recruitment and onboarding of software developers are essential steps in software development undertakings. The need for adding new people is often associated with large-scale long-living projects and globally distributed projects. The formers are challenging because they may contain large amounts of legacy (and often complex) code (legacy projects). The latters are challenging, because the inability to find sufficient resources in-house may lead to onboarding people at a distance, and often in many distinct sites. While onboarding is of great importance for companies, there is little research about the challenges and implications associated with onboarding software developers and teams in large-scale globally distributed projects with large amounts of legacy code. Furthermore, no study has proposed any systematic approaches to support the design of onboarding strategies and evaluation of onboarding results in the aforementioned context.

Objective: The aim of this thesis is two-fold: i) identify the challenges and implications associated with onboarding software developers and teams in large-scale globally distributed legacy projects; and ii) propose solutions to support the design of onboarding strategies and evaluation of onboarding results in large-scale globally distributed legacy projects.

Method: In this thesis, we employed literature review, case study, and business process modeling. The main case investigated in this thesis is the development of a legacy telecommunication software product in Ericsson.

Results: The results show that the performance (productivity, autonomy, and lead time) of new developers/teams onboarded in remote locations in large-scale distributed legacy projects is much lower than the performance of mature teams. This suggests that new teams have a considerable performance gap to overcome. Furthermore, we learned that onboarding problems can be amplified by the following challenges: complexity of the product and technology stack, distance to the main source of product knowledge, lack of team stability, training expectation misalignment, and
lack of formalism and control over onboarding strategies employed in different sites of globally distributed projects. To help companies addressing the challenges we identified in this thesis, we propose a process to support the design of onboarding strategies and the evaluation of onboarding results. Conclusions: The results show that scale, distribution and complex legacy code may make onboarding more difficult and demand longer periods of time for new developers and teams to achieve high performance. This means that onboarding in large-scale globally distributed legacy projects must be planned well ahead and companies must be prepared to provide extended periods of mentoring by expensive and scarce resources, such as software architects. Failure to foresee and plan such resources may result in effort estimates on one hand, and unavailability of mentors on another, if not planned in advance. The process put forward herein can help companies to deal with the aforementioned problems through more systematic, effective and repeatable onboarding strategies.