Cargo Cult in Agile Software Development

av

Tanja Elina Havstorm

Akademisk avhandling

Avhandling för filosofie doktorsexamen i Informatik, som kommer att föras offentligt
Tisdag den 7 November 2023 kl.13:15,
Hörsal F, Forumhuset, Örebro Universitet

Opponent: Docent Erik Perjons
Stockholms Universitet
Stockholm, Sverige
Abstract


Software development (SD) projects are complex endeavors, and organizations employ software development methods (SDMs) both to add structure and to propel their projects. Nowadays, agile SDMs are the most used methods. Still, inefficient and ineffective use of SDMs is a challenge, and existing research shows cases of SD teams failing in their use of SDMs due to deviations made. Of course, methods should not be used in rigorous and textbook-like ways. Among practitioners, some of these deviations are referred to as cargo cult behavior; without, however, providing much of theoretical depth or any analytical tools to identify and characterize such behaviors. Although existing research has investigated SDM deviations, they have not been investigated as cargo cult behavior.

Against this backdrop, the aim of this thesis is to understand the challenges in succeeding with SDM use by developing a theory called SDM cargo cult theory (SDMCCT), to identify, analyze, and describe the cargo cult phenomenon in agile SDM use. The journey of this thesis takes its starting point in practitioners’ use of the buzzwords “cargo cult” when referring to flawed SDM use. By returning to the field of social anthropology and its studies of cargo cult, a definition of SDM cargo cult and an analytical framework are iteratively crafted through a longitudinal ethnographic study to constitute the SDMCCT. The research approach has been abductive and the SDMCCT builds on social action theory and work motivation theory.

The ethnographical study took place at an international industrial manufacturing company in Sweden that is using agile SDMs. This study includes three years of data collection, which includes observations, interviews, and gathering of business documents. The ethnographic study focused on three SD teams and their daily work using agile SDMs. The analysis using the analytical framework includes four agile SDM practices: daily scrum meeting, sprint demo, continuous integration, and visualization. In total, the analysis uncovered 36 deviations in the SD teams’ use of these practices, structured into 30 SDM cargo cult categories. In addition, this study shows that the framework is applicable to analyze and characterize effective SDM use as well, although it is not its main focus. The framework can be used by researchers to make similar analysis of cargo cult situations in other organizations, and the catalogue of cargo cult situations can serve as background knowledge for other organizations to study and improve their SD teams’ use of agile SDM practices.

Keywords: agile software development, cargo cult, deviations, ethnography, SDMCCT, social action theory, software development method, work motivation theory, theorizing

Tanja Elina Havstorm, School of Business, Informatics Department Örebro University, SE-701 82 Örebro, Sweden, tanja.havstorm@oru.se