

Supply Chain News: The Increasing Role of Optimization in Sourcing Decisions

Once Limited to Transportation Buys, Technology Now being Used in Many Other Commodity Categories, New Report from CAPS Research Says

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While "optimization" technology had been part of the overall supply chain landscape for several decades, it has only much more recently come to the areas of procurement and sourcing.

What is sourcing optimization?

According to a new report from the CAPS Research group, sourcing optimization "is a process that uses a combination of mathematical models, computer software, and computer hardware to analyze large number of supplier bids and business scenarios to identify "optimal" sourcing decision."

As a result, the process and technology gives "suppliers wide freedom to express their bidding preferences in response to a request for quotes, and gives buyers the ability to analyze these disparate bids."

Such "bid optimization" technology and approach have been around for awhile in terms of selecting freight carriers, where the bidding and contract awards process across perhaps hundreds or even thousands of shipping lanes can be quite complex for both carriers and shippers. That basic approach is now being taken to many other supply categories.

The CAPS report was written by **Dr. Larry Guinipero** of Florida State University and **Dr. Philip Carter** of Arizona State University, which sponsors CAPS Research. The full, highly detailed report is available at the [CAPS Research web site](#), with free registration.

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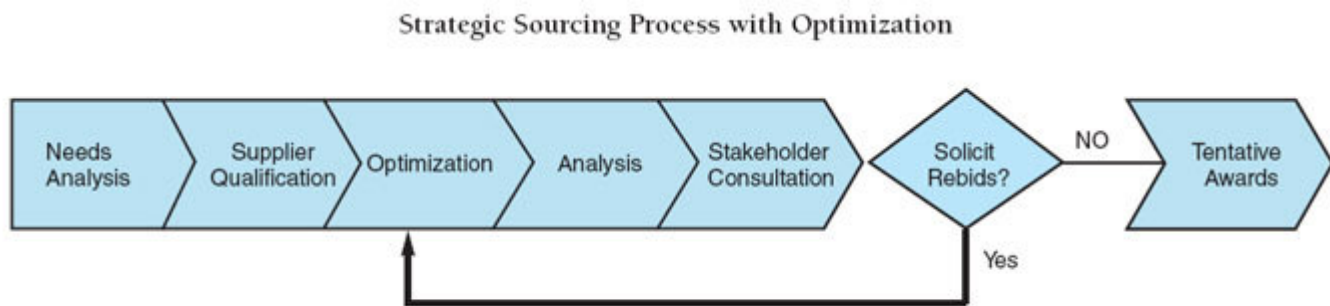
The Complexity Challenge

While sourcing transportation is at the high end of the complexity curve, many other product categories can also be complex. Consider, for example, Maintenance, Repair and Operations (MRO) materials, which can involve thousands of SKUs, available from many different suppliers.

In the past, companies might source each product separately, buy from catalogs, or rely on a single vendor for most products. But do any of these approaches really lead to optimal spend?

No, in part because even with the best effort, it is almost impossible for procurement managers with spreadsheets to really look at all the various potential combinations of bids and awards. This is especially true, as is usually the case with transportation, where bids are conditional: the price for product B is less if product A is also purchased

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Source: CAPS Research Report

(common when there are complementary lanes in transportation, for example).

Some buyers are finding the optimization approach can deliver a better result. The report says optimization technology has been used in such commodity categories as food ingredients, packaging materials, chemicals, travel, and many more.

The report says companies are starting to get real results from using sourcing optimization outside of transportation:

- A consumer products manufacturer has found that 10% of its \$30 billion annual spend could be enhanced through optimization, and that as much as \$120 million in purchase cost savings might be achieved.
- A high tech firm says it is using optimization for 56% of its annual spend, saving some \$600 million

Other anecdotal evidence suggests more companies are starting to use sourcing optimization, and those that have tried it are increasing the number of product categories optimization is used for and sourcing "events" that are held. Overall, the report says savings of about 10% are common versus more manual, traditional approaches.

"There are no simple solutions to an increasingly complex world," the report quotes on user or sourcing optimization technology as saying.

"Optimization allows buying organizations to build mathematical models that incorporate all bids from all suppliers," the report says. It will then try to find a "feasible" solution, which typically means all requirements are covered, business rules are met, and the answer is the low cost or nearly low cost solution.

This example in the report well illustrated how optimization technology could be useful: a large company annually contracted for meeting space within 15 geographic regions, and considered some 750 hotels. In the past, each negotiation was done regionally, with little opportunity for the company or the hotel chains to leverage spend across regions. Now, all bids, including cross-regional proposals, can be considered together.

Another common scenario where optimization might be useful is aggregating demand across business units, each with their own specific products needs and business rules. Manually processing all those needs to leverage total spend with suppliers might be quite a challenge – but quite doable using the optimization approach.

Additional complexity can enter the equation, making it still harder for manual methods to come up with the optimal solution. For example, companies may need to factor in how much they would like to procure from minority or woman-owned businesses, maintain multiple sources of supply and target percentages for each within a category,

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and factor in Green supply chain or other factors beyond just price.

The report says that an analysis of including or changing these various business rules and goals is done through scenario analysis and usually a key part of the optimized sourcing process.

Often, the bid process goes through several rounds, and sellers and buyers refine their bids, rules and awards. (See graphic on page 2).

Small Number of Technology Vendors

A relatively small number of vendors provide

sourcing optimization technology, and some are specialized in one area, such as transportation.

The report cites the following list of vendors:

- Ariba/Procuri
- CombineNet
- Emptoris
- i2
- Iasta
- Manhattan Associates
- Perfect Commerce

The full report contains much detail, including how a bid process really works and keys to success, which we will summarize next week.