Chapter 10

Agile Software Development Challenges in Implementation and Adoption: Focusing on Large and Distributed Settings – Past Experiences, Emergent Topics

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ABSTRACT

The first part of this chapter presents the results of a systematic literature review on Agile Software Development (ASD) challenges as are reported in implementation and adoption cases. The data only considers the concrete evidences of surfaced problems mainly according to work experience and case study articles. The results are analyzed so that types, nature and intensity of the problems are determined and, compared to each other, within three major classifications of “large organizations”, “distributed settings” and “both large and distributed environments”. The analysis reveals that, in ASD, common organizational and managerial issues have been replaced by communication and collaboration problems. The second part uses the results of the part one as a frame of analysis to render more interpretations e.g. signifying that non-agility preconceptions are the root of a majority of problematic projects. Besides, mediating between agile projects and traditional forms of management, and, economic governance are two major rival approaches that are emerging in response to these challenges.

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INTRODUCTION

Today’s organizations are forced to survive in a very competitive world. They need to be agile. In the realm of software development, Agile Software Development (ASD) is a natural response to such need for agility. However, ASD has initially been proposed for small, collocated teams with the possibility of face-to-face communication. Therefore, large organizations, whether they are developer in terms of large software firms and/or, consumer who uses the developed software solutions, usually have challenges to employ ASD due to their size and possibly geographical distribution.

Such challenges first and foremost appear to be related to the organizations’ functional division of work (contrasting the work nature in agile teams) as well as their high volume of rules and regulations. Even if there are efforts to transform organizations into new, modern structures with agile processes, yet, their real complexities (that is mostly due to their size) still necessitate their large number of cumbersome rules. Moreover, organizations, usually still and very often, follow strategic plans which are inherently not agile. These plans are partly compulsory to conduct such organizations in long terms, though, partly may not be necessary and, are able to be shifted into more agile policy approaches and strategic planning (for instance, see Rodríguez, Partanen, Kuvaja, & Oivo, 2014; Parcell, & Holden, 2013). Nonetheless, in any event, there are resistances to agility whether because of the existing technical and knowledge barriers or organizational, social and cultural inertness.

Part I of this chapter examines and verifies the hypotheses of the previous paragraph in terms of whether such challenges do exist in adopting ASD, specifically in large organizations and/or distributed settings; and, if this is the case, what are their most frequent and prevailing ones. In Part II, through a thorough analysis, the current study attempts to understand the roots of these challenges and, consequently, provides predictions for a close future with this regard.

PART I: CLASSIFICATION OF CHALLENGES

Due to common acceptance of ASD and, as was previously mentioned, indispensability of large organizations to adopt ASD, this chapter intends to provide valuable information for adopters in terms of the challenges which would possibly be encountered in the course of implementation/adoption.

Therefore, the subsequent questions are attempted to be answered. First, what are the challenges of implementing or adopting ASD particularly for large and/or geographically distributed organizations/software development teams? Second, what have been the major types and categories of these challenges relating to managerial, cultural and technical aspect? Third, what are the main roots that the challenges have been emerged form? And, fourth, what is the prediction of new types of challenges in ASD adoption for a close future?

In this study, method implementation refers usually, not necessarily, to first-time-experience of an agile method for a specific project. On the other hand, method adoption normally signifies a long term report of transition to agile methods along with an essential organizational transformation in both managerial and cultural aspects. As such, this chapter strives to deal with both implementation and adoption based on the existing literature.

As was previously mentioned, here, the “large organization” scope of the study refers to large organizations that might be software firms (including very large ones e.g. Microsoft, Amazon, etc.) or large
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