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The Extended Map methodology: Technology roadmapping for SMES clusters

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ABSTRACT

For small medium enterprises, customization of roadmapping is required. Although the phases of its process are solid and shared in the literature, the sub-phases and specific activities to be undertaken are only mentioned and do not provide sufficient guidance for implementation. The paper proposes a new methodology for the implementation of technology roadmapping.

The research strategy is based on action research with two cycles of action. The first cycle (Opportunity profile) simplifies the traditional methodology. The second cycle (Extended Map) relies on collaboration of small medium enterprises coordinated by an intermediary and adds an ecosystem view to the methodology.

1. Introduction

For their strategic and innovation activities, companies need access to diversity, they need to be open to collaboration, and they need to obtain *selected knowledge* (Lichtenthaler, 2008a,b; Van de Vrande et al., 2009) – focused and connected to their technologies, products, markets and resources. The systematic application of *technology intelligence systems* to the decision-making and product development processes of companies is a fundamental support for strategy and innovation in terms of selecting and supplying knowledge (Becker, 2002; Will, 2008; Rohrbeck, 2010). Small medium enterprises (SME) lack specific and tailored technology intelligence systems that are normally thought and fitted for large companies. In this sense, *SMEs are disadvantaged* by applying traditional practices and tools thought for SMEs because they experience access barriers to obtaining specific knowledge, specific competences and resources.

A tool of technology intelligence that can help in facing a changing environment and enabling the technology transfer process is the *Technology Roadmap* (TRM) (Kostoff and Schaller, 2001; Phaal et al., 2004). Technology Roadmapping draws a map of present and (possible) future technologies, products and markets, identifying alternative technological and market "roads" in terms of linkages among technologies, products and markets and organizational resources and objectives (Garcia and Bray, 1997; Rinne, 2004). The majority of the works on technology roadmapping concentrate on the process of TRM applied in different contexts and sectors (Bruce and Fine, 2004; Lee and Park, 2005; Cosner et al., 2007; Gerdsri et al., 2009). However, in the literature, there is a lack of structured approaches specifically for SMEs. TRMs are particularly tailored for large companies or contexts of good availability of specific competences and financial resources.

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