

Chapter 21

Public Purchasing Future: Buying from Multiple Suppliers

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INTRODUCTION

Purchasers in the public sector are working in an environment more complex than ever before. As before they must ensure cost efficiency, but increasingly they are required to also play a role in broader government objectives such as sustainability, innovation and SME involvement. Their task is to balance the dynamic tension between competing objectives and at the same time to provide an exemplary role in the market. Although many governments have made significant progress in getting their purchasing function ready for this task, still many challenges lay ahead.

One of the most challenging and frequently occurring decisions that have to be made is the selection of the right number of suppliers for a product or service. Although many authors have discussed the pros and cons of private firm single sourcing or multiple sourcing (Han, Wilson & Dent, 1993; Segal, 1989; Treleven, 1987), no contribution to this issue specific for public procurement is available.

The public sector may be different in this respect partly because it is required to observe special rules and regulations, such as European Union tendering directives. But it is different also because of the existence of multiple goals. These goals for public purchasing, set by governments, are often products of compromise and may sometimes be conflicting (Erridge, 2005). It is exactly this uniqueness of public procurement that we expect to play a role in the decision on multiple sourcing.

In this chapter we first enumerate reasons provided in the literature for choosing multiple sourcing. Then we compare these reasons with the goals and directions established for public

purchasing. It is argued that the demands on public purchasing will lead to more multiple sourcing. The arguments are illustrated by examples taken from recent experiences in the public sector in the Netherlands.

MULTIPLE SOURCING

Before addressing the advantages and disadvantages of multiple sourcing we first clarify the definitions. Later in this section we create a short overview of the most common arguments in favor and against multiple sourcing.

Definitions

We define multiple sourcing as “purchasing from two or more vendors an identical good or service.” Its counterpart, single sourcing, is defined as “purchasing from only one vendor [an identical good or service]” (Treleven, 1987; Weele, 2001).

For the sake of simplicity we do not discuss other forms of sourcing such as sole sourcing, dual sourcing and parallel sourcing (Richardson, 1993; Watts, Kim & Hahn, 1995). We want to keep the line of thought in this chapter as clear as possible. Therefore we engage in this discussion from the perspective of the two basic forms: single versus multiple sourcing.

It is important to emphasize that this discussion is not about the advantages and disadvantages of supply base reduction. We acknowledge that reduction of the supply base can have many advantages in costs and management (See e.g., Carbone (1999) and Burt, Dobler and Starling (2004)).

Within multiple sourcing a decision must be made on how to divide the order between the various sources. This allocation could be *static* (a fixed amount per source), *semi-static* (a fixed percentage, every other order, decided by a lottery), *dynamic* (decided in a mini-competition, depending on previous performance, etc.) or a combination of the above (Aissaoui, Haoauri & Hassini, 2006). Most of the arguments to follow apply to all forms of allocation, be it a one-time allocation (as most static rules require) or a continuous allocation process (in dynamic allocations).

Advantages and disadvantages of multiple sourcing

In this section we present a literature review on multiple sourcing. We have no intention to be exhaustive: rather, we simply provide an overview of the most commonly cited advantages and disadvantages of multiple sourcing.

The supporters of multiple sourcing base their arguments on the traditional market-based exchange (Porter, 1985). Continued competition on the market will limit the cost of goods and services and reduce dependency on the suppliers. Moreover, using an increasing number of sources gradually reduces the risk of supply disruption. Further still, access to more sources provides access to more technologies and innovations. Table 1 shows the most important advantages of multiple sourcing as mentioned in literature.

TABLE 1
Advantages of Multiple Sourcing in Literature

Stated advantages	Authors
Lowers cost through competition	Amithud (1976), Porter (1985), Rubin (1990).
Ensures independency from supplier	Trevelen and Sweikhart (1988), Newman (1988, 1989)
Ensures supply continuity	Sheridan (1988), Trevelen and Sweikhart (1988)
Gives wide access to markets and technologies	Kekre, Murthi and Srinivasan. (1995), Biong, Parvathiar and Waithe (1997), Quayle (1998)

The opponents of multiple sourcing base their arguments on the transaction cost theory (Williamson, 1975). Costs of exchange, the administration costs, are higher with multiple sourcing. Also, without absolute certainty of future orders the suppliers can never commit themselves fully to the relationship. In other words, with multiple sources one can never win the total business. Thus, benefits of scale are reduced by dividing the volume between competitors. Table 2 shows the most important disadvantages of multiple sourcing from literature.

TABLE 2
Disadvantages of Multiple Sourcing in Literature

Stated advantages	Authors
Higher administrative, transaction costs	Sheridan (1988), Schorr (1992), Cooke (1998), Brierly (2002).
Less loyalty of the supplier	Freeman and Cavinato (1990), Stork (1999a, 1999b)
Reduced scale benefits	Ellram and Billington (2001), Buttack (2001), Brierly (2002)

MULTIPLE SOURCING IN PUBLIC PURCHASING

In this section we project the advantages and disadvantages of multiple sourcing onto the goals of public purchasing. First we place the goals into a framework. Then we discuss how a multiple sourcing strategy can help achieve these goals. Most points are illustrated by examples from the Dutch public procurement situation.

Goals in Public Purchasing

In recent decades purchasing has become an important topic in the public sector. Various programs were started to achieve traditional goals of professionalizing the purchasing function, cutting costs and improving competition have been started. In addition, politicians, seeing the opportunity to use public purchasing as a tool to implement new policies, inserted new goals. To create structure in these goals, we use the classification of Erridge and McIlroy (2002). Table 3 shows these three classes of goals.

The Dutch government set itself strategic goals. These goals can be derived from different action plans published during the period 1999 till 2005. The first action plan focused on compliance with EU tendering directives only. The next set of goals combined more compliance with the European Tender Directives, transparency of the purchasing processes and cost reduction, categorized as regulatory and commercial goals. Later on, socio-economic goals were added with a focus on innovation, sustainability and attention to buying from small and medium-sized enterprises (SMEs). Using the framework presented, we categorize these goals in regulatory, commercial and socio-economic goals, as is presented in Table 4.

TABLE 3
Goals in Public Purchasing

Goals	Short description
Regulatory goals	Focus on the compliance with the European Union Public Procurement Directives
Commercial goals	Focus on the use of market mechanisms to achieve procurement goals like reduced cost and increased quality
Socio-economic goals	Focus on the use of public procurement to support wider government policy like sustainability and social welfare

Source: Erridge and McIlroy (2002).

TABLE 4
Goals in Dutch Public Purchasing

Goals	Short description
Regulatory goals	1. More compliance 2. More transparency
Commercial goals	3. Reduction of costs 4. Stimulation of competition 5. Stimulation of innovation
Socio-economic goals	6. More sustainable purchasing 7. More buying from SMEs

Sources: Ministry of Economic Affairs (MEA) (1999; 2005).

A Future with More Multiple Sourcing

Comparing the goals stated with the specific advantages of multiple sourcing we readily find that the advantages of multiple sourcing fit the commercial and socio-economic goals of public purchasing. Multiple sourcing gives a wide access to markets and technologies. The application of this strategy could stimulate the innovation of products and services by keeping more access to the markets. By offering smaller orders to a wider market with a multiple sourcing strategy SMEs have more chances to win business. When more than one supplier is selected, competition is easier to stimulate. Selected suppliers can compete with each other for orders to keep

price low and quality high. In addition, the buying organization can more easily remain independent from the suppliers, making switching between suppliers easier and the active stimulation of competition easier.

Are the disadvantages of multiple sourcing obstructing the public purchasers in reaching other goals? The effect of multiple sourcing on total cost is not immediately clear. Through competition prices can be lower, but higher administration costs and the reduction of scale benefits will lead to higher costs. The combined effect of these is unclear.

Regulatory goals are not affected by the decision to purchase from multiple sources. The literature provides little evidence that multiple sourcing leads to either increased or decreased compliance of the European Directives. Currently the directives on public procurement include a provision, Article 32, on framework contracts, intended to make buying from multiple suppliers easier and eliminate legal uncertainties. Clarity of the sourcing process is not affected by the choice for multiple sourcing. Methods for selecting and dealing with multiple suppliers are known and can provide the clarity needed (Boer, 1997).

Sustainable purchasing is mainly not affected by multiple sourcing. Adding extra criteria to the specification to buy more sustainable products may limit the number of suitable suppliers to do business with. This should not be considered to be an incentive to buy from either more than one supplier or just one; it only adds complexity to the selection process. However there are situations in which more sustainable goods and services can be bought from multiple suppliers. For example, in cases where transportation is involved, pollution can be reduced when sourcing from more suppliers, each geographically close to the various final destinations. On the other hand if producing in smaller batches generates more waste, buying from multiple suppliers could in fact be less sustainable. So the effect of multiple sourcing can be either positive or negative, depending on the specific situation.

The analysis of the goals of public purchasing and their fit with a multiple sourcing strategy is shown in Table 5. As discussed, the stimulation of innovation and competition and the intention to buy more from SMEs fit well with multiple sourcing. The other goals do not

seem to be positively or negatively influenced by a multiple sourcing strategy.

The general conclusion is that a multiple sourcing strategy can help, according to literature, achieve the goals set for public purchasing. We acknowledge the fact the decision for a single or multiple sourcing strategy cannot be made based on statements from literature alone. Specific circumstances may have a major impact on the decision. However, based on rational thinking and research alone, public purchasers would do well to employ multiple sourcing strategies to reach the purchasing goals it chooses to pursue.

TABLE 5
Fit with Multiple Sourcing

Goals	Short description	Fit
Regulatory goals	1. More compliance	Neutral
	2. More transparency	Neutral
Commercial goals	3. Reduction of costs	Unclear
	4. Stimulation of innovation	Positive
	5. Stimulation of competition	Positive
Socio-economic goals	6. More sustainable purchasing	Unclear
	7. More buying from SMEs	Positive

**MULTIPLE SOURCING IN COMBINATION WITH MULTIPLE LOTS:
ADDITIONAL POSSIBILITIES**

The analysis so far showed that multiple sourcing fits well with the increasing number of goals in public procurement. But there are more tools available to the public procurement professional. One important tool in this respect is the use of different lots.

Dividing a big job in various lots may be done in several ways, both content-wise and logically. For example, content-wise road maintenance may be divided into three sets of tasks: major overhaul, regular maintenance and minor repairs. Meanwhile, a logical division may be into major throughways, minor roads and residential areas.

Now each lot could be treated as a separate job to which all of the former applies. But more likely there will be various restrictions

and conditions between the lots imposed by the buyer or the suppliers. Consider the fact that the buyer does not want to deal with more than say 5 suppliers in total. Or a small supplier can bid for all lots but cannot handle being awarded more than 3 lots.

Obviously using multiple lots used in the latter way can provide an impetus to both commercial (cost reduction, innovation) and socio-economic goals (SME involvement). And even more obvious is the fact that such use of multiple lots requires multiple sourcing. In Figure 1 we see how the combination of multiple criteria and of multiple lots leads to six different multiple sourcing situations.

One can imagine that these six situations vary greatly in complexity. Also the suitable methods for implementation can vary for each situation. We will discuss the simplest and most complex situations, I and VI respectively, to show the bandwidth of these multiple sourcing strategies.

If we consider a situation with only price as selection criteria and only 1 lot (situation I), the only question to be answered if we want to use multiple sourcing is how to allocate the volume between the suppliers. The purchaser can set up various policies for this, such as a division in fixed percentages for each supplier, a mini-competition or a lottery.

FIGURE 1
Different Situations When Selecting Multiple Sources

Number of criteria	>1	II	III	VI
	1	I	IV	V
		1	>1 (indep)	>1 (dep)
		Number of lots		

In the most complex situation (situation VI) the buying organization must award multiple lots with interdependencies to multiple suppliers based on more criteria. Numerous decisions must be made about many selection aspects:

- What scoring method should be used?
- What are the relative weights of the multiple criteria?
- How many lots are we creating?
- What dependency rules are we creating?
- How can we optimize the assignment of lots?

The combination of multiple sourcing with multiple lots can prove useful in the search for the ultimate match of public purchasing strategy and goals. It creates not only the possibility to take many public purchasing goals into account; it also creates complexity and challenges to the purchaser. It is up to purchasers to what degree they make use of more advanced purchasing tools and strategies.

CHALLENGES

Although multiple sourcing in combination with other tools like multiple lots offer great possibilities, some remarks should be made. First, the purchaser should be aware of the possible conflicts between the various public purchasing goals. For example, as shown by Erridge (2005), commercial goals of cutting cost may interfere with socio-economic goals of environmental, sustainable purchasing. Multiple sourcing offers the opportunity to take aspects of both goals into account. However, it will not solve the basic conflict that may exist (e.g. dividing in lots to accommodate buying from SMEs could possibly lead to increased costs).

Also important is the training of purchasers and their attitudes toward tools and multiple sourcing. Multiple sourcing offers much in terms of goal achievement, but it also requires much in terms of tools and formal methods necessary to handle the added complexity. De Boer, Linthorst, Schotanus and Telgen (2006) show that purchasers and other stakeholders in the selection process sometimes hold sceptical attitudes towards more advanced formal methods. In such an environment multiple sourcing may be doomed to fail, no matter the promises.

CONCLUSION

This chapter has shown that multiple sourcing could help governments to reach its specific goals in addition to well established goals of compliance and cost efficiency. With a focus on socio-economic and commercial goals such as innovation and SME involvement, multiple sourcing is more likely to occur as sourcing strategy in public purchasing. This is further enhanced by using the possibilities offered by working with multiple lots.

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