

# Supply Contract Competition and Sourcing Policies

Wedad Elmaghraby<sup>\*</sup>

## 1 Introduction

Advances in information technology have opened new venues for companies to create flexible supply chains by offering high-speed communication and tight connectivity. A growing number of companies are taking advantage of new opportunities to outsource portions of their production and other operations. For example, Cisco focuses mainly on the research, development and marketing of its products, and relies heavily on outside suppliers to manufacture and distribute its products. Today, many companies are moving towards a similar organizational form by focusing on their core competencies and outsourcing significant portions of their business operations.

This increased reliance on outside suppliers for integral inputs into the production process underscores the importance of the supplier selection process. As noted in *The Purchasing Handbook*,

“Supplier selection is the most important milestone in the purchasing process. The ultimate success of a new product, the profitability of a product line, and the timeliness of delivery to the marketplace may depend on this decision.” (pg. 130)

Given the importance of the supplier selection process in the ultimate success of a product, a purchasing manager must understand the different sourcing strategies she can use and the suitability of each sourcing arrangements for her. A critical decision a manager must make is whether to partition her order and award business to more than one supplier (referred to as multiple sourcing) or award her entire business to a single supplier (i.e., sole sourcing). The performance of either sourcing arrangement will critically depend on the particulars characteristics of the manager’s industry. For example, does the technology necessary for production exist among a large group of suppliers or does the buyer face a limited supplier base? Is the technology necessary for production well-defined or does there exist “learning by doing” in the production process? Does the manager have a pre-determined number of units she wishes to purchase, or is the total quantity to be procured unknown? A manager must know the answers to these and other market characteristics questions in order to properly evaluate the suitability of a sourcing strategy.

This paper provides an overview of the research that has been done in the fields of operations research and economics on the topic of sourcing strategies. The papers in this review model various

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<sup>\*</sup>Georgia Institute of Technology, welmaghr@isye.gatech.edu

<sup>†</sup>This paper has greatly benefited from the helpful comments of Shmuel Oren, Çağlar Özden, (editors) Josh Eliashberg, Morris A. Cohen, Leroy Schwarz and two anonymous referees. All remaining errors are my own.

market structures and study the performance of (possibly more than one) sourcing strategy within that market. In aggregate, they provide a blueprint of what market characteristics can heavily influence a buyer-supplier relationship and hence are important to identify and incorporate into the supplier selection process.

Traditionally, the literature in operations research has been rich with institutional details, building models that try and capture as much detail as possible about an institution's operating characteristics. However, the literature has generally been lacking on the informational aspects of the institution: The approach most widely adopted is to assume that there is only one decision maker in the model, i.e., a central planner's approach. In sharp contrast to operations researchers, economists have generally sacrificed institutional details and placed a greater emphasis on the information structure of the model; economists study the behavior of individuals operating in a decentralized decision-making framework. The goal of this paper is to present the research of both disciplines on the topic of sourcing strategies and to suggest future research directions that fuse the two ideological approaches.

## 2 Practitioners concerns in procurement and sourcing strategies

Managers in charge of procurement operations often face multiple sourcing options, with no comprehensive way to clearly rank them. The nature of the products they wish to procure and the relationship that they are trying to develop with the supplier makes it nearly impossible to simply rank different options by a single criterion. Usually there are several criteria of critical importance by which managers judge a procurement arrangement (such as reliability, cost, duration, etc.), and no single sourcing option will always dominate all other options in all dimensions. The best arrangement for a manager depends on her market characteristics and the relative importance she places on various dimensions. The lack of a unique optimal sourcing arrangement for all market structures, and the need to pinpoint the suitability of certain sourcing strategies to certain market environments motivate the papers in this review and is of great importance to academics and practitioners alike.

Researchers in the marketing literature have tried to understand some of the factors practitioners reported as relevant when making sourcing decisions. Trevelen and Schweikhart (1988) describe the various types of sourcing arrangements and the risks and benefits of each arrangement with respect to five commonly cited buyer concerns. These concerns are defined as disruption of supply, price escalation, inventory and scheduling, technology access and quality. The most frequently cited reason behind adopting a particular sourcing strategy is the reduction of uncertainty within one of the dimensions listed previously. For example, buyers who employ a single sourcing strategy feel that the chance of a supply disruption is reduced when a buyer develops a strong relationship with a single supplier. In addition, these buyers feel that they receive the best price from their single supplier due to the economies of scale achieved from being awarded all of the buyer's business. Conversely, buyers who employ a multiple vendors sourcing strategy feel that the chance of a supply disruption is reduced when a buyer develops relations with *several* suppliers and that competition amongst the suppliers results in the buyer receiving the lowest competitive price.

In a similar vein, Tullous and Utecht(1992) attempt to understand how risk-reduction concerns would affect the sourcing strategies taken by managers. This is done by interviewing managers