



The Robots are coming

Driving efficiencies in contracting

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Human beings began to harness the power of “robots” at the turn of the 20th century—first to dramatically increase the production of factory lines, and then they came into our homes, decreasing the time we spend on every-day chores like vacuuming carpets or washing clothes. Very soon, robots will likely have a similar impact on office productivity...

**This is not science fiction.
The robots are coming.**

Companies and federal agencies are beginning to introduce digital contract capabilities—known as “bots”—into the workplace. Just as robots had a marked effect on human life over the past five decades, these digital bots have the potential to make the productivity of the professional contracting workforce soar.

Many workers in both public and private organizations are already benefiting from the services of bots that can:

- Read and respond to emails,
- Transfer funds between accounts, and
- Review legal terms and conditions.

Commercial organizations are already deploying bots to automate a wide variety of simple office tasks, and select federal agencies—such as the IRS and NASA—have deployed bots to automate labor-intensive investigative and financial management activities.

The arrival of bots could not be timelier. For example, one of President Donald Trump’s first actions was to order an immediate hiring freeze² in the federal government—the world’s largest buyer of goods and services. Except in “limited circumstances,” no vacant positions are to be filled, and no new positions may be created. The stated goal of the hiring freeze is to “reduce the size of the federal government’s workforce through attrition.”³ Similar practices occur on the industry side. When companies start looking to reduce headcounts, the burden increases on the remaining employees to do more with less—which is where bots can help.

Bots have many notable potential benefits, including:

- Increased efficiency for contracting professionals:
 - Reduced time spent on administratively burdensome activities, and
 - Improved ability to make informed decisions; and
- Savings (both in terms of money and time):
 - Bandwidth is freed up to reduce fulfillment times, and
 - Information is easier to access, allowing an increased ability to manage contracts strategically.

Digital contract capabilities

The push for digital contract capabilities is already in motion, with several artificial intelligence (AI) capabilities already in use. Initially, the increased use of bots will focus on the simplest of AI capabilities, namely:

- “Process robotics”—AI that mimics human activities on a computer, and
- “Intelligent automation”—AI that aids in reviewing and interpreting documents.

On the AI maturity scale (see Figure 1 above), process robotics and intelligent automation are the least sophisticated, most reliable, and widely demonstrated

AI capabilities. Both process robotics bots and intelligent automation bots are software applications that can:

- “Live” on either a desktop or a server,
- Work nonstop to complete assigned tasks, or
- “Wake up” and take action after a certain event.

Bots can perform activities on a computer 10 times faster than a person

One federal agency used bots to reduce the cycle time of a funds distribution process handling 160,000 financial transactions a year by 85%. This enabled the agency to redirect 25,000 hours of manual labor (worth more than \$1 million a year) to more impactful activities.

Figure 1. AI Maturity Levels

Where we are Today		Where we are Headed	
1. Process Robotics	2. Intelligent Automation	Cognitive Automation	Artificial General Intelligence
<i>Mimics Human Actions</i>	<i>Mimics/Augments Quantitative Human Judgment</i>	<i>Augments Human Intelligence</i>	<i>Mimics Human Intelligence</i>
Used for rules-based processes, such as invoice processing exceptions	Processes requiring judgment such as commercial contract understanding, insights, and implications	Used for predictive decision making, such as with Amazon Echo and Alexa	Systems that completely replicate human interactions

Process Robotics

Process robotics makes use of “rulesbased” bots that mimic human actions. Each bot has its own user account and access privileges, just like employees.

These types of bots mimic common tasks that are normally performed on a computer, such as:

- Logging on to a system,
- Opening and manipulating other applications, and
- Performing many time-consuming functions a human employee would normally do, such as:
 - Making queries,
 - Cutting and pasting data,
 - Moving and merging data, and
 - Executing button clicks.

Process robotics bots typically complete routine tasks 10 times faster than a human. This can result in substantial time and efficiency savings as they enable organizations to significantly decrease cycle time and divert resources to higher-value activities. Process robotics bots are a good option for organizations to consider for any process that:

- Requires employees to use multiple independent systems,
- Has a large number of transactions or is extremely time-intensive and high-cost,
- Is prone to operator error, and/or
- Is predictable and follows regular “if/then”-type rules.

Intelligent Automation

Intelligent automation applications are more advanced pieces of software that mimic human understanding of text documents. They are “intelligent content extraction” tools that review documents for information related to the issue they are trying to solve. When they find information that is relevant, they turn that “unstructured” data into “structured” data by copying it into a program (such as Excel) so that data visualization applications can interpret it. This can make massive amounts of information that were previously scattered across the organization in static documents available at a glance.

Once properly “trained,” an intelligent content extraction tool typically reviews up to 2,000 documents an hour to find information that is strategically relevant for decision-makers. Intelligent automation bots are an especially good option when:

- A large amount of strategically relevant data is trapped in static documents scattered across the organization, and/or
- More contextual understanding than simple key word searches is needed to correctly identify and interpret relevant information.













Figure 2 below provides a high-level overview of key functions that bots typically perform.

Bots can work 24/7 without getting tired or losing focus, and they can provide a consistent level of performance that never varies. They perform repetitive, time-consuming tasks and are capable of rapidly reviewing and interpreting massive amounts of unstructured data locked in static documents scattered across the enterprise that a contracting professional may find difficult to manage. However, bots do not replace human judgement and decision-making—they free up contracting professionals to focus more time and energy on tasks where humans naturally excel, such as making strategic decisions that drive long-term value.

Bots can generate strategic insights that help Procurement organizations save millions

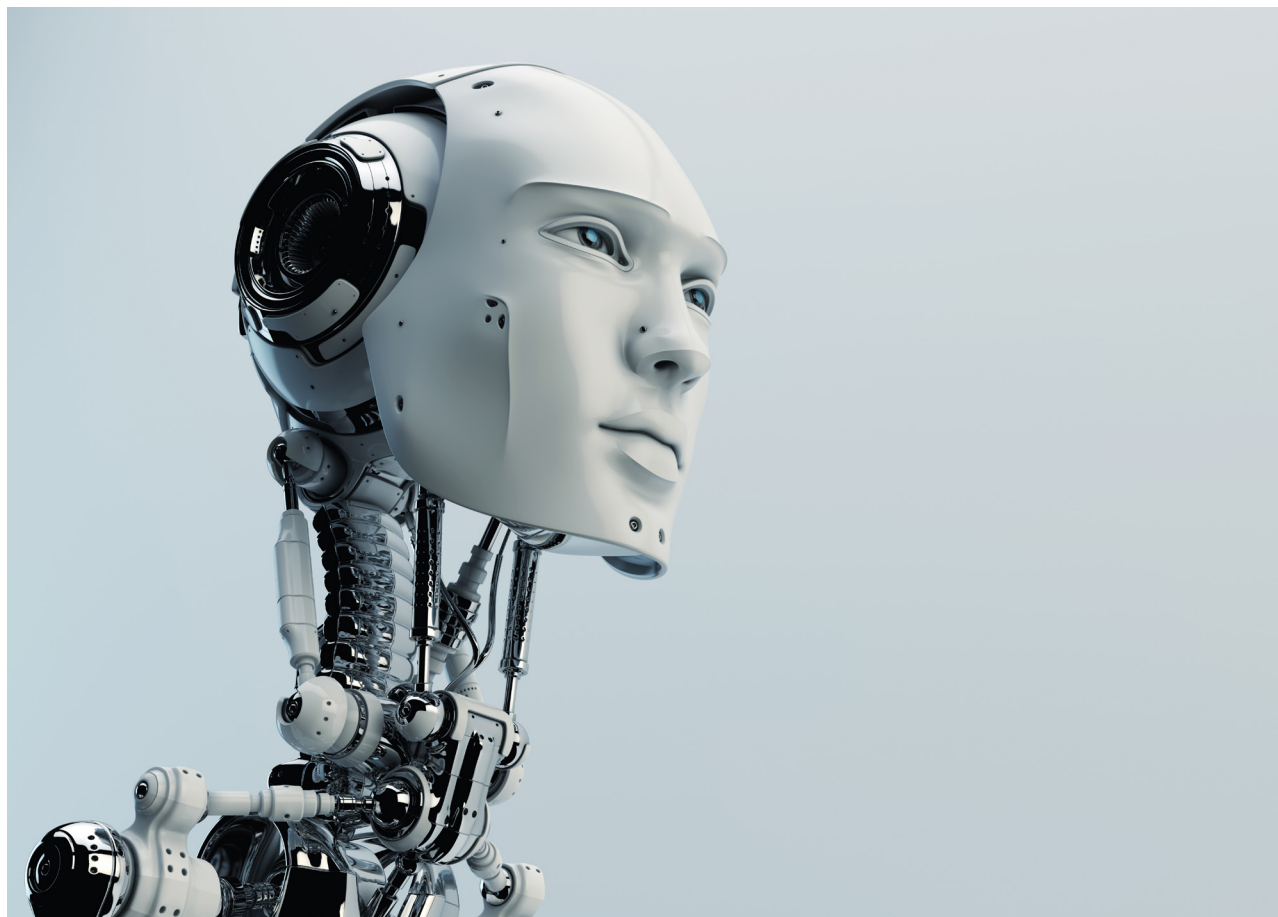
When a well-known technology company spun itself off from its organization, it needed to identify which contracts and strategic vendor relationships to retain. It used an intelligent content extraction tool to review over 34,000 contracts and identified 1,500 high-priority vendor relationships to carry with it to the new company. These insights enabled the technology firm to duplicate favorable pricing terms of more than 5,500 contracts, saving more than \$24 million annually.

Figure 2. Key Functions Replaced by Digital Bots

 Opening email and attachments	 Logging into web/enterprise applications	 Reading and writing to databases
 Copying and pasting	 Filling in forms	 Moving files and folders
 Following “if/then” decisions/rules	 Collecting social media statistics	 Extracting both structured and unstructured data from documents
 Making calculations	 Connecting to system APIs	 Scraping data from the web

Lead a Legendary Team

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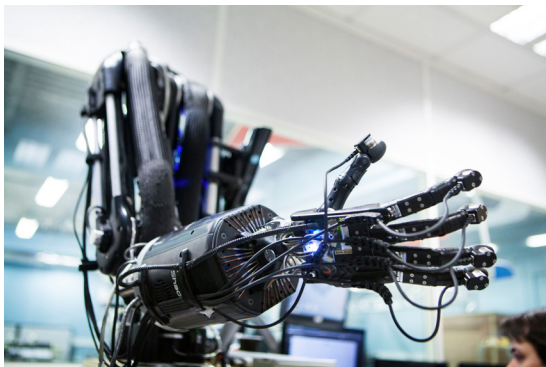
With extensive leadership training and access to high-quality contract management education, the CMLDP is a win-win for both the supervisor and student. This tuition-free program provides both the government and industry perspective, giving your employee the bigger picture and making them a more valuable contributor. Invest in your employees and encourage them to apply. Applications will be accepted May 1–June 30, 2017.

Program requirements, information, and the application can be found at www.ncmahq.org/cmldp2018.

Figure 3.

Example tasks contracting professionals can delegate to digital capabilities

- Opening procurement-related emails and attachments, then copying and filing pertinent information.**
- Checking the availability of funds before a contract action is awarded.**
- Logging contract information into financial management systems, asset management systems, contract file databases, and other applications.**
- Helping financial managers check outstanding contractual obligations before transferring funds between accounts.**
- Verifying consistency between contracts, invoices, and actual delivery before authorizing payment of invoices.**
- Creating administrative contract modifications for review and approval.**
- Collecting and reporting vendor service performance information.**
- Verifying that vendors have completed all contractual requirements and that amounts due have been paid before contract closeout.**



Maturity level 1: Completing simple contract administration tasks

Many procurement tools promise to automate administrative contracting activities, but fail to deliver. The problem is that in the real world, the various financial management systems, e-sourcing solutions, contracting writing systems, procure-to-pay applications, asset management systems, and human resource information systems do not always interoperate with one another. This leaves contracting professionals to fill the gaps, manually copying data from one system to another, or creating essentially the same document over and over again. The administrative work is often overwhelming, forcing contracting professionals to focus on transactional activities and to neglect the strategic analysis and decision-making where their judgement and expertise provide the most value.

Bots can perform these tasks far more efficiently and effectively than contracting professionals. They are trainable to take on new tasks. This means as tools, technologies, business processes, and policies continue to evolve, bots can move with them. (See Figure 3 below for a list of example tasks that contracting professionals can delegate to digital capabilities.)

Consistently performing repetitive tasks with precision is not a strength of humans. Even worse, it drains creativity—the very trait that enables strategic thinking and sound business judgement. Unburdening contracting professionals from performing such tasks can enable them to focus on what the contract community does best: applying experience and judgement to make sound business decisions.

Maturity level 2: Executing more sophisticated contract administration tasks

Not only can bots enable contracting professionals to focus on what they do well, but they can also enable them to perform those tasks at a much higher level. Bots provide contracting professionals quick and efficient access to information to help them make much more effective decisions.

Bots are capable of accessing and analyzing information that is difficult for contracting professionals to access on-the-fly because such data is locked in static documents or spread across multiple information systems that do not interact with one another. Access to this information can provide contracting professionals with the visibility to make more strategic decisions at all phases of the contracting process.

A Little Lesson on Laptops

Organizations often miss savings opportunities by standardizing requirements and prices across the enterprise due to incomplete data and lack of communication between stakeholders. For example, imagine you are a contracting professional working for an organization that purchases laptops across a large number of contracts from multiple vendors. (For the sake of simplicity, let us say that the model and specs of every laptop purchased is the same or similar.)

For each laptop the organization purchases across all of these contracts, it pays between \$800 and \$2,000 per laptop. That is a fairly significant price differential.

However, using data acquired from the contracts with the lower price range, imagine the significant savings you could generate. If you can drive the organization's spending toward the lower end of this range, spending could likely be cut by more than half. Plus, gravitating toward vendors with the lower price points could generate even more savings from volume discounts.

Unfortunately, to get an accurate view of historic requirements, stakeholders, and price points for laptops across the organization, a contracting professional would need to manually review every invoice and every contract. This is a daunting ask for a single person, but not for a bot.

A bot that can review 2,000 documents an hour is able to perform this type of review and present its findings through data visualization tools in a matter of hours. This will enable you, as a contracting professional, to act as a more informed and effective strategic advisor to your organization. Bots can deliver a full organizational spend analysis into your hands, providing insight to identify strategic approaches to reduce cycle times and control costs.

A Collaborative Framework

Most tasks require both repetitive execution and decision-making. Working together, both bots and contracting professionals can complete these tasks more efficiently by making the best use of both of their strengths. Many contracts, for example, include payment terms like 2/10 net 30. This means that if the organization pays the invoice within 10 days of submission, the vendor agrees to a 2% discount. If they pay the invoice more than 10 days after submission, but within 30 days, the full amount is due. If they pay the invoice more than 30 days after submission, payment is late and penalties apply. While contracting professionals are great at negotiating these arrangements, the administration of contracts is mixed. Bots excel at consistent execution, and can automate much of the invoice validation process. For the parts of the invoice payment process that do require judgement, bots can help contracting professionals to prioritize their activities and send helpful reminders to avoid late payments. The result will likely be consistent execution of contract administration activities that save the buyer money while also benefitting suppliers.

Conclusion

Contracting organizations are entering a brave new world of machine and human collaboration. The potential benefits of this collaboration can extend much further than removing administrative burdens from contracting professionals. Bots can assist the contracting community in performing decision-making tasks more effectively. This can result in more meaningful conversations between contracting professionals and their customers, as well as better-informed decisions.

Ultimately, introducing bots into contracting offices will create:

- Greater cost savings,
- A shorter contract cycle time, and
- Customers who are more satisfied with the end result. CM

Endnotes

1. Officially, the first automated machine, or "robot," to be used in an assembly line was a robotic arm in General Motors' New Jersey automobile factory in 1962.
2. Presidential Memorandum, "Presidential Memorandum Regarding the Hiring Freeze" (January 23, 2017), available at www.whitehouse.gov/the-press-office/2017/01/23/presidential-memorandum-regarding-hiringfreeze.
3. Ibid.

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