Chapter 1
Communication and Awareness Patterns of Distributed Agile Teams

Irum Inayat
University of Malaya, Malaysia

Siti Salwah Salim
University of Malaya, Malaysia

Sabrina Marczak
Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Brazil

ABSTRACT

Agile methods emphasize on team's collaboration and so does the requirements engineering process. But how do agile teams collaborate with their geographically distributed counter parts to accomplish requirements related activities? Although, proved to be flexible and dynamic it needs to conduct more empirical investigation to identify the collaboration patterns of distributed agile teams. Therefore, in this chapter collaboration patterns of geographically distributed agile teams are identified in terms of reported communication (defined as information exchange) among team members and their awareness (defined as knowledge about each other) of each other. A multiple case study method is used in this chapter to study the geographically distributed agile teams in four IT organizations. Though, some of the findings revealed several patterns are corroborating the previous results available in literature. However, some of the patterns identified in this chapter are specific to distributed agile teams. For instance, the chapter identifies that high awareness among agile teams leads to more communication. Implications for research and software industry are discussed and future research directions are also provided.

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INTRODUCTION

Agile methods are iterative and incremental (Beck et al., 2001). Each iteration starts with a set of requirements, called user stories (Cohn, 2003, 2005). Therein, the refined list of user stories, called product backlog is formulated, discussed often in daily scrums and reprioritized for the next iterations. The flexibility and dynamic nature of agile methods offer benefits to the software development industry such as higher productivity (Eberlein & Julio Cesar, 2002), lesser rework (Bin, Xiaohu, Zhijun, & Maddineni, 2004), and efficient bug fixation (Lagerberg, Skude, Emanuelsson, & Sandahl, 2013).

Agile methods emphasize on collaboration of team members and entail dynamic management of requirements that evolve during the iteration, unlike traditional software development (Bang, 2007) (Beck et al., 2001). The dynamic yet flexible nature of agile methods makes it challenging to deal with ever changing-volatile requirements. The agile team members collaborate with each other to work on these interdependent user stories and their downstream artifacts i.e. code, design etc. The collaboration of agile teams widely depends upon their communication of changes in user stories and their awareness of each other's presence, professional expertise, work status and current task allocation. When the team members are geographically apart issue arises in frequent communication and awareness of each other. The major issues can be time zone difference, lousy means of communication, cultural and language barrier etc. Therefore, it is a challenge for distributed agile teams to maintain collaboration among each other while being geographically apart.

SOCIO TECHNICAL ASPECTS OF REQUIREMENTS-DRIVEN COLLABORATION AMONG AGILE TEAMS

This section presents the main underlying concepts required to develop an understanding of this study.

Requirements-Driven Collaboration

The Requirements-driven Collaboration (RDC) is defined as the collaboration among software development teams required to carry out requirements engineering activity by Damian and colleagues in (Damian, Kwan, & Marczak, 2010). This involves the team's collaboration with each other for the development and management of a certain set of interdependent requirements during the project development lifecycle. The authors have furthered studied RDC among traditional software development teams in terms of interaction of roles for shaping their communicating patterns (Marczak & Damian, 2011), measuring the impact of distance on awareness among distributed software development teams (Damian, Marczak, & Kwan, 2007), and for agile software development teams (Inayat, Marczak, & Salim, 2013; Inayat, Salim, Marczak, & Kasirun, 2014; Marczak, Inayat, & Salim, 2013)

Socio-Technical Aspects

The term socio-technical was defined by Trist and Bamforth (Trist & Bamforth, 1951) to describe a psychological view of workmen's relationship with their social structure and technical system for coal collection. These social and technical aspects are of great importance while analyzing an organization (Coombs, Knights, & Willmott, 1992).