

# Chapter XI

## Emerging Topics and Technologies in Information Systems

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### ABSTRACT

*Technology programs are a means to facilitate the development and commercialization process of new innovative technologies. They are forums for the exchange of information and for networking between companies and research institutes. The programs provide opportunities and financial support to carry out ambitious research and development projects and to build business expertise. The core of technology programs are joint research projects between companies and research institutes. The objective of the study is to increase understanding of how such joint research projects within technology programs evolve in practice. The emphasis is on identifying factors that enhance the commercialization of new technologies and on finding barriers of commercialization. Based on the findings, practical recommendations are given on how the concept of technology programs can be further developed to utilize the unused potential in such programs. The empirical sample of companies in the study represents information technology. In the study, the microanalysis approach is used. The dominant approach in corresponding innovation*

*research has been the macro perspective approach. The research data was gathered via personal interviews with key informants of joint research projects within a technology program. All the projects were new product development projects which the companies taking part in the technology program were conducting together with research institutes.*

## **INTRODUCTION**

Technology programs are a means to facilitate the development and commercialization process of new innovative technologies. They are forums for the exchange of information and for networking between companies and research institutes. (Hänninen, 2007) The programs provide opportunities and financial support to carry out ambitious research and development projects and to build business expertise. The essence of technology programs are joint research projects between companies and research institutes. The objective of the present study is to increase understanding of how such joint research projects within technology programs evolve in practice. The emphasis is on identifying factors that enhance the commercialization of new technologies and on finding barriers of commercialization. It is a top priority for the society that resources invested in technology programs enhance, in practice, the commercialization processes of companies as effectively as possible (Balthasarin et alii, 2000).

A dominant approach in innovation research has been the macro perspective approach. Earlier innovation research has typically been based on macro perspective innovation models (Cooper, 1990). Macro economic cluster analyses and general economic factors have been central for the macro perspective approach in innovation research. The macro perspective approach has focused on strategic factors defined by a company's market position and other organizational relationships (Johnson et alii, 2003).

On the other hand, the microanalysis approach is a more novel approach in the context

of innovation research (Serkkola et alii, 2009). In it, detailed analyses of the organization's internal processes, for example, of the daily tasks, work practices, work conventions, work flows, decision making, chosen solutions, and organizational processes, are conducted in order to obtain a deeper understanding of the phenomena under investigation (Brown et alii 2000). The micro analysis approach is especially helpful in understanding the initial creation processes of innovations and the forces driving new product development.

In the present study, technology programs are analyzed using the microanalysis approach. This is done using in-depth analyses of individual joint research projects initiated and supported by a technology program (Hänninen et alii, 2007). Such joint research projects between companies and research institutes constitute the core of a technology program and, thus, attaining a deeper understanding of individual research projects will help to understand the essence of technology programs in general.

The research method was qualitative. In order to facilitate rich analyses of the technology project concept, as much information as possible was gathered from each individual joint research project. Generalization of the conceptual results attained in this activity-oriented multi-case study will be done by further studies applying quantitative research methods (Yin, 1994). Another direction for future research is the parallel use of the macro perspective approach and the microanalysis approach as Nieto (2002) recommends.

The research data was gathered via personal interviews with key informants of joint research

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