

## Biblio Service

**Michael W. Lawless and Luis R. Gomez-Mejia:** Strategic Management in High Technology Firms, Monographs in Organizational Behavior and Industrial Relations, Volume 12, Jai Press Ltd., London 1990.

### 1. Summary

Technological progress and economic development are interdependent processes. Their interaction has important impacts on global competition, on prosperity of regions and nations, as well as on success and survival of many industries and individual companies. Technology driven industries and high-tech companies play a major role in current times of fundamental transitions. New areas of technology promise the rise of new industries and markets, and thereby new sources for economic growth, but also better opportunities for saving non-renewable resources and protecting our natural environment.

No wonder, that issues of technology management have increasingly attracted corporate managers, government officials, and business policy/strategy researchers during recent years. Despite this growing awareness our knowledge about the many interactions of technological progress, and economic development as well as about natural effects of technology and competitive strategy is still rudimentary. Undoubtedly, there is a demand for more intensive conceptual and empirical research.

The reader edited by Lawless/Gomez-Mejia raises several important questions concerning “strategic management in high technology firms” and gives some new insights into this subject of inquiry.

### 2. Objective

The objective of the papers presented in this volume is “stimulation further advances in management practice and in interdisciplinary research”. The volume is not an attempt to give a comprehensive picture of the many interrelated aspects of strategic management in high technology firms. Instead it focuses on a selected set of questions of the overall problematique. It consists of 14 papers

which bring together the current research work of 22 authors on a rather broad spectrum of technology-related strategic issues. The reader is a supplement of another volume in the same series entitled "Organizational Issues in High Technology Management" which according to editors "should foster reexamination of some questions in strategic management of high technology, and lead to new viewpoints on others".

### 3. Structure and Contents

The reader is organized into three chapters. Part I is titled "Innovation Strategies", and includes five articles. They cover basic and contextual as well as action-oriented issues. Barney and Baysinger in a comparative study investigate the way how small and large companies organize the process of innovation, using Schumpeter's model of technological change as a framework. Their conclusions are not novel at all. According to their results both types of firms have different strengths and weaknesses across the various stages of innovation. Whereas small companies are usually more efficient inventors, large companies have significant advantage in technology commercialization. There seem to be many ways to organize the innovation process, but there is no single optimal solution. Vertically integrated innovation, creates problems both in small and large firms, and managing vertically disintegrated innovation is another option, but has its own difficulties.

*Hariato and Pennings* with their article on "technological innovation through interfirm linkages" try to answer the question. "Under what conditions will firms collaborate with other firms in developing new ideas, products or processes?" They take the view that innovation is based on organizational skills and capabilities which are the outcome of organizational learning processes. Their analysis illustrates how a complex set of factors (divided into the categories "inducing" and "focusing" effects) at multiple levels of analysis (inter-industry, industry, firm) can account for the adoption and diffusion of innovation. Two hypotheses about organizational behavior of creators and users of technological innovations are tested against case study data.

The risks of early entry into high technology markets is the topic of a paper by *Day and Freeman*. They list the benefits of pioneering, the degrees of pioneering and risks of early entry. Upon this bases of knowledge drawn from literature they make some general statements about strategies for surviving. Their message is clear, but does not include news.

*Haynes and Hendrick* in their paper focus on the introduction of new technology (Automated Teller Machines ATMS) in a specific service industry (retail banking). They analysed the diffusion of ATMS in the U.S. and found out that ATM nurveyors suffered for many years due to a mismatch between their capabilities and customers' expectations. Therefore their lessions suggest to fit

internal competences with external opportunities and evolution instead of revolution as the concept for introducing new technology.

*Weiss and Delbecq* report a study that compares the impact of “regional cultures” upon the nature of computer companies. They perceived significant regional differences between cultures in Silicon Valley and Massachusetts. Cultural differences are identified using terms like workplace formality/informality, risk-taking and entrepreneurship, leadership styles, strategic orientation, preferred reward system, workplace communication and networking. Authors speculate that regional cultures appear to produce contrasts in organizational structure, decision making types, risk propensity, and even creativity. In a world of an increasing intercultural mixture these findings, if they exist at all, may soon become obsolete technology the strategic management of technology should focus on developing a process that enables and fosters the commercialization of new scientific developments.

*Kamm* uses two case studies in order to study the so-called “vapoware” phenomenon in the computer software industry. She sees four external forces which at least partially contribute to this phenomenon of disappearing software companies soon after starting up: rapid hardware innovation, fluctuating availability of capital, unpredictable copyright protection and increasing user demands.

According to *McGowan* effective innovation management should take care of multiple product-market life cycles as well as the organisational life cycle. He proposes a model where technology, product and organizational life cycles are integrated. Based on the assumption of a s-shaped technology diffusion he examines how strategic decisions within technology based firms are influenced by the rate of technological change.

A critical issue in strategic technology management is obviously the understanding of interrelationships between strategy, structure and people. Based on data of 34 U.S. manufacturing sites *Hottenstein* explores the R&D and production interface. Starting with a set of changes manufacturing companies have focused in recent years he lists obstacles to developing capabilities and discusses four strategies for interfacing design and manufacturing. In order to meet the challenge of faster product development at a low-cost and high-quality basis he proposes the well-known concept of “design for manufacturability” and recommends to improve the design/manufacturing interface as a prerequisite for implementing this concept.

#### 4. Recommendation and Critique

The text offers some interesting aspects for academicians which may stimulate them to further research. Also it is helpful for students who like to get deeper insights into the overall problematic of managing technology. The reader is not

a case book, but none the less useful as a supplementary text in classes. Practitioners will not find specific approaches to support strategic decision making in high technology companies, but some of the articles may provide useful heuristics for management and may help managers to ask more questions and to find better answers in the context of strategic management in high technology industries.

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Fayerweather, J., Attitudes toward foreign firms among business students, managers and heads of firms. *Management International Review*, 15, 6, 1975, pp. 19-28.  
Eiteman, D. K., Financial Sourcing. In: Macharzina, K./Welge, M. K. (Eds.), *Handwörterbuch Export und Internationale Unternehmung*. Poeschel, Stuttgart 1989, pp. 602-621.  
Stopford, J. M./Wells, L. T. Jr., *Managing the Multinational Enterprise*. Basic Books, New York 1972.

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