

Project Management in Innovation Networks

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INTRODUCTION

In times of market globalization, aggravated competition and the shortening of product life cycles, many companies have turned to innovations as elixirs for their continued existence (Little, 1997). Companies cope with increased innovation requirements by increasing their specialization in a certain field. This makes new innovation ideas more probable; however, it also complicates the process from conception to realization. Traditional leadership systems with rigid hierarchical structures are increasingly replaced by more flexible, interdisciplinary work forms, with networks becoming the prevailing form of organization (Man, 2004).

Innovation plans are usually carried out in projects, thus the management of innovation projects has become the center of attention. However, the failure of many innovation projects sheds doubt on the usefulness of project management (PM). Studies demand robust process controlling to replace the more delicate PM (Hauschildt 2003).

This article examines to what extent PM may be used as a “universal management instrument” (Seibert, 1998, p. 25) in innovation networks. In addition, further concepts and instruments that should be added to PM in innovation networks will be introduced.

BACKGROUND

Innovation Networks

Innovation is a “fashionable, dazzling” term that has various definitions in literature. All these definitions agree that innovations are something “new” (Hauschildt, 1997). Fundamental innovations are rarely introduced

by one company alone (Van de Ven, 1993). More and more, companies form networks because they depend on the co-operation with others. Inter-company co-operation is not a completely new phenomenon. In the 1920s, the American company General Electric collaborated with the German AEG (Man, 2004). In the last few years, the number of co-operations, and the interest in co-operations, have risen rapidly. There are numerous reasons for co-operation and against autonomy (“go it alone”) (Gerybadze, 1995; Lorange & Roos, 1992).

- Technological development requires both specialization and integration. This is difficult to accomplish for one company alone.
- Increasing market convergence assigns a systemic character to innovations. In order to reach an ideal solution, they demand fixed standards and compatibility as well as the pooled know-how of several partners.
- Shorter product life cycles and increasing globalization intensify the innovation competition and demand the pooling of R&D potentials.
- Co-operations offer access to markets and specific resources (know-how or technologies).

Co-operations are building blocks of company networks. Networks are defined as “selected sets of multiple autonomous organizations, which interact directly or indirectly, based on one or more alliance agreements between them” (Man, 2004, p. 3).

For a long time, market and hierarchy have been idealized and regarded as the only viable coordination forms. Company networks, however, are intermedial co-operation forms of economic activity between the organization forms of market and hierarchy (Williamson,

1991). Markets are characterized by a poor information flow when hierarchies are not flexible enough. Company networks overcome this weakness by combining the advantages of market and hierarchical co-ordination. Powell (Powell, 1990), however, disagrees, arguing that company networks are independent organization forms like the archetypal market and hierarchy are. Networks play an important role in the technology sector. In this sector, it is improbable that a single company obtains all resources and competences needed to introduce a new innovation (Schilling, 2005).

Innovation networks are a special type of networks. Their objective is the development and marketing of innovations; they are a “powerful tool to foster innovation” (Cliquet & Nguyen, 2004, p. 109). Hauschildt (1997) defines innovation networks as a complex linkage of several co-operation partners who agreed on and practice a deliberate, sustainable, interactive co-operation based on a division of labor. The interdisciplinary, comprehensive innovation process in networks deals with transfer processes, new combinations and the transformation of material, immaterial, and financial, as well as intra-company and external resources (Perry, 1993). Although the innovation network phenomenon is receiving rising attention, literature mainly deals with strategic questions (Loudon, 2001, Biemans, 1992). There are only few suggestions concerning the realization of operative management tasks.

Project Management

Development, production, and marketing of products and services are increasingly carried out in projects (Sydow & Windeler, 1999). Turner (1993) defines a project as “an endeavour in which human, (or machine), material and financial resources are organised in a novel way, to undertake a unique scope of work, of given specification, within constraints of cost and time, so as to deliver beneficial change defined by quantitative and qualitative objectives.”

Although mankind has always carried out imperative tasks, a systematic theory of PM was only developed in the 1950s, mainly by the American arms and aerospace industry (Schelle, 2004). At present, PM is used too widely for one to simply speak of *the* PM in general; there is no standard definition of this term (Fuchs, 1999). PM is used to avoid unplanned and unstructured project work and to make it more efficient (Steinle, 2001). Project activity is characteristically divided into

phases (project definition, project planning, project realization, and project completion). Within these phases, project progress is assessed at specified milestones. The realization risk is extremely high in the beginning. By dividing projects into clearly separated phases, this risk may be reduced. Erroneous trends may be identified and eliminated as fast as possible.

Basically, there is a distinction between *traditional* and *evolutionary* PM (Saynisch, 1995). Traditional PM is characterized by a normative approach to activity and extensive planning (Saynisch, 1991). Its foundation is the invention of network planning in the 1950s (Boos & Heitger, 1996). The classical understanding of PM is based on the *constructivist-technomorph* approach to decision-making for complex problems (Malik, 1996). This method resembles the construction of a machine: it first conducts a detailed analysis of the problem. Then, based on this analysis, it establishes the optimal solution to the problem (Harland, 2002). This approach operates under the premise that there is a stable target figure and that possible solution alternatives may be compared without difficulty (Malik, 1996); in short, that rational decisions can be made. The dominant dimension of classical project management is the *techno-structural* dimension. It has proven its benefits within technology-oriented projects (Fuchs, 1999).

Evolutionary PM is based on the cybernetic-evolutionary approach (Malik, 1996). This method stresses the “soft” parameters, that is, the human and interaction-based aspects (*human-cultural* dimension). The cybernetic-evolutionary approach differs from the constructivist approach in claiming that social systems cannot be constructed through methodical planning. The systems’ high complexity makes it impossible to predict every reaction of the system or of its environment; a completely rational decision is unreachable (Harland, 2002). However, it is possible to constantly readapt the system to its new conditions. The cybernetic-evolutionary problem solving process consists of alternating the processes of planning and realization (Litke, 2004).

In evolutionary PM, the refinement of objectives takes places incrementally (spiral model). Each iteration goes through a work phase, which creates results, and a coordination phase, which is used for reflection on the project status. There is always a gradual approach to the final project objective. Objectives for the following iteration are always deduced from the preceding cycle. There is a continuous learning process throughout the project (Litke, 2004).

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