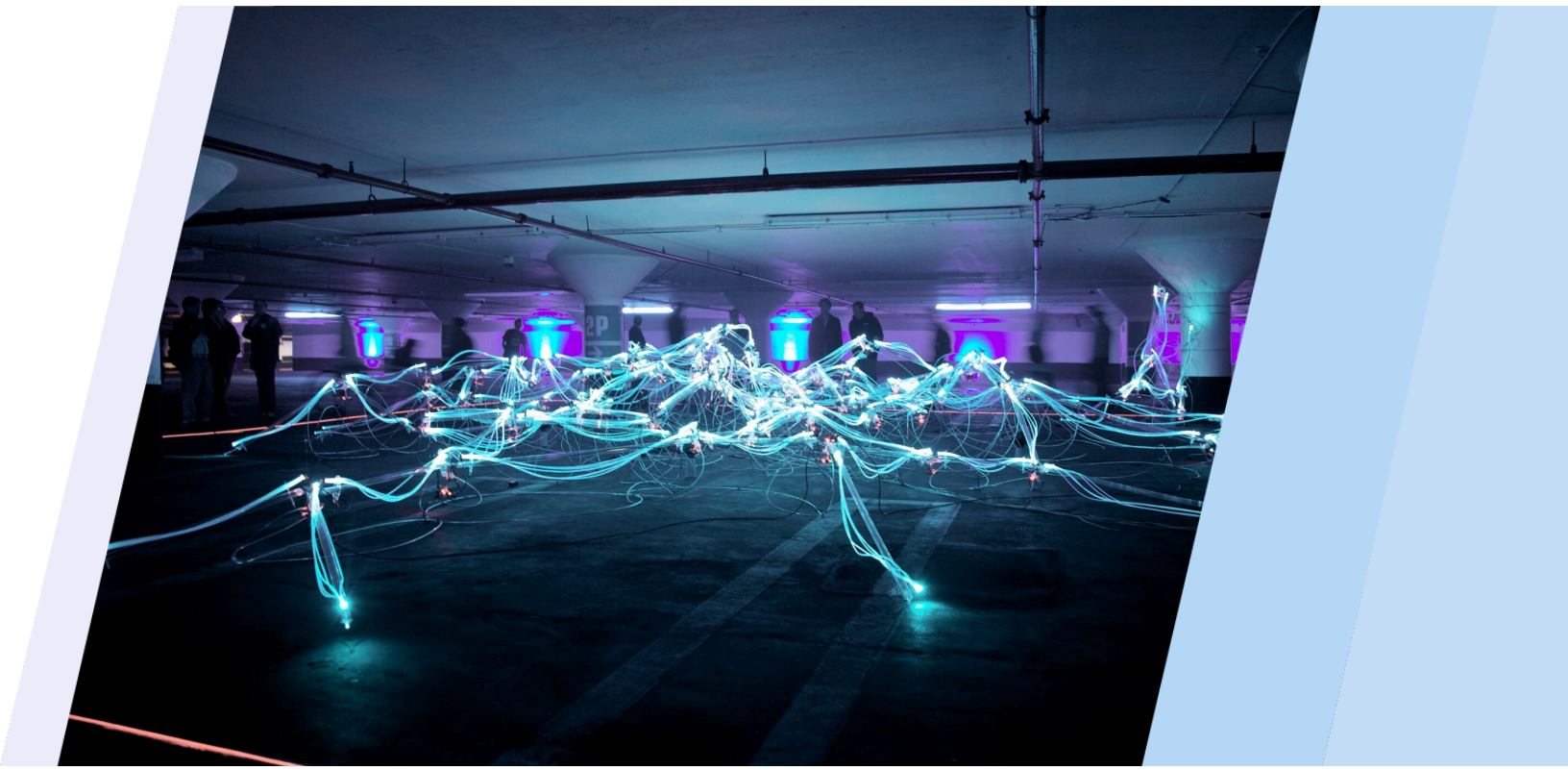

Procurement & Supply Chain

AI in Procurement: How to Understand & Overcome Barriers to Long-term Adoption.

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The adoption of artificial intelligence has altered the course of countless industries. And while its usage within sectors such as procurement have helped automate both small and complex tasks, there still remains a large gap between the current state of the industry and its potential impact via widespread AI/ML adoption.

According to a 2020 Digital Procurement World survey, only 6% of respondents said they are actively using AI in their procurement digitization initiatives. Another 21% said they are just starting to use AI.

“With AI already being deployed in consumer applications and increasingly applied in multiple business capabilities, the number of leaders utilizing AI to transform procurement and sourcing is anticipated to dramatically increase in the coming months and year,” said Matthias Gutzmann, founder of Digital Procurement World (DPW).

“Through research and learning about what is truly possible, procurement leaders can start identifying new and innovative ways to utilize technologies such as AI and machine learning to drive efficiency, transparency, and spend effectiveness.”

With help from Gutzmann, Nico Bac – previously senior director of procurement at Procter & Gamble and the founder of Digital Procurement Now – and David Loseby – former chief procurement officer of Rolls Royce – we’ve put together the basics of how to understand AI in procurement, where it’s performing well, challenges and limitations, and how procurement professionals can select the best AI/ML tools for their team.

Fundamentals of AI/ML in Procurement

Understanding the full scope of AI is not straightforward, and although there may be definitional inconsistencies, here are some ways to think about what AI/ML consists of and what it doesn’t.

Predictive Analytics

This is the use of big data to identify trends and enhance decision making capabilities. In procurement & supply chain, this could apply to spend classification or inventory management. It’s also useful in forecasting scenarios based on large volumes of current and historical data.

Artificial Intelligence (AI)

AI is an umbrella term of technologies and can cause confusion on its exact definition. While both predictive analytics and AI use large amounts of data, AI is able to “learn” rules from big data without explicit programming.

Machine learning (ML)

ML uses algorithms to find and detect patterns, which enables them to continuously learn. However, ML technologies can only learn in meaningful ways when initial data and rules are accurate and structured.

Natural language processing (NLP)

NLP allows for the understanding of human language via linguistic algorithms. It can be used for contracting and other documentation that either requires translation or summarization of large amounts of text.

Robotic Process Automation

RPA is less cognitively intelligent in that it is less concerned with learning incrementally over time. However, it's proved effective in executing repetitive tasks with clear rules, such as data entry and invoice processing.

There are also more advanced concepts – including deep learning and neural networks – which have proven useful in areas such as image recognition for supplier and inventory searches.

Key Applications of AI within Procurement & Supplier Intelligence

Increased visibility and control over spend

Spend classification is a particularly difficult task, as disparate ERPs and other systems vary by department. Supervised machine learning is particularly useful in these use cases, and eventually, with accurate, structured data, AI/ML technologies can not only clean and categorize data, but also make important predictions, forecasts and insights. According to Bac, predictive analytics and AI tools were especially useful for managing tail spend at Procter & Gamble.

"We developed category lists which were basically list sof qualified suppliers per location and per commodity. We then programmed a BluePrism robot to execute sourcing events in our e-sourcing tool with the qualified set of suppliers and based on the specifications which were provided by the business user," said Bac.

“P&G executed about 25 small sourcing events per year across the globe of which some of them have been automated using RPA. The supplier never knew if a buyer had created the RFP or if a robot had created it.”

Automation for time and money savings

AI has been used to some degree for performing repetitive, mundane tasks. These include invoice and procure-to-pay processing. Basic contract management also employs NLP to notice discrepancies or errors between contracts.

Manage risk & compliance

For firms with thousands of suppliers, it’s nearly impossible to track risk scores and compliance for all of them without sophisticated technology. Using AI/ML to aggregate pertinent data and compile that into useful, digestible insights is a critical part of supplier intelligence. Companies can use a combination of predictive analytics, NLP and machine learning to monitor risk and compliance across domains ranging from cybersecurity, financial health, ESG, as well as sanctions or blacklist data.

Sourcing

Procurement managers are acutely aware of challenges with sourcing suppliers. But big data can be harnessed to analyze historical trends – aka current and previous supplier performance and spending – and it can also be used in more sophisticated ways to identify opportunities with new or alternate suppliers.

Successes & Challenges of Getting AI/ML to Improve Procurement

Successes

Task automation: The use of RPA has been useful in automating basic payment tasks. And in the general supply chain industry, robotic automation has completely changed the manufacturing sector. But more recent advances in NLP have also helped with basic contract management, as well as virtual assistants and chatbots.

Spend analysis: Accurate spend data is fundamental to effectively sourcing and evaluating suppliers and overall procurement performance. Deloitte reports that AI technologies have been able to analyze spend data with approximately 97% accuracy. While accuracy will also

depend on other factors, successful implementation and oversight can yield invaluable results.

Risk management: AI/ML technologies can be employed to scrape, analyze and interpret publicly available data – in addition to internal data housed in ERPs and elsewhere – and assign risk scores and actionable insights for procurement managers.

Challenges

Developing & maintaining a solid data foundation: Having a single source of truth for supplier data is critical in ramping up useful, actionable AI/ML technologies. Developing an effective data lake is the key in doing this, but it is also difficult and requires participation from various departments. A useful data lake should be able to support structured and unstructured data. According to Bac, they should be able to combine internal supplier data with external supplier data, the latter of which tends to be larger. This requires data structures to be aligned leveraging a common indicator like a tax ID or a DUNNS number.

“Many companies have not yet been able to combine the supplier data within their own systems as suppliers are often called differently in their contract management tool, their quality assurance tool or their ERP system,” said Bac.

“Companies also often lack effective and accurate parent-child relationships in their supplier records or are not clear on the system of record (SOR) for this data.”

Getting organizational buy-in: This includes not just leadership buy-in, but an understanding that collaboration from nearly all teams will be required to some degree. What are the current workflows and communication processes and potential roadblocks?

Setting expectations: According to Loseby, the need to think beyond system and process is critical in the successful adoption of new technologies and therefore ways of working. While those are important considerations, they are often prioritized over ethical perspectives and how different communities, groups and departments are impacted. But approaching it as such poses serious issues, as it creates tension and frustration – not to mention a critical gap in expertise that is needed at the start.

Before signing contracts and undergoing robust implementations, make sure you understand how your company currently uses technology, and be realistic about what adoption will look like and the corresponding timeline. Map out what experts you have on board, if you’ll need to bring in more, as well as what oversight will look like.

Remaining focused on one or two key initiatives at first: Bringing in new platforms and technologies with tremendous potential can derail efforts in the early stages. Make sure you know the exact questions that you want to be answered from AI/ML tools both short and then long term.

How Procurement Leaders Can Choose the Right AI/ML technology

Identify what pain points you're trying to solve

Stay specific on the types of problems you expect an AI/ML platform to solve.

"I recommend considering where the biggest impact is in terms of value to the organization. That could be defined in terms of cost, service, quality & consistency, innovation, or regulatory compliance, but each organization can apply their own weighting to each of these depending on the business needs," said Loseby.

You could also categorize the impact according to different stages in the procurement process, such as sourcing, purchasing or risk management. Depending on which areas of focus you want to improve, make sure you can answer how exactly you intend the AI tools to solve problems within those domains.

For example, implemented AI/ML technology should answer at least some of the following questions within each of the corresponding categories:

Sourcing & Contracting: Do I understand what I want to buy and in what quantity? Am I getting what I contracted from my suppliers, and are internal stakeholder needs being met? Who are the best suppliers for what I need?

Risk: What are the risk levels for each of my suppliers? Can I communicate "red flags" to other individuals and departments with ease? Do I know in real time when an event occurs that can put us at risk?

"The key here is that supplier data is available where the sourcing decisions are made. This means that supplier risk and performance data has to be made available in the e-sourcing tool of the buyer so that when the supplier proposals come in, this data is taken into account to achieve a more optimized and data based sourcing decision," said Bac.

Pricing & Financials: How do I get the best price for what I need to buy? What is the best price for what I am purchasing? What do I need to buy and in what quantity?

Exercise due diligence in finding legitimate providers

Predictive analytics platforms and other technologies offer immensely valuable insights for businesses. But, partially due to the confusing definitions of AI, it can be difficult to decipher the exact processes, algorithms and models that a particular tool uses. Be sure to bring in the

right individuals and experts in order to fully understand what a new software is or isn't capable of and how their technology gives you the insights you're seeking.

"Due to the high variety of available digitization technologies, finding the optimal solution for given challenges is a major issue. That's why CPOs must develop a tech scouting strategy as a way to adapt and scale new digital tools and business models," according to Gutzmann.

While much iteration remains for AI/ML technologies, procurement leaders can still benefit from implementing existing tools that speak to the sector's largest pain points.

"It's important to understand that digital transformation is not a linear journey where you do a one-time transformation to get from point A to point B. To succeed in digital, procurement organizations need to continually reinvent different parts of the organization through experimentation to keep it fresh and relevant to its customers over a period of time. It's a mindset without an end," said Gutzmann.

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