



The race to predictive

Predictive analytics in
procurement



Chief procurement officers (CPOs) may have accepted business conditions of “disruption as the new normal,” but they are far from resigned. In our conversations with CPOs, they continue to search for solutions and approaches that will help them to not only meet this year’s challenge, but also future-proof the business for as-yet-unseen developments. Predictive analytics is one of the most promising of these tools, an increasingly mission-critical enabler that will help procurement organizations more intelligently analyze spend, monitor supplier performance, and identify savings opportunities.

For CPOs, predictive analytics also looms as a competitive threat, one that will widen the gap between procurement organizations who’ve mastered the discipline and those that haven’t. CPOs we speak with see a 3 to 5 year window of opportunity to lock in sustainable advantage, and many are already hard at work on the foundational steps of getting their data cleansed and into a usable state. We concur: our experience with technology adoption curves tells us predictive analytics — currently an advanced practice in procurement — will move from “like to have” to “must have,” and become as common as spend analysis today.



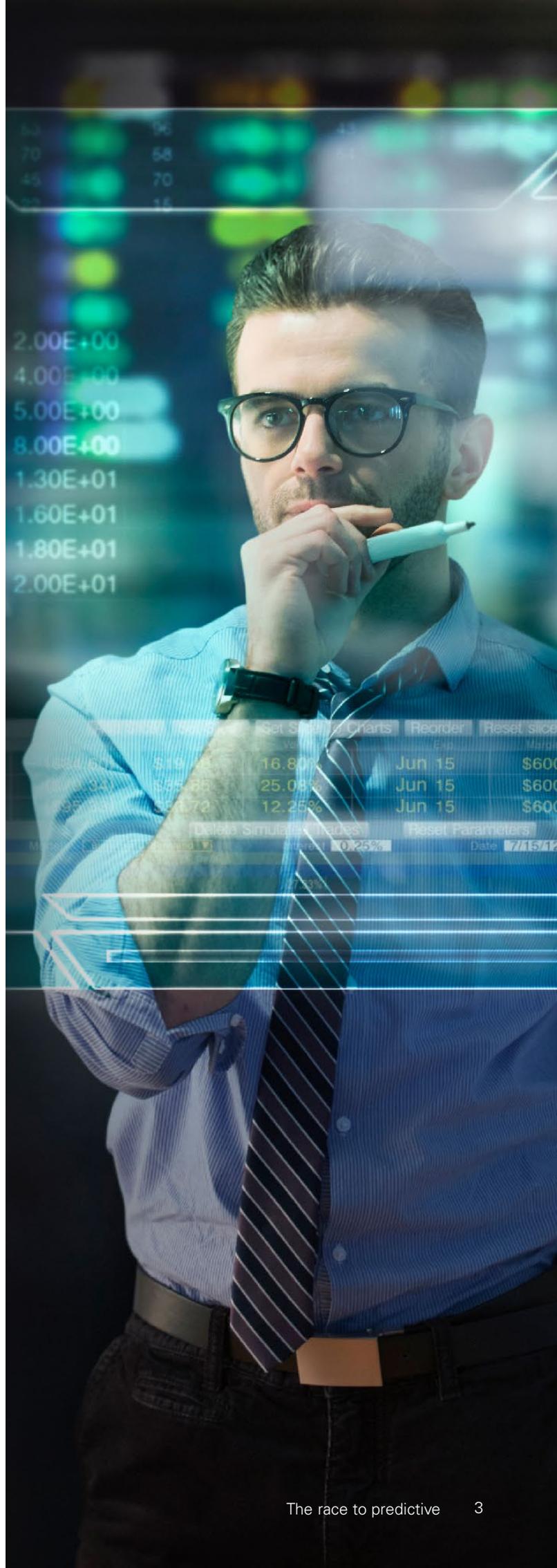
Enabling user friendly processes, policies and procedures, harnessing broad data sets to drive automation and analytics, and empowering self-service across all processes to do more with less are just some of the disruptions that are quickly making their way into each organization.

— Chris Foster
*Global Head of Operations
Center of Excellence,
Partner, Operational Advisory
KPMG Australia*



Predictive analytics capabilities in procurement are built, not bought. They represent a strategic integration of data, process, technology, and organization, based on frank assessment of where the procurement organization is today, and a clear strategic view of where it wants to go. While CPOs feel the urgency to establish or perfect their predictive analytics capabilities, our conversations suggest that more would rather “build it right” than “build it first.” They want solutions that anticipate and can keep pace with rapid advancements in analytics, and they understand that getting there is more a journey than an event.

As an organization, KPMG is centered around practical approaches that produce tangible business results. With that in mind, this paper reviews the promise of predictive analytics for procurement functions and examines the question of overall analytics maturity. It delves deeply into the all-important question of data: existing and prospective sources, quality and optimization, and ongoing governance. It also uncovers some operational building blocks — of technology and organization — that CPOs need to address in order to move their predictive analytics vision forward.



Potential benefits of predictive analytics

Predictive analytics can drive a mix of direct and ripple-effect benefits for procurement organizations that will vary by sector and enterprise, but typically include the following:



Budget planning: The demand-and price-forecasting

dimensions of predictive analytics modeling enable more accurate and sophisticated spend management, including insight about underlying causes of spend patterns, an artificial intelligence (AI)-driven understanding of demand drivers, and probability modeling. Predictive analytics also help clarify discretionary spend, separating out ongoing contractual commitments across the full procurement lifecycle.



Negotiation and pricing leverage:

The availability of real-time marketplace intelligence and supplier analysis, informed by external data feeds, supports should-cost/fair market pricing as the new reference standard for category sourcing and negotiation with suppliers.



Resourcing flexibility:

The streamlining, standardization, and end-to-end automation features embedded in analytics technology free up valuable human time from labor-intensive, repetitive tasks. CPOs can recalibrate their mix of insourced and outsourced talent, redirect resources and workstreams toward high-value categories, and open paths to triaged, high-touch, and self-service options for their internal customers.



Identification of value opportunities:

By bringing pattern analysis and price anomaly detection to decision makers in real time, predictive analytics empower category managers to move quickly when disruption events create ad hoc opportunities for price advantage.



Operational and financial transparency:

The uniform data taxonomies and data governance that underpin predictive analytics support enterprise-wide visibility, “a single version of the truth,” and clear breakdowns across previously obscured functional silos or geographic market units.



Category innovation:

As predictive analytics technology automates sourcing and bid evaluation, category managers can evolve to “category stewardship,” devoting time to building collaborative win-win relationships with critical suppliers, and using their organization’s purchasing power as a lever to support supplier innovation.



Proactive compliance:

Automated risk alerts, supplier monitoring in regulated categories, and ongoing error detection advance the risk mitigation agenda.

The starting point: Assessing analytics maturity

As a platform for procurement transformation, we define predictive analytics as a variety of statistical techniques — including data mining, predictive modeling, and machine learning — that analyze historical and current facts in order to forecast pricing or supply trends, identify market opportunities, and enhance strategic decision-making.

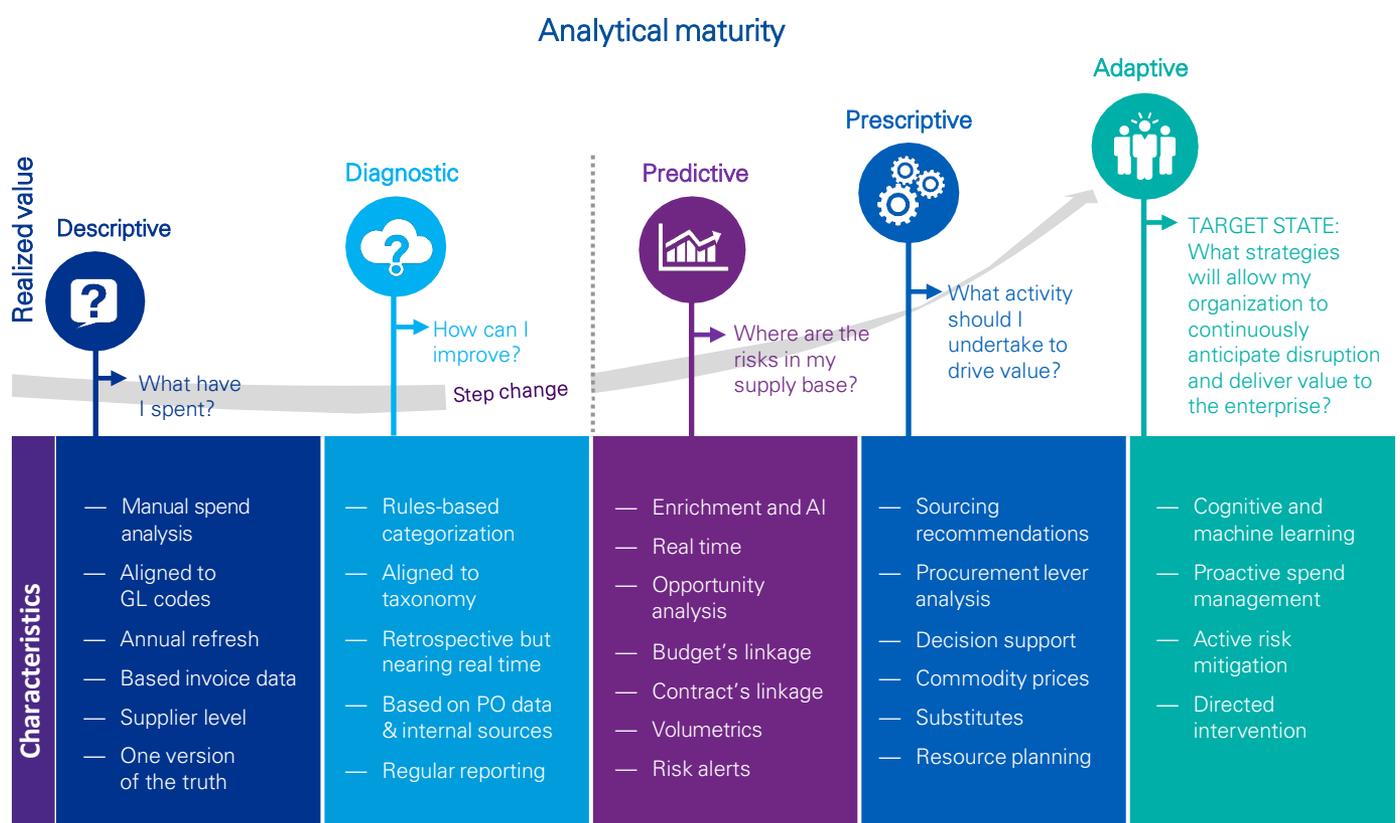
Those capabilities rest upon procurement organizations' overall current-state analytics maturity, as benchmarked against both analytics best practices and peer organizations. Generally, that maturity is defined by factors that includes a time horizon (e.g., from retrospective to prospective); the degree of

process standardization, automation and repeatability; the use of advanced technology such as bots or machine learning; and the way procurement interacts with the business (e.g., transaction support versus strategic partnering or category innovation).

As a data science specialization, predictive analytics is considered somewhere in the middle of the analytics maturity spectrum and is based upon certain foundational processes, technologies, and skill sets. That said, it's worth noting that relatively few procurement organizations have fully arrived at this level; many more are in process.

Where are you on the analytics maturity spectrum?

Capabilities can shift from "descriptive" to "prescriptive" analytics that go beyond foundational reporting, allowing business leaders and category managers to identify actions and adjust strategies, plans and savings forecasts.



The race to predictive: Getting there

A review of next-step operational issues that CPOs need to consider as they establish or refine their predictive analytics capabilities.

Data: The new currency

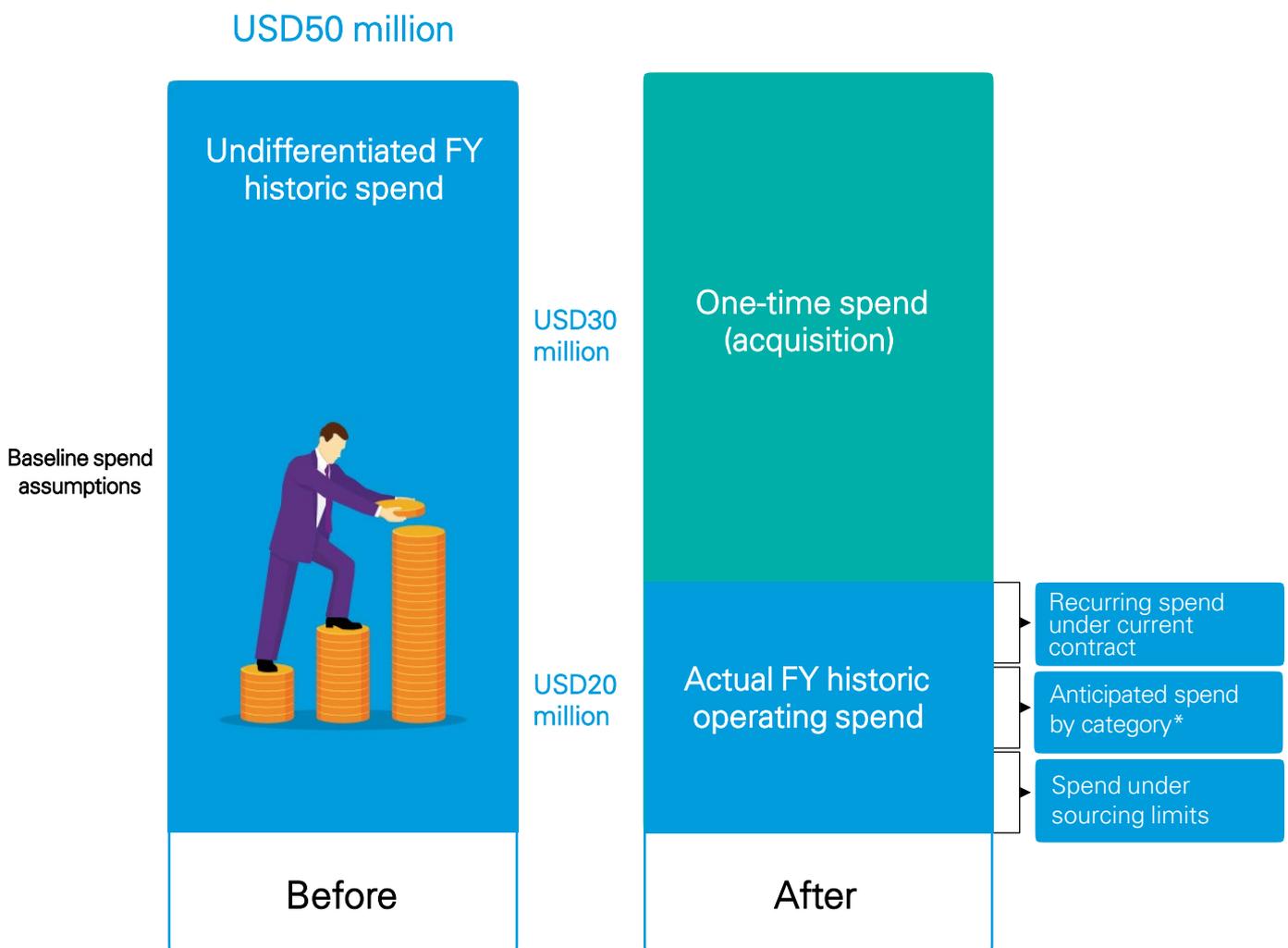
All CPOs we encounter share a clear understanding of the value of data. Priorities among them differ, of course: some question the value of data assets they currently have, and others share uncertainty about the precise mix of data they should have.

Predictive reframes the question



In the following hypothetical case, a procurement team needs to forecast line-item spend based on **50 million US dollars (USD)** in recorded spend during the previous year.

With predictive analytics capabilities in place, the data reveals that **USD30 million** of the spend was related to an acquisition, and that **USD20 million** is the actual relevant baseline for forward-looking projections.



*will be used to define next year's sourcing plan

Data sources

All CPOs will have to begin the predictive analytics journey from some baseline of available data, usually a combination of supplier, purchase transaction, process, and operational information. By design, they are backward-looking and support descriptive analysis, i.e. what has happened. They support traditional procurement mandates to deliver savings and limit enterprise risk.

An important question is whether procurement has current access to accurate master data or meta-data, or the right configuration of either. Although usually non-transactional in nature, it typically contains information about customers, products, employees, materials, and suppliers that supports more precise analytical insights.



Data from both new and existing sources will be the conduit to sustained innovation and value in procurement.

—Dipan Karumsi
*Principal, Procurement Advisory
KPMG in the US*



Transactional data is necessary. But to move from “what happened” to a more nuanced “why it happened” understanding, procurement specialists need contextual insight. Additional streams of internally sourced data from enterprise functions such as Finance can offer incremental additional insight value. And some of the major third-party procurement solutions offer “community data” as category-pricing benchmarks.

External data streams, sourced outside the enterprise wall, offer the greatest possibility of adding billions of additional data points to the analytics mix and driving more subtle causal and pattern insight. They can contextualize transactions with macro trends or developments such as mergers or divestitures, political developments, or extreme weather events. New external data sources include industry trends, geopolitical risk monitoring, and social media reporting.

New external data sources to drive additional insight:



Data quality and master data

Predictive analytics begins with trust in the underlying evidence, the source data. Marketplace observation suggests very few procurement functions are making the best use of the data they have.

If the CPO's strategic objective is promulgating fact-based behavior and analysis-driven planning, an immediate next step is assuring data quality, particularly master-data quality. Accurate and accessible master data is a foundational element that makes analysis and reporting faster, simpler, and more accurate — and therefore more useful and trusted.

Typically, non-transactional master data assets are intended to be the single point of reference, the aggregate sum of inputs from hundreds of sources inside and outside the enterprise wall — about customers, products, employees, materials, and suppliers.

As it is, many procurement organizations currently wrestle with disparate conventions for collecting, naming, and classifying data. The scenario of procurement professionals coding transactions according to the naming conventions of a single application — or a single departmental function — is all too common. The effects show up in data that is incomplete, inconsistent, inaccurate, duplicative, or siloed; in labor-intensive or difficult-to-repeat reporting and analysis; and in residual reservations or outright distrust of source data among stakeholders.

In a dynamic environment in which data sources and data inputs are likely to change, the assessment and architecting of master data solutions becomes a priority next-step initiative for forward-thinking CPOs. Forward-looking organizations don't let themselves become hostage to application-specific configurations of information; they leverage high-quality, reliable master data to take charge.

“ Organizations who are not able to harvest the data they are capturing throughout the procurement process to make smarter, more informed business decisions are missing out. Learning from your past to predict your future is here and now for procurement and this can drive significant competitive advantage for those companies who adopt this mindset.

— Andrew Underwood
*Procurement lead
KPMG in the UK*

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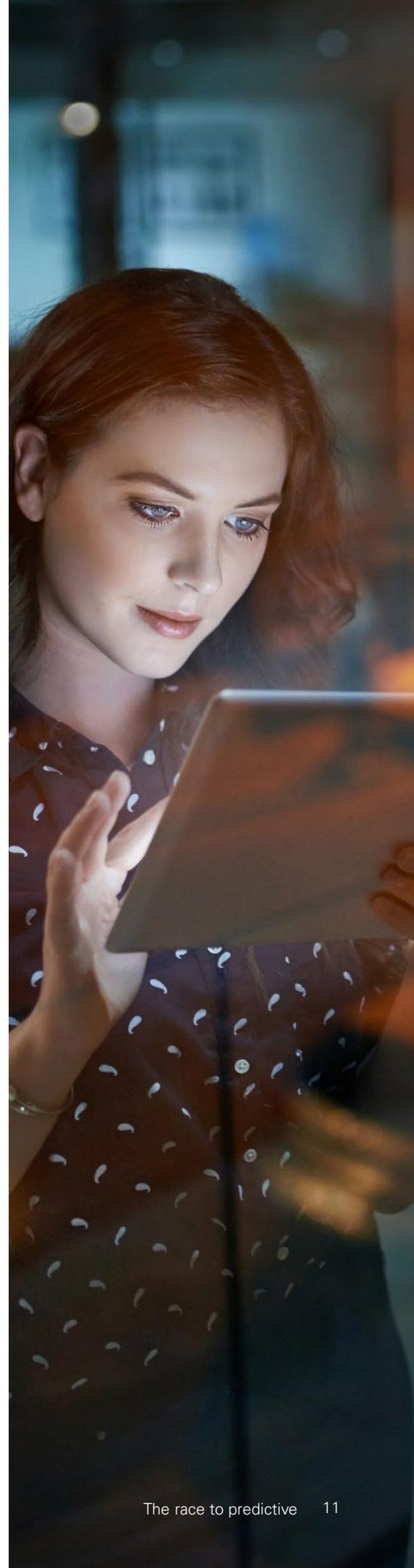
Data governance

Massively increased flows of data require ongoing data stewardship in the form of a data governance framework. These governance frameworks include taxonomies, naming conventions, closed-loop data correction paths, and collection protocols.

They explicitly designate who is responsible for maintaining the integrity and consistency of data, who has authority to make changes, and what are the criteria for changes or the processes by which changes will be made and rolled out.

As procurement stakeholders respond to additional data streams, changed priorities, or new software applications, data governance keeps individual users or siloed functions from making unilateral decisions that adversely affect other parties. In our experience, they are an often-overlooked value lever and a powerful remedy for disconnected data processes.

The CPO can become an organizational champion of these frameworks, which begins with questions such as, "What specific procurement challenge is the data being asked to address?" or "What value-delivery outcomes is the data intended to support?" At the same time, any sustainable master data framework will need to consider existing or target data models used by other enterprise functions. Procurement needs to involve its internal stakeholders at every step of the redesign process to assure successful buy-in and eventual adoption.



Additional considerations: Technology and organization



Technology: The right tools for the right tasks

An effective predictive analytics platform — capable of processing enormous data sets in real time — rests on a suitably powerful, flexible, and integrated technical infrastructure. CPOs are aware of how quickly the processing speed and extreme automation capabilities of computing and cloud servers have advanced.

Their challenge is navigating a continuously expanding solutions marketplace and integrating the right suite of analytics applications, systems, and infrastructure to support their objectives. Generally, no enterprise function better understands the value of third-party digital or technology ecosystems than procurement, or is better positioned to manage them.

The baseline, out-of-the-box functionality of the major third-party providers typically includes standardization and end-to-end automation of workstreams, the uniform structuring of collected data, and real-time reporting delivered via dashboards. These solutions in the marketplace are all quite strong at working with historical data, and at different stages of sophistication in their predictive analytics capabilities.

CPOs will need to evaluate whether additional tools — machine learning, natural language processing, bots, or AI — are required to enable predictive analytics. They will also need to consider how to optimally configure their mix of selected solutions, considering the existing tech stack within procurement, the enterprise tech stack, the IT target operating model, and interoperability with supplier/partner ecosystems.



Organization: Building skill sets, empowering predictive decision-making

The most thoughtful predictive analytics strategy will not succeed if procurement professionals charged with execution do not trust, embrace and adopt it. CPOs interested in sustainable and differentiated results will pay attention to their organization's capacity to absorb newly gained analytics insight — and act upon it.

To build upon the data/analytics skills base they currently have, the CPO may need to create new and specialized roles in the organization and guarantee them a meaningful seat at the strategic table. But analytics — and the underlying data that supports it — cannot remain the preserve of data scientists. If analytics-powered transformation is the goal, diffusing analytical skills throughout the procurement organization — creating “citizen data scientists” — will be an equal priority.

Forward-looking CPOs will frame the readiness question as behavioral and cultural issues that go beyond the acquisition of software- or process- specific technical skills. A seismic shift is required if procurement professionals — historically trained and incentivized to prioritize only savings or risk minimization — are now being asked to behave as consultative or strategic partners to their internal stakeholders.

Aiming for evidence-based mindsets and analytics-empowered employees, CPOs will evaluate investments in new kinds of training, professional development, credentialing and performance metrics. Collaborative workstreams that support open access or even self-service analytics insights at all levels of the organization are additional important steps to support uptake.

As analytics technology automates routine procurement tasks, CPOs will gain selected opportunities to free up human resources to attend to higher-value activity. As they reconsider the right mix of insourcing and outsourcing, they will need to overcome fears of automation-driven displacement, educating and communicating the what's-in-it-for-me benefits of automation.

“ Today, though external data sources, our base ERP and Best of Breed systems, we are information-rich but still time-poor. Predictive analytics offers the opportunity to accelerate the decision making process enabling improved service, cost, quality and social outcomes.

—Chris Clements
Partner
KPMG Australia

How KPMG can help

As predictive analytics in procurement moves quickly from a “like to have” to a “must have” capability, crossing the divide from where you are today to where you want to be takes time, effort, and energy.

The specific path will be different for every organization, based upon category specialization, procurement objectives and C-level support for change. Nevertheless, every CPO is likely to need help with issues such as:

- Assessing current-state analytics practice, technology, and people skills
- Articulating or refining procurement’s value proposition to the enterprise
- Defining target values and road maps to close foundational gaps
- Building strong ROI-driven business cases
- Identifying “quick wins” and priority change initiatives
- Embedding predictive analytics into streamlined workflows
- Architecting target operating models and predictive analytics capabilities
- Evaluating high-ROI automation opportunities
- Building an ecosystem of relevant external data and technology partners
- Strengthening analytics skill sets and behaviors within the procurement organization
- Partnering with other enterprise functions to cosponsor analytics solutions

At KPMG firms, we like to begin with dialogue: about the state of predictive analytics practice in procurement areas such as contract management, supplier relationships and demand forecasting; about its potential benefits to your procurement organization; about where your procurement organization stands now in relation to peers and customer expectations; your readiness to embrace new operational paradigms; the business case to invest in change; and the road maps to get there.

Whether work begins with requests for point solutions or comprehensive transformation mandates, KPMG can help CPOs integrate the right combination of technology, organizational capital, and data strategy to advance their own analytics agendas.



Crossing the divide

All CPOs contend with questions about the continued relevance of the procurement function, the threat of disintermediation and evolving definitions of delivered value. The most forward-looking among them understand predictive analytics is a powerful tool that can preempt disruption.

Predictive analytics capabilities are built, not bought. CPOs can't go it alone. They need journey partners, ready to work shoulder to shoulder with them, to take them from where they are today to where they want to be tomorrow.

If you'd like to learn how KPMG can help turn your procurement vision into practical reality, let's talk.

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