

COGNITIVE PROCUREMENT

and the Implementation of AI and ML

How Procurement Leaders are
Deploying the **Next Phase of
Digital Investments**



COGNITIVE PROCUREMENT

and the Implementation of AI and ML



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EXECUTIVE SUMMARY

Cognitive procurement refers to the utilization of AI technology with the ability to progressively “learn” to recognize patterns and optimize procurement performance. Mechanical cognition offers the ability to not only apply automation to some of the routine tasks that would normally take place within the scope of procurement’s duties but also actively improve on those outcomes, all while delivering analytics that procurement leadership can use to direct their strategies and provide hard metrics to their stakeholders.

Based on results from *ProcureCon CPO Study 2020*, an estimated 73% of organizations have either put AI and machine learning technologies in place or will be in the process of doing so in the next year.¹ Within this context, the possibilities presented by the application

of cognitive procurement are both much greater, and much closer to being attainable. With a groundwork of automated processes and data capture already established, leaders in the procurement space are primed to seek out use cases for more fully developed AI within their organizations and then develop that technology over the next 12 months.

In this report, you will learn how procurement leaders are currently translating their digital investments into a jumping-off point for the introduction of greater AI and ML use. From the cutting edge to the middle of the pack, you’ll have the contextual information you need to evaluate where you stand and then develop your technology roadmap for the future.



FEATURED CONTRIBUTOR

GARY LEMMONS

Manager of Sourcing &
Indirect Procurement
Lucite International

KEY INSIGHTS

76%

of organizations believe their ability to develop strategic insights based on AI-powered analytics is either “advanced” or “above average.”

62%

of organizations have been able to use AI or ML to reallocate time that would have been spent on processes related to strategic-level planning.



76%

of respondents say integration challenges with their current technology suite are most likely to hold them back from implementing AI or ML.

82%

of organizations plan to adopt a cognitive procurement model within the next 12 months or already have one in place.



ONLY 45%

of organizations have seen ROI from their investments into AI and ML, but 66% of respondents believe ROI and value creation will be the area of their strategy most impacted by the introduction of cognitive procurement capabilities in the coming months.

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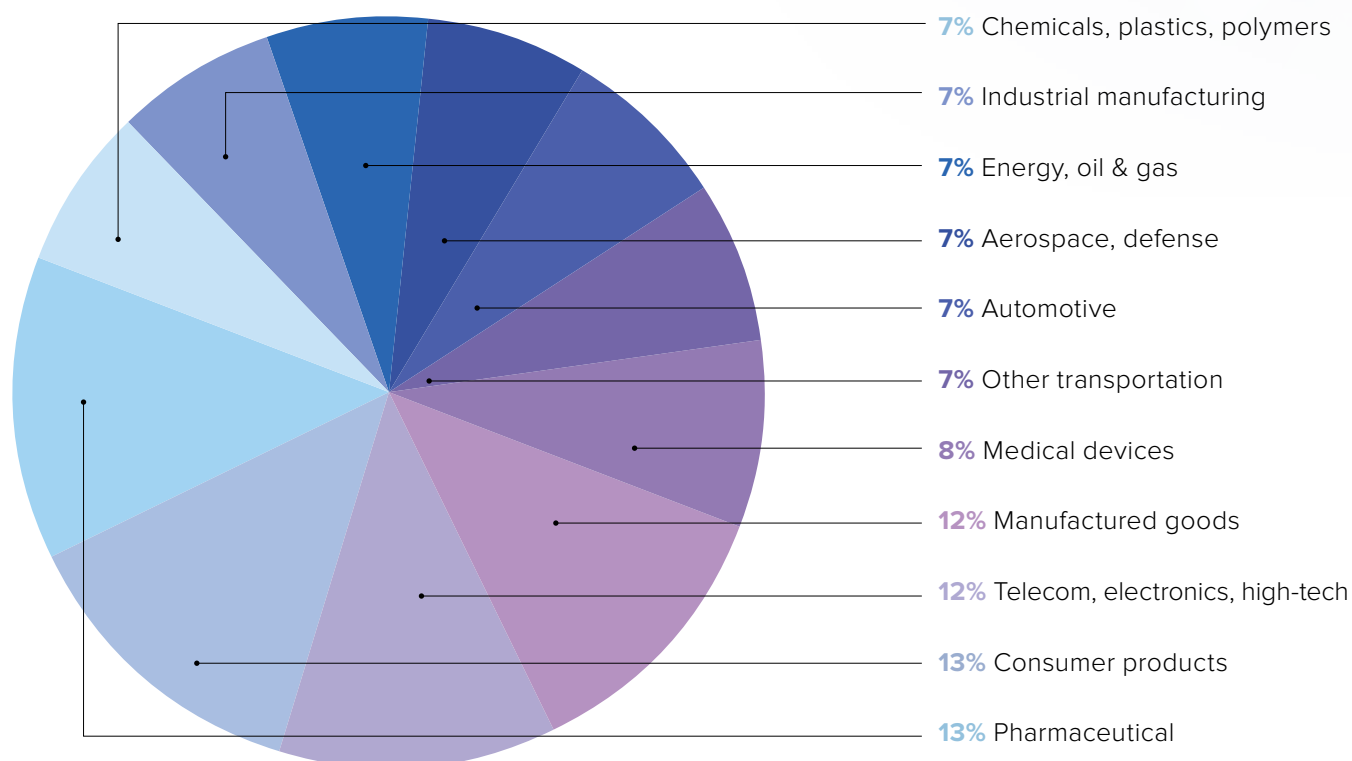
ABOUT THIS RESEARCH

The results analyzed in this report were gathered from responses to a digital benchmarking survey. One-hundred procurement professionals responded to the survey. Interviews with sources were conducted after survey data was compiled and centered on the discussion of benchmark results.

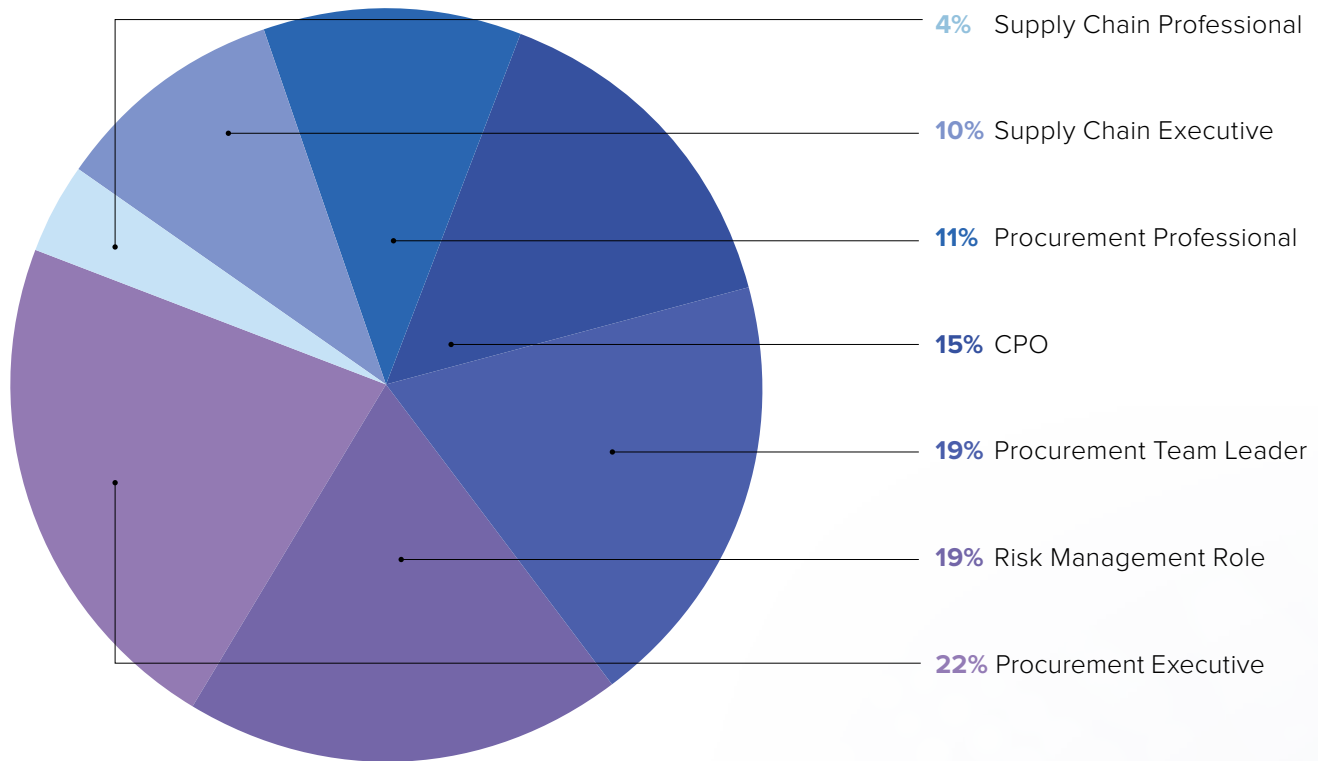
Eight percent of respondents are in the medical devices industry. In each case, 7% of respondents represent the chemicals, plastics, and polymers industry,

the industrial manufacturing industry, the energy industry, the aerospace & defense industry, the automotive industry, and other transportation industries. At 12%, more respondents represent manufactured goods and telecom, electronics, and high-tech organizations, in each case. Finally, 13% of respondents are from the consumer products industry and another 13% of respondents represent the pharmaceutical industry.

What industry does your company represent?



What best describes your role?

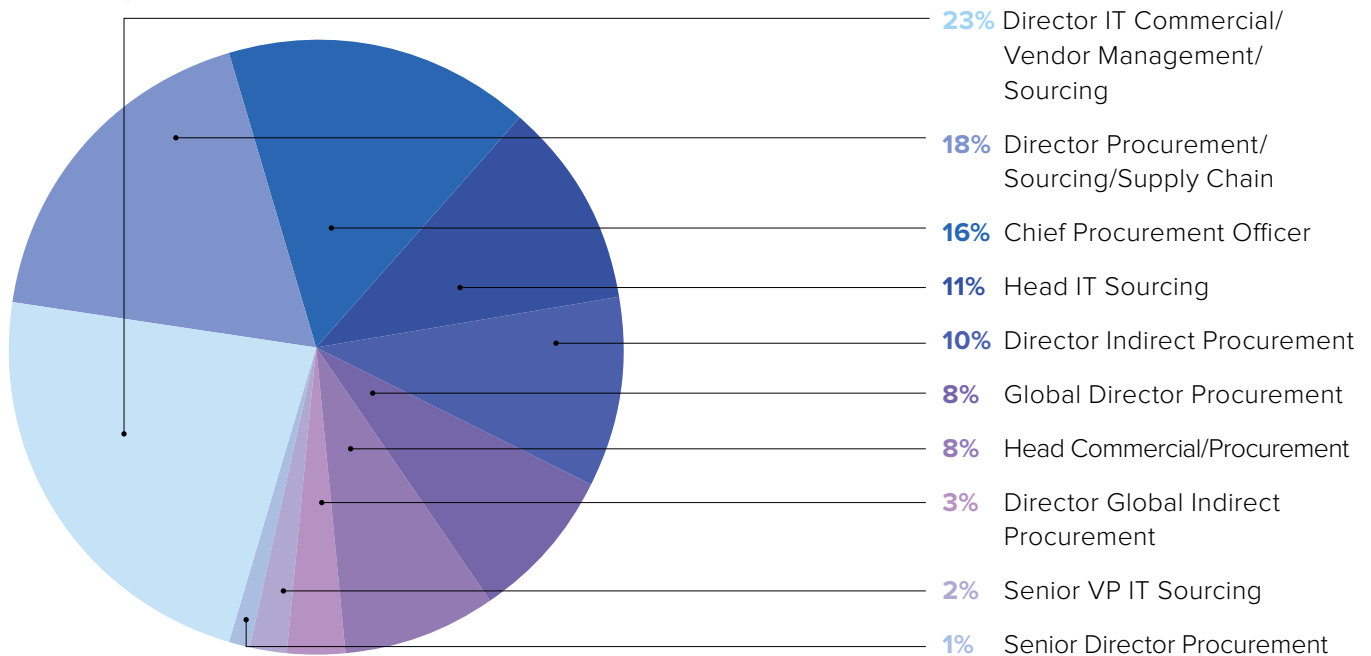


A plurality of respondents (22%) are procurement executives, while 19% are in risk management and another 19% are procurement team leaders. Meanwhile, 15% of respondents are CPOs, 11% are procurement professionals, 10% are supply chain executives, and 4% describe themselves as supply chain professionals.

The majority of respondents are either IT directors (23%),

procurement directors (18%), or chief procurement officers (16%). Eleven percent of respondents are IT sourcing heads and 10% are directors of indirect procurement. Fewer respondents represent other roles, including global directors of procurement, heads of commercial procurement, directors of global indirect procurement, and senior vice presidents of IT sourcing. Only one respondent is a senior director of procurement.

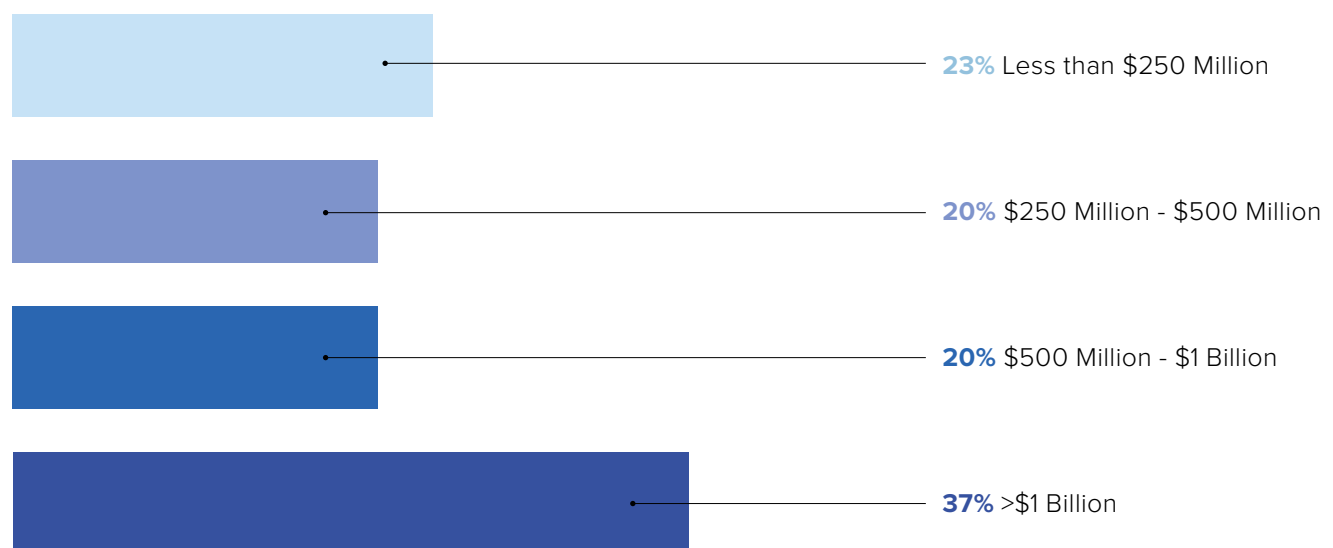
What is your title?



At 37%, a plurality of respondents come from organizations that manage over \$1 billion in spend while 23% of respondents represent smaller organizations with less than \$250 million in managed spends. In each case,

one-fifth of respondents are from companies with \$250 million – \$500 million in managed spend or \$500 million – \$1 billion in managed spend.

What is the total amount of spend under management within your organization?





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AI and ML Help Organizations Generate Insights and Save Time, BUT ROI REMAINS ELUSIVE

The procurement function has taken great strides in securing its role as a center of value and innovation within the organization at large. The next frontier lies in the implementation of disruptive technologies that have the potential to redefine the way goods and services are sourced, vetted, and purchased.

Two of the most promising technologies, artificial intelligence (AI) and machine learning (ML), are what are considered “cognitive” technologies. In the data-rich world of procurement, these two tools can analyze large amounts of data to provide strategic insights.

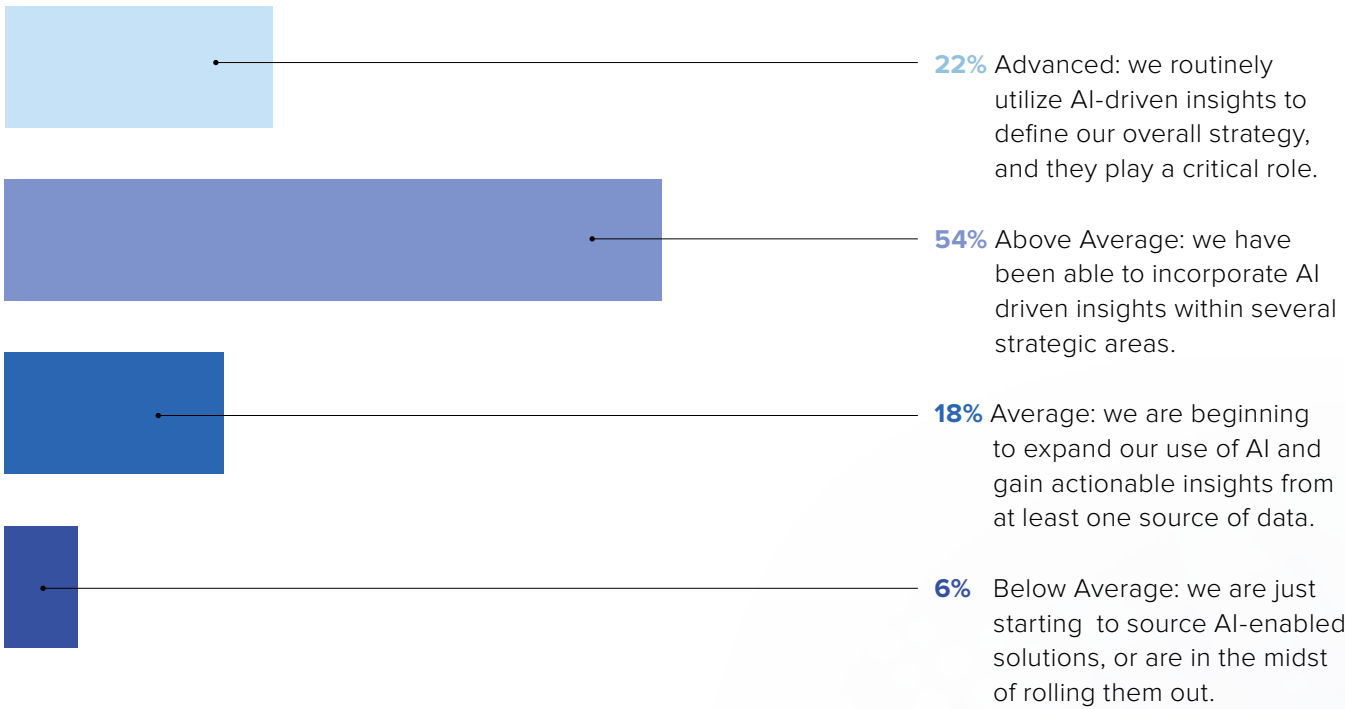
Machine learning, a subset of artificial intelligence, is perhaps the most innovative prospect in cognitive procurement, as it has the potential to improve over time. It is a clear successor to other forms of automation, such as robotic process automation, which have been primarily used to replace repetitive tasks — according to the *ProcureCon CPO Study 2020*, almost half of organizations (49%) have already automated at least 50% of their procurement processes.

“We began our journey to implement disruptive technologies about a year ago. Currently, our tools are not AI technology, however we do expect to introduce AI technology in the spend analytics arena very soon.

Along with that, we have been looking to apply AI to our contracts management system, with the goal being compliance; a tool that can read contracts, invoices, and documents in the system and identify discrepancies. This will replace manual compliance monitoring, which is quite difficult to do.”

Gary Lemmons, Manager of Sourcing & Indirect Procurement, **LUCITE INTERNATIONAL**

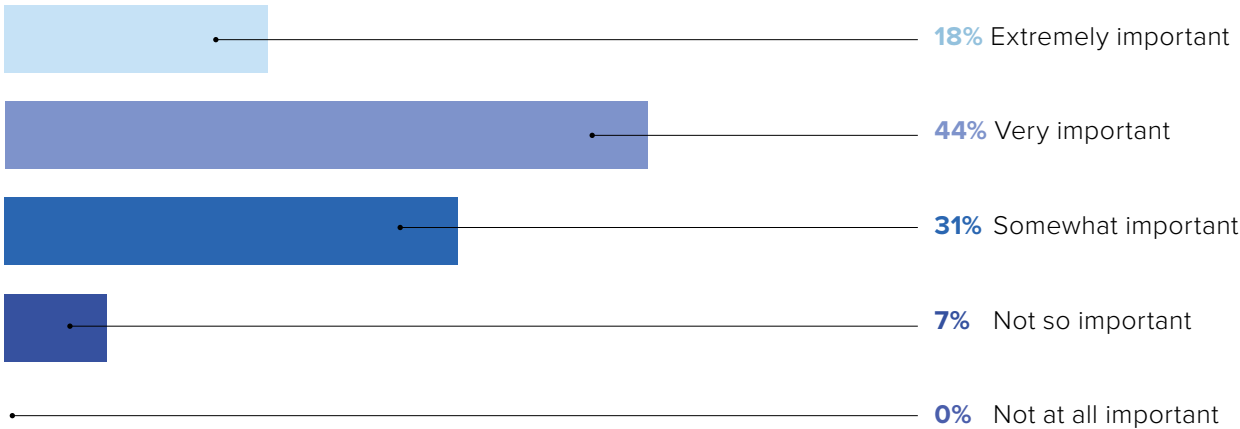
How advanced is your organization's ability to develop strategic insights based on AI-powered analytics?



Presently, 76% of organizations believe their ability to develop strategic insights based on AI-powered analytics is either advanced or above average. They either use AI-driven insights routinely or have at least found significant value in applying them to strategic areas. By comparison, exactly half of the respondents to the *ProcureCon CPO Study 2020* said they utilize analytics provided by AI and/or ML-generated data to make strategic decisions either “a lot” or “a great deal.”

The role of AI-and-ML-driven insights has become even more significant in just a matter of months. Based on this trend, we can assume that many procurement organizations will be relying fully on their AI-powered analytics as a strategic reference within the next year. Nonetheless, some organizations are still struggling — 18% of respondents say they are only beginning to expand the use of AI for strategic insights and 6% say they are just starting to source AI-enabled solutions or are in the process of rolling them out.

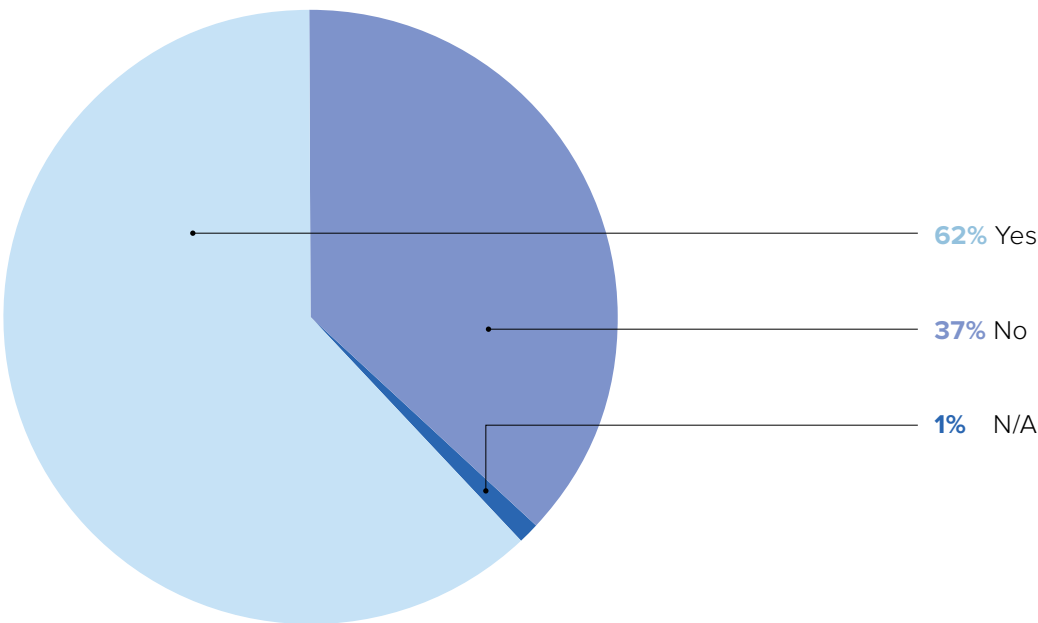
How important are AI generated insights to the management and strategic planning of your procurement organization?



Regardless, 93% of organizations say insights generated through AI are at least somewhat important to the management and strategic planning of their procurement organization. No respondents

say they are “not at all important.” Even if the capability to generate insights from AI-driven analytics isn’t present, organizations recognize the need to do so and are actively pursuing solutions.

Has your organization been able to reallocate time that would have been spent on processes that have been automated with AI or ML into strategic-level planning?

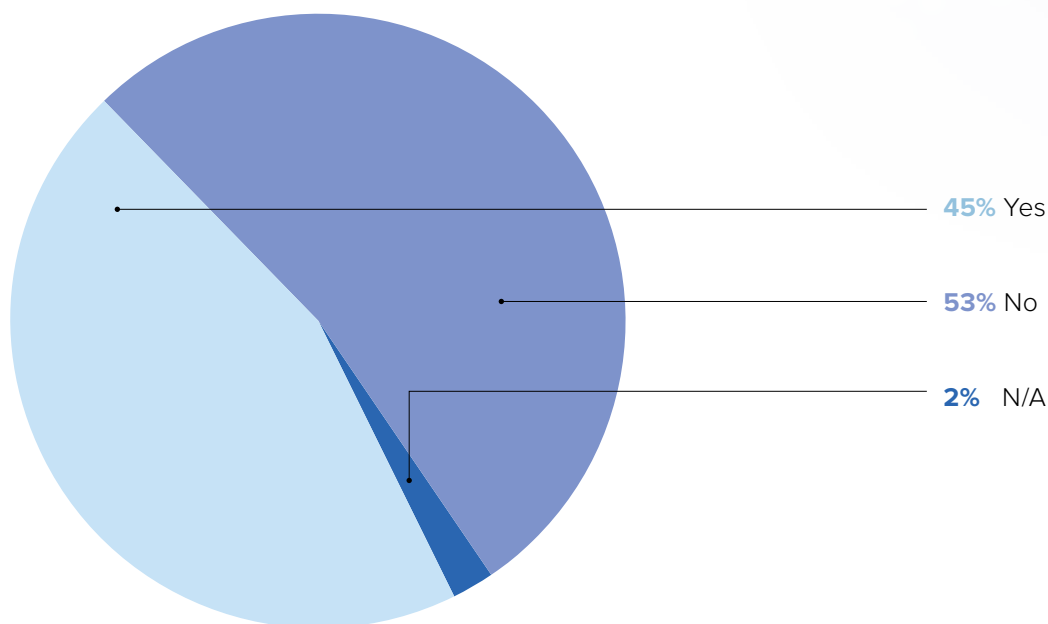


Additionally, procurement organizations have realized other benefits by implementing AI and ML into their strategic-level planning other than insights themselves. A majority of respondents (62%) have been able to reallocate time they'd normally spend on strategic-level planning processes to other priorities thanks to AI and ML automation. Tasks like collecting, analyzing, and drawing insights from data are time-consuming manual processes, so passing on some of these workloads to AI and ML can leave more time for identifying and executing strategic opportunities.

Naturally, ROI is one of the most important indicators of the true value of a technology asset. Currently, only 45% of respondents say they have seen an ROI from their investments into machine learning and artificial intelligence — 53% have not.

This doesn't necessarily mean that these solutions aren't worthwhile investments, however. As we will see, most respondents believe their investments will lead to ROI in the next year. These results simply indicate that these organizations are still in the process of implementing their solutions, or that they are still searching for a streamlined way to generate value from them.

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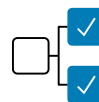
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Most Respondents TRUST THE DECISIONS MADE BY AI AND ML for Strategic Sourcing and Supplier Evaluation

To aid in strategic planning, AI and ML resources can be deployed to assist in several procurement processes. But while most

processes can benefit from these technologies, respondents are prioritizing the augmentation of some processes over others.

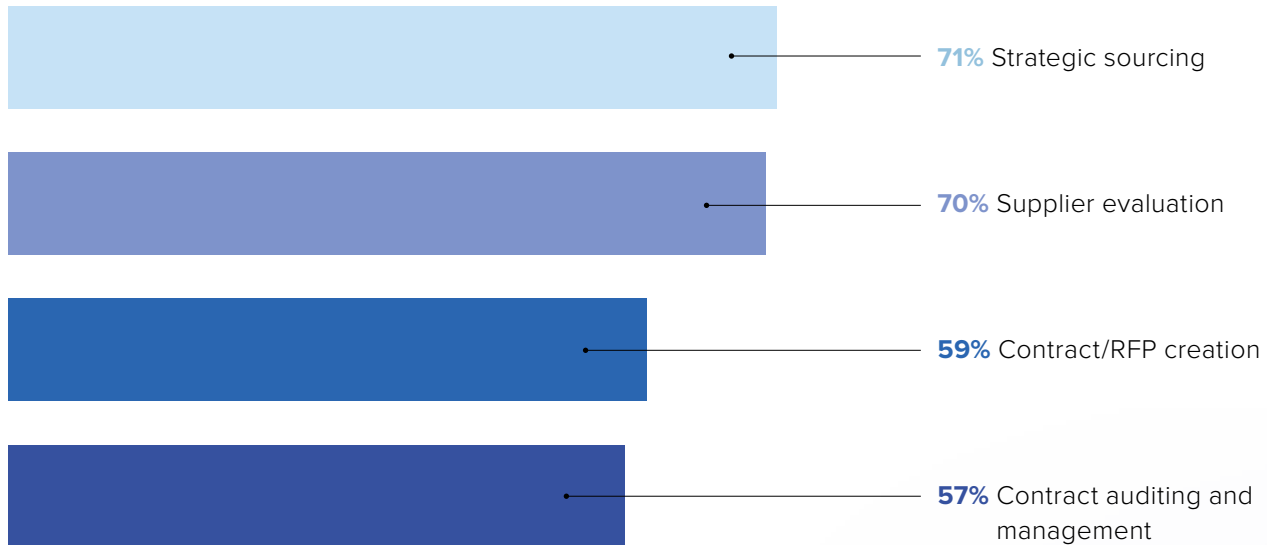
“The AI application that is most intriguing is for contract compliance. We envision that when an electronic invoice is received into the system, the tool would scan, recognize and link that invoice with its contract in CMS and monitor for terms compliance.

For example, the tool would scan, compare, recognize and flag that the pay terms on an invoice do not match the pay terms in the contract. We have standardized our legal documents such that across all the templates, the layouts are very similar and the clauses are in the same order and identical from contract to contract to make it easier for a compliance tool to learn where to look in our contracts for the critical elements.

Whatever the key elements that we choose to monitor, we envision automated compliance versus manual auditing of those contracts.”

Gary Lemmons, Manager of Sourcing & Indirect Procurement, **LUCITE INTERNATIONAL**

Are you using AI/ML to assist in managing any of the following procurement processes?



In each case, majorities of respondents are using AI and ML to assist in managing strategic sourcing, supplier evaluation, contract and RFP creation, and contract auditing and management — every process presented to them in questioning. However, more respondents are using the technologies to assist their strategic sourcing and supplier evaluation processes than others.

In the strategic sourcing process, AI can be used to manage and automate sourcing events. The right solution can optimize the organization's spend through competitive bidding and enhance sourcing speeds by executing repetitive bid events. Meanwhile, selecting optimal suppliers has long been a challenge for manufacturing companies and other types of organizations. AI and ML can help by flagging potential disruptions in the supply chain and by automatically recognizing compliance issues among potential suppliers.

Interestingly, respondents to the *ProcureCon CPO Study 2020* survey claimed that other procurement services, such as category management and supplier relationship management, were more important to them. However, 56% said strategic sourcing was most relevant and 53% said supply risk management was most relevant to them in that report.

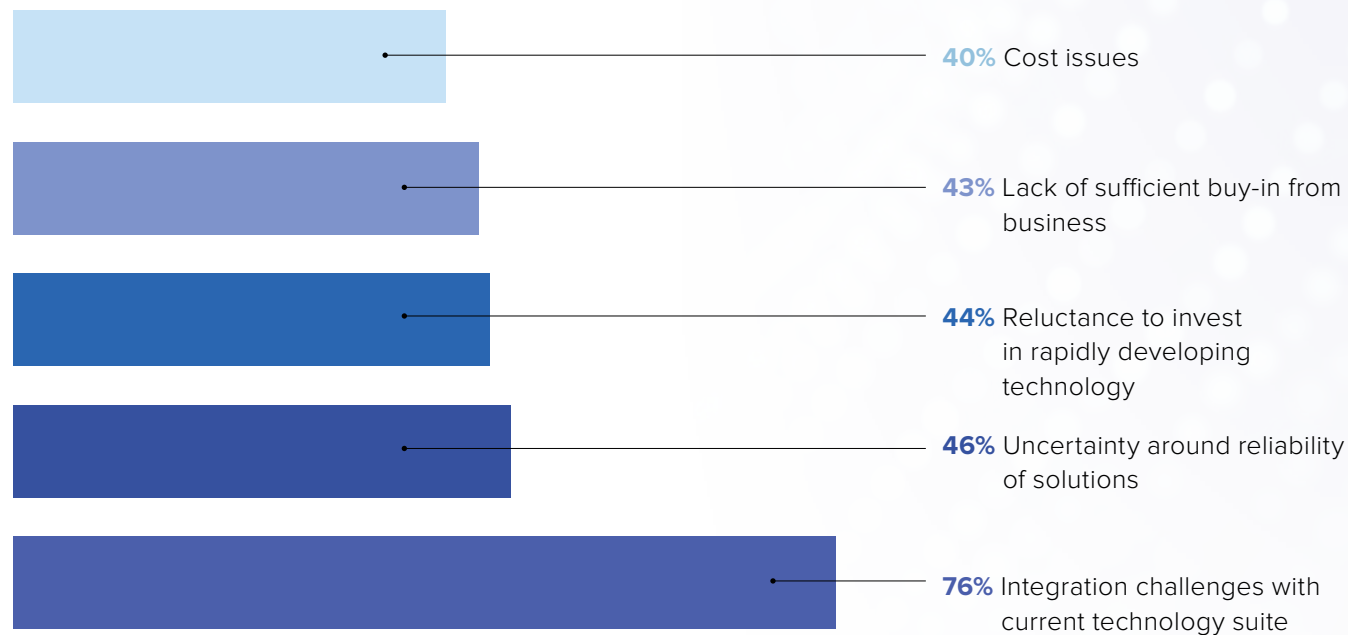
Researchers also asked respondents how they might use AI and machine learning if they could apply it to one aspect of procurement where they are not already using it. In their qualitative responses, many respondents cited the processes listed above, pointing to supplier evaluation, contract management, and strategic sourcing, in particular.

Other areas where respondents see a future for these technologies include “compliance monitoring” (along the same line of supplier evaluation), “supplier engagement,” “staff development,”

“infrastructure development,” “inventory management,” “product performance in the market,” and “need identification.” Some respondents believe AI and ML

won't help them with certain processes, such as contract management, but a clear majority of respondents are excited about how these technologies can enhance their procurement capabilities.

What challenges are most likely to hold you back from implementing AI or ML?



Despite this excitement, and despite most organizations using cognitive procurement to manage at least some of their procurement processes, there are still some barriers to adoption. Based on this research, 76% of organizations say the task of integrating these solutions into the organization's current technology suite is the most likely challenge to hold them back on implementation. Respondents are also somewhat concerned about the reliability of the tools and internal resistance to investing in such rapidly developing technologies.

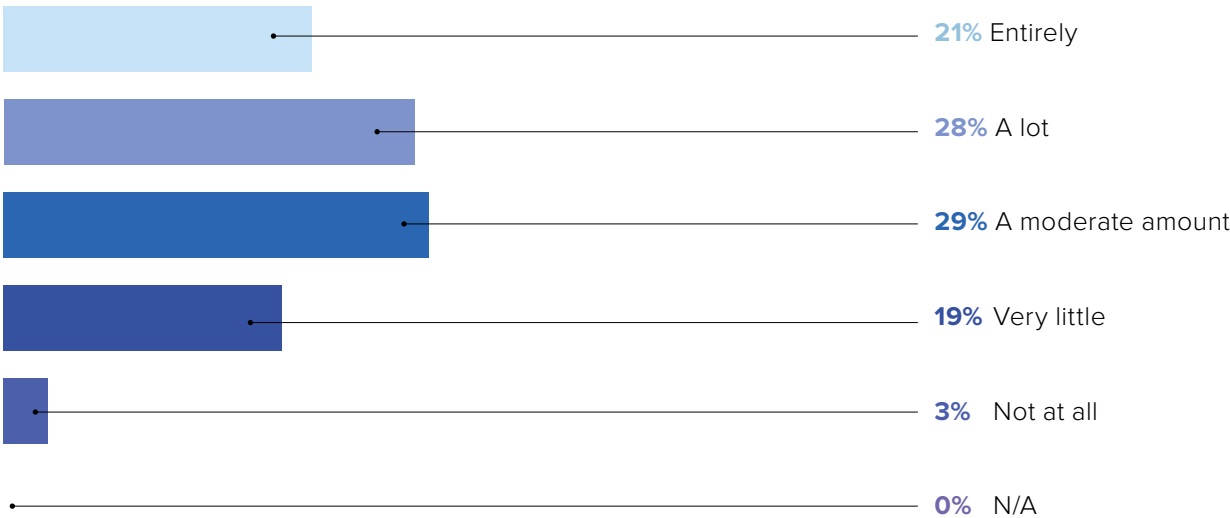
Indeed, organizations have faced hurdles to the adoption of innovative technologies in the past due to employee and executive sentiment.

There has been pushback because executives are wary of a potential disruption within the organization, and there is some lingering suspicion of what these technologies could mean for the future of people's roles within the function.

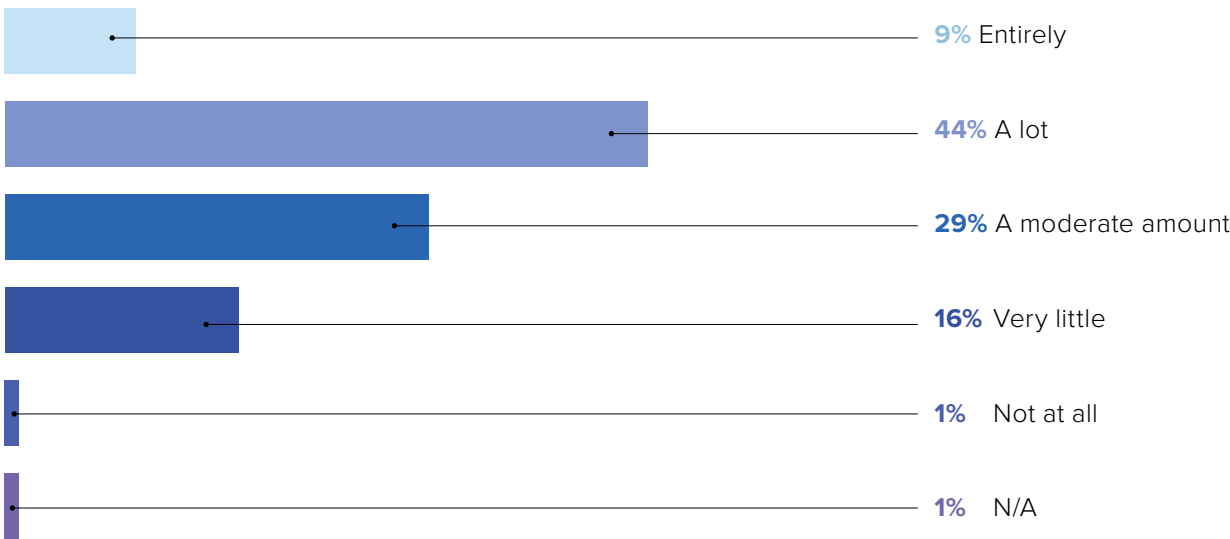
That said, both AI and ML are not replacements for procurement experts — they can't replace any human within the procurement organization. Instead, they can act as a guiding force and a solution for executing repetitive manual tasks. Most procurement professionals recognize that they can't rely solely on these technologies to make decisions. Nonetheless, there is still a certain level of distrust for AI and ML.

To what degree do you trust decisions made by your Artificial Intelligence & Machine Learning equipped tools?

Artificial Intelligence



Machine Learning



Only 21% of respondents trust artificial intelligence “entirely” and only 9% trust machine learning “entirely.” Still, more respondents place trust in these technologies than not. Seventy-eight percent of respondents trust decisions

made by AI at least “a moderate amount” and 82% trust decisions made by ML the same. Only 22% of respondents trust AI “very little” or less, and only 18% of respondents trust ML “very little” or less.

Procurement Professionals Want COGNITIVE PROCUREMENT TO GENERATE ROI

Within the Next 12 Months

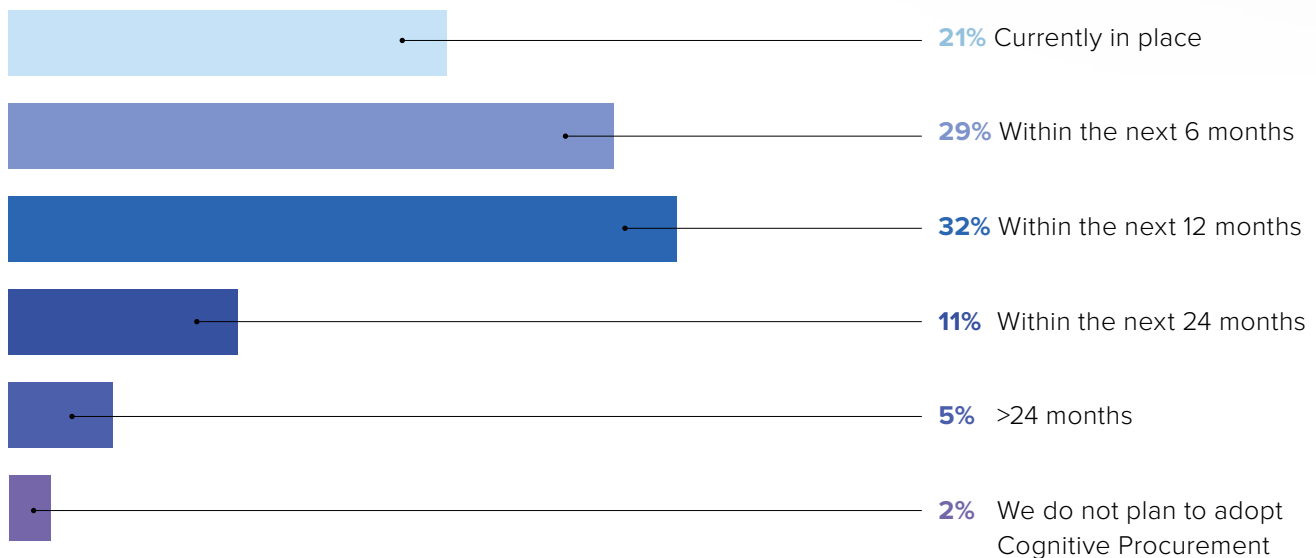
To determine the immediate future of AI and ML in the procurement space, researchers asked respondents how much time they expect it will take for them to fully adopt a cognitive procurement model.

Altogether, 82% of organizations plan to adopt a cognitive procurement model within the next 12 months or already have

one in place. Another 11% plan to adopt one in the next 24 months and another 5% plan to adopt one after two years' time. Only 2% of organizations have no plan to adopt a cognitive procurement model.

This suggests that 2020 will be the year most procurement functions fully implement their strategies for artificial intelligence and machine learning.

What is the time horizon within which your organization will have adopted a Cognitive Procurement model?



“We haven’t made the leap to AI yet but I think having an understanding of your data, the sources, and accounting practices is helpful. Planning how you intend to use the data and going through some degree of data cleansing and purging activity ahead of integrating AI or ML would seem to make the transition smoother. Of course, the AI will get better at that as time goes on and the tool learns from the data. In our case, our data source is numerous legacy systems.

Establishing a spend coding plan may also be helpful. Many people over the years had interpreted things differently. Our supplier applied AI in helping us sort our original data. I can see where AI will improve the data quality over time.”

Gary Lemmons, Manager of Sourcing & Indirect Procurement, **LUCITE INTERNATIONAL**

The three areas of their procurement strategies that respondents feel will be most impacted by the introduction of cognitive procurement are ROI and value creation (66%), the improved ability to predict demand (58%), and the creation of strategic insights (57%).

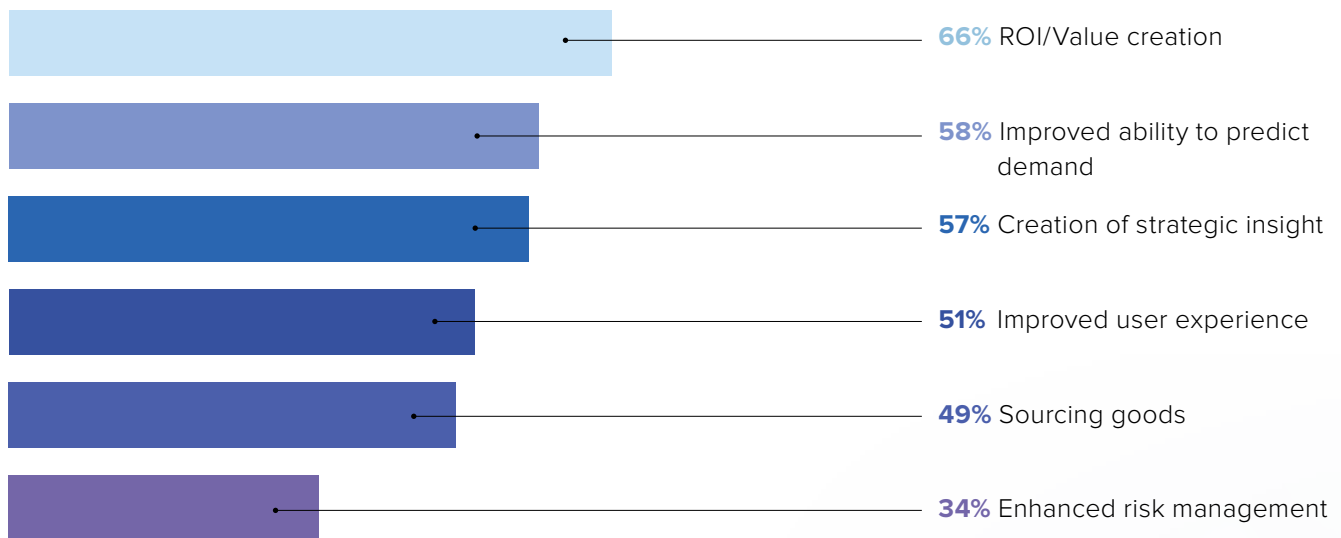
Although only 45% of organizations have seen a significant ROI from their investments into artificial intelligence and machine learning, they believe their investments will pay off soon.

Significant portions of respondents also believe cognitive procurement will

improve user experiences across the organization and increase their sourcing speed. Only 34% of respondents say cognitive procurement will enhance their risk management capabilities.

Interestingly, 53% of respondents in the *ProcureCon CPO Study 2020* report said supply risk management was the managed procurement service most relevant to them. So, although risk management is clearly a concern among most procurement professionals, they don’t believe cognitive procurement has as much potential to influence this area as it does others.

What areas of your strategy do you feel will be the most positively impacted by the introduction of Cognitive Procurement Capabilities?



CONCLUSION

In their final question, researchers asked the respondents how they believe the role of the procurement function will change because of the adoption of cognitive procurement strategies.

Several themes emerge in their responses that correspond with the findings of this study. Multiple respondents say that cognitive procurement will help them “recognize need faster,” “optimize workflows,” and create “lower risk.” Other respondents say cost management will be much easier, and that cognitive procurement will make them “more cost-effective” and “sustainable.”

Significantly, one Director of Purchasing says, “Procurement organizations will operate with better relevance” thanks to the capability.

Another theme that emerges in their responses is the changing nature of how humans and machines work together in procurement. Some procurement professionals believe AI and ML have the potential to fully replace some processes that previously depended on humans. For example, one IT Commercial Director says procurement will see an “exponential growth of AI that will create cognitive excellence in procurement and will make the entire process error and human-free, where humans will only be required for laborious duties like driving or stacking.”

Other respondents believe humans and machines will work in a more symbiotic fashion. According to one Director of

Procurement, “Machines and humans will complement each other and simultaneously increase the value of the supply chain and procurement function.”

However, some respondents are doubtful that the adoption of cognitive procurement capabilities will lead to dramatic change within the function, at least at the onset. According to a Chief Procurement Officer, “Right now, I see only basic process automations being successful with cognitive procurement strategies.” Similarly, a Head of IT Sourcing says, “I believe that cognitive procurement will not change the processes or stages of procurement,” but they then concede that the capability will “connect them seamlessly to each other and to other departments of the organization.”

The results of this study indicate that most procurement professionals wish to see a clear value and ROI from their technology investments in 2020 and beyond. How that value is achieved may depend on how best each organization can utilize artificial intelligence and machine learning. While some believe the technologies could fully optimize their workflows, others would see them applied to other areas, such as risk and need assessment.

Overcoming integration challenges, finding the right solutions, and attaining buy-in from other executives will likely be the biggest hurdles to adopting a cognitive procurement model moving forward. But one thing is for sure: By the end of 2020, the procurement function will look decidedly different than it does right now thanks to cognitive procurement.

“My advice to professionals seeking to begin on a journey of AI and ML integration is be to be very open minded. We don’t know what we don’t know, but we oftentimes have preconceived notions of what we want or what we need. Again, when we don’t know all the answers, we shouldn’t limit ourselves as to the result. That’s been key for us. We’ve been very pleasantly surprised with outcomes beyond our expectation that have helped us to develop the tools and the platforms in our operation to do more with less – to be more effective and more efficient.”

Gary Lemmons, Manager of Sourcing & Indirect Procurement, **LUCITE INTERNATIONAL**

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ABOUT THE AUTHOR



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