Chapter 85

The Involvement of New Ideas in Products and Services Innovation:
A Technological Approach

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ABSTRACT

This chapter intends to address the needs and the involvement to support communities of innovation in the process of the generation of new ideas. The relevance of this document focuses on information systems and socio-semantics collaborative networks. The support of collaboration is not a new need to human activities in business. Nevertheless, it has major importance due the temporal limitations of the innovative context. In fact, having an idea is not enough. It is necessary to put it on the ground before the competitors. The authors conclude that technology can facilitate the generation of new ideas, benefit business collaboration, and help increase the rate and efficiency in the generation of new ideas, while reducing the time spent in the negotiation of consensus and decreasing the implicit cost in the overall process. It is expected to contribute to the (re)utilization of the innovation memory and to preserve the organizational knowledge.

INTRODUCTION

Organizations increasingly value further contributions with a view to generate new ideas as a way to introduce a competitive advantage. Its representa-

tion, not always consensual, has evolved thanks to the increased interest of the academic community, as well as to advances in technology. Despite its relevance, the contribution of technology still depends heavily on human input. The transposition

of ideas and concepts for computer-based systems reflects, in part, a large ambiguity of human understanding. The evidence shows that graphical artifacts, in the case of concept maps, and the increasing development of semantic structures, such as ontologies, are key technologies for the representation of concepts and ideas.

Recently, Web has become a platform for collaboration with the development of online social networks and other Social Web tools. Social Web and Semantic Web present powerful tools for building and maintaining relationships within the social communities, where people can interact with each other, present their ideas, contribute to improve them and extract new knowledge. Semantic innovation uses semantic technologies to improve the collaboration capability inside or across networked organizations. Consequently, the innovation ontology can be used by organizations or individuals to facilitate the matching of needs and innovations (Jesic et. al., 2011).

The efforts to make people contribute with new ideas are not new. Several techniques and methods have been used. Depending on the context, some methods seem to be more efficient than others. The paradigm is how to get the best of each method in order to increase the rating of new ideas. Additionally, the automation of the process, supported by technologies, is a motivation to establish the bridge among computer science and social science investigation. As result of this association, new socio-semantic systems are being researched and developed.

The methodology of the current study was divided in four stages (Figure 1). The first stage consisted on a literature review of what represents the concept of idea, the concept of creativity and, the concept of innovation, as well how they relate each other. After identifying these main concepts, at the second stage was described how ideas can be conceptualized and transposed from human understanding to machine representation. Also, it was identified different human understandings

as a barrier to consensus generation about the meaning of the term "idea." In the third stage, the study was oriented to demonstrate how ideas and their conceptual structure can be capitalized into an innovation process. Finally, it was identified a set of technological projects in which are used formal methods for idea generation in order to provide examples of the contribution of technology in the support of the synthesis of new ideas.

The structure of this chapter was divided in four main sections: (i) idea, creativity and innovation: brief approach about the differences, the similarities and the relation among creativity and ideas; (ii) conceptualization of ideas and its representation: presentation of the known techniques to conceptualize ideas and its representation. It includes subjects like semantics and ontologies; (iii) ideas, innovation and socio-semantic structures: a look on how ideas could arise from social structures and how can be represented through IT techniques; (iv) approaches and methods to support the synthesis of new ideas: proposal of a conceptual process and its methods to support the synthesis of new ideas.

INNOVATION, CREATIVITY, AND IDEAS GENERATION

Innovation is currently considered a fundamental key which can sustain a long-run growth of a company. In fact, innovation improves the competitiveness of organizations, not only through the creation of new products and services, such as by simplifying procedures and reducing costs (Hoffmann et al., 2005). Innovation in products should contemplate a portfolio management of its release to go against the company's strategy (Almeida et al., 2014).

According to Greenhalgh and Rogers (2010) innovation can be defined as the application of new ideas to the products, processes, or other aspects of the activities of a firm that lead to increased

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