PREFACE

Forward-looking, predictive systems have been around for a while in business – but their implementation and adoption has leaned strongly to one side: creating better products and selling them more effectively. Retailers are creating sales strategies targeted to very specific demographics’ buying habits. Pharmaceutical companies are fashioning “smart” pills that can relay information to healthcare practitioners to offer enhanced intervention. Insurance companies are finding ways to predict the coverage needs of certain populations over time, and sell them customized packages. “Work smarter, not harder” is the perennial refrain – and the most profitable sellers of products and services embrace it.

But what about the other group – the buyers? They’ve been far too slow to keep the pace in developing best practices for the acquisition, cleansing, classification, etc. of data – and more importantly – what to do with it to make it forward-looking rather than reactive. Information from a single point in time is just that – effectively obsolete the moment it’s acquired, and without continuous updates and access to real-time changes, it becomes irrelevant. As a result, Procurement becomes mired in limited decisions and manual processes.

It’s clear there’s an opportunity to unlock predictive analytics for procurement, supply chain, and strategic sourcing departments to improve the value they bring to their internal (and external) customers. This paper aims to make that case and lend some insights on ways to get your organization into the Future of Spend Management – safe, and on time.
WHAT IS PREDICTIVE ANALYTICS?

DATA IS NOT INTELLIGENCE. FOR DATA TO BE USEFUL AND HAVE MEANING, IT MUST BE ANALYZED AGAINST A SET OF METRICS. ANALYTICS IS THE COMBUSTION ENGINE OF BUSINESS, AND IT WILL BE NECESSARY FOR ORGANIZATIONS THAT WANT TO GROW, INNOVATE, AND OPTIMIZE EFFICIENCY, NOTES GARTNER.

While most companies do analyze data, many use traditional business intelligence tools that process historical information to identify current trends in business operations. Organizations, however, need to consider transforming that same data into more insightful business intelligence that supports future business decisions.

Predictive analytics is a growing trend that uses complex analytic models to compute patterns in raw data to predict future outcomes. While it does not tell you what will happen in the future, predictive analytics identifies patterns in business operations from existing data to forecast or project future probabilities with a reasonable degree of accuracy.

A NEW WAY OF THINKING

Applying statistics, advanced mathematics, and a mix of technologies, predictive analytics helps you study large quantities of current data and past events to identify patterns in business operations and build forecasts about future events. While traditional analytics processes data on business operations such as sales results, customer demand, inventory levels, and other performance parameters to look for trends, predictive analytics uses future-oriented analyses to transform metrics into forward-looking information that supports operational business decisions. In other words, while business intelligence tells you what happened, predictive analytics helps predict what will happen, with some probability.

So, while traditional business analytics provides insights on past performance such as best-selling products, predictive analytics focuses on the probability of a customer buying a different product, potential profitability associated with new products, and other performance parameters. Taking business intelligence to the next level, predictive analytics moves from a summary of past performance (e.g., “What is my most profitable product?”) to future insights (e.g., “What will my most profitable product be?”). Through traditional business analytics, companies learn about their customers and operations while predictive analytics gives them an idea of how their customer and business might perform in the future.

Gartner states that improved situational awareness leads to better and faster decision-making and superior customer service, revenue growth, cost reduction, and risk avoidance. The research company also notes that organizations that use predictive business performance metrics will increase their profitability by 20 percent by 2017.
WHY IS PREDICTIVE ANALYTICS IMPORTANT FOR STRATEGIC SOURCING AND PROCUREMENT?

While more popularly used in areas such as finance and sales to gain a competitive edge through knowledge foresight, predictive analytics can allow Strategic Sourcing and Procurement Departments to better manage supplier relationships and support sourcing activities. While more and more companies have put best practices in place for Strategic Sourcing and Procurement processes (such as those for RFI/RFP vendor selection, contract negotiations, and supplier relationship management), predictive analytics can optimize existing practices and make incremental improvements to supplier relationships, contracts, and costs. Predictive Analytics also can help address challenges related to Strategic Sourcing such as rising supplier costs, supply chain volatility, vendor selection, and business risk.

MANAGING SUPPLIERS BEYOND KPIs

Effective supplier management is the keystone of every Strategic Sourcing and Procurement Department. Many times, vendor performance is limited to evaluations against KPIs using existing metrics. While basic analytics help to review what happened in the past, predictive analytics can be used to conduct checks and balances into supplier activity, taking into account both internal and correlating external data to rationalize delivery times, pricing, and other performance parameters. Using this information, Strategic Sourcing and Procurement can identify the best “future” suppliers. Many times, suppliers do not have the analytic rigor to assess the needs of the corporation to determine where savings may be found in their own processes or operating models. Multi-tier synchronization is an emerging advanced analytic modeling technique that can validate the process efficiencies of different suppliers to ensure they are functioning at the best interest of the business. At the same time, Strategic Sourcing can evaluate their own processes - or the way they deal with suppliers - to drive efficiency to the next level.
“Arbitrary assessments that focus only on one market category do not provide the statistical validation necessary to understand price increases. Focusing more on historical data, these assessments do not have the mathematical rigor, supported by market indices and other correlative variables, that provides precise results.”

RATIONALIZING SUPPLIER PRICE INCREASES

Profitability often depends on slim margins. As a result, maintaining supplier prices is crucial - but ultimately presents a challenge due to market volatility. Buyers must acknowledge that suppliers will face price increases over the term of a contract due to inflation, fluctuations in the availability of raw materials, labor costs, and other market factors. While supplier price increases are stipulated during negotiations and typically based as a percentage increase over a contract term, higher than expected procurement costs due to market factors can result in significant surcharges.

Since unanticipated and unaccountable higher pricing from suppliers impacts the financial health of the entire business, Strategic Sourcing must validate cost increases. If higher prices are not based on standard measurements such as general category insights and news trends, Strategic Sourcing may blindly accept overcharges, taking a hit to the company’s bottom line. Arbitrary assessments that focus only on one market category do not provide the statistical validation necessary to understand price increases. Focusing more on historical data, these assessments do not have the mathematical rigor, supported by market indices and other correlative variables, that provides precise results.

As a result, Strategic Sourcing and Procurement Departments cannot negotiate a reasonable price increase and may be leaving value unchecked.

Predictive analytics provides for increased sophistication when managing suppliers and controlling costs as it takes into consideration market data, indices’ commodity pricing, and other factors. Based on specific models, Strategic Sourcing can determine if they will continue to get the best price for specific products and services, and justify price increases when necessary. While both the supplier and sourcing manager may agree on a cost increase, the amount of the increase can be validated using relevant factors in the marketplace such as the Producer Price Index, Gross Domestic Product Deflator, and the labor market index. For example, if a supplier proposes a $4/lb increase in copper because market costs rose by 50%, the buyer can justify this increase using market indices rather than just historical information based on past price hikes and, in turn, use this as a baseline for negotiated value.

Predictive analysis enables Strategic Sourcing and Procurement Departments to rationalize price increases while assessing the value being derived from a supplier’s proposal to optimally position pricing for the supplier while maintaining a competitive bottom line financially in business overall. Through advanced analysis, the buyer can continually assess the value being derived from a contract to optimally position pricing for the supplier while maintaining a competitive bottom line financially in business overall.
BETTER CONTROL OF SOURCING EVENTS AND COSTS

EXAMPLE: FREIGHT

Procurement often administers contracts with a variety of carriers that ship freight to different corporate locations, resulting in variable sourcing events and costs. Linear programming, a tool of predictive analytics, can determine the most cost effective way to ship goods by methodically assessing different quotes and modelling the probability of the best carrier as well as the range in transportation costs over certain routes. Simultaneously analyzing the often complex conditions of multiple carrier bids, a linear programming formula takes into consideration different variables to discern the lowest cost provider for specific customers. These variables include origin and destination points, capacity and demand per shipment, and cost of shipping. Analyzing similar information across different carriers will lead to the identification of the best supplier(s) for specific routes at the best quoted value. Results may also help reduce the number of carriers currently used by a company to develop relationships with a core group, better understand carrier costs and provide efficiencies regarding which warehouse should ship goods to specific clients for best cost efficiencies.

Basic analytics will not lead to the same conclusions as it does not take into consideration that the variables, in relation to one another, may change over time against the originally perceived value of the agreement. As a result, the lowest quote might not actually be the best price over time if costs did not take into consideration changing variables. By synchronizing variable shipping routes, carrier abilities, costs, and other constraints, predictive analytics leads to greater savings. Understanding costs can lead to efficiencies in new sourcing events as well as in existing contracts that result in a hard-dollar return over time – enhancing operational profitability and increased yield on the dollar.

EXAMPLE: MANAGING LABOR OUTPUT

To get a true understanding of labor costs associated with outsourced resources, such as a service provider or temporary manufacturing support, sourcing professionals must quantify the value beyond cost per unit or cost per hour. Many times, RFPs simply focus on one of these two categories. Strategic Sourcing must understand both variables to justify if the best supplier has been chosen for a job at the best price.

While cost per unit explains how much each unit will cost, it doesn’t account for the cost of the labor expended to produce that item. Extending that even further, cost per hour may outline labor rates but does not give any clarity to the rate of productivity (how quickly facilities and operations can produce it).

Utilization Analytics dissects labor output by assessing the set number of dedicated resources or manufacturing tooling capacity by the level of service or demand. Using this measured approach, rather than just solely relying on costs and output, Strategic Sourcing can better understand fluctuations in the utilization trending output to improve the operational balance or decrease costs. Although not a perfect measure, it allows for more insights for comparison of the best supplier that has provided the leanest costs.

For example, in monitoring the labor output of an IT service provider, a sourcing manager can correlate personnel to the number of resolved tickets or issues. Rather than just evaluate hourly or per ticket costs, utilization analytics determines how much labor was actually needed or effectively used to perform certain tasks over time to improve service rates and reduce costs.
REDUCING BUSINESS RISK

Every business experiences risk whether in the form compliance, product shortages, or service disruption. While no company can completely eliminate all potential risks, at least not without incurring significant costs, it is still important to control services or goods as tightly as possible and avoid disruption to the business.

In the past, risk was evaluated based on standard operating exposure expected from an outsourced service or product. Today, Predictive Analytics allows businesses to quantify allowable risk by evaluating historical data and trends to determine potential future vulnerabilities. It allows businesses to take a multifaceted approach to risk management, considering the likelihood (probability) of occurrences and cost incurred from exposure to a catastrophic event (such as a system failure).

Let’s take, for example, a typical manufacturing setting where filled orders are of paramount importance. To fill 100% of orders are not always maintain solid profit margins. Businesses may ship an order below acceptable margins for the sake of their business relationships. In the consumer packaged goods industry, for instance, if a company’s products do not make it on shelves, consumers will see (and buy) a competitor’s product. As a result, the perceived value of the sale is implicitly higher than the cost of the goods themselves. This is a risk fundamental to many businesses. Therefore, many companies are willing to take a hit on profits to fill customer orders.

Using Predictive Analytics, sourcing managers can determine the level of risk that can be maintained within competitive supplier prices with their at-risk supply base. Predictive Analytics also can help correct this situation by making the supply base more agile through a better synchronization of events and understanding of demand fluctuations or service expectations. Rather than spend millions in additional freight costs to get materials on time, a company can synchronize safety stock and configure additional inventory into a supplier’s cost, modeling off the point of optimum supply to create an operational balance and adequate risk for direct supply and order fill rates.

Using advanced modeling functions, metrics are balanced against the increased cost of the supplier to protect against risk. A tiered risk assessment can help determine the likelihood and impact of a risk event with different tier suppliers, providing a better understanding of how certain suppliers can affect business operations and performance under stress. Simulation models can depict optimal points between the supplier and business, providing the basis for a risk mitigation strategy.

Even if transportation is considered a pass-through cost in suppliers meeting the material resource planning schedule, escalated freight costs from a supplier can negate the original negotiated contract value. Using results from Predictive Analytics, Strategic Sourcing can build the right supplier agreements that are appropriate in terms of cost and risk level. If an appropriate balance is not derived between cost and risk, the business may enter into sub-optimal agreements, paying for services that exceed marginal rate of effectiveness. As a result, costs will not yield an equal value service.
Even as Strategic Sourcing and Procurement Departments learn more about the benefits of advanced and predictive analytics, a learning curve exists in understanding which approaches should be used to address different sourcing situations to get the best results. At the same time, sourcing managers do not have the time or cannot spare the resources to manage a new IT initiative. Many smaller companies simply do not have the in-house capabilities to take on a new venture. And getting management buy-in requires knowledge of the benefits and potential ROI.

With the knowledge quotient from working with a variety of procurement clients in similar situations, a Procurement Services Provider can diagnose needs and determine the right approach that appropriately fits specific operations and goals. Formulating a strategy is a primary guiding factor of many decisions of the program. Following the latest analytic trends and evolving approaches, the Procurement Services Provider can assess the problem and provide an innovation solution that directs Strategic Sourcing on how to select the best analytic tools. With the variety of software programs supporting Predictive Analytics, it is best to first have an analytics professional diagnose needs with accuracy and equitability to determine required tools. The third party professional can recommend the tools and provide information on how to build resources to conduct the analysis.

Capitalizing on “big data” takes significant time and money, and having the right support and resources to utilize advanced and predictive analytic tools is an important factor for success. At the same time, getting management and departmental “buy in” can be difficult for a new and complex venture with unproven results. The right partner can prove the value of Predictive Analytics within different levels of the organization and gain executive buy-in for a pilot program by presenting findings from case studies similar to the organization’s operations. At the same time, these experts can explain to executives that predictive analytics involves probabilities and not definitive answers. Once Predictive Analytics becomes an established process within a company, Procurement Service Providers can ensure it remains on track by evaluating current programs to ensure they address changing business goals and new suppliers, sharing innovation on evolving approaches and documenting best practices.

Before starting any new initiative, companies should assess the costs and benefits of conducting an in-house program or outsourcing part or the entire process to a third-party procurement expert.

**RESOURCES**

Source One Management Services, LLC is a leading procurement services provider, backed by decades of experience helping Fortune 1000 companies achieve their spend management goals through innovative solutions. Source One offers a full suite of strategic sourcing, procurement transformation, and vendor relationship management services that allow our clients to unlock the future of procurement and realize procurement’s value beyond cost savings. Our experts do not replace your internal resources, rather, act as an extension to your team, providing market intelligence, technology, and subject matter experts to deliver results. For more information on Source One, visit us on the web.