

Chapter 87

How does Leadership Motivate the Innovative Behaviors of Software Developers?

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ABSTRACT

This study examines the relationship between transformational leadership types and the motivation of software engineers. The author uses full range leadership as a major theory and investigates how transformational leadership types influences the innovative behaviors of software developers by using a mediator of affective organizational commitment. For this, this study surveys 352 software developers working in 35 companies in Korea and analyzes the data using AMOS 24. The results show that charisma, inspirational motivation, intellectual stimulation and individualized consideration increase their affective organizational commitment affecting innovative behaviors positively in turn.

1. INTRODUCTION

Motivation models are used in all fields of software engineering, from requirements engineering to software evolution and from human interactions to the visualization of algorithms (Lehman et al., 1994). Throughout the spectrum of software engineering, models have been used in the classic way that operational managers and management scientists describe: that is either to explore possible consequences of an action before taking that action or as embedded parts of a system to aid in routine decision making (Checkland, 1981).

A commonly cited model of motivation is the Job Characteristics Theory (JCT) Model (Couger & Ishikawa, 1995). However, first, these studies are mainly interested in personal issues that influence the motivation of software developers. Further, some studies focus the motivation of open source developers that show voluntary action and work in small teams (Hertal et al., 2004). However, in reality, most of software developers work in big organizations rather than small teams and they need to be managed by

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organizations rather than to be expected to show voluntary action. Therefore, organizational issues for the motivation of software developers cannot be overemphasized.

Second, most researches have suggested turnover as the major outcome of motivated or de-motivated software developers, while a few studies reported that productivity improvement or increase in quality is affected by motivated/de-motivated developers (Beecham et al., 2008). In software industry, the continuous changes in the market and technologies enabled the software companies to think about different ways and strategies to gain competitive edge in the market place. Innovation is being considered by software companies as one of the ways of competitive edge and organizational success. At the heart of all organizational innovation lie creative ideas and it is individual employee, who alone or in groups, generate, promote, discuss, modify, and realize these ideas (Scott & Bruce, 1994). Therefore, it is necessary for software companies to bring out the innovative behaviors of software developers.

Given the importance of organizational issues to motivate software developers, the author investigates the relationship between leadership types and the innovative behaviors of software developers. Leadership is an important aspect of the working environment of the organization and has a strong influence on the managerial and workforce behavior in carrying out day today tasks (Scott & Bruce, 1994). Leadership research is an understanding of management or leadership styles and attributes can improve your organization's performance. Sprout leadership research included discipline, scientific management, and management as an act. Experiment, quality control and human behavior. Management as discipline was important. As the boundaries of the leadership model expand, new transaction leadership model (Bass, 1999), scientific leadership management, behavioral experimentation, quality control, and human behavior models are tools resources for leaders. Leadership style best suited to corporate innovation. The past may not be optimal in the past.

Studies have shown how leadership style can influence innovation at a corporation. Nemanich et al. (2007) is positive correlation between innovation leadership and new or destructive products. Need for openness and flexibility, which are characteristic of transformative leaders, innovation leadership effect in new product innovation. Nemanich et al. (2007) also discusses transaction leadership and incremental or improved product innovation, where new product strategies directed the development of existing products. Gumusluoglu & Ilsev (2009) argue that transformational leadership has important effects on creativity at both the individual and organizational levels. Rosing et al. (2011) propose an ambidexterity theory of leadership for innovation that specifies two complementary sets of leadership behavior that foster exploration and exploitation in individuals and teams — opening and closing leader behaviors, respectively.

Those discoveries support the need for leaders at companies to match leadership styles to their innovation needs to increase the probability of optimal success. Although research existed on the relationship between leadership styles and innovation, the research was not all-encompassing. Matzler et al. (2008) indicated that research opportunities related to understanding relationships between leadership styles and innovation exist for different industries, such as the commercial software industry. Considering the high cost of failures and the high percent of spend on innovation at commercial software companies (Jaruzelski & Dehoff, 2008), researching the relationships between leadership and innovation at commercial software companies could provide large benefits to that industry (Creswell, 2005; Gollar, 2012).

Some of the key process activities of software engineering require a lot of team effort, group discussion and innovation. Leaders influence followers' organizational commitment by encouraging followers to think critically by using novel approaches, involving followers in decision-making processes, inspiring loyalty, while recognizing and appreciating the different needs of each follower to develop his

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