Chapter 41
Trust Building Process for Global Software Development Teams:
A Review from the Literature

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ABSTRACT

Due to increasing globalization tendencies in organization environment, Software Development is evolving from a single site development to multiple localization team environment. In this new scenario, team building issues must be revisited. In this paper components needed for the construction of the Trust Building Process are proposed in these new Global Software Development Teams. Based in a thoroughly state of the art analysis of trust building in organizations, this new process comes to narrow the gap between dynamics of trust building and intrinsic characteristics of global teams. In this paper, the components for Trust Building Process are justified and presented, with the purpose of a future assembly in further publications, leaving testing of this assembly far behind.

INTRODUCTION

Software Engineering (SE) has evolved steadily since its foundation in the conferences sponsored by NATO Science Committee at the end of the 1960s, and will continue its evolution due to internal improvements and some adaptations brought

about external changes (Campbell-Kelly, 2003). One of the most important external changes in today's market is Globalization (Wolf, 2004). This new phenomenon has influenced software evolution and has multiplied the production and demand of software products (Arora & Gambardella, 2004). The SE research has also evolved in order to adopt some Globalization characteristics; as a result, a new field called Global Software Develop-

ment (GSD) emerged to cover specific aspects of global distributed software development (Gorton & Motwani, 1996; Karolak, 1998; Herbsleb & Moitra, 2001; Oshri et al., 2007). Simultaneously, many classical software engineering knowledge areas have also evolved following this global trend, i.e., configuration management (Pilatti et al., 2006), requirements engineering (Damian, 2007).

Software development presents three critical dimensions: people, tools and equipment, procedures and tasks, which are held with processes (CMMI Product Team, 2006). These dimensions are present in every software development team, either global or local. Focusing on the people dimension, the relevance of team work has been widely proven (Lister & DeMarco, 1999; Humphrey, 1997; Hilburn & Humphrey, 2002; Sharp et al., 2009, Trigo et al., 2010). Team work in GSD environments presents some aspects that require to be minimized in order to carry a successful software development (Hinds & Bailey, 2003; Poltrock & Engelbeck, 1999): trust (Jarvenpaa et al., 1998), communication (Hinds & Mortensen, 2005), coordination (Cramton, 2001) and unhealthy subgroup dynamics (Armstrong & Cole, 2002). In addition to the critical dimension about people in Software development, trust building has been identified as critical processes for GSD teams' effectiveness (Handy, 1995; Dirks & Ferrin, 2001; Aubert & Kelsey, 2003).

The study of trust in IT environment is a part of studies in human capital; a combination of sociology and politics along with organizational and management science (Coleman, 1990; Putnam, 1993; Huysman & Wulf, 2004), and has a vast applicability to different contexts and levels of analysis, therefore a delimitation of the domain of research is required. Some delimitations made regarding globalization are, for example, team trust (Costa, 2003), GSD team trust (Jarvenpaa et al., 1998); trust in software outsourcing relationships (Oza et al., 2006), trust in alliances (Das & Teng, 1998), trust in GSD teams leadership (Derosa et al., 2004; Barczak et al., 2006), but also presents

gaps, i.e., building and maintaining methods in GSD teams trust (Moe & Smite, 2008).

According to Zucker (1986), there are three ways to develop trust in a relationship: characteristics-based trust, institutions-based trust, and process-based trust. Characteristics-based trust represents altruistic sources of social norms and kindness, i.e. membership of professional associations or educational achievements. Institutions-based trust represents the macro altruistic source of social norms, i.e., technical/professional standards. Process-based trust represents the micro altruistic sources of friendship, habituation, i.e. mutual adaptation, learning by doing, routinization.

In this paper, the components for the process-based Trust Building Process (TBP) construction for GSD teams will be presented using a review of trust and trust in GSD research literature as a basis. The work is based on the need pointed out by Moe and Smite (2008) and the dynamic character of trust (Miller, 1992; Lewicki & Bunker, 1996), the different character that trust presents along the growing stages of a business relationship (Shapiro et al., 1992) and the multifaceted character (Lewis & Weigert, 1985). This paper is motivated by the lack of presence of building process of GSD teams trust in research literature as Moe and Smite (2008) pointed out. There are efforts that cover building of trust in virtual teams from a practical standpoint, like Duarte and Snyder (2006), but this valuable model does not cover particularities about software engineering. In a learning environment scenario, Coppola et al. (2004) propose a model for building trust for virtual teams. Thus, TBP covers all software engineering processes and particularities to offer a model in which software development virtual teams can enhance their performance.

This paper has a two-fold purpose, firstly, redefine the construction and maintenance of trust for GSD teams using a formal model of trust definition as a start point, and secondly, define the components required for the process of building trust in GSD teams. The components in the process

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