CombineNet

WHITE PAPER

ADVANCED SOURCING:

Achieving the Next Level of Savings and Efficiency in Your Supply Chain

As companies continually strive to deliver ever-increasing value to shareholders, they will search out and implement new strategies, practices, and tools across their organizations. In the supply chain and sourcing domains, companies are changing the way they source, produce and distribute goods or services to their customers, in search of reduced costs and greater efficiency.

This white paper helps to clarify the value of advanced sourcing tools, by providing an overview of the functional differences between various sourcing technologies, the characteristics of an advanced sourcing technology platform, and the benefits afforded by such technologies. It will also explain how CombineNet ASAP can establish the framework by which companies like yours can change their sourcing strategies and practices.

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ADVANCED SOURCING OVERVIEW

INTRODUCTION

As companies continually strive to deliver ever-increasing value to shareholders, they will search out and implement new strategies, practices and tools across their organizations. In the supply chain and sourcing domains, companies are changing the way they source, produce and distribute goods or services to their customers, in search of reduced costs and greater efficiency.

Many companies have transitioned to a more centralized approach, moving from location-based to global, corporate-wide planning and execution. Cost reductions come from consolidation of sourcing events and leveraged spend, as well as the rationalization of a global supply base. Others have embraced their supply base in search of new efficiencies and product innovation to drive continuous cost savings.

However, as the scale of the sourcing event increases in size or complexity, so too does the challenge of managing such an event. More suppliers are invited to participate, submitting a greater number of proposals that must be considered. Larger, more complex supply networks are produced, creating inefficiencies in the distribution of goods, longer lead times, and additional logistical costs and risks. And sourcing events that span a broader group of stakeholders generate additional internal competition for influence over award decisions.

MANAGING COMPLEX SOURCING EVENTS

In recent years, as companies have adopted more advanced sourcing strategies, the most innovative have also adopted advanced sourcing technologies. While still relatively misunderstood among supply professionals, these optimization-enabled sourcing tools provide the scalability to manage large, global sourcing events, the flexibility to accept diverse supplier proposals and competing stakeholder preferences, and the analytical horsepower to enable business users to evaluate tens of thousands of options in minutes to find the optimal solutions.

This white paper will help clarify the value of optimization-enabled advanced sourcing tools by providing a high-level overview of the functional differences between various sourcing technologies, the characteristics of an advanced sourcing technology platform, and the benefits afforded by such technologies. It will also explain how advanced sourcing technologies can establish the framework by which companies like yours can change their sourcing strategies and practices.

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A REVIEW OF SOURCING TECHNOLOGIES

For many spend categories, manually-intensive methods of acquiring and evaluating supplier proposals, such as face-to-face negotiations and the use of spreadsheets, gave way the mid-1990s to faster, more efficient, and more transparent Internet-based sourcing methods.

Rather than negotiating with one supplier at a time, e-Sourcing enables simultaneous bid collection from competing suppliers on a global scale. Additionally, because of the universal reach and speed of Internet technologies, sourcing events took on new dynamic capabilities, including real-time feedback to suppliers based on their bids.

Reverse auctions and e-RFx are two widely used e-Sourcing methods. Both their merits and limitations warrant scrutiny when evaluating their use for your sourcing activities.

REVERSE AUCTIONS: The most widely publicized type of e-Sourcing tool in the late 1990's and early 2000's, reverse auction technology reverses the role of the buyer and seller in an auction setting, where an electronic descending-price auction is used to drive purchase prices down. The supplier with the lowest bid is typically awarded the business, with some limited capabilities for including non-price attributes like delivery time and the supplier's quality.

Reverse auction technologies have had the greatest impact by automating the reverse auction process using the Internet, and have therefore been built primarily for speed, at the expense of flexibility and analytical power. So while reverse auctions are useful for sourcing products with little significant strategic impact on the business, they have lost favor for use in more strategic sourcing events, because of the non-price decision factors involved with such spend categories.

The lack of analytical power within reverse auction technologies forces a simplification of the items being sourced, to reduce the size of the problem set as well as its complexity. Sourcing teams group items with similar characteristics into 'lots,' 'bundles,' or 'market baskets' which are presented to suppliers for online bidding. Rather than collecting (and then evaluating) potentially hundreds of bids on any number of individual items, buyers request bids on a smaller set of multi-item market baskets, reducing the total number of bids to evaluate. This helps to enable dynamic supplier feedback during the bidding round(s) and a quick decision making process in determining supplier awards.

The shortcomings of creating market baskets are many, including reducing the level of competition within the event by excluding smaller suppliers that are unable to supply all the items in the bundle. But most importantly, suppliers that bid on the bundles are unable to create proposals based on their production efficiencies on specific items, and they are forced to hedge their bids on the items in the bundle that they are not as efficient in delivering.

So while supplier A may be very efficient in delivering items 1, 2 and 3 in the bundle, they are unable to provide their best prices because of their inefficiency in delivering items 4, 5 and 6 in that same bundle. This ultimately results in higher prices across the bundles than would be achieved if each item was awarded separately.

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Because of the same analytical shortcomings that require the use of 'bundles,' the buyer's business rules and constraints, the preferences of stakeholders, and other non-price attributes are not easily evaluated in the award allocation. As such, the reverse auction results often yield savings projections (often called "screen savings") that fail to materialize when buyers attempt to implement them in the real world. This is especially true for companies that are centralizing their sourcing processes, as there are decentralized stakeholders that have justifiable preferences over how their business is awarded.

This is not to say that reverse auctions don't have a place in the sourcing team's tool box. For commodity items with little strategic value, or for items that are not being centrally sourced, reverse auctions can be very beneficial.

While reverse auctions have produced significant results in many spend categories, these savings have come primarily in the form of reduced supplier margins. As supplier margins have reached their limits, savings from reverse auctions have begun to plateau, and buyers are looking for ways to deliver ongoing savings.

E-RFX : Another widely used e-sourcing method, the electronic Request For "x" where x stands for Proposal, Quote, Information or Tender, is also primarily the addition of Internet-based technologies to an existing sourcing practice to increase automation, speed and scale.

The e-RFx is a much more flexible tool than the reverse auction. But suppliers responding to an e-RFx are still limited in their ability to submit creative bids, or propose more innovative ways of supporting the buyer's business, because of the same lack of analysis capabilities as reverse auction technologies. But there is a broader ability to collect non-price (per item) factors in an e-RFx, including lead time, quality of service, terms and conditions, etc.

The analytical limitations of e-RFx also pose the same challenges as reverse auctions in the inclusion of side constraints, such as business rules and stakeholder preferences. Most e-RFx technologies only provide minimal capabilities for applying side constraints, and these are usually applied universally across the entire set of items. Constraint analysis within a standard e-RFx tool might include basic capabilities for minimum/maximum # of suppliers awarded, or favoring of suppliers that are minority-owned businesses.

More meaningful analysis is often conducted outside of the tool, by business analysts or others with a more technical skill set using data exported from the e-RFX tool. This analysis consists of identifying award scenario options and crunching numbers within a spreadsheet to reconcile supplier proposals with the organization's constraints. This can be a very slow process, taking days or even weeks to analyze mildly complex scenarios.

While e-RFx tools encourage global competition and provide some level of flexibility in supplier proposals and award analysis, the limitations of the problem solving capabilities provide little ability to make substantial changes in overall sourcing and supply chain strategies.

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Reverse auctions and e-RFx technologies have been effective in reducing per-item costs and automating standard sourcing practices, but today's organizations need more sophisticated methodologies and technologies if they are to achieve the next level of savings and efficiency. As a more powerful alternative to traditional methods and basic e-Sourcing technologies, Advanced Sourcing is a burgeoning e-Sourcing tool that uses advanced combinatorial optimization technologies to open up the marketplace and drive continuous savings and efficiency improvements into your supply chain.



"The gradual erosion of savings rates from e-sourcing events that we have seen over the past few years will continue. The following strategies will help enterprises maximize their returns:

- Employ advanced sourcing strategies across a wider set of categories. Look at complex categories, including services, logistics, T&E, and direct/strategic materials.
- Focus on realized savings and correlate them to enterprise-level financial metrics (e.g., EPS)."

Aberdeen Group, "Advanced Sourcing & Negotiations Benchmark Report," January 2007.

ADVANCED SOURCING TECHNOLOGIES

Advanced Sourcing Technologies combine the flexibility and expressiveness of face-to-face negotiation with the scalability and automation of e-Sourcing. The most sophisticated form of Advanced Sourcing enables Expressive Bidding®, wherein buyers and suppliers are both able to express, via Internet technologies, their preferences for doing business together.

By removing the communication barriers between buyers and a global supply base, new sources of innovation and efficiency can be uncovered within your supply network. In other words, through advanced sourcing, suppliers are not limited in terms of what they may propose; stakeholders are not limited in their ability to express their constraints or preferences for working with suppliers; organizations are not limited in their ability to search for new sources of innovation or efficiency within their supply chain. As a result, you can change the way you source, produce, and distribute goods and services on a global scale.

The core enabler of advanced sourcing, and what sets it apart from other e-sourcing technologies, is an advanced optimization engine. Rather than being limited to "apples to apples" comparisons, the optimization engine can quickly and accurately compare "apples to oranges to bananas."

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Here's how it works:

1. An e-RFX or reverse auction is created, with each unique item treated separately.

2. Suppliers select which items they want to supply, and submit varying proposals on each item as necessary to express their unique strengths or efficiencies in delivering the items.

3. Suppliers may create their own bundles of items, conditional offers, and propose alternative items (or service attributes) to take advantage of their operational or production efficiencies.

4. The sourcing team (including stakeholders) use an automated scenario analysis tool to build and scope 'What If?' award scenarios to evaluate supplier proposals alongside their own constraints and preferences.

5. The optimization engine calculates the total cost of the scenario, and identifies the cost impact of conditional offers, alternates, and side constraints.

6. The sourcing team compares scenario results to find the solution that best meets their needs.

OPTIMIZATION-BASED ADVANCED SOURCING TECHNOLOGIES

Advanced Sourcing is made possible through combinatorial optimization, using advanced tree search algorithms and mixed integer programming (MIP) techniques to calculate all of the various bid attributes simultaneously to find the best solution considering the sourcing team's side constraints (business rules, goals, preferences).

Combinatorial optimization technology enables advanced sourcing technologies to solve incredibly large problem sets in a very short time frame. CombineNet ASAP (Advanced Sourcing Application Platform), the industry's leading advanced sourcing technology, has yet to experience the limits of its solving power, having already solved sourcing scenarios that included nearly one million bids on 90,000 unique items, simultaneously considering 100,000 business constraints.

It is the analytical power of combinatorial optimization that enables the flexibility and expressiveness of Expressive Bidding. Without the solving power of an advanced optimization engine, it could take business analysts days or even weeks to solve a scenario that includes various types of expressive bids and dozens of stakeholder preferences. With an optimization-enabled sourcing solution like CombineNet ASAP, sourcing teams can build and evaluate dozens of scenarios in a matter of minutes.

Advanced Sourcing has two parts for which a robust optimization technology is required; Expressive Bidding and Optimized Scenario Analysis. Following is an in-depth description of both.

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EXPRESSIVE BIDDING®: BETTER BIDS = BETTER RESULTS

The first stage in the Advanced Sourcing process is Expressive Bidding, which leverages the flexible response framework and expressive language of manual negotiations. It enables suppliers to not only respond to a defined request but to propose alternatives and make conditional offers. Through Expressive Bidding, the supplier is able to drive out costs and introduce new efficiencies by proposing ways they are best able to support the buyer's needs.

By contrast, reverse auctions and many types of e-RFx are inexpressive. The lack of analytical power requires that buyers present rigidly pre-bundled lots of items for supplier bids. The optimal lotting can't be constructed because it depends on the buyer's preferences, rather than those of the supplier. Suppliers must hedge their bids, and because they may not be able to supply all the pieces of the sourcing event, they invariably respond with inefficient and suboptimal proposals.

With Expressive Bidding, each unique item is presented separately. Suppliers are able to bid on each item individually, as well as create 'packages' of items based on their own lotting strategies. Suppliers can submit the most economically efficient proposals based on their unique capabilities, create their own bundles, and apply conditional discounts in order to take advantage of their strengths.

Additionally, Expressive Bidding enables suppliers to be evaluated for the additional value they can bring to the table, such as committed capacity, unique assets, service quality, specialization or innovative new products. In terms of the latter, suppliers are able to propose alternate items that are similar to the items being sourced, but for which they have a unique economic advantage in supplying. Because of the powerful combinatorial optimization at the core of CombineNet ASAP, these "apples to oranges to bananas" comparisons are easily made during bid analysis.

Expressive Bidding enables suppliers to:

- Submit proposals that take advantage of their unique strengths, such as production costs and capacities, raw material inventories, market conditions, competitive pressures and strategic initiatives
- Nominate specifications, terms, conditions, product and service combinations and economics that better suit their business and reflect their unique strengths.
- Propose alternate items that are similar to the items being sourced, but for which they have a unique economic advantage in supplying.
- Offer volume discounts, rebates, and tiered pricing, or posit conditional (if/then) bids that take advantage of their own business strategies.
- Select values for item attributes (e.g., material, color, delivery date) in a way that matches their production efficiencies.

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Through Expressive Bidding, long-term savings don't require continuous reductions in supplier margins. Instead, the savings are realized through increased economic efficiency and unconstrained innovation.

By expressing the most efficient, lowest-cost way to work with the buying organization, innovative suppliers improve their own processes to find new, longer-term savings opportunities that they can share with the buyer.

BENEFITS OF EXPRESSIVE BIDDING

- Improves the match between supply and demand because supplier and buyer preferences are expressed in more detail.
- Enables suppliers to offer what they are good at, and at lower prices, because they can supply in a more economical way.
- Makes for "supplier-friendly" bidding because suppliers are encouraged to compete on their strengths.
- Increases competition, which furthers economic efficiency and reduces sourcing costs.
- Encourages smaller suppliers to compete with larger suppliers by accepting proposals on even the smallest part of the business.
- Fosters innovation that leads to lower-cost alternatives, creating a mutually beneficial outcome for both the buyer and suppliers.
- Drives inefficiencies out of suppliers' processes, enabling them to share the savings with buyers.
- Strengthens strategic relationships for long-term supply chain efficiencies and competitive advantage.

OPTIMIZED SCENARIO ANALYSIS: 'WHAT IF?' = OPTIMAL ALLOCATION

The second stage of the Advanced Sourcing process is Optimized Scenario Analysis. It is during the award scenario analysis that the optimization technology is absolutely critical. Only with such powerful analysis capabilities can the sourcing team evaluate the various types of expressive bids alongside their business goals and stakeholder preferences.

Through Advanced Sourcing optimization, a range of scenarios can be analyzed quickly and easily by multiple stakeholders. This 'What If?' analysis identifies the optimal allocation for a particular scenario and helps determine the right mix of suppliers, proposals, and business rules. Optimized analysis supports flexible bidding from suppliers and allows for realistic comparisons on otherwise "apples-to-oranges" comparisons.

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While earlier generations of optimization technologies required intense consulting services led by technical experts, today, CombineNet ASAP enables the sourcing team to express their rules and preferences in a "point and click" user interface using familiar language. Scenarios can be created quickly and easily to express stakeholder preferences, business rules, legal constraints, contractual obligations and other considerations typical of strategic sourcing events.

Rules or side constraints should at a minimum include:

- Minimum/maximum number of suppliers awarded
- Minimum/maximum % or $ to any supplier (e.g., Don't award any one supplier more than 15% of item X)
- Minimum/maximum % or $ to supplier X, incumbents, minority suppliers
- Favor or penalize supplier X by % or $

Furthermore, these scenarios can be scoped to expand or narrow the application of the rules across business units, products, items, geographic region, and so on. Scoping enables individual stakeholders to apply different 'What If?' scenarios to their specific domain, ensuring each business unit, manufacturing plant, or individual can express their business preferences and understand the cost impact of their sourcing decisions.

Additionally, optimization-based advanced sourcing technology enables side constraints and preferences to be applied at will to get a deeper understanding of what each constraint or rule will cost the organization. For example, the sourcing team may want to rationalize the supply base from 200 to 100. Any increase or decrease in item cost will then give the sourcing team an understanding of the tradeoff between cost and practical implementability.

The sourcing team will obtain a quantitative understanding of how different constraints and preferences affect the sourcing cost and all other aspects of the allocation. Therefore, a more informed decision can be made about whether the savings outweigh long-term strategic risks such as vulnerability to a particular supplier's default or the potential financial downside of allowing one supplier to become dominant.

A significant advantage is that the sourcing team can build multiple award scenarios based on different stakeholder preferences, organizational goals and constraints. The optimization engine evaluates award options based on these 'What If?' scenarios, and then produces an optimal award that meets the organization's goals at the lowest possible cost.

For example, a plant manager whose raw materials are included in the sourcing event can specify that he prefers a specific supplier because of quality concerns. But what is the cost impact of that preference for that plant, and how does it affect the award strategy for the rest of the organization? Optimization will reveal all the costs involved before the sourcing team makes final awards, and can prove invaluable in justifying one award decision over another during what can sometimes become emotional negotiations with internal stakeholders.

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BENEFITS OF OPTIMIZED SCENARIO ANALYSIS

- Evaluates 'What If?' scenarios that provide the sourcing team with a quantitative understanding of the cost tradeoffs of its supply decisions.
- Enables the sourcing team to make decisions based on more than just the cost of supplier proposals, making it easier to understand the impact on the entire organization.
- Takes into account all business constraints and stakeholder preferences (e.g., business rules, legal constraints, logistical constraints, and other operational considerations) to find the optimal award allocation.
- Fosters stakeholder alignment on the sourcing team, because team members with different preferences can discuss differences based on facts rather than opinions, philosophies, and guesswork.
- Significantly compresses the sourcing cycle while making it more efficient.
- Delivers award allocations that you can implement because operational constraints can be expressed and considered during bid analysis.

ADVANCED SOURCING: WHERE'S THE IMPACT

Tackle more complex spend categories. Optimize lowest total cost and highest total value, not just lowest price. CombineNet has worked with companies across all industries who have experienced continuous cost savings in the following spend categories:

Transportation: Truckload, less-than-truckload, ocean freight, dray, bulk, intermodal, small parcel, air freight, train, fleet, freight forwarding, others.

Direct materials: Sugars/sweeteners, meat, vegetables, honey, starches, colorants, fibers/nonwovens, steel, fasteners, solvents, chemicals, casings, resins, polymers.

Packaging: Cans/ends, corrugates, corrugated displays, flexible film, folding cartons, labels, foam trays/pads, caps/closures, shrink and stretch films, bags, pulp, pallets, and printed instructions.

Indirect materials: Management, Repair, and Operations, aka MRO (electrical supplies, filters, pipes/valves/fittings, power transmissions, pumps, safety supplies, office supplies, lab supplies, file folders, solvents, and furnishings); chemicals (cylinder gasses, fuels, and others); technology (laptops/desktops and cameras); leased equipment, fleet vehicles, and promotional items.

Services: Security, janitorial, legal, patent/trademark, consulting, equipment maintenance, temp labor, marketing, customization, insurance, shuttling/towing, warehousing, pre-press, advertising.

Telecommunication: Enterprise voice and data wireless plans and equipment.

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OPTIMIZING SAVINGS AND EFFICIENCY

Advanced Sourcing strategies require advanced technologies. But advanced doesn't have to mean difficult. Optimization-based sourcing technology should be easy to use by sourcing professionals, not designed for consultants who are too far removed from the business to make real-world decisions. The technology must present intuitive interfaces, familiar terminology, and simple click-through interaction. And it should reliably filter thousands of options to arrive at the best one.

When the sourcing team has the ability to perform complex bid analysis on its own, making changes to scenarios at any time and running analyses to discover realistic, implementable results, sourcing projects can be achieved in weeks instead of months, at less expense, and at higher delivered value.

Through CombineNet ASAP's optimization-based technology, suppliers can compete on strength rather than price alone. And they can express production efficiencies and innovation that lead to ongoing savings. Similarly, buyers can make decisions based on more than just the cost of supplier proposals, ensuring results they can implement in the real world. The result is lower costs, increased efficiency, and higher product and service quality.

Find out how to transform your organization's sourcing and supply chain focus from cost reduction to long-term value creation. Learn how CombineNet ASAP can impact your entire enterprise.

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