Driving superior value through digital procurement

Pierre de la Bouleye, Pieter Riedstra, and Peter Spiller

Emerging digital and advanced analytics tools promise new levels of procurement performance. To deliver that promise, CPOs must discover which of them are best suited to the needs of their company.

For businesses, big data[1] and advanced analytics will have profound implications: in raising data-driven decision making to a new level, helping companies to generate new insights, and enabling them to collaborate at scale. Imagine a procurement team so deeply connected to every tier of its supply base that it has access to all relevant data on cost structures, supply availability, lead times, financial and operational risks, and service and quality metrics. This procurement team would be well-positioned to negotiate the "right" prices, instantaneously adapt its own planning, or switch to alternative suppliers in the event of supply shortages. It could even proactively help suppliers improve deteriorating quality levels by spotting problems earlier and identifying their root causes more accurately. What category manager would not be excited to have a "tier-n supplier x-ray" like that?

Many CPOs who have already applied more well-established commercial and demand levers are convinced that big data and advanced analytics hold the key for future improvements in procurement performance. We asked a number of them around the world to quantify the likely near-term impact of their digital procurement programs. On average, their expectations included a 40 percent increase in annual savings, 30 to 50 percent less time spent on transactional sourcing, and a 50 percent reduction in value leakage.

But CPOs are also asking *which* of the new digital solutions will bring real value to their companies today. Which of the many "digital procurement" software vendors will live up to their promises? What should their company's roadmap for digital procurement look like?

We expect Procurement to create value from many new applications in the future, considering the function's place at the crossroads of various data flows between the company and its partners. Category managers work with historic and future spending and usage data generated by the company's enterprise resource planning (ERP) and forecasting systems. They receive product specifications provided by their engineering counterparts; monitor contract adherence, invoicing behavior, and supplier performance; and generate supplier profiles and scorecards. Procurement also taps into various external data sources, like supply market-specific time-series data for commodities, currency and inflation rates, tax and tariff data, or supplier solvency data.

But how do companies create real value from this data? In a world of digital hype and with new solutions hitting the market every day, many CPOs are struggling to separate the wheat from the chaff. In this article, we attempt to bring structure to the discussion and provide a simple framework for CPOs to think about superior value creation through digital procurement and advanced analytics.

The digital applications that will make a real difference to a company's procurement performance fall into two broad areas: tools that *identify and create value,* and tools that *prevent value leakage* (Exhibit 1).

Tools that identify and create value

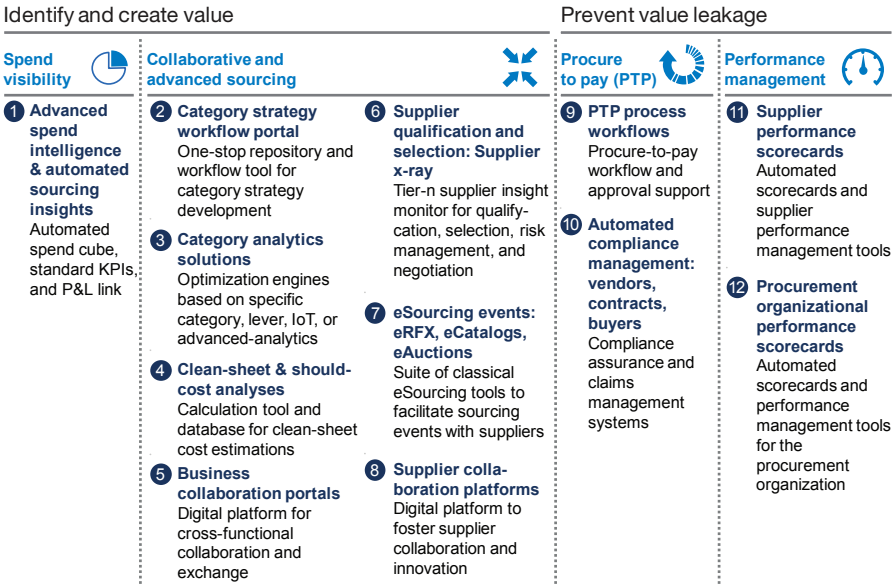
Simply speaking, tools to identify and create value support the strategic sourcing process. They can be further divided into those that create spend visibility, and those that support advanced collaborative sourcing.

Spend visibility

Advanced spend intelligence and automated sourcing insights. Spend visibility tools begin with solutions that pull historic purchase order (PO) and invoice data, and create a spend cube. The prevalence of fragmented ERP systems means many multi-national and multi-business companies still find it difficult to build even simple spend cubes. Some companies, however, are already automating data cleanup and classification with algorithms that make use of artificial intelligence and self-learning methods.

We expect that the solutions currently available in the market will be further enriched with additional data sources and the inclusion of basic, category-level key performance indicators (KPIs). For example, they will be able to generate automated price and specification benchmarks across entities, like price arbitrage analyses or facility management costs per square meter and per person. Prices will be correlated

Exhibit 1 **How digital will transform the procurement value chain: A landscape of use cases along two major areas**



Source: McKinsey Digital Procurement Service Line

to material cost indices, or to product specifications using linear performance pricing (LPP). Category managers will have automatically generated dashboards and heat-maps at their fingertips, helping them identify and capture sourcing opportunities. Finally, by linking the spend cube solution to company budgets and profit & loss (P&L) planning data in real time, next-generation systems will help reach that procurement "holy grail": savings that can be tracked directly in budgets and in the P&L.

Collaborative and advanced sourcing

Category strategy workflow portal. While many systems support transactional procurement processes, very few workflow solutions currently support the generation of comprehensive category strategies and the systematic identification of savings levers. There are emerging solutions that are able to guide category managers through a configurable stage-gate process that includes every step in the creation of a category strategy: understanding demand, analyzing the market, generating savings and measuring the effectiveness of implementation. Relevant milestone

meetings with cross-functional partners will be triggered automatically, and all ideas will be stored and tracked up to the final implementation steps.

These workflow solutions will allow teams to collaborate via shared file spaces, forums, chats and video calls, and superiors will be able to track category manager activities and their impact in real-time. Also, as they serve as structured repositories for all the analyses conducted and insights generated during the strategy development process, these workflow systems also will make the assembly of category strategy documents and negotiation preparation packs almost automatic.

By applying the most advanced tools available today, we have seen companies shorten their category strategy development times by around 30 percent while significantly increasing the depth of insight and impact generated by category management teams. In one pilot program, teams exceeded their initial savings targets by an average of 20 percent.

Category analytics solutions. Many of today's more advanced category analytics are already very well standardized: for example, the LPP or Total Cost of Ownership (TCO) calculations for high volumes of similar parts, like fasteners or motors. These analyses will increasingly be coded into standard applications. Once defined, these category solutions will routinely create the defined analyses, and automatically flag potential improvements and specific levers needed to capture them.

In addition, we will see a number of category solutions for more complex, data-intensive categories like logistics, travel, telecoms, temporary labor, or freight. These will build on massive, relatively standardized data sets and again allow the execution of a set of standard analyses to identify levers and improvement potential. Freight optimization tools already work like this, for example. They take routing data and complete pricing schemes from multiple vendors to identify least-cost vendor combinations. They can also suggest demand changes, like not using express freight on a Friday when the goods will not be delivered until Monday. One large industrial company was able to reduce its total air freight costs by 25 percent using a commercially available multi-variable freight optimization solution.

Cleansheet and should-cost analyses. Knowing what a part or service *"should cost"* when produced at maximum efficiency and effectiveness is a key weapon for every buyer when negotiating with vendors. The cleansheet approach used to calculate such costs can also help to identify opportunities for savings from changes to a product's design or its value chain.

Cleansheet tools comprise a workflow application to build calculation sheets, several expert tools to estimate different cost areas like machining, logistics, or overhead cost, and a set of databases containing template libraries and factor costs (e.g., labor rates, raw material index prices, and currencies). It is not uncommon for these tools to reduce the cost of products or services by up to 40 percent, while also improving time-to-market for new product designs.

Business collaboration portals. Early involvement with internal customers and cross-functional cooperation to jointly challenge demand, specifications, and processes is critical for good sourcing. Digital platforms that foster exchange, transparency, and interaction can facilitate that collaboration. A number of large software vendors already provide generic collaborative spaces including file repositories, collaborative workspaces, audio- and video-conferences, and calendaring. We expect to see the emergence of solutions that are specifically geared towards the requirements of strategic sourcing. These include consolidating demand and specification data, and vendor insights, analyses, and strategies across diverse BUs and functions, allowing for timely and effective interactions to challenge what, where, and how to source.

Supplier x-ray. In the introduction to this article, we described a supplier "x-ray" solution that gathers procurement-relevant supplier data such as cost, lead times, capacities, inventories, and risks, along the whole value chain. Data sources for such a solution will include the proprietary systems of value chain partners, as well as structured third-party data and unstructured web feeds from many different sources, all combined into meaningful, real-time profiles of a company's tier-n supply chains. Many of the elements of this approach already exist, including web-screening solutions designed to improve supplier risk management, and on-line supplier networks and communities. In the future, we expect to see a convergence of such solutions, ultimately delivering the kind of multi-tier supplier visibility that companies can only dream of today.

eSourcing events: eRFX, eCatalogs, eAuctions. Electronic sourcing tools have existed for more than a decade and have evolved significantly over time. Most vendors now offer suites that include several of these tools, along with spend analytics and other functionality. We expect the most significant future developments to come from automated analytics and user interface improvements, which is in our experience the single biggest factor to foster adoption. Future solutions will offer much more sophisticated analyses like bid-comparisons or best-of optimizations, fueled by comprehensive, category-specific bid sheets, templates, and analysis sets.

The increased power and ease-of-use of these solutions will significantly drive up the penetration of digitally managed and optimized sourcing events.

Supplier collaboration. Comparable to business collaboration tools, these applications will facilitate a better exchange and interaction between external partners, including suppliers (tier-1 to tier-n), research partners, and intellectual property providers. They will work like a social network for the company and its supply base, enabling better end-to-end cost optimization, faster interaction times, and broader access to external innovations.

Tools to prevent value leakage

Tools to prevent value leakage include ERP and transactional systems to manage the procure-to-pay (PTP) process, and performance management systems. Here, several new opportunities arise from the use of digitization and big data analytics.

Procure to pay

PTP process workflow. Procure-to-Pay solutions were among the first digital tools available to support operational and tactical procurement activities. Since their introduction in the early 2000s, they have evolved significantly in functionality, covering an increasing scope of the end-to-end process, from sourcing, to payment of the suppliers, and extending from requisition management to adjacent areas, like expense management.

The PTP tools of the future will use the vast amount of order and invoice transaction data available to enable value generation in core operational activities. They will create predictive order configurations for repeat buyers, reducing processing time and encouraging the use of standard order templates, for example. They will also automatically identify potential suppliers for categories not covered by contracts or catalogues, supporting operational buyers by creating more competition.

Systems will interconnect with those of suppliers to transmit digital POs and invoices, eliminating the need for invoice matching: The receipt of goods and services will be automatically tracked using radio-frequency identification (RFID), quick-response (QR) codes and other automated techniques. And all of this will increasingly happen in the Cloud, allowing ubiquitous connectivity and significantly reduced processing time and effort, while driving user adoption by Procurement and the wider business.

Automated compliance management: vendors, contracts, and buyers. For many companies, especially those with global manufacturing and service footprints, value leakage is still one of the main untapped sources of procurement

impact. Advanced compliance management tools will act as an ever-vigilant watchdog, scanning every procurement transaction, both from structured, i.e., ERP systems, and unstructured sources, like invoices or expenses, to identify and quantify the leakages, and actively drive their resolution. Purchases performed through the wrong channels will be identified ex-ante (in the PTP tools) or ex-post (during invoice payment).

Advanced compliance management will be especially useful in the case of large, high-value outsourcing contracts, which are often governed by complex legal frameworks and dozens of individual service line agreements and KPIs. Future systems will automatically extract all these conditions from contracts through machine reading and match them against continuous streams of invoices, supplier activity, and performance data. Category managers, buyers, and business owners will then be alerted about compliance breaches and their business impact. The value at stake here is huge, considering the level of leakage of the life of a typical contract, and the high level of manual effort currently applied to contract governance.

Advanced analytics solutions will also be able to scan and identify noncompliance in transaction intensive purchases where manual analyses won't suffice—for example, in transportation, freight, parcel services; maintenance, repair and operations (MRO); taxi, or hotel spend. Today's existing point solutions in these areas will increasingly be consolidated into comprehensive application packages that address non-compliance by both vendor and buyer.

Performance management

Supplier performance scorecards. Supplier performance management systems will be integrated with the supplier x-ray capabilities described above. Such systems will deliver real-time insights on supplier performance, gaps, along with anticipated cost, quality, or delivery-time issues. Similarly, they will also link to automated scope and service level monitoring systems and offer integrated claims management functionality. The availability of this information will allow category managers to act more quickly and decisively when problems occur, and will give them the tools they need to encourage—or force—suppliers to improve.

Procurement performance scorecards. Measuring the performance of the procurement organization—as a whole and on an individual category level—is the last application where we see significant room for improvement using digital tools. Systems like the category strategy workflow portal described above will log all the activities of the strategic sourcing team, and savings ideas will be tracked in parallel. This information will allow the CPO to oversee and manage progress and results, even

down to a category manager's task level if required. Future workflow solutions will embed these performance management features to manage group, category, and individual performance on a real-time basis.

Finding the real value

To decide which of these solutions are right for them, companies need to understand the specific value drivers offered by each, and assess their potential impact on their own processes and teams. Those value drivers include higher efficiency per transaction, superior insights leading to better negotiation results, or lower risks through improved foresight. Many applications address several value drivers at the same time, although to a different extent (Exhibit 2). The ultimate impact of each driver will also be company specific, depending, for example, on transaction volumes, the categories sourced, and the sophistication of the company's people and other current processes.

In order to determine applications that have the highest value creation potential, these levers and associated applications need to be mapped to company specifics. For example, companies that have a large share of spend in the areas of logistics, freight, and MRO might benefit from sophisticated optimization models and tools for these specific categories. Companies that buy hundreds of thousands of SKUs and that struggle with price and contract term variability across the SKU spectrum should consider automated leakage management solutions.

We see three areas as a natural place to start the journey towards reaping the benefits of end-to-end digitization, advanced analytics, and automation. First, companies should conduct a thorough diagnostic of the current tool landscape for the sourcing company. Second, they should establish the need for action based on a clear set of KPIs. Finally, they must have a clear understanding of the opportunities at stake both from existing tools and solutions yet to be developed.

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Will these new tools automate the category manager's or buyer's job in the future? We believe the opposite is the case. Many of the tools described in this article allow much more thorough analysis and deep investigation to create more impact. Such tools will only deliver their true value in the hands of capable talent. Companies should start building the required talent and exploring the promises of digital procurement solutions today. Many tools are still in their infancy. Ultimately, only by experimenting and building on their initial successes can CPOs determine which digital procurement solutions will help them create the next level of value for the company.

Exhibit 2 — Sources of procurement impact based on use cases

		Impact sources		
		Effectiveness	Efficiency	Sustainability
Spend visibility	1 **Advanced spend intelligence** & automated sourcing insights	✓		
Collaborative and advanced sourcing	2 **Category workflow portal**	✓		✓
	3 **Category analytics solutions**	✓	✓	✓
	4 **Clean-sheet & should-cost analyses**	✓		✓
	5 **Business collaboration portals**	✓	✓	✓
	6 **Supplier qualification and selection:** supplier x-ray			✓
	7 **E-sourcing events:** e-RFX, e-catalogs, e-auctions		✓	
	8 **Supplier collaboration platforms**	✓		✓
Procure to pay (PTP)	9 **PTP process workflows**		✓	
	10 **Automated compliance management**		✓	
Performance management	11 **Supplier performance scorecards**			✓
	12 **Procurement organization performance scorecards**			✓

Source: McKinsey Digital Procurement Service Line

1 Typically defined as data that is in high *volume*, changing with high *velocity*, and coming in a high *variety* of sources and formats

Pierre de la Bouleye *is an associate partner in McKinsey's Paris office,* ***Pieter Riedstra*** *is an expert partner in the Denver office, and* ***Peter Spiller*** *is an expert partner in the Frankfurt office.*