

Robotic process automation (RPA) is now being augmented by intelligent automation (IA). This paper examines the benefits of applying IA to a broad range of business use cases to improve operations.

Intelligent Automation's Role in Creating a Hybrid Workforce

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Questions posed by: Kofax

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Q. Robotic process automation (RPA) has attracted a lot of investment and attention. What does intelligent automation (IA) provide in addition to the RPA we know today?

A. Use of the term intelligent automation evolved from robotic process automation to broaden out the number and types of tasks that can be fully automated using artificial intelligence (AI). RPA technology originated to automate human computer work by capturing all steps to accomplish a task in a recorder-like and programmatic fashion. Steps required to complete work are automated and packaged as a software robot that, when played back, mimics exactly what the end user does to produce the actual work of a task.

Many organizations saw the benefits of RPA and built competency centers focusing on the discipline of building software robots to replace or augment human labor with digital labor. In effect, these centers were charged with enabling a hybrid workforce that allows management to focus human labor on higher-value activities and digital labor on highly repetitive activities.

Even though vendors introduced RPA as a software term, RPA was embraced by process owners and senior leaders as a technology-agnostic discipline. Use of the term became technology specific when teams purchased RPA software for automation enablement. Initially, none of this technology used AI. While benefiting from core RPA software, teams began to identify automation gaps, especially where there was a need to convert unstructured and semistructured content to a machine-readable format.

The intelligent automation label began to be used by new vendors that saw this gap as an opportunity and packaged core RPA technology with AI. Some of the original RPA vendors extended into IA through partnerships, marketplaces, and organic development. Other vendors originated as capture-focused vendors, partnering or making acquisitions to provide IA skills.

Q. Intelligent automation is a common term used to describe a new set of capabilities. But what's intelligent about this new automation, and how can it transform current operations?

A. In IA projects today, the most common use cases apply algorithms to capture, classify, and convert unstructured and semistructured financial documents into a machine-readable format. RPA bots interact with AI bots on task execution. A classic example is the ability to apply computer vision–based algorithms to an invoice or a purchase order to create machine-readable data from the invoice. The use of AI in this example replaces manual data entry.

As a workflow, an RPA bot, for example, detaches a PDF from an email and delivers the PDF to an AI queue where the bot processes and delivers the machine-readable output to RPA to perform a variety of tasks, such as comparing details from the invoice with the purchase order data of record, validating correctness of the invoice, flagging errors, and updating a database. By providing AI in combination with RPA, IA significantly increases the domain of manual activities that can be automated.

In conversations with enterprises, IDC is finding a broad set of AI skills, especially computer vision algorithms, used in processes, including:

- » Computer vision for computer-generated business documents, such as invoices, purchase orders, payments, claims, and onboarding-related documentation
- » Handwriting recognition, especially where the handwriting is embedded in a form that also includes computer-generated information
- » Computer vision used in manufacturing and claims to interpret images for quality assurance and to assess damages
- » Natural language processing (NLP) that can help classify the subject of an email or the notes in a customer service call to extract meaning and to assist in automated routing (Vendors are working on NLP as an AI skill.)

The increasing use of the term IA is especially popular among professional services firms that utilize both AI and core RPA for larger solutions, building practices that require both programmatic and data science skill sets. Over time, the most common AI use cases will be packaged into RPA and IA software platforms, minimizing the need for extensive training data and data science skills. At the same time, AI will be applied innovatively to successfully automate ever-increasing types of manual work, especially extending into knowledge work. Strategic differentiation for the next several years will be the combination of first use of a packaged skill and process innovation, with process experts working in partnership with data scientists.

Q. What other technologies do I need to build and manage a competency around intelligent automation?

A. IA narrowly refers to specific types of labor-related automation, but intelligence — or the adoption of AI — can be more broadly applied to automation in combination with a broader spectrum of technologies. Use of algorithms (intelligence) applies to solving capture problems but is also used in operations to make predictions and recommendations. Predictions are applied to identify problems proactively. Prescriptive analytics is used to recommend next best actions, particularly when there are many options and AI algorithms are needed to prioritize them.

AI technology also includes conversational AI that provides an interface between human voice and text with AI-based responses.

Once you expand the use cases for intelligence and broaden out the AI and machine learning technologies in use, related automation technologies can be applied to simplify and automate enterprise operations, extending from manufacturing to managing a customer experience.

IDC looks at a larger portfolio of assets used for process automation and calls this "intelligent process automation" (IPA). We are beginning to see IA broaden to align more closely with IPA. Table 1 shows how the portfolio of IPA software is used to evolve IA, spanning labor-related automation and broader straight-through processing. The table also shows what roles these technologies play in relation to IA. Most of the technologies extend IA to supplement and broaden out an automation mandate, but some logically can substitute the use of software robots while still incorporating AI.

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TABLE 1

Portfolio of IPA Software Used with Intelligent Automation to Automate Operations

	Digital Workers	Hybrid Workers	Straight-Through Processing	Role with IA
Connectivity and access software				
API management	X	X	X	Augment and substitute
Application integration	X	X	X	Augment and substitute
Messaging	X	X	X	Extend
Process and labor automation software				
Capture	X	X	X	Foundational
Case management		X	X	Extend
Decision management		X	X	Extend
Workflow		X	X	Extend
RPA	X	X		Foundational
Algorithm-based software				
AI platforms	X	X	X	Extend
Conversational AI	X	X		Foundational
Predictive analytics		X	X	Extend
Prescriptive analytics		X	X	Extend
Automation planning and visibility software				
Process and task discovery	X	X	X	Plan
Process modeling	X	X	X	Plan
Process visibility	X	X	X	Manage

Source: IDC, June 2019

Q. What key points should I include when planning an intelligent automation project?

A. The following steps should be part of automation project planning:

1. Look more broadly at a process or an operational area to understand and identify inefficiencies tied to waste, rework, and the unnecessary manual activities that evolved over time as tactical bandages used to maintain a process that constantly evolves.
 - It is important to identify the customer impact of the inefficiency as well as the cost impact.
 - It is equally important to identify manual tasks that can be removed rather than simply automating over ingrained inefficiency.
 - When a manual task cannot be automated, look for ways to simplify and standardize.
2. Identify which custom and commercial applications are associated with the process and available APIs that can assist in the automation.
3. Build an automation plan that identifies how a process can be automated, mapping the automation plan to technologies and professional services needed for the automation.
4. Identify and get sign-off on the measurable benefits and key performance indicators (KPIs) of the automation that would justify the time and financial investment.
5. Create a business case, including a return on investment (ROI), budget, and timeline for the automation. The automation plan, business case, and KPIs should be worked out together, especially when trade-offs are needed to make sure the automation costs align with internal expectations of an investment's ROI.
6. Build a project plan supporting an agile methodology to focus on continuous delivery of value, supported by concrete metrics aligned with the expected benefits.
7. Identify a measurement approach that can be implemented on project kickoff that is able to demonstrate continuous improvement as the automation plan is executed.

Q. What role does an intelligent automation competency center play?

A. IA fits into the overall profile of a competency center because IA has the potential to be used expansively in an enterprise, the pace of change of the underlying technology is rapid, and there are IA skills shortages requiring efficient utilization. Broad adoption would benefit from a central shared service to educate and train managers and employees while supporting automation planning and centralized management of the IA software assets.

Competency center skills and services vary, depending on how individual enterprises set expectations and organize their overall centers of excellence (COEs). Organizationally, some COEs run independently and compete with each other. Some enterprises run a larger COE, such as an automation COE, that provides specialized program offices. Others federate COEs to leverage skills and technologies across the COE ecosystem.

Whether a competency center is organized around RPA, AI, or labor-related automation, assume that capabilities will continue to evolve aggressively and that new competitors will enter the market using new terms to describe their differences. If you work in a culture that tends to shift attention to the newest technology fad, it makes more sense to name your competency center something that is technology neutral rather than name it after the current technology used for the competency and risk the technology becoming outdated.

Aside from managing the core platform technologies for the competency, teams should be skilled at automation planning and success measurement. There is no point to automation if there isn't a measurable impact on customer experience, competitive posture, or operating costs.

About the Analyst



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