

DEMYSTIFYING PROCUREMENT ANALYTICS

A HOLISTIC APPROACH FOR DELIVERING ACTIONABLE INSIGHTS

WHITEPAPER

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EXECUTIVE SUMMARY

Procurement functions are almost uniquely placed within organisations to make a rapid impact to the bottom line and are rightly in the vanguard of many corporate transformation programs. However, they remain poorly served by the data and analysis required to ensure this value is sustained and the insights required to ensure it is enhanced over time. Procurement functions aiming to become genuine business partners must overcome the challenges that stand in the way of effective analytics. In this whitepaper, we seek to demystify procurement analytics by clearly identifying the challenges and outlining the holistic approach needed to overcome them. Fortunately, through the combination of the latest visualisation and artificial intelligence technology, coupled with 'as a service' models, procurement analytics looks set to finally deliver the insight required.

ON THE ROAD TO BETTER ANALYTICS AND GREATER VALUE

The advent of sophisticated procurement functions in the 21st century has delivered enormous value to the organisations they support. Executives that have experienced this transformation know the benefits of professional management of their organisation's external spend.

Many organisations have already achieved impressive early gains from rigorous sourcing and category management, coupled with robust transactional processes. Their leading procurement functions are now expanding their objectives beyond negotiated savings and improved compliance. These organisations understand that the procurement function delivers value through its ability to convert supply market value into product value for

end-customers.

To deliver this enhanced value, procurement must play a cross-functional role, acting as the bridge between the organisation and the value offered by the supply market. Unfortunately, many procurement functions lack access to quality data and analytical insights that are critical to their success in this role. Recent cross industry surveys support this. The *2018 SAP/ Ariba Global CPO survey*¹ identified analytics and data quality as the largest roadblock to procurement efficiency. Concerningly, the *Infosys Portland 2017, Asia Pacific CPO*² survey indicated that, while technology is the fastest growing priority area for CPOs, less than 40% were confident of the success of their procurement technology plans.

Infosys believes that poor analytics is one of the greatest obstacles to efficient and effective procurement. Enhanced analytics must be capable of doing more than tracking savings capture and processing compliance; it must also identify actionable insights that lead to new areas of value. The level of near-real-time, predictive analytics this third ability requires has eluded most procurement functions, leading to value erosion and preventing them from becoming a genuine business partner in their organisations.

Finally, however, the convergence of improved technology, richer data sources, and enhanced business models offer a path forward.

Previous generations of procurement analytics solutions owe their failure to provide actionable insights to two key challenges. To succeed, solutions must address each one, namely: organisational readiness, – data quality, team capability and technology shortcomings.

1 - SAP Ariba CPO Survey 2018 - What's the Next Big Thing in Procurement

2 - Infosys Portland Survey 2017 - The Changing Face of Procurement

ORGANISATIONAL READINESS – THE HIDDEN CHALLENGE

Readiness of the procurement function itself may not, at first glance, seem important to the success of a procurement analytics solution. However, in our experience it is vital to the success of any and all analytics efforts. Readiness consists of three key elements:

1. Clarity of strategy and understanding of value
2. The quality and breadth of data available for analysis
3. The capability of the internal team to extract insights from the data

Of these three, shortfalls in data quality and team capability can be addressed by selecting the right analytics solution. Clarity of strategy and value definition rests with the organisation.

The objective of a procurement analytics solution is not to present data in pretty, user-friendly dashboards. Its purpose should be the identification of actionable insights that drive an organisation's strategy forward and deliver value. A procurement function without a clear strategy for delivering value to its organisation will struggle as it decides where to focus its analytics resources.

Contrary to the view espoused by some technology providers, there is no universal definition of value in the context of procurement. Rather, it varies by industry, organisation, or role within a procurement function. The strategy and the value levers it targets will also evolve as the function matures.

What Does “Value” Mean to Your Organization?

Before looking at what current procurement analytics solutions can offer and what changes can be made to improve their output, it's

important to understand what truly constitutes value.

Many businesses use “value” synonymously with “cost reduction”. As important as cost reduction is, leading procurement organisations control a wider range of value levers that help businesses increase revenue and lower risk. Actionable insights from supply chain and procurement data gives CPOs and their teams the ability to better apply force to these levers. The key to acquiring these insights is an analytics solution that can find and leverage the right data.

A procurement analytics solution, delivers value according to how well it enables procurement organisations to identify opportunities to:

- Decrease costs
- Increase operational efficiencies
- Improve product value and customer experience
- Generate more revenue
- Reduce risk

The Emerging ‘Data Problem’ is Compounding Previous Challenges

Procurement analytics solutions, and advanced analytics platforms in general, are often hindered by the quality of the data they are attempting to analyze. Ideally, an organisation has a robust master data strategy and governance; however, procurement teams do not typically have this luxury, so their analytics solution must contend with:

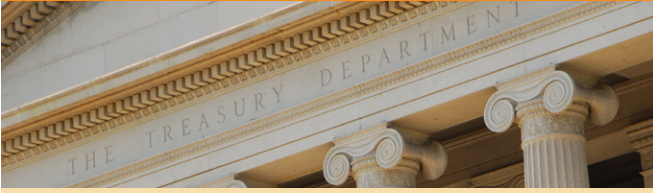
- Data resident in multiple different systems
- No enforced data standard, leading to poor information and inconsistent data formats
- Partial data due to failure to collect some elements
- The ever-present issue of “free text” orders

meaning some spend items are all but impossible to categorise

On top of all this, the quantity of data being generated internally and externally is greater than ever and continues to grow steadily. Much of this data has the potential to assist CPOs in boosting the performance of multiple business processes, from product development through sales and marketing to customer service. Unfortunately, the overwhelming volume, intensity, and diversity of information is proving to be an obstacle. CPOs and their teams find that their internal capabilities are lagging due to the ever-growing volume of data. As a result, they lack the insights they need to detect and leverage opportunities to increase value creation and arrest value erosion.

Current advances in technology can help collect and organise data, but without an integrated procurement analytics solution, all that information only places greater demand on both the internal team and budget. In this sense, the inability to leverage data gained through supply chain and procurement processes could itself be a cause of value leakage.

AUSTRALIAN STATE GOVERNMENT – DATA TRANSPARENCY AND CUSTOMER FOCUS



The central treasury function of a large Australian state government, with expenditure in excess of \$25 Billion AUD, was not able to get clarity of current expenditure by category across government, despite multiple previous attempts. Key challenges included more than 15 agencies each using different categorisation taxonomies appropriate for their own area and long delays in collating and re-categorising data.

Infosys used machine learning to categorise all datasets into the preferred central format and then provided visualisations in this or the agency taxonomy depending on the audience. Data cleansing and categorisation run time was reduced to four hours with immediate accuracy of 94%. Government wide transparency was achieved for the first time.

Key success factors included:

- Leading data extraction, normalisation and enrichment toolset
- Machine learning for rapid, accurate categorisation
- System flexibility to provide each internal customer with their preferred view

Internal Analytical Capability

Even when a procurement function has a robust strategy, clearly defined value levers, and good-quality data, advanced analytical capability within the team is often scarce. A procurement analyst is expected to combine the abilities of a data scientist, data visualisation

expert, and procurement category expert to extract, identify, and visualise insights. Analysts with this rare combination of talent are often quickly promoted; therefore, procurement functions tend to deliver inconsistent analytics internally.

There may be broader analytics functions within organisations but they lack the procurement expertise required to extract actionable insights. The challenge is even greater in smaller organisations where individual procurement team members are expected to do all this on top of their regular projects and tasks.

To date, procurement analytics solutions have fallen short of continuously and consistently helping CPOs and their teams extract value from their data due to a number of shortcomings.

TECHNOLOGY CHALLENGES – SOLUTION SHORTCOMINGS

Organisational readiness is a crucial foundation for successful procurement analytics programs. However, even when the organisation is well prepared, common shortcomings of the existing solutions invariably fall short of the expectations. These shortcomings include:

- The dead “**one-size-fits-all**” approach - it’s hard for a single tool to be good at all functional capabilities required to deliver procurement analytics, e.g. extraction, normalisation, enrichment, classification, analysis, and visualisation. Hence many solutions perform well at one element but not all, or worse, one element is not addressed at all.
- Many procurement analytics tools are **part of a wider procurement technology suite** - They often perform best only when other modules of the suite have been

fully implemented meaning added cost and delayed benefit. These tools often have limited ability to enrich data from additional sources and lack the flexibility to adapt reporting to the unique needs of individual businesses.

- They **lack the latest AI** and ML-powered predictive capabilities. Without an AI platform at the core of the solution, the ability to continually enhance data categorisation must be done via manual rules and there is limited opportunity to build more predictive analytics.
- Finally, **lack of flexibility** is a weakness of many solutions. Organisations need tools that have the **flexibility** to help them achieve their specific business objectives; therefore, they require tailored scalable analytics and visualisations that allow for change as they grow and mature. Hence solutions that limit the ability to add data sources, bespoke dashboards or new analyses are unlikely deliver the insight desired.

THE MISSING LINK: FROM DATA TO ACTIONABLE INSIGHTS

The Latin “Scientia Potentia Est” translates to “Knowledge is Power.” In the procurement sense, “power” is the ability to exert force on an organisation’s full set of value levers. Notably, the Latin saying is not “Data is Power”; therefore, to exert force on our value levers, we must be able to convert data into knowledge, or, more specifically in this context, into insights that are actionable.

Infosys believes the objective of a procurement analytics solution must be to deliver actionable insights. That is, it must move beyond generic dashboards of historical spend, to providing organisation and role

specific insights that identify areas of value that support delivery of the procurement strategy. This implies:

- The analysis presented should be focused on KPI’s aligned to the organisations procurement strategy
- Analysis and insights should not only be targeted at CPO level but by individual role, empowering employees to make the right decisions and contributing to overall value delivery
- The solution must be capable adapting to deliver deeper insights over time, progressing from retrospective to future focused (*See Figure 1 Procurement Analytics Maturity Stage*)

Example: Are we realising negotiated savings/benefits?

- Are we buying from preferred vendors?
- Have users adopted the purchasing system?
 - What is the PO coverage?
 - Are invoices matching PO or contract?
 - Are suppliers set up on time?
 - What is the approval cycle time?
- Are suppliers being paid on time (eligible for rebates or incurring penalties)?
- Are additional savings achieved by central buying?

To continue to gain actionable insights, procurement functions will progress through different stages in their analytical maturity. As outlined in the figure below, the first step is to achieve descriptive analytics so that current performance is transparent. The next step is build diagnostic analytics to understand the

reasons behind current performance. While there are some standard indicators to measure at this stage, every organisation has its own objectives; the reasons for non-performance can vary due to, for instance, processes, systems, and workforce.

As analytical maturity increases, predictive and prescriptive analytics help drive organisations further forward. With the help of additional data sources and more advanced (predictive) technology, organisations will be increasingly

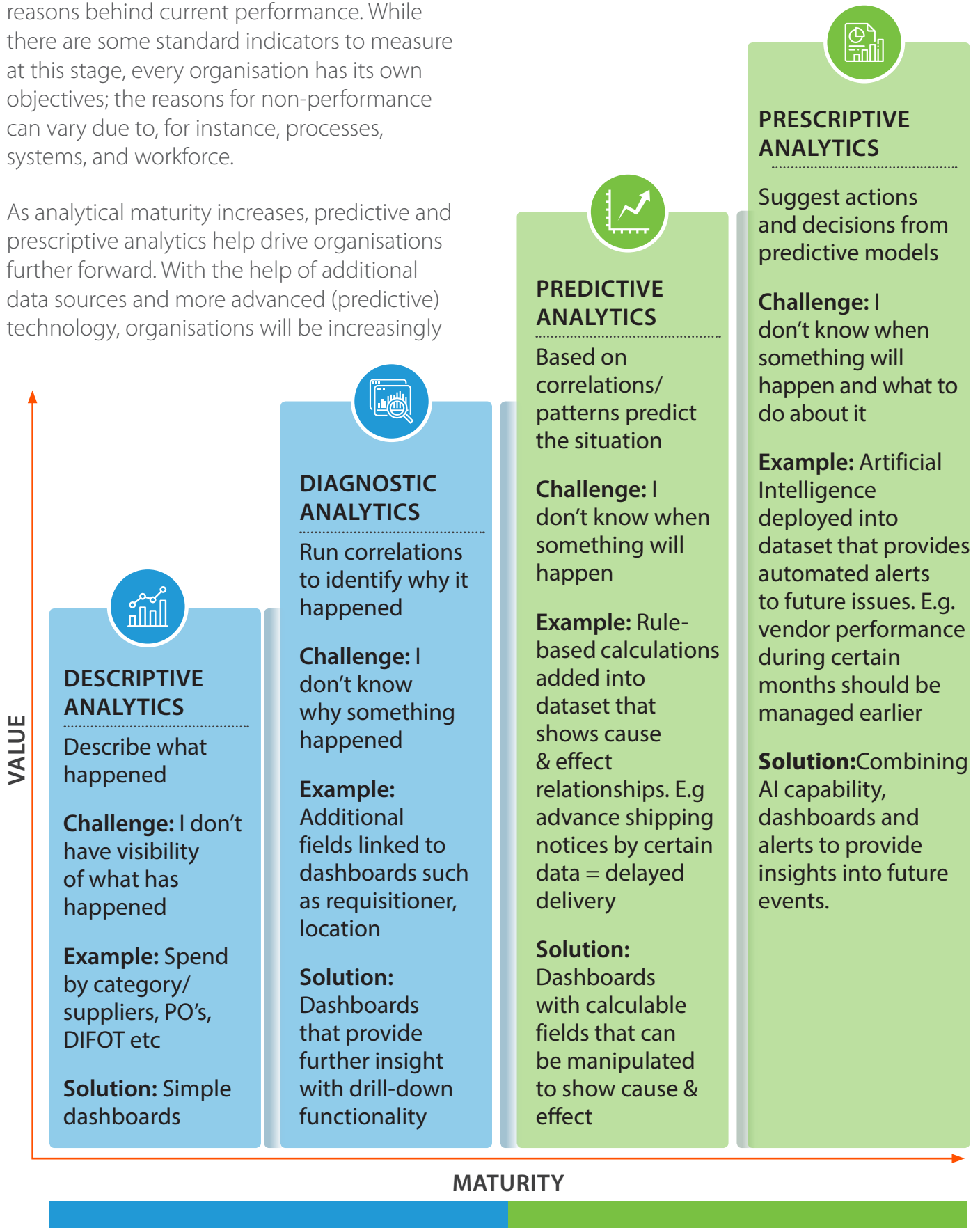


Figure 1 Procurement Analytics Maturity Stage

NORTH AMERICAN TELECOMMUNICATIONS MAJOR – RAPID PATH TO VALUE



A major North American telecommunications corporation, with multiple divisions and more than \$ 20B in annual external spend, sought to gain visibility of procurement savings opportunities across all categories in a consistent taxonomy.

Infosys worked with the client to design and deploy a corporation wide procurement analytics and visualisation solution. Initial data ingested into the analytics engine was drawn from four ERPs over the prior three years, allowing categorisation into >800 subcategories and rapid identification of savings opportunities in priority categories.

Over 90 dashboards were deployed within a week of categorisation completion giving detailed corporation wide spend visibility for the first time. Greater than \$200 M in first pass savings opportunities were identified on an addressable spend of \$ 6B and continue to be updated.

Key elements of success were:

- System flexibility to accept multiple data sources (4 ERPs)
- Advanced cleansing and AI categorisation toolset
- Library of dashboards available for adaptation and rapid deployment
- Rapid conversion of data into actionable insights

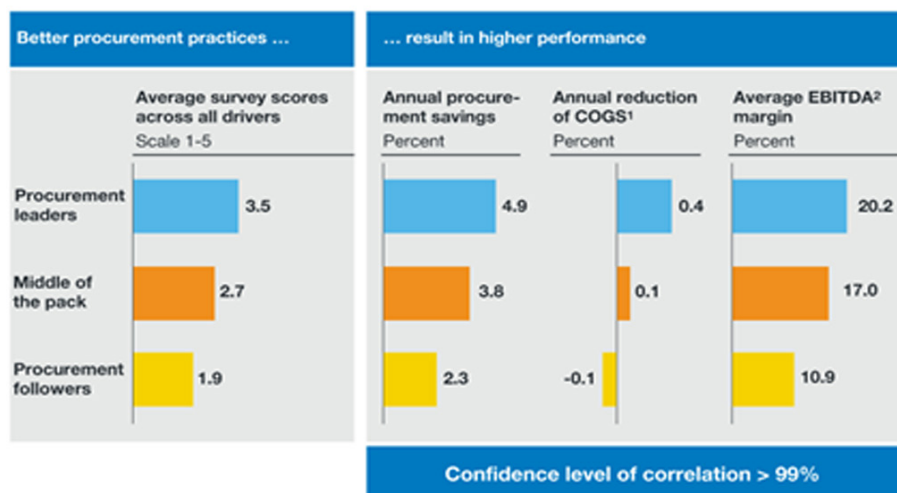
proactive in addressing areas of value instead of taking the more reactive approaches of descriptive and diagnostic analytics.



CREATING REAL VALUE FOR BUSINESSES THROUGH DATA-DRIVEN PROCUREMENT INSIGHTS

This may sound like a lot of effort, but there is good reason to persevere. High-performing organisations understand that [procurement health plays a key role in corporate success](#). And there is a material gap in procurement performance between the leading organisations and the laggards.

PROCUREMENT PAYS: PROCUREMENT HEALTH SHOWS A STRONG CORRELATION TO CORPORATE PERFORMANCE



A key differentiator of procurement leaders is that they have the data and analytical insights available to support their operating model and drive their strategy forward.

1 Cost of goods sold

2 Earnings before interest, taxes, depreciation, and amortization

McKinsey
& Company

Confidence level of correlation > 99%

GLOBAL PHARMACEUTICAL COMPANY – BENEFIT OF STRATEGIC CLARITY



The newly appointed CPO of a European based, global pharmaceutical organisation with more than \$15 Billion USD external spend had defined a clear strategy to deliver value to the organisation. Its value definitions were simple, making them easy to communicate:

- Enhance value delivery (Top and bottom line)
- Make buying easier (user experience enhancement)

Both areas had well-defined KPIs with agreed improvement targets. However, the organisation lacked visibility of performance against the KPIs and the underlying contributions to that performance.

Infosys built a targeted analytics platform that extracted and cleansed the data from 40,000 vendors and almost 1 million purchase orders across more than 50 countries. This provided near real-time visibility of performance as well as diagnostic tools to drill into the underlying performance of each KPI. Within 12 months, all master KPIs exceeded their targets (e.g. eAuction savings >\$100m, 15% reduction in suppliers, supplier non-compliance halved).

The analytics solution played a key role in identifying improvement opportunities (actionable insights) and visibility of the value delivered. The keys to this success were:

- Clarity of strategy and value to be measured
- Analytics solution configuration aligned to support the strategy
- Seamless availability of accurate cleansed data and tools to identify opportunities or diagnose issues

A HOLISTIC APPROACH TO PROCUREMENT ANALYTICS

To identify actionable insights and deliver real value, we believe procurement functions need to take a holistic approach to procurement analytics. This cannot simply mean buying shiny new technology.

Once the strategy is clear, to deliver value, procurement functions require analytics solutions and support that provide three key features: measurement of customer objectives, analytical capability, and smart technology.

Additionally, agile approaches and flexibility are important traits of the solution, as is the potential of delivering procurement analytics as a service.

Focus On the Customer and Their Objectives – Strategic Capability

For analytics to clearly target areas of value and generate insights that contribute to business objectives, we believe the insights need to be collated and displayed to individual roles or personas. In this manner, appropriate roles in the procurement function can, in turn, contribute to their organisation's goals. Therefore, we may have a CPO dashboard, Category Manager dashboard, Procurement Operations Manager dashboard, and Project Manager dashboards, each depicting insights relevant to their users, enabling them to take action according to their roles.

To support these persona-based insights, a procurement analytics solution requires subject matter experts who can engage with organisations to enable them to define the right persona-based questions and respective analytical insights that deliver value. This capability is commonly provided by senior procurement experts who have both the

analytical and domain (procurement) expertise in identifying actionable insights.

GLOBAL MINING COMPANY – TARGETED SOLUTION: PROCUREMENT OPERATIONS



A global mining organisations with operations in six continents and spend in excess of \$20 Billion USD identified procurement operations as a critical enabler for improved site performance. Two priority KPIs were identified with clear targets:

- On time delivery – inbound parts
- Payment on time – vendor satisfaction

Infosys built an analytics platform to consistently measure these KPIs and their subcomponents across all operations globally, giving global transparency of performance for the first time that was reported to the CEO and executive on a monthly basis.

Analysis highlighted multiple areas of inconsistency and potential improvement. Predictive analytics were used to highlight payments or orders at risk of delay, allowing them to be targeted before an issue arose. Within 12 months, overdue orders reduced more than 25% and late payments reduced by almost 75%.

Success Factors:

- Clarity of strategic priorities and measures of value
- Rigorous cross functional validation of data sources
- Flexibility of analytics solution to focus on the procurement operations space
- Use of predictive analytics to identify shipments most likely to be delayed allowing personnel to focus on resolving the issue, rather than completing the analysis

The Analytical Skill Set – Tactical Capability

The importance of analytical talent is vital to extracting value from procurement data. This means CPOs require access to people who can set up data workflows and modelling approaches that ensure analytics deliver comprehensive, consistent, current, and continuous insights.

Two key roles in advancing tactical procurement analytical capability are:

- Data scientists who understand the systems, data structures, and predictive and statistical modelling approaches that are required to cleanse, enrich, aggregate, and otherwise transform data to generate meaningful insights.
- Visualisation and UX experts who can develop accessible dashboards that ensure users across the organisation understand data insights and empower them to incorporate these insights into decision-making processes.

New data sources need to be pulled in and converged with existing data to constantly deliver additional value. Spend data converged with other organisational data (e.g. operational/maintenance, HR) allows procurement functions to extract value from relationships and patterns. Additionally, in the absence of “perfect” quality data, analysts need to manipulate the data so it can be used in analytical workflows.

As a service models for procurement analytics delivery can offer a deep pool of resources with this analytics capability, to be called upon when needed to augment internal resources.

Inside the Machine: Leveraging Technology

Modular

The best contemporary and future analytics solutions will be modular and either loosely coupled or open, which enables organisations to integrate rapidly evolving best-of-breed technologies so they can meet competitive challenges and identify opportunities. The one-size-fits-all database is long dead, as is the one-size-fits-all data analytics platform.

The procurement analytics value chain requires multiple functionalities: cleansing, classification, analysis, and visualisation. Each of these functionalities should be supported by their respective best-of-breed tools in order to get the most out of the holistic analytical process.

The visualisation, or dashboarding, of procurement analytics insights should be flexible to meet stakeholder needs and objectives. It can also be user-based to display information that is relevant to specific roles within a procurement function.

AI analysis capability

Smart technologies, especially machine learning, have advanced significantly over the past few years. As machines learn to make progressively better data-driven decisions according to historic data patterns, the insights they deliver grow in value. While this technology is not new to spend analytics, supply chain and procurement teams have yet to fully harness the predictions and insights from data patterns contained within multiple converged data sources, such as spend data converged with maintenance or operations data. Due to the sheer data volume, additional data sources, and the need to identify data patterns to extract value from converged data sets, machine learning technology has a significant role to play in procurement analytics.



Flexibility

In addition to the key elements of next-generation analytics solutions outlined above, an overarching requirement of the platform is its flexibility to evolve and mature with an organisation. It must be flexible enough to:

- Be updated to provide alternate reporting and insights as the strategic focus changes
- Add data from internal and external sources to provide greater insight as the organisation matures
- Modify visualisation when required and add dashboards for new roles and/or personas over time
- Offer flexible delivery models

As a Service – A Final Consideration

In the authors' opinion, many of the shortcomings of past procurement analytics solutions can be traced to their attempts to solve all issues with technology. Even the latest artificial intelligence enhancement can't replace human insight, at least some degree of which remains critical to ensuring base data is correct, validating insights, and guiding the evolution of the analytics platform from its beginnings to maturity. Given the challenge of retaining analysts with the unique skills to deliver consistent procurement insights, we believe next-generation procurement analytics solutions should also offer optional Analytics as a Service to ensure organisations harness the full power of the technology consistently.



The Infosys Solution

Infosys has been combining technology and services to provide procurement analytics solutions for some of the world's largest organisations for over a decade. Our vast range of capabilities and depth of experience enable us to provide a holistic approach to next-generation procurement analytics and, most importantly, deliver the actionable insights that purely technology-based solutions cannot.

The latest generation of this service combines:

- Specialist **procurement strategy consulting** to ensure organisations clearly understand what their most important value levers are before they embark upon an analytics campaign
- The **Procurement Insights Technology Platform**, which combines data preparation and cleansing with the world-class Infosys Artificial Intelligence Platform NIATM and market-leading visualisation tools
- Actionable insights from our **specialist procurement analytics team**, which provides category knowledge, data science, and visualisation expertise
- The **flexibility to expand and enhance** the solution over time as procurement function strategies evolve and new data sources become available. This enables Infosys to partner with our clients as they move up the maturity curve from descriptive analytics through diagnostic analytics to predictive and beyond.

Want to know more? Get in touch to see how Infosys' holistic Procurement Analytics service, which leverages Nia Procurement Insights business application, can help you drive insights – and value – for your organisation.



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