

Empirical analysis of manufacturing strategy implementation

Jörn-Henrik Thun*

Industrieseminar, Mannheim Business School, University of Mannheim, 68131 Mannheim, Germany

Received 13 April 2006; accepted 18 September 2007

Available online 11 October 2007

Abstract

The purpose of the paper is to close the gap between theoretical approaches concerning manufacturing strategy and empirical analysis. This is accomplished by using data from the “High-Performance Manufacturing” project. In order to distinguish plants with a high implementation of a manufacturing strategy from the rest of the sample, the plants are grouped by a cluster analysis. Furthermore, two different views of manufacturing strategy, i.e. a market-based view and a resource-based view, are identified within the sample. The analyses show that the general implementation of a manufacturing strategy leads to better performance and fosters the implementation of special manufacturing strategies, i.e. a resource-based, a market-based, or an integrated manufacturing strategy. These special manufacturing strategies result in superior performance. Finally, the results reveal that the intensity of competitiveness has an impact on the choice of manufacturing strategy and that the ignorance of a special manufacturing strategy has more severe consequences in a highly competitive environment.

© 2007 Elsevier B.V. All rights reserved.

Keywords: Manufacturing strategy; Market-based view; Resource-based view; Integrated manufacturing strategy; High-performance manufacturing; Performance

1. Introduction

Since Skinner (1969) has addressed the importance of a strategic alignment of the manufacturing function, manufacturing strategy has become one of the most discussed issues in the field of operations management. Many publications offer conceptual frameworks, give empirical evidence, etc. concerning the use of a manufacturing strategy. While extensive literature on manufacturing strategy has been written since the 1960s, still some research questions remain unanswered. In this paper, we concentrate on the questions whether companies implement different kinds of manufacturing strat-

egy and how these strategies are related to performance and to the competitive intensity.

Today, manufacturing companies are forced to stand up to competitors in the light of a highly competitive environment. This can be achieved by a specific alignment of the manufacturing function. Through the formulation of a manufacturing strategy, the strategic potential of the manufacturing function can be realized, leading to superior competitiveness. Despite the fact that manufacturing strategy is commonly accepted as an important approach, there is still a lack of empirical work, especially regarding the use of manufacturing strategies in a broad international context.

Concerning manufacturing strategy implementation, there is potential for further research, especially concerning different types of manufacturing

*Tel.: +49 621 181 1578; fax: +49 621 181 1579.

E-mail address: thun@is.bwl.uni-mannheim.de

strategies. Are manufacturing strategies predominantly focused on market requirements and do they follow the equivalent business strategy accordingly, are they formulated based on the underlying manufacturing resources in the light of the resource-based view, or is an integration of both types in manufacturing strategy reasonable, considering market requirements as well as resources simultaneously? Furthermore, the question arises if the competitive intensity of the environment has an impact on the choice of manufacturing strategy. These are the key research question of the paper.

The paper is organized as follows. Firstly, we review the relevant literature on the topic. Then, the main hypotheses for the empirical analysis are developed. A presentation of the underlying research project, the research design, and the key variables is done in Section 4, before the findings of the empirical analyses of the study are discussed in the consecutive sections. Finally, we conclude with a discussion of the results and give hints for further research.

2. Literature review

The literature offers a great variety of papers dealing with the subject of manufacturing strategy. Skinner (1969) mainly builds the foundation for the discussion of this important issue in operations management, stressing the importance of the linkage between business strategy and manufacturing. Based on the basic idea that manufacturing plays a strategic role for competitive advantage, Hayes and Wheelwright (1979, 1985) add two important concepts to the academic discussion of manufacturing strategy. On the one hand, they introduce the popular concept of the product–process matrix that describes the interplay of products with their underlying processes and integrates the product life cycle and the process life cycle (Hayes and Wheelwright, 1979, 1984). On the other hand, they developed the four stages of the strategic role of manufacturing (Wheelwright and Hayes, 1985). Kotha and Orne (1989) proposed a framework for generic manufacturing strategies which is derived from Porter's (1980, 1985) approach of generic strategies and Hayes and Wheelwright's product–process matrix. We will investigate these manufacturing strategies in the consecutive sections.

Some papers also have addressed the topic of manufacturing strategy which are based on the previous round of the High-Performance Manufac-

turing (HPM) project. In a preliminary study of the first HPM data set, Anderson and Schroeder (1991) analyse the process of manufacturing strategy empirically with a sample of 53 respondents. The paper focuses on the link between business strategy and manufacturing strategy and provides first insights how these strategy levels affect each other. In a similar preliminary study, Bates et al. (1995) analyze the relationship between manufacturing strategy and organizational culture in 41 US plants and stress the link between the business strategy and the manufacturing strategy as well. Although manufacturing capabilities are considered as one subject, a clear distinction between the resource perspective and the market perspective, as intended in this paper, is not done.

An empirical investigation of the Hayes and Wheelwright's world-class manufacturing practices is provided by Flynn et al. (1999). Their results indicate that Hayes and Wheelwright's practices are related to competitive performance and give a first hint concerning the importance of their so-called "stage 4" that reflects mainly the resource-based view of this paper.

Devaraj et al. (2001) compare the Hayes and Wheelwright's product–process matrix and the approach of generic manufacturing strategies introduced by Kotha and Orne (1989) empirically. The results indicate that the generic manufacturing strategies model is a reasonable augmentation of the product–process matrix. Furthermore, the impact of such strategies on performance has been evaluated. Additionally, Devaraj et al. (2004) test the link between generic manufacturing strategies and plant performance. In our paper such manufacturing strategies are investigated in terms of market-based manufacturing strategies.

Bates et al. (2001) analyse manufacturing strategies empirically by using the scales anticipation of technologies, communication of strategy, formal planning, business strategy linkage, and strategy strength. Although they discuss the two perspectives of manufacturing strategy, they analyse them jointly without distinguishing between them and focus on differences between the participating countries in general. Three of their scales equal the identified factors of general manufacturing strategy implementation of this paper supporting the validity of these factors.

A resource-based view of manufacturing strategy is presented by Schroeder et al. (2002). Their paper empirically demonstrates by the use of a structural

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات