

# Manufacturing strategy and competitiveness

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## Abstract

The importance of manufacturing strategy (MS) has never been questioned and has been emphasized in many theoretical concepts, frameworks, and models. There are only a few empirical studies, however, which examine whether these theories work in practice. In this paper the hypothesis that the existence of MS contributes to company level competitiveness (ROS, inventory turnover) is tested.

The study is based on international data, which were collected in the second round of the International Manufacturing Strategy Survey. The database contains more than 700 companies from the machinery industry (ISIC 381–385), from 23 countries.

The results partially support the hypothesis. The existence of MS seems to have a positive effect on ROS, however, it does not have any relation to inventory turnover.

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## 1. Introduction

Is there a connection between production competence and business competitiveness? The majority of respondents would give a positive answer like in Schroeder et al. (1986), 80% of production managers answered this question affirmatively. Intuitively, it seems obvious that a smoothly running production system will have a positive influence on business performance. In the literature of production strategy—at the level of theories and concepts—it is discussed by several authors, like for the advantages and positive effects of production focus see the work of Skinner (1969, 1974), for positioning production systems in product-process matrix and the strategic roles

of manufacturing see Hayes and Wheelwright (1979a, b), Wheelwright and Hayes (1985), and for order winning criteria see Hill (1993). The statement seems to be logical since every new concept or method can prove that its existence—directly or indirectly—contributes to the business performance. The scientific and business world, however, are not satisfied by pure theoretical constructs. They require empirical support, such as case studies or other empirical procedures.

## 2. Literature review

Studies dealing with the connection between *business strategy* and *business performance* have played an important role (for example, see Pearce et al., 1987; Cool and Schendel, 1987; Banker et al., 1996) in the development of production strategy in

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the direction of operationalization, arising questions, and elaborating methodology.

The body of empirical research in production strategy is not large (there is a summarizing table about it in Swink and Way (1995), and this is the topic of the paper by Minor et al. (1994)). However, there are several studies dealing with the testing of some concepts, model building, and operationalizing these models. The main task in many of these studies is to examine *production and business performance* in terms of the effect on the production field.

For example, a frequently raised question is, what kind of influence a characteristic of the production system exerts on business performance. Phillips et al. (1983) examined the effect of product quality on business performance and cost, supporting the idea that focusing on one specific competitive edge for the business can help in reaching competitiveness. De Meyer and Ferdows (1990) analysed the connection between production programs and production performance. They concluded that it is not enough to implement several production programs, a well-developed portfolio, or in other words, existing concept behind is necessary to get high-production performance. Ahmed et al. (1996) have reached a similar conclusion. Beaumont and Schroeder (1997) have looked at the connection between technology and performance. Their results were not obvious, some technology affected business performance positively, but others did not affect it or even had a negative effect on the performance. These studies support the idea that the existence of a strategic view in manufacturing is necessary in order to reach business success.

Several authors have examined the consistency between production and business strategy (Richardson et al., 1985; Deane et al., 1990; Brown, 1998), and within this issue there is a separate group dealing with the connection between production competence and business performance (Cleveland et al., 1989; Vickery et al., 1993; Kim and Arnold, 1996; Corbett and Van Wassenhove, 1993) where they defined production competence as the level of consistency between importance and performance of competitive priorities. They argued that the larger the consistency,

the more manufacturing can contribute to business success. Thus, these papers again support the idea that handling manufacturing strategically contributes to business performance.

The effect of production strategy—interpreted overall, or operationalized by one or two variables—on business performance is in the centre of Swamidass and Newell (1987), Roth and Miller (1992), both emphasizing the role of managers, and Milling et al. (1999). The existence of production strategy and its effects are analysed in Tunälv (1992). The latter group of studies have the closest connection to the topic of this paper.

In Table 1 there is a chronological summary of empirical studies dealing with factors which affect production and/or business performance. In the table, the author, the examined sample, the applied method, the most important questions, and the results of the analysis are listed.

Inventories appear in this table only indirectly in some production programs like MRP or JIT, as a source (cause) of business competitiveness. Taking inventories as a measure of business level performance (effect) is very rare in the research literature, in spite of the fact that inventory turnover is one of the most frequently used performance measure in evaluating operating performance within Fortune 500 companies (Hendricks, 1989). Since inventory turnover is affected by several internal and external factors, like the type of industry, company size, level of centralization in purchasing, characteristics of the market, just to mention a few, thus this measure is more applicable to control changes within a company than to compare business performances.

### 3. The hypothesis

As seen in Table 1, several experts have examined the issue of connecting Manufacturing Survey (MS) to business performance. Although their results are not always evident, it seems that there is a connection on some level. The hypothesis of this study: *The existence of MS, by itself, positively influences business performance.*

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