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A methodology for the identification of strategic technological competences: an application in the sheet metal equipment industry

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This paper proposes a technology foresight methodology based on the development of a complementary approach to the Delphi method that enables the identification of strategic technological competences and presents its application in a sheet metal processing equipment manufacturer. The proposed methodology takes into consideration synergies between future events through a modified QFD matrix, and the application involved a panel of experts from industry and academia. The proposed methodology can benefit organizations by promoting a homogeneous perspective on existing relationships between external drivers and technology diffusion. This study contributes for the understanding of the links between foresight and technology strategy formulation. Further implementations in industrial environments should be performed to refine the methodology and increase the confidence level on the expected results that these findings can signify.

Keywords: Delphi method; Quality Function Deployment; foresight; strategic technological competency; sheet metal equipment

1 Introduction

Increasingly shorter innovation cycles observed in a number of industries comes with greater challenges to organizations. With varying degrees of importance across industrial sectors, analysing the process by which technologies are diffused has been assuming a central role in the strategy formulation process (Chiesa, 2001; Burgelman et al., 2001; Kameoka et al., 2004). Decisions such as which technologies to invest in, their mode of acquisition and how to develop new and/or leverage internal technological competences are made in a context of great complexity and uncertainty.

The analysis of technology diffusion in an industrial sector should consider externalities related with the changes in markets, economies and other factors, which can influence the diffusion process (Linton, 2002). Therefore, a holistic perspective incorporating possible relationships and synergies between these factors is required to develop scenarios that reflect the future impact of technologies.

The objective of this paper is twofold: 1) to develop a technology foresight methodology that complements the results from the Delphi method through the analysis of the relationships

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