

# Framework for outsourcing manufacturing: strategic and operational implications

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## Abstract

Over the last decade, outsourcing has proved to be a relevant strategic option for companies narrowing their operations to focus on core competencies. This paper analyses the process of outsourcing manufacturing to cost-efficient and innovative suppliers in support of internal resources and capabilities. A scientific reference model founded on manufacturing strategy is proposed to help choose the right level of analysis and steer the research process. From this, a system model is developed to enable identification of the production system elements and internal support functions. Finally, a framework that links the phases of the entire outsourcing process to strategic planning is synthesised. The framework includes a logical sequence of key activities with built-in performance measures and expected output for each of the phases. The research methodology combines theory study with case study and action research in Aalborg Industries, which operates in the heavy industry. Thereby, the research pursues both academic and industrial application.

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## 1. Introduction

Entering the third millennium, most industrial sectors face intensified conditions both in the marketplace and within the corporate boundaries. The customers are putting higher demands and constraints on their upstream linkages. Formerly, the customers focused mainly on low total systems cost, high quality and good delivery performance. Presently, they also expect short product life cycles and time-to-market, innovativeness and customisation [1]. The companies and their suppliers are experiencing the emergence of a global economy and rapidly changing markets. At the same time, the complexity of products and technologies is increasing and their functionalities are expand-

ing [2]. Globalisation and technological innovation appear to be common denominators of these marketing and corporate business challenges. From a corporate strategy point of view, they add new competitors and markets and put strong pressure on companies' competitiveness and profitability. From a combined business and functional strategy viewpoint, they call for improved organisational adaptability and more flexible and advanced systems relative to manufacturing, logistics, engineering, information and process technology and the like [3,4].

Table 1 specifies the wide range of trends in the industry and their implications. Besides, the table includes examples of initiatives that may be taken to proactively meeting the trends and implications. It is noticed that the trends, implications and initiatives are not fully consistent in the sense that certain interdependencies and overlaps exist in practice.

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Table 1

The wide range of industrial trends and implications that represent the problem context of the paper

Trends	Implications	Initiatives
Information and process technology—including the Internet, electronic data interchange, e-commerce, supply chain planning systems, robotics, etc.—is gaining an all-important influence on the industry structure	Facilitates integration of operations of separate companies into a cohesive whole, which is a strong incentive to establish buyer–supplier relationships	Moving from traditional arms’ length relationships to partnering relationships in which both parties work within “the spirit of the contract”
	Enables rapid deployment and sharing of information between buyer and supplier	Obtaining a win–win situation while ensuring that savings, delivery performance, innovativeness and other collaborative objectives comply with the baseline agreement
	Makes interorganisational interfaces less transparent in the sense that people communicate via electronic media instead of face-to-face Implies that fewer workers can handle more tasks Reduces the need for several layers of middle management, thus, strengthening organisational competitiveness by providing flexibility and overall operating cost savings (i.e. downsizing)	Creating an extended enterprise in which the company is considered as an integral part of a supply and distribution network
Customers are extending their requirements	Means that companies must meet short product life cycles and time-to-market, innovativeness and customisation in addition to low total systems cost, high quality and good delivery performance	Optimising all supply chain activities, including manufacturing, engineering, procurement, logistics, sales, marketing, etc. Incorporating engineering activities and administrative routines into the planning of customer orders Integrating engineering and manufacturing processes, planning and control, purchasing and quality
Companies are reducing the total supplier portfolio	Involves single sourcing, strategic partnerships, etc. to obtain cost reductions, improve planning and control of supplier base and better exploit competencies and innovation ability of individual suppliers	Developing a technical management system to determine the criticality of supplied products or services and to segment and risk-assess the supplier base Establishing framework agreements, system deliveries, e-portals, continuous performance assessments, joint development projects, etc.
Resources are concentrated on core businesses rather than on diversification	Requires a new approach to the strategic planning process in which value creation is perceived from an inside-out perspective compared with an outside-in perspective	Integrating production and operations management and industrial marketing with strategic planning in order to meet the objectives of organisational adaptation and quick response to changes in customer demands
The complexity of products and technologies is increasing and their functionalities are expanding	Calls for flexible and advanced systems, including manufacturing, logistics, engineering, IT, etc.	Implementing a manufacturing strategy based on modularisation and mass customisation

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