Managing Requirements Interdependencies in Agile Software Development: A Preliminary Result

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Abstract. Currently managing requirement interdependencies using Agile practices is relatively unexplored. This study explores the state of practice of managing requirements interdependencies in Agile software development through a survey. A total of 52 complete responses were obtained, with 50% of the respondents suggesting that they consider requirements interdependencies. The preliminary result indicates that requirements interdependencies become a greater concern as the project and product complexity increases.

Keywords: Agile Methods, Survey, Requirements Interdependencies

1 Introduction

Software is a fast paced industry with frequent requirement changes from the customers. To maintain competitive advantage software companies need to react quickly to requirement changes. Agile methods, such as Scrum and eXtreme Programming (XP) [1], emerged to provide a solution to software companies to react rapidly to requirement changes.

With Agile methods, requirements are implemented incrementally in a series of releases [1]. In incremental development, such as in Agile methods, managing interdependencies between requirements is critical [2]. However, the management of requirement dependencies using Agile practices is a relatively unexplored research topic [3,4].

This paper presents the preliminary results of a survey to explore the state of practice of managing requirements interdependencies in Agile development teams. In this study, requirement interdependency is defined as relationships between backlog items, e.g., epics, metaphors, or stories. The following aspects are particularly explored in this study (1) whether requirements interdependencies are considered in the industry and (2) which tools or practices are used to manage requirements interdependencies.

2 Methodology and Preliminary Results

A web-based survey[1] was used as a data collection strategy. A total of 52 respondents completed the survey. The respondents were recruited primarily from the author's personal contacts as well as relevant conferences and discussion forums.

The majority of the respondents were software developers with 27 respondents, followed by Scrum masters with six respondents. To name a few the respondents also include business analyst, system architect, etc. The preliminary analysis of the survey shows that 26 respondents suggested that they considered requirement interdependencies in their projects. Thirteen respondents suggested that they did not consider requirements interdependencies, and the remaining 13 respondents suggested that they did not know. One of the popular reasons provided by the respondents for not considering requirements interdependencies was the simplicity of the projects. Other reasons include lack of awareness or simply because their roles did not require them to consider requirements interdependencies.

A number of tools and practices were also identified from the survey. The tools that were mentioned include JIRA, Team Foundation Server (TFS), and, Git. The use of informative workspace, like white boards, Scrum or Kanban board was also reported by the respondents. Known Agile practices, such as retrospective and planning meeting, were rarely mentioned as an approach to manage requirements interdependencies. The preliminary analysis also shows that the tools and practices are used in combination with each other.

The preliminary results of the survey show that requirements interdependencies is an important concern in Agile development teams. The results further indicate that requirements interdependencies become a greater concern as the project and product complexity increases. The next step in this study to complete the analysis of the remaining sections of the survey.

References

1. Beck, K.: Embracing Change with eXtreme Programming. Computer 32(10), 70–77 (Oct 1999)
2. Carlshamre, P., Sandahl, K., Lindvall, M., Regnell, B., Natt och Dag, J.: An industrial survey of requirements interdependencies in software product release planning. In: the proceedings of the 5th IEEE International Symposium on Requirements Engineering. pp. 84–91 (2001)
3. Martakis, A., Daneva, M.: Handling requirements dependencies in agile projects: A focus group with agile software development practitioners. In: the proceedings of the 7th IEEE International Conference on Research Challenges in Information Science (RCIS 2013). pp. 1–11 (May 2013)
4. Schalliol, G.: Challenges for analysts on a large xp project. Marchesi, et al.,(eds.) Extreme Programming Perspectives, Pearson Education, Indianapolis, IN (2003)

[1] http://www.bth.se/com/inu.nsf/pages/requirements-interdependencies-in-agile-survey