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An international comparison of the effect of manufacturing strategy-implementation gap on business performance[☆]

Boo-Ho Rho^a, Kwangtae Park^{b,*}, Yung-Mok Yu^c

^a*Sogang University, Seoul, South Korea*

^b*Department of Management, Korea University, 1, 5Ka, Anam-dong, Sungbuk-ku, Seoul, South Korea*

^c*Dankook University, Seoul, South Korea*

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Abstract

This study has the purpose of empirically testing the importance of consistency between manufacturing strategies and practices in achieving better business performances. An empirical test has been conducted and compared on the data sets from three different nations, each of which seems to have quite different manufacturing capabilities and competitive environments. The empirical test result implies that the gap variable indicating inconsistency between manufacturing strategy and implementation practices plays a more important role than the strategy or implementation variable in discriminating the superior from the inferior performance groups. For those data sets from the US and Korea, the gap variables of flexibility, quality and/or cost show more significant contribution in discriminating business performance groups. But none of the gap variables outperform other strategy or implementation variables in discriminating performance groups in Japan. © 2001 Published by Elsevier Science B.V. All rights reserved.

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1. Introduction

What will be the ultimate goal of manufacturing strategies or practices? Why are we compelled to adopt so many up-to-date three-letter manufacturing innovation approaches such as BPR (Business Process Reengineering), ERP (Enterprise Resource Planning), TQM (Total Quality Management), JIT

(Just-In-Time), TPM (Total Productive Maintenance), CIM (Computer Integrated Manufacturing), QFD (Quality Function Deployment), DFM (Design For Manufacturer), FMS (Flexible Manufacturing System), CAD (Computer-Aided Manufacturing) and CAE (Computer-Aided Engineering)? The answer is simply: in order to be more competitive and profitable. But how we can be so is not that simply answered. A firm usually can use only limited resources for implementing its strategies and/or practices. Because of this limitation, it has to seek more cost-effective as well as goal-achievable ways of allocating its resources. A commonly suggested approach to prioritize resource allocations among manufacturing activities is to take into

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*Corresponding author. Tel.: +82-2-3290-1944; fax: +82-2-922-7220.

E-mail address: ktpark@kucn.korea.ac.kr (K. Park).

account their relative contributions toward achieving the firm's strategic goals pursued in its manufacturing strategy. In this context, manufacturing strategy consists of two core elements, as Miller and Roth [1] pointed out: the manufacturing task and the pattern of manufacturing choices. The first states what the manufacturing function must accomplish [2], the so-called competitive priorities such as quality, cost, delivery or flexibility, while the second is concerned with the major decisions on manufacturing structure and infrastructure that a company makes to achieve its addressed manufacturing tasks [3].

There have been a large number of theoretical and empirical research studies designed to investigate the relationship between manufacturing strategies, practices and performances. Even though some of the most recent will be briefly discussed later, most of these research studies are focused on a one-to-one relationship between strategic orientation and performance or between manufacturing practices and performances. Very few empirical studies directly address the appropriateness of manufacturing practices for a certain strategic orientation. And most of them also fail to extend their findings to show how this appropriateness can affect business performance. As Dixon et al. [4] point out, however, strategically important manufacturing activities should be given more attention and resources than those that are not important. Over- or under-allocation of manufacturing resources should be avoided to achieve a more balanced and cost-effective use of them.

This study aims to empirically test the importance of consistency between manufacturing strategies and practices in achieving better business performances. An empirical test has been conducted on the data sets from three different nations, each of which seems to have quite different manufacturing capabilities and competitive environments. This international comparison is to see whether a consistency–performance relationship can be generalized regardless of the nation's specific characteristics of manufacturing systems. A consistency measure is defined in terms of the gap between the perceived importance of a competitive priority and thought-to-be-important manufacturing practices to achieve this priority. Consistency measures

along with other strategy and implementation measures are then compared to investigate which measures are more effective to differentiate high performance business units from low performance ones.

2. Literature review

2.1. *Manufacturing strategies and performances*

The notion of manufacturing strategy as an important functional component of business strategy was initiated by Skinner [5,6]. Skinner emphasized that manufacturing has the potential to strengthen or weaken a company's competitive ability. Wheelwright [7] articulated how manufacturing can support a firm's competitiveness by defining four basic competitive priorities of manufacturing: cost efficiency, quality, flexibility and dependability. This framework has greatly influenced the terminology and direction of manufacturing strategy research. Hayes and Wheelwright [3] provided more specific descriptions about how manufacturing capabilities can help a business attain a desired competitive advantage. Since then many researchers, for example Swamidass and Newell [8], Hill [9], McDougall et al. [10] and Kim and Lee [11], have explored the role of manufacturing strategy in the strategy formulation and the strategy implementation process of a business unit.

Many empirical studies have also reported that well-formulated and effective manufacturing strategies, aligned with business strategies and goals, can produce better performances. For example, there is a study that the business units with a formulated manufacturing strategy outperformed the business units without one in terms of business performance such as return on sales [12]. Another study states that high-productive firms are more likely to have more clearly defined competitive strategies [13]. This study helps to highlight the importance of manufacturing strategy to productivity and other measures of performance.

Several studies deal with the orientations or types of business strategies and/or manufacturing strategies and relevant performance levels. The relationship between business strategic orientation

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