White Paper

SOURCE-TO-PAY TRANSFORMATION WITH AI AND RPA

Implementing these tools can enable supply management organizations to build efficiencies, capability, productivity and value while freeing up employees for more strategic work.

Presented by

ISM INSTITUTE FOR SUPPLY MANAGEMENT | ZYCUS

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For more information, contact membersvcs@instituteforsupplymanagement.org.

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Contact Us

Institute for Supply Management Member Services Team
309 W. Elliot Rd, Suite 113, Tempe, AZ 85284-1556
P: +1.480.752.6276
E: membersvcs@instituteforsupplymanagement.org

Source-To-Pay Transformation with AI and RPA

Implementing these tools can enable supply management organizations to build efficiencies, capability, productivity and value while freeing up employees for more strategic work.

Introduction

Various forms of automation have been on annual lists of business "top trends" for decades, given the successive waves of computing advancements rippling through the economy since the 1960s. But terms like "artificial intelligence" and "robotic process automation" have been more prevalent since 2016 (Google Trends), thanks to the increasing availability and affordability of advanced processing power, computing storage, networking and, most important, big data.

Hard evidence showing the rise of artificial intelligence and robotic process automation, or "AI/RPA," includes several impressive growth estimates. RPA as an industry is growing dramatically, from revenues of US$250 million in 2016 to an estimated $2.9 billion in 2021, according to Forrester. A similar estimate from Grand View Research puts the sector's revenues at $358 million in 2017, growing to an estimated $3.1 billion in 2025.

RPA's rise can be linked to its reputation for quick ROI, thanks to multiple underlying business benefits, such as improvements in efficiency, accuracy, customer experience and productivity. In a recent global study, Research and Markets concluded that AI-enabled supply chains are up to 60 percent more effective with reduced risk and lower overall costs. Increasingly, businesses of all sizes are taking notice. According to Statista, investments by small, medium and large companies worldwide have reached 14 percent, 17 percent and 49 percent, respectively.

It is also sure to aid acceleration with several of the world's largest platform companies advancing new AI technologies. Amazon, Apple, Facebook, Google, IBM and Microsoft, to name a few of the largest technology players, are investing in research and development of AI in an effort to make it more accessible to businesses (Forbes). These giants are creating the foundational tools, networks and server farms necessary to make artificial intelligence a staple of our economic future.

AI/RPA has applicability across the entire supply chain. While the supply chain operations reference (SCOR) model was developed with manufacturing in mind — from planning, sourcing and enabling to making, delivering and returning — the parallels work beyond manufacturing and the positive impacts to operational and financial performance are comprehensive (Table 1).

Last year, Institute for Supply Management® (ISM®) partnered with Zycus, a global leader in AI-driven source-to-pay (S2P) suite, to commission an AI/RPA survey of supply chain professionals. The objective was to examine the level of understanding, implementation and success of AI/RPA across a breadth of organizations and within the wider S2P transformation arena.

Figure 1. Key Definitions

Artificial Intelligence (AI) — Capabilities demonstrated by machines that mimic human cognitive functions such as learning and problem solving.

Robotic Process Automation (RPA) — A form of business process automation technology based on metaphorical software robots (bots) or artificial intelligence (AI) programs especially, but not exclusively, targeting repetitive or data-intensive tasks.

Nearly 1,300 respondents contributed, representing a broad mix of industries and company sizes. Understanding that survey responses from manufacturers may differ from responses from non-manufacturers given how many manufacturing processes have already been enhanced by various forms of automation, results were classified into manufacturing and non-manufacturing. The total breakdown of the response population was 44 percent manufacturing and 56 percent non-manufacturing.

Within manufacturing and non-manufacturing sectors, representation across revenue bands were relatively similar. Variation across size of employee base was similar, although non-manufacturing had more representation below 100 employees (15 percent versus 9 percent) and manufacturing respondents represented a greater share of companies with more than 10,000 employees (40 percent versus 35 percent).

Key Survey Findings

Perhaps the most striking and fundamental finding of the survey is the degree to which RPA is not broadly understood. Only 34 percent, or just over one-third of respondents, said they knew what RPA was and could identify it from a list of credible sounding but inaccurate acronym definitions. Sixty percent admitted they did not know it, and 6 percent chose one of the inaccurate alternatives. Overall, just 35 percent are currently utilizing AI/RPA – most for less than a year. Much of this paper's deep-dive of findings will stem from the insights shared by the early-adopting one-third of respondents.

"AI/RPA has a lot of room for growth within supply chain management," notes Paul Lee, Director, ISM Research & Analytics. "Forty percent of our RPA-knowledgeable respondents do not yet have plans to pilot or deploy AI/RPA in the near future, according to our survey, but we believe more and more organizations will have automation on their 2020-21 agendas."

It was even more true for companies under $250 million in revenue (59 percent) and/or fewer than

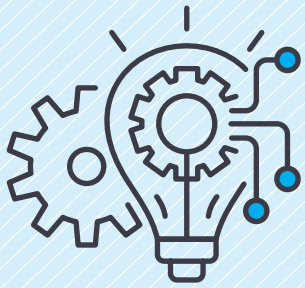


Figure 2. Process Automation Types

Enriched Process — Underlying process remains the same but benefits from access to data analytics.

Augmented Process — Not a replacement for human intervention, but as a process guide to inform or suggest human decision-making.

Autonomous Process — Replace human intervention for all or part of a current process.

100 employees (71 percent) to not yet have plans to pilot or deploy AI/RPA in the near future, and less true for bigger companies of over $25B in revenue (27 percent) or over 10,000 employees (28 percent). The leading reasons companies do not have pilot or implementation plans yet include reluctance to be an early adopter of emerging technologies, needing more investment than is available to develop these capabilities, or the expectation that maintaining these technologies will require too many IT resources.

Of those who are planning, piloting and deploying RPA, the leading reasons companies might consider moving forward are to improve processes and workflow, raise productivity, or free workers from mundane tasks like data entry.

Next, survey takers were asked to consider which of three scenarios was most applicable to the types

Table 1. Most Valuable Use Cases for Companies with No RPA Plans Yet

Use Case	Total	Manufacturing	Non-Manufacturing
Automated data entry or automated data extraction	76%	76%	78%
Spend data classification/analytics/opportunity identification	53%	48%	56%
Automated data extraction	51%	43%	58%
Operations and performance monitoring & measurement	47%	47%	47%
Predictive risk scoring/analytics	35%	30%	38%
System integration	34%	39%	29%
Customer service/support chatbots/agents	29%	27%	33%
Autonomous sourcing execution	24%	24%	23%
Other	1%	1%	0%
Respondents	194	83	91

of smart process automation they would envision implementing: enriched; augmented; or autonomous (see Figure 2).

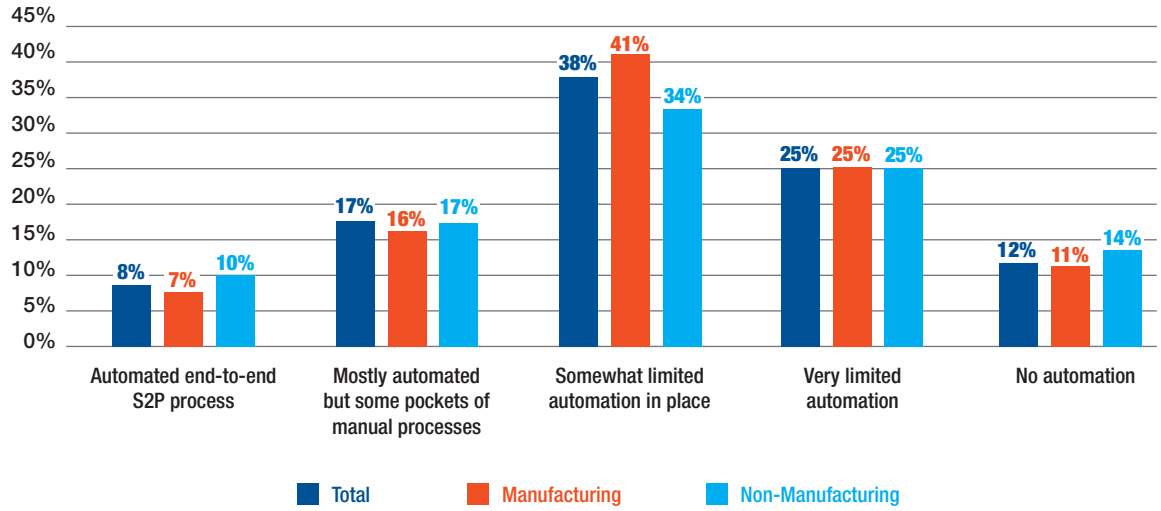
Enriched and autonomous both garnered just over a quarter of responses, with 26 percent and 28 percent respectively, and just under half, or 46 percent, chose augmented. This result is consistent with the pervasive sentiment that supply chain teams do not necessarily see AI and RPA as a means to replace workers, but rather to improve how humans perform more complex processes or to relieve them of repetitive or less valuable tasks.

For those who have at least piloted and those who have implemented RPA applications, respondents across both manufacturing and non-manufacturing sectors were almost uniformly aligned on which use cases represented the most business value. Seventy-six percent agreed that automated data entry would offer the most value, with analysis of spending data (53 percent), automated data extraction (51 percent) and operations and performance monitoring and measurement (47 percent) rounding out the top four applications (Table 2).

Companies who did not have plans for automation projects could nevertheless see potential value in the same types of applications. The top four project types for those yet to act were the same as for those who have already acted.

To understand the broader picture of automation, we asked those knowledgeable of RPA about their progress toward S2P transformation. On a five-point automation scale (i.e., none, very limited, somewhat

Figure 3. Degree of S2P Automation



> For those looking for a place to get started with AI/RPA, a clear best practice is to attack the transactions; that is, to eradicate the most manual steps in transactional procurement processes, for example in accounts payable, where clients are seeing 80-percent reduction in invoice processing time by utilizing AI bots to read invoices that are received as email attachments – both header- and line-level detail – to automatically populate an electronic invoice for straight-through processing. Discrete, purpose-built bots such as those used for invoice-data extraction can be rapidly deployed, integrated with any ERP or P2P platform, and once 'trained' – that is, exposing them to global training as well as customer-specific data – the AI bots are capable of learning from the data and have been shown to achieve nearly 99-percent accuracy.
>
> — **RICHARD WAUGH**
> Vice President, Corporate Development
> Zycus

limited, mostly automated, automated end-to-end) that could include any type of technology, not just AI/RPA, responses were reminiscent of a bell curve, with most having implemented a somewhat limited amount of automation (Figure 3).

Of those who have at least some automation underway, less than half (44 percent) have involved AI/RPA, whether still in pilot mode or having fully implemented a solution. Narrowing this group to the 29 percent who are currently deploying (not just piloting) or who have completed AI/RPA as part of S2P automation (44 total respondents), a vast majority (70 percent) were underway or finished nine months ago or longer. The top three functional areas these early adopters targeted were requisition-to-payment (60 percent), P2P (57 percent) and analytics (50 percent).

Expanding back to include those also piloting AI/RPA, survey takers were asked to share what issues they have encountered with their automation projects. Nearly half (49 percent) of the 61 respondents agreed that complexity in automation development was driven by underlying complexity in the process being automated.

The next two most-encountered issues were the requirement of additional time or investment (33 percent), which can be due to overly optimistic estimates for project time and budget, and the fact that processing errors were occurring (26 percent), signaling that ongoing optimization is required for AI/RPA, just as when training humans to perform a task.

Figure 4. Expected Benefits

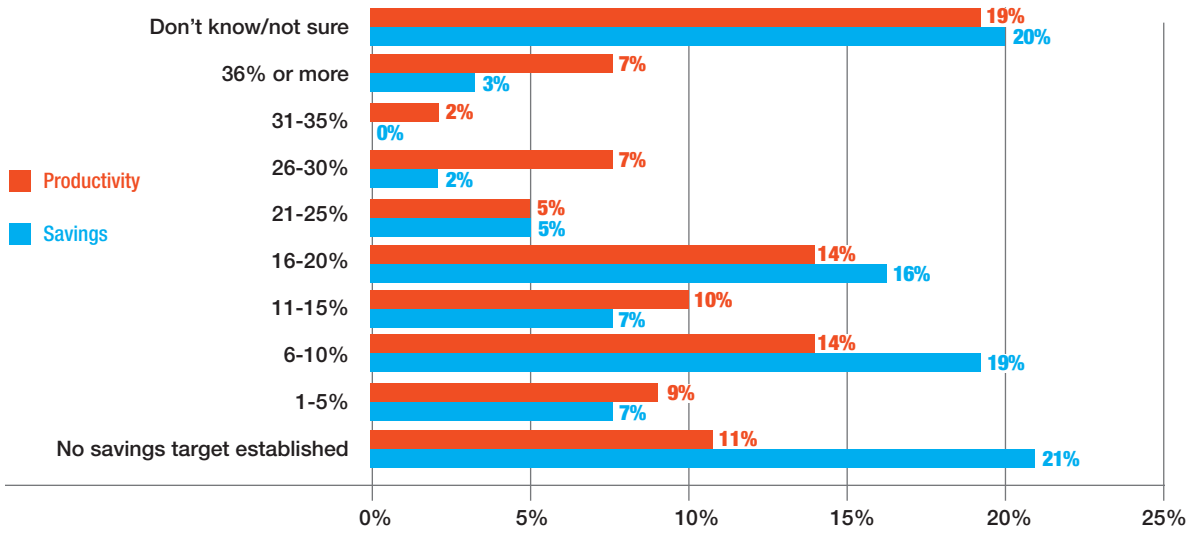
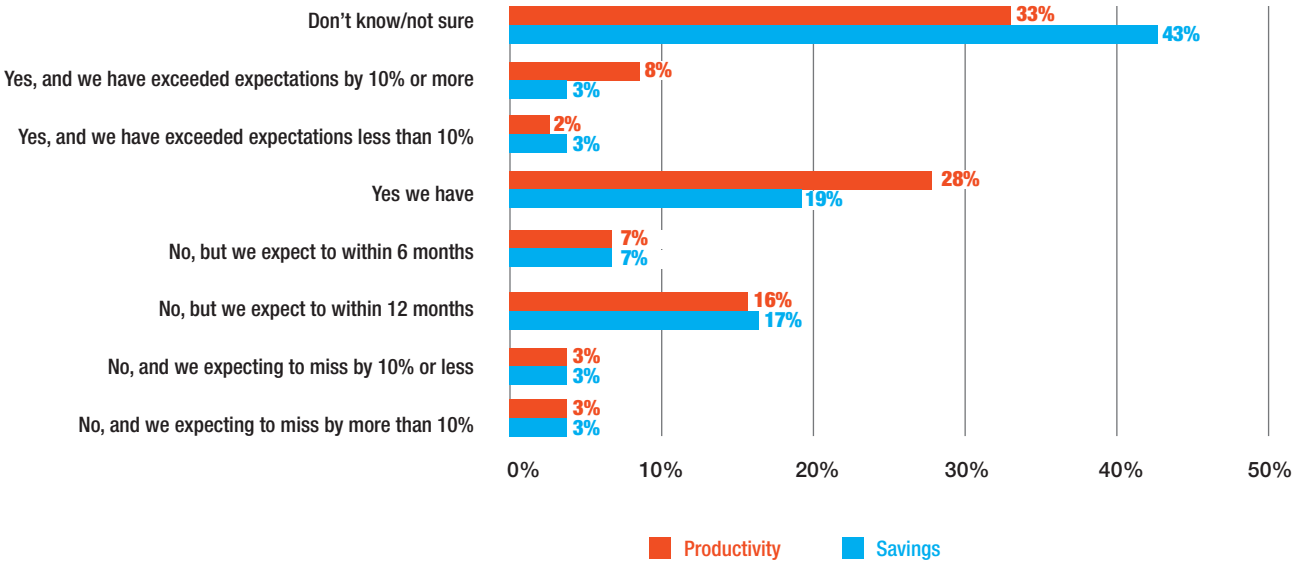


Figure 5. Realized Benefits



To understand the expected business benefits in terms of savings and productivity, we asked all who are planning, piloting, implementing, or have implemented AI/RPA to share their projected estimates ahead of the automation work. A rosy vision for business benefits emerged (Figure 4).

Have these projects realized the results they set out to achieve? The most frequent response was that teams do not yet know or are not sure about their productivity (33 percent) or savings (43 percent) realizations (Figure 5).

A comforting 38 percent have achieved or exceeded productivity targets and 25 percent have achieved or exceeded their savings goal. Nearly a quarter of teams are delayed in the realization of expected benefits (23 percent for productivity, 24 percent for savings), but expect to hit their targets.

Single-digit percentages of respondents have missed or exceeded their targets. This result is encouraging, given the difficulty in estimating the impact of these new technologies, and because exceeding expectations was slightly more common than missing them.

Additional Benefits

It is evident that we are still early in the life cycle for artificial intelligence and robotic process automation related to supply chain. The good news is that the future looks bright in terms of benefit realization once teams get started.

Along with improvements to efficiency, accuracy and productivity shared in the data above, there are many additional benefits to consider as teams reallocate funding for the remainder of 2020 — a year in which efficiencies have jumped to the top of the priorities list:

- **24/7 availability:** For companies with on-demand requirements or operations across time zones and continents, AI and RPA never sleep and can provide real-time support for global requirements.
- **Dynamic data updates:** Procurement teams manage huge volumes of data every day. AI can ensure all data are up-to-date and uniform across documents and processes.
- **Faster, more accurate processing of redundant tasks:** AI/RPA automates processing of low-value data and tasks, allowing procurement teams to focus on strategic areas.
- **Improved auditability and error-detection:** Automation includes logging of all tasks and any errors are easily traced back to the source, often with an understanding of when and why.
- **Flexibility across business scenarios:** Procurement decisions are dynamic, requiring flexibility in operations that are more readily provided by a self-learning platform.
- **Decision-making based on historical data:** AI solutions can help guide users to the right decisions or to avoid known errors by using a massive wealth of historic knowledge.

Best Practices for Getting Started

Getting started can seem daunting for those new to these types of automation. Even teams who are partnering with skilled IT professionals will do well to factor in a few best practices. Our SMEs have shared their best practices, consolidated below together with insightful verbatims from our survey respondents, to ensure you assemble the right team, target high business-value areas and mitigate risk. Critical stages are divided into strategy, planning and implementation.

Strategy

- **Conduct full use case inventory & scoring strategy:** Leveraging multiple vendor and industry knowledge sources, canvas all of the potential use cases relevant to your supply chain functions, your industry sector, and any relevant company specifics.
  1) Score each use case on beneficial impact and cost/complexity. Consider first those with the highest impact and lowest complexity.
  2) Gain input from all stakeholders across both the implementation team and the impacted teams and functions.
  3) Rate processes on their degree of optimization (is it ready to automate?), documentation (is it well understood?), and uniformity (is it standardized enough to automate?)
- **Be customer-centric:** Throughout the lifecycle of your automation projects, never lose sight of the needs of the end-customers and of internal customers. Engage actual customers for all externally facing process.

Planning

- **Partner with IT and business lead:** The art and science of the possible is well understood by skilled IT personnel, and specific needs and expectations will be top of mind for business leaders charged with getting the most out of their areas in these volatile times. Be sure to validate all assumptions and gain all customer insights.
- **Validate vendors:** A broad mix of new solution providers have entered the AI/RPA arena and tout a multitude of capabilities. Early adopters stress the importance of conducting multiple vendor interviews and product demos, checking references, and testing on small processes first to ensure your vendors are representing themselves accurately and are up to the task.
- **Integrate change management from day 1:** Consider the needs of, and impacts to, all affected audiences. Ensure that communication is clear, consistent, and constant to prevent unnecessary resistance and forge stakeholder alignment.

Implementation

- **Pilot small and iterate:** Piloting with new technologies is key to mitigating risks and costs while testing hypotheses and proving what business objectives are possible. Keep an innovation mind-set, which is to constantly iterate and optimize around the customer and business objectives.
- **Be ready for ongoing optimization:** While AI and RPA introduce advanced new technologies

> Contract discovery is another especially fertile area where AI bots can be rapidly deployed to yield immediate benefit. Contacts bots are capable not only of combing through voluminous, machine-readable texts to extract key metadata for contract analytics, they are able to isolate and illuminate inherent contract risks. For instance, during this time of unprecedented challenges arising from the COVID-19 pandemic, bots can immediately scour vendor agreements for the presence of a force-majeure clause or language, which might enable companies to preserve cash by terminating or deferring payment obligations where the COVID-19 outbreak constitutes a force-majeure event.
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> — **RICHARD WAUGH**
> Vice President, Corporate Development
> Zycus

into your business landscape, they do not come out of the box ready and error free. They are tailored to your business audiences, specific processes and proprietary data. There will be many rounds of tweaks at the onset to ensure results are accurate and consistent. Then, just as with any business processes, automated processes need ongoing maintenance, improvements and innovation to drive value.

Conclusion

Adoption of artificial intelligence technologies is quickly becoming a matter of when, not if, which moves decision-making to the next questions of where and when. It is important to consider AI/RPA as a category of modernization within your overall business and technology strategy and landscape. Its success relies upon numerous other capabilities and maturities, calling for some degree of standardization and/or re-engineering of processes, applications and data across divisions, business units and geographies before transforming the enterprise. But, when done thoughtfully and collaboratively, success can be achieved every step of the way.

How the Survey Was Conducted

Institute for Supply Management® (ISM®) asked survey respondents about their understanding of RPA, progress in planning or executing RPA projects, most likely use cases for moving forward, expected and realized benefits, and obstacles encountered during their endeavors.

The survey yielded 1,269 usable responses. Respondents are supply management professionals from U.S.-based companies. The survey launched in March 2019 and was open through the beginning of June. In addition to asking robotic process automation and artificial intelligence questions, ISM also asked about participants' industry sectors and subsectors, their companies' revenue, number of employees and size of their supply management organizations. Participants could opt-in to enter a drawing to win a US$25 gift card (20 available). **ISM**

> As companies seek to improve their processes and workflow — and embark or continue on the road to digital transformation — RPA can be a valuable tool. It can free up employees to perform higher-value, strategic work while significantly aiding in data entry, analysis and extraction; spend visibility; and operations and performance monitoring and measurement.
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> — **THOMAS W. DERRY**
> Institute for Supply Management®