Context-Aware Creativity Support for Corporate Open Innovation

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ABSTRACT

This article discusses how creativity in corporate Open Innovation processes can be supported by IT, especially regarding the situative long- and short-term social context of users. Therefore, the authors first define and formalize a model for creative processes. From evidence gained through qualitative interviews with managers from companies of the German ITC sector, they derive insights on creative situations and contexts as well as the current state of IT support for creativity in these companies. On the basis of these insights and guided by the design science methodology, the paper shows the development of a social-software based creativity support system and infrastructure. Furthermore, the authors discuss how appropriate IT tools can incorporate situative and social contexts for creativity support. Examples are a tabletop-based interface for co-located creativity and a web-based, mobile-enabled interface for distributed creativity. As a partial evaluation of the ideas, the article concludes with an experimental comparison of different interfaces to a non-IT scenario.

Keywords: Context-Aware Support, Creativity Support, Open Creativity, Open Innovation, Social Context

INTRODUCTION

Creativity is a fundamental aspect of everyone’s daily life. The world we live in has largely been shaped by human creativity. “The creative process has had more impact, power, influence, and success than any other process in history. [...]” the degree to which companies can transform creative ideas into innovative products and services is often the difference between success and failure” (Fritz, 1991, p. 5).

Despite this importance, the term creativity is often used in an imprecise and fuzzy way. In one of the most common theoretic definitions of creativity, Rhodes (1961) points out that creativity could be seen as a multifaceted concept, instead of giving a single definition.
for it. He describes that concept as the interaction of person, process, and press that results in a creative product. While person relates to the skills, traits, abilities and motivation that determine the creative potential of an individual, process involves the mental activities a person or group goes through to reach a creative end. “Creative press refers to the environment the person is in, or the product is produced, or the process occurs. It is concerned with the climate and everything that affects the climate where creativity takes place. This is where creativity and creative behavior can flourish or be fatally hindered” (Scritchfield, 1999).

Creativity is of particular importance for being innovative, which is regarded as one of the crucial success factors in enterprises (Cohen & Levinthal, 1990). Every innovation process - no matter if it is open or closed - is based on creativity, especially in its rather fuzzy initial stages: “All innovation begins with creative ideas” (Amabile, Conti, & Coon, 1996, p. 1154). Therefore, creativity takes a central role in any innovation process. Over the last years, the traditional innovation process which was located inside a company’s research and development (R&D) department got increasingly opened. This phenomenon is described as Open Innovation (OI) (Chesbrough, 2003). In analogy, opening the creative process to a broader diversity of actors can be called open creativity (OC) (Steiner, 2009). Open creativity is therefore characterized by a higher complexity and a higher degree of collaboration than in classical group creativity (Steiner, 2009).

This article will focus on open creativity support for a special type of OI, namely corporate Open Innovation which refers to including all employees of a large company into the innovation process. Doing so is especially promising, as employees act as an interface between the company and external partners/customers, where significant potential for innovation can be found (Tsai, 2001; Shipton et al., 2006). Furthermore, especially in large enterprises, the links and ties between different departments or sub-companies may be as loose as those between companies, customers and freelancers cooperating in usual OI processes. Corporate OI may thus unleash idle innovative potential and stimulate and vitalize horizontal networks within the enterprise.

A holistic IT support for open creativity therefore needs to take into account the process, persons involved and the contexts (press) that creativity occurs in. Besides the individual and general context (such as the location), a creative interaction situation is substantially influenced by and influences social context. Social context encompasses e.g., the nature of long-term social relations between interacting actors but also social properties of the collaboration setting involving the actors of an e.g., co-located, short-term creative interaction situation. It is useful to model, acquire and use this social context in order to support the collaboration as well as having the application environment contribute to shaping the social context in a way that is beneficial for the creative process by providing suitable user interfaces for each situation. It is our research question, how creativity can effectively be supported with an IT infrastructure in a setting of corporate OI, with special regard to these situative and social contexts.

Guided by this question, the article will be structured as follows: After discussing a formal model for creativity in the background section, which will act as a general basis for our argumentation, we describe the design-science oriented methodology that we apply for our research. The next section shows first results based on ten interviews with managers from companies of the German ITC sector which were conducted to find out about creative situations and contexts as well as the current state of IT support for creativity in these companies. We then lay out an according IT architecture and respective UI environments for a creativity support infrastructure that have been developed to facilitate different creative situations as they were determined from the interviews. Furthermore, we will highlight how situative and social contexts can be accounted for in these IT artifacts. The article ends with an evaluation of the developed concepts in the form of an experiment comparing two types of
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