



Supplier selection or collaboration? Determining factors of performance improvement when outsourcing manufacturing

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ABSTRACT

An empirical study was designed to determine factors of performance improvement when outsourcing manufacturing. Findings from a survey of 136 manufacturing plants in Sweden show that most of them achieve their outsourcing motives, but not without trade-offs. Factors of performance improvements such as economies of scale or operations in low-cost countries can improve one performance dimension, such as product cost, yet negatively impact volume flexibility, speed or product innovation. The results show part characteristics and supplier operating capabilities are more important than supplier relationship strategies when outsourcing manufacturing, meaning that supplier selection trumps supplier collaboration in the make-or-buy decision.

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1. Introduction

The practice of outsourcing continues to challenge managers. Although the theoretical foundations for outsourcing manufacturing are firmly rooted in the literature, it seems to be difficult for many practitioners to fully take advantage of this practice in reality. There are several examples of outsourcing initiatives that have failed to achieve a company's performance objectives. A recent case in point is Chrysler's lawsuit against Accenture for not delivering the promised savings when obtaining new suppliers in low-cost countries (Sherefkin and Barkholz, 2008).

The purpose of this study is to improve the make-or-buy decision process for managers by providing empirical evidence on what factors really matter in attaining various kinds of performance objectives. The study fills a gap in the purchasing and supply management literature by involving several make-or-buy decision factors and simultaneously assessing their performance improvement impact. As will be shown, most conceptual make-or-buy frameworks involve many factors, while previous empirical studies have handled each of these factors only in isolation.

1.1. Previous studies with a wide approach

Previous empirical studies on outsourcing practice and performance relationships can be divided into two main strands of research, wide and narrow studies. Both aim at predicting plant performance. However, the studies that take a wider approach investigate outsourcing in relation to other manufacturing practices, such as investments in advanced manufacturing technology. In summary, the wide-focus studies show that practices other than outsourcing that enhance manufacturing capability have a much stronger ability to predict improvements in operating performance. While investments in higher manufacturing capability have only positive effects, outsourcing manufacturing may entail negative as well as positive effects on operating performance. For the most part, outsourcing leads to negative effects when used as the main strategy to improve performance, but is more likely to cause positive effects if concurrent initiatives are taken to develop manufacturing capabilities. Thus, it is argued that there is far greater performance improvement potential in investing in, rather than divesting, the manufacturing function. Outsourcing is mainly beneficial when used to free resources in order to invest in higher manufacturing capability.

The first type of wider approach study is survey research, which studies outsourcing in relation to other manufacturing practices. Mixed results have been found. While the works of Laugen et al. (2005) and Pagell and Sheu (2001) found either no effects or very weak but positive effects of outsourcing, the works

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of Leachman et al. (2005) and Dabhiikar and Bengtsson (2008) for the most part found a negative performance effect. However, all four studies found very strong performance effects regarding the other manufacturing practices. Laugen et al. (2005), for example, whose investigation emphasised best practices, found that the streamlining of production flows, JIT, TPM, etc., were examples of best practices, while outsourcing was not. Pagell and Sheu (2001) found “buyer behaviours directly manifest in supplier performance and only indirectly manifest in their own performance. This can give the buyer the false impression that the supply base is harming performance, when the real problem is the way the buyer manages the supply chain” (Abstract). Leachman et al. (2005) found that R&D commitment and the ability to compress production time have a strong positive impact on manufacturing performance. Finally, Dabhiikar and Bengtsson (2008) showed that in comparison to outsourcing, practices related to the enhancement of manufacturing capability had a much stronger ability to predict improvements in operating performance. In addition, the study showed that outsourcing is mainly beneficial when used to free resources in order to invest in higher manufacturing capability.

It is important to note how outsourcing was measured in these studies. Three of them (Laugen et al., 2005; Pagell and Sheu, 2001; Leachman et al., 2005) use *cost for purchased materials as a share of the total manufacturing cost at a given point in time* as the measure of outsourcing. It is not evident from this kind of operationalization that a company has actually contracted out any manufacturing activities that formerly were done in house, which is the definition of outsourcing manufacturing used in the present study. Dabhiikar and Bengtsson (2008) used *change in cost for purchased materials as a share of the total manufacturing caused by an actual outsourcing initiative* as the measure.

The second type of wider approach study is survey research, which studies strategic sourcing (or a similar non-quantitative operationalization of outsourcing) in relation to other manufacturing practices. These studies can in turn be divided into three subsets (A–C):

- A. The works of Narasimhan and Das (1999) focuses on different kinds of flexibility and contrasts the impact of strategic sourcing with the implementation of advanced manufacturing technology. This study shows that strategic sourcing can assist in the achievement of modification flexibility, which in turn can help influence manufacturing cost reduction. Advanced manufacturing technology helps in the achievement of volume flexibility.
- B. The works of Narasimhan and Jayaram (1998) and of Waterson et al. (1999) both focus on manufacturing performance and contrast the effect of strategic sourcing/outsourcing with various other manufacturing practices. The former study showed that among the manufacturing practices only strategic sourcing has an impact on manufacturing goal achievement, while the latter showed that outsourcing has a much weaker impact than the other manufacturing practices.
- C. The works of Narasimhan et al. (2005) and of Takeishi (2002) both focus on manufacturing capability progression and come to the same conclusion. Superior performance can only be obtained by those who have an internal as well as an external capability progression focus.

Notable in these studies in subsets A–C is that they do not use a quantitative measure of the degree of outsourcing manufacturing. In fact, it is not known if the companies under investigation in these studies have outsourced anything at all. These studies use multi-faceted constructs based on Likert-type scales. Common

factors in strategic sourcing in these studies include: the extent of supplier assistance in product and process design, and in reducing new product introduction cycle time; supplier responsiveness to product modifications; delivery; and schedule volume changes. As discussed earlier, it is not evident from this kind of operationalization that a “strategic sourcer” has actually contracted out any manufacturing activities that formerly were done in house.

1.2. Previous studies with a narrow approach

The other strand of research takes a more narrow approach. Details of outsourcing are studied in isolation and consequently also separately from other manufacturing practices. Like the wide-focus studies, the results of the narrow studies show that there are no direct positive effects of outsourcing manufacturing on firm performance, yet there are circumstances that might moderate its impact on performance.

The narrow studies consist of two types: (a) pure modelling research and (b) surveys. While the modelling works of Anderson and Parker (2002) and Mieghem (1999) show a negative impact, the studies by Plambeck and Taylor (2005), as well as Ülku et al. (2005), show a positive impact. Anderson and Parker argue that outsourcing decisions can create a path-dependent outsourcing trap in which a firm experiences higher long-run costs after an immediate cost benefit. Mieghem (1999) claims that a price-focused strategy for managing subcontractors can backfire, because a lower transfer price may decrease the manufacturer's profit. Plambeck and Taylor (2005) assert that the sale of production facilities to contract manufacturers (CMs) improves profitability for the industry as a whole if and only if original equipment manufacturers (OEMs) are subsequently in a strong bargaining position vis-à-vis the CM. Ülku et al. (2005) argue that outsourced manufacturing can be advantageous from a time-to-market perspective. OEMs can accelerate process adoption by risk sharing through joint investment. An efficient CM provides not only low costs but also rapid access to new process technologies, and therefore higher revenues.

The second type of narrow approach study is based on survey research. These studies agree that there are no direct effects of outsourcing manufacturing on firm performance (Gilley and Rasheed, 2000; Görg and Hanley, 2005; Leiblein et al., 2002; Mol et al., 2005). However, three of them show that there are circumstances that might moderate the impact of outsourcing manufacturing on firm performance. Gilley and Rasheed (2000) show that firm strategy and environmental dynamism moderate the relationship between outsourcing and performance. Görg and Hanley (2005) conclude that a positive impact of outsourcing manufacturing on firm performance only holds for plants with low export intensities. Leiblein et al. (2002) show that neither outsourcing nor internalization per se result in superior performance. Rather, a firm's technological performance is contingent upon the alignment between the firm's governance decisions and the degree of contractual risk.

Again, outsourcing is measured as *cost for purchased materials as a share of the total manufacturing cost at a given point in time* in these studies. Thus, whether or not the studied companies have engaged in any outsourcing activities is not known. It is not the level of purchase per se that is of interest. Rather, it is the change in purchase, given that a company actually has outsourced manufacturing activities.

1.3. Criteria for this research

Following this literature review a need for research that meets two different criteria was identified. First of all, more studies of

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