FORTRA

What is Robotic Process Automation?

A Guide to RPA

Table of Contents

The Rise of RPA

Businesses have employed automation software for decades, but in recent years enterprise automation has achieved an unprecedented level of flexibility and ease-of-use. Software robots have gone beyond managing simple IT tasks and are becoming a transformational force in business.

The popularity of robotic process automation has skyrocketed in recent years. Source: Google Trends

Robotic process automation (RPA) is getting a lot of attention lately in the tech media and in the business world. But what is RPA, why is it important, and what can it do?

What is Robotic Process Automation?

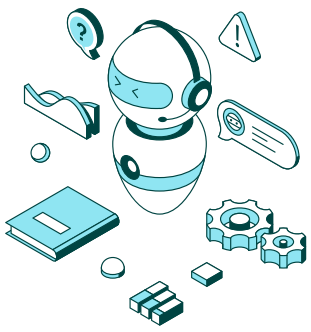
Robotic process automation is a type of software rapidly gaining in popularity across many industries. From all the hype around RPA, it's clear that businesses are excited about employing **software robots.** What's less clear to many prospective robotic process automation users is how RPA software differs from—or improves upon—other types of automation.

The truth is that as a newer technology, the definition of robotic process automation is still somewhat in flux. Vendors and tech experts do agree on this: RPA uses software robots—or agents—to streamline repeated tasks for both IT and business users.

When robotic process automation first arrived on the scene, the term was almost exclusively used to refer to the manipulation of systems and applications at the user interface-level. That's where the "robotic" part comes in—the robot interacts with systems the same way a human user does—clicking buttons, typing login credentials into a website, reading words off a PDF, and so on. This definition of robotic process automation is still at the core of what RPA does. However, as the technology matures, it's increasingly being presented as more of a comprehensive enterprise automation solution. One that can interact with a GUI, but also one that provides deep integrations and sophisticated, enterprise-class features.

This shift in focus also expands the benefits of robotic process automation software from shaving a few hours off a user's desktop tasks to powering an enterprise-wide digital transformation.

> **Software Robot:**
> A piece of software capable of completing complex repeated processes typically performed by a human.



Automation Terminology and the Place of RPA

Enterprise automation is a hot field with new technologies appearing all the time. The fast pace of change means that sometimes new IT terminology becomes popular, or old words change meaning. Before exploring the uses and benefits of robotic process automation, let's establish how RPA fits in among the many other automation terms currently in use.

IT Automation

IT automation is an umbrella term encompassing all types of automation software. This name can cause the misconception that IT automation is limited to the IT department or IT users. In fact, modern IT automation has many subsets, including facets of RPA, that are designed to be as intuitive for business users as they are for tech experts.

BPM, BPA, and BPO

Business process management (BPM) focuses on optimizing business processes to improve operational agility and corporate performance. While BPM refers to a discipline, not a type of technology (and in theory doesn't require technology at all), in most organizations it is closely tied to software solutions for modeling, analysis, automation, and more. Therefore, business process automation (BPA) is just one branch of BPM.

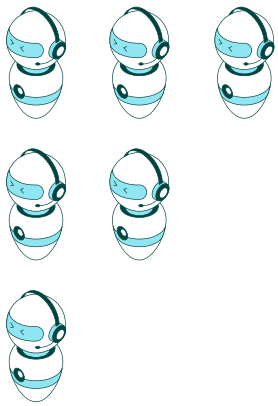
Business process automation and robotic process automation are often used synonymously. RPA puts a larger focus on automation at the user interface level. Both BPA and RPA emphasize ease-of-use for non-programmers and interfaces with cloud and web services.

BPO refers to business process outsourcing or business process outsourcers. It involves the contracting of specific business processes to a third-party service provider. Robotic process automation is currently a widely-debated topic in the BPO world, and can be seen as both a threat and an opportunity for outsourcers. Companies that previously worked with a BPO to receive inexpensive labor—for example, outsourcing call center work to a developing country—might suddenly find that it is even cheaper to employ a **digital workforce** at home. Call centers are a top candidate for automation with RPA. Not only does the business cut costs, control is handed back to the in-house team. This should worry any BPOs relying primarily on cheap human labor.

On the other hand, implementing robotic process automation within the BPO offers the outsourcer the opportunity to scale their own business without adding more human workers. Combining a BPO's expertise in optimizing processes with an efficient digital workforce of software robots could create a highly competitive outsourcing company.

Workload Automation and Job Scheduling

Job schedulers are software solutions for executing unattended IT tasks. They've been around in some form since the early mainframe days. The original job schedulers were simple tools for running a job on a single system at a specified time, and basic job schedulers with a similar purpose still come built into many systems and applications. For example, UNIX machines come with cron for scheduling, while Windows uses Windows Task Scheduler.



Digital Workforce:
A scalable team of software robots working together with the human workforce to manage business processes.

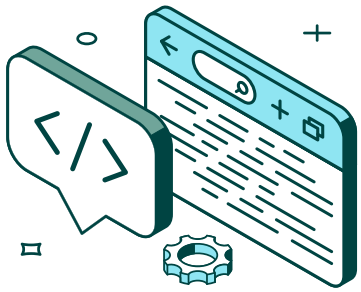
Modern job schedulers for the enterprise go far beyond those basic functions to provide cross-platform, centralized scheduling with features like audit trails and automatic notifications. For these advanced tools, the term "workload automation" has become popular.

Workload automation focuses on IT processes and deep application integrations, while robotic process automation specializes in the end user and **GUI automation**. But there's plenty of overlap. Ideally, an organization needs RPA and IT job scheduling solutions that work together, offering automation that spans the entire enterprise.

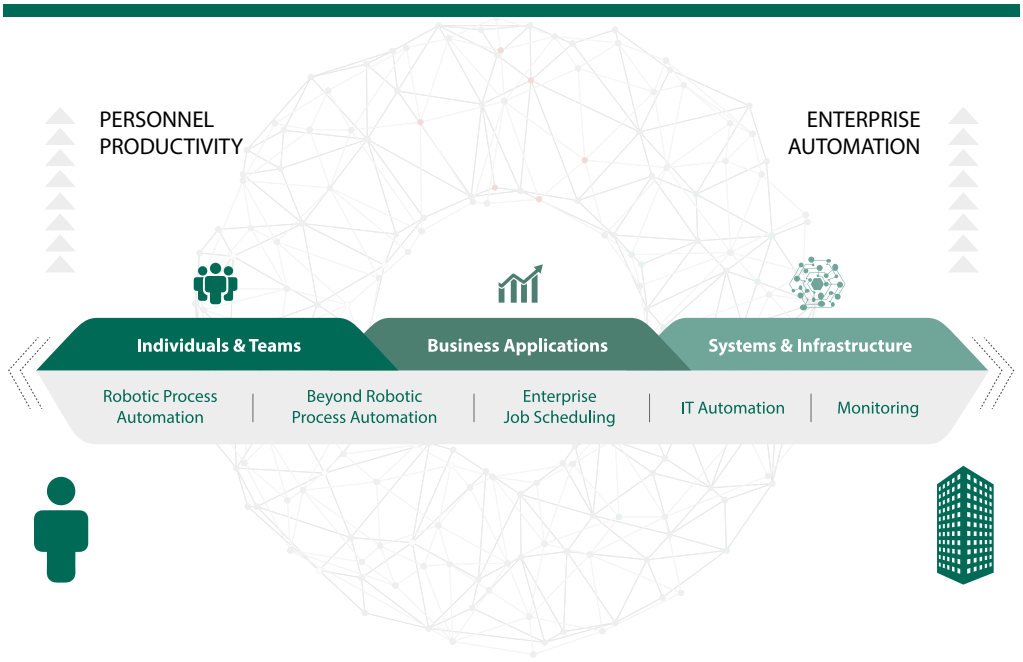
How it Fits Together: The Automation Continuum

Enterprise automation requirements fall along a spectrum from basic to advanced. At the simplest level is automation designed to improve individual productivity. Knowledge workers are often inundated with tedious, manual tasks which prevent them from completing more valuable work. Automation aimed at improving individual productivity might be RPA software installed on a single desktop computer to help a generate a report automatically. Robotic process automation scales quite easily to streamline multi-machine processes and enhance team productivity.

The next level of automation involves centralizing control over enterprise applications. Modern enterprises employ a wide array of business software across every department in the organization. Maximizing the ROI of those applications involves going beyond any basic built-in schedulers they have and integrating each application into an enterprise-wide workflow.



GUI Automation:
Automation that manipulates systems and applications at the user interface level, just like a human.



Rounding out the automation continuum is automation for systems and infrastructure. Adding this type of solution allows businesses to enable **DevOps**, simplify compliance, monitor systems, and meet SLAs efficiently.

While any organization would love to snap their fingers and have fully-implemented, enterprise-wide automation, in reality most businesses turn to automation to solve a specific problem or optimize a single process. What's important is how their automation expands from there. Streamlining individual processes can save a team hours every day, but a solution that can't expand to other areas of the organization or scale as the business grows provides a poor ROI. When the company inevitably implements different automation solutions to tackle other processes, it creates unnecessary sprawl and complexity. A common example is custom scripting. Many IT teams write a script or two to take care of tedious tasks. It works at first, but as the business grows, writing new scripts and maintaining the existing ones becomes as difficult and error-prone as manual processes.

A digital workforce of software robots can adapt to new requirements and scale along with the business.

What is a Software Robot?

All the recent talk about robots in business can feel like it came out of nowhere in the last few years, but the truth is that this is a new name for a familiar concept. Software robots, or bots, usually refer to what most people know as agents—individual devices running the automation solution. A robot can be installed on a PC, a physical server, or a virtual machine.

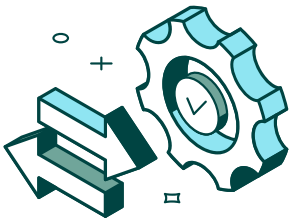
Some RPA vendors also use the term robot to refer to an automated process, or even to each occurrence of a process, although these definitions are less common. It's important for a prospective RPA buyer to clarify with the vendor what a "robot" means to them.

While a robot can be configured for an endless variety of tasks, they can be divided into two distinct types: front office and back office robots.

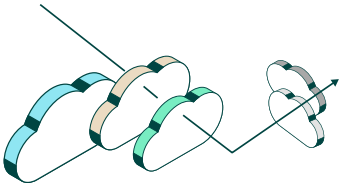
Front Office Bots

Front office software robots help to streamline and simplify customer-facing processes like customer service or sales. These processes are always going to have humans involved to interact with the customers and make decisions that require human judgement. The front office bots take over certain tasks in the **workflow,** freeing up the human workforce to tackle the more important and rewarding pieces of the process.

For example, a call center might use RPA as a virtual assistant. In order to provide the best service, call center employees are often trying to access multiple systems on the fly to determine customer history, current order status, and more. Bots in the call center can help with instantly pulling this information together and updating the databases based on new calls.



DevOps:
A development and delivery process emphasizing an agile relationship between development and IT operations.



Workflow:
The sequence of tasks in a multi-step process. Workflows often span multiple systems, applications, and departments and can be manual, automated, or a combination of both.

Back Office Bots

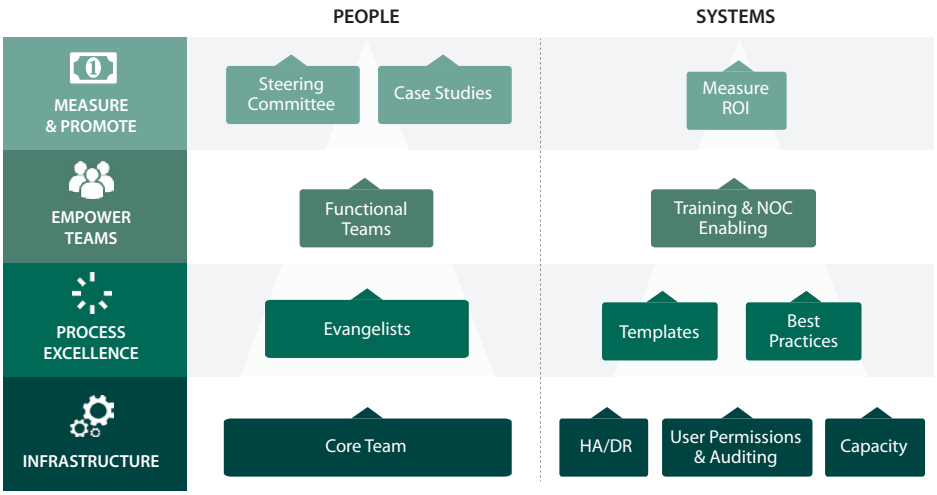
Robotic process automation is also a great candidate for the unattended or background processes that keep a company running. These are the processes executed by back office bots. Examples include file transfers, generating reports, or monitoring systems. RPA allows for seamless integration of back office and front office robotic processes. For example, data collected during front office transactions could be automatically written into a report and distributed.

Enterprise Robotic Process Automation

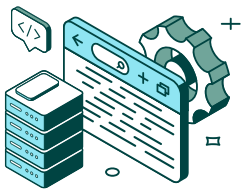
Robotic process automation can be used for simple automation on a single user's desktop or to build a vast digital workforce that spans the enterprise. So what creates the difference between basic robotic process automation and enterprise robotic process automation? A combination of the features of the RPA solution itself, and implementing automation best practices.

Building an Automation Center of Excellence

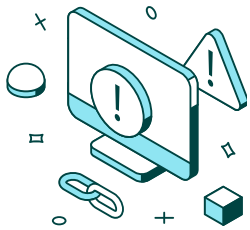
For an enterprise to reach the point where its digital workforce is efficiently streamlining and integrating operations enterprise-wide, it needs to establish a foundation of automation expertise, best practices, and first-in-class technology. We call this a center of excellence. An automation center of excellence has two equally-important areas of focus: people and systems.



At the systems level, certain solutions and infrastructure are required to support enterprise automation, including adequate capacity, **high availability** or **disaster recovery** configurations, and robust security and auditing processes. With those in place, the organization can develop automation best practices and reusable automation templates for use across the enterprise. Strong training procedures for anyone using the RPA software is critical to success. Finally, we recommend developing an ROI calculator to determine how effective automating a given process would be on the bottom line.



High Availability:
Systems or components that can run continuously without failure.



Disaster Recovery:
Solutions for avoiding and dealing with unexpected crises or downtime.

The other area of focus is people. Implementation of a new robotic process automation solution is likely to involve a person or a small team of people who understand the software and are using it to solve the initial problem. As they implement the company's first automation instance, these people and others involved with the project will become evangelists, spreading automation across the enterprise. In order to keep this process strategic and establish priorities, the best practice is to create an automation steering committee. It's also helpful to develop case studies internally that, along with the **ROI calculator**, show the value of the automation solution. The more people in the organization who can envision what automation can do, the easier it is to scale the automated workforce.

Scalability and Growth

There's nothing wrong with starting small. Most businesses—even large ones—get started automating with relatively simple use cases. However, scalability and adaptability are key to successful enterprise automation.

Some RPA software is designed for desktop automation. These tools can be extremely useful for improving individual productivity. But a forward-thinking company will implement robotic process automation that can move easily and cost-effectively from automating an individual user's tasks to streamlining any high-volume processes in the organization.

This is done by employing an increasing number of software robots, or agents. Each robot is limited only by its machine's capacity—it can execute as many processes as CPU and memory allow. This makes increasing the size of the digital workforce much less expensive than hiring additional full-time employees for each job. Furthermore, when requirements change, a robot can be reconfigured within minutes. Retraining human employees takes more time.

In some industries, it may also be important to scale down at certain times of year. With a digital workforce, no one needs to lose a job—the robots will be ready to go when business picks up again.

Maximizing Return on Investment

RPA already has an excellent ROI compared to other automation solutions due to its easy setup and ability to interface with almost any system or application. The number one way to ensure a good return on investment for an RPA purchase is to think ahead about whether the solution will scale to meet future requirements.

It's also important to identify the right processes to automate. Sometimes the best candidates are workflows that span multiple departments. These aren't always obvious, since each part of the business is concerned with increasing its own productivity. Foster a core team of automation experts to look at the enterprise as a whole and find automation opportunities.

Not sure how to calculate your RPA ROI?

Talk to an RPA Expert Today

Too often, inefficiencies in manual processes get baked into RPA workflows, decreasing ROI. Robots are meant to mimic humans, but that doesn't mean they need to take the exact steps a human would. For example, sometimes a human workforce will have redundant tasks in order to check for errors. Robots don't need that kind of verification. Documentation and optimization of each process is key to getting the most out of RPA software.

Here are things to take into consideration when determining the ROI of automating a process:

- What is the current labor cost of the process?
- How much time is spent correcting human errors?
- How many hours will the robots be able to work compared to human employees?
- What is the cost of implementing the solution or configuring new robots?

Naturally, the more uses an organization can find for its robots, the better the ROI, since each new robot is an inexpensive addition to the digital workforce.

Detailed Operational Analytics

For enterprise-level robotic process automation, it's important to be able to monitor and manage automated processes from a central console. Ideally, this console is accessible from any device and can provide necessary metrics on servers, robots, workflows, and more. Analytics not only allow the user to keep track of operations and identify problems, they help with optimizing future workloads.

Security and Auditing

In an enterprise running large-scale automation, a long list of users will probably need access to the RPA software. The more this list grows, the more important it is to have robust user access management features. Each individual, team, or department should have only the permissions they absolutely need. For example, one user might need permission to edit a workflow, while another should only view it. A robotic process automation solution that doesn't provide role-based security isn't suitable for an enterprise-level automation strategy.

Enterprise robotic process automation solutions also provide detailed logging of each user's actions and each task executed. This is useful for internal security and also for maintaining compliance with industry regulations like HIPAA, SOX, or PCI DSS.

Intelligent Automation

Despite conjuring up mental images of human-like robots from science fiction, robotic process automation isn't intelligent in the same sense as AI or cognitive computing. However, it does have a few qualities that sometimes get referred to as "smart" or "intelligent."

Cognitive Automation and Artificial Intelligence

Artificial intelligence, like IBM Watson or Google's AI, is self-learning. A cognitive automation solution might be able to learn when a process is typically executed and run it without being asked. A robotic process automation solution will need to be told in advance which conditions are necessary to execute the workflow. RPA could regularly check market data and run processes based on that information, but a cognitive solution could potentially make market predictions as well.

> Software robots work 24/7 and don't need vacations, breaks, or sick leave. Support your team during down times and holidays with a digital workforce.

Smart Automation with RPA

Unlike cognitive automation and AI, which are still in their infancy, robotic process automation is a mature technology. There are a wide variety of solutions on the market that are affordable, easy to implement, and intuitive for any user.

And software robots may not be able to learn as they go, but they aren't dumb. RPA bots can make "decisions" based on pre-established conditions. If a file has arrived in the destination folder, the robot extracts the data for use in a daily report. If no file has arrived, it notifies a stakeholder. Or, when a support request comes in from a customer, a different process is followed based on the customer's support ticket history.

Cognitive technology may someday be incorporated into the typical RPA solution. For now, the two can still be effectively used together. For example, some companies are turning to intelligent chatbots to simulate human conversation in certain customer service situations. RPA robots can work to collect, organize, and use data from the chatbot conversations.

RPA by Industry

Robotic process automation has the flexibility to be transformational in any type of business. Several major industries are already seeing its benefits.

Financial Services and Banking

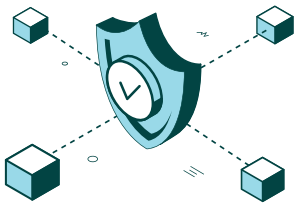
Traditionally slow-moving financial institutions face increasing pressure to respond quickly to customer requests. From entering customer data into new accounts to processing credit card applications to distributing records, banks and financial services companies move a lot of data. Unfortunately, they are typically trying to do so in complex environments involving legacy applications, disparate systems of records due to mergers and acquisitions, and way too much paper.

Robotic process automation can quickly and accurately manage high-volume data transfers and other processes across complex infrastructure. RPA can also help manage the strict regulatory compliance requirements in the financial industry.

Healthcare

The healthcare industry requires reliable transmission of sensitive data throughout a wide network of departments and partners. Records have to stay up-to-date and synced between providers, labs, pharmacies, and more—and when lives are on the line, there's no room for human error or operational delays. Fortunately, moving and manipulating data between disparate systems is a core competency of RPA software. In the healthcare industry, RPA is used for patient file updates, claims processing, appointment scheduling, dietary plan management, and more.

The **role-based security** that is common in enterprise RPA solutions is especially helpful in keeping sensitive healthcare data secure. Patient information passes through many hands, but the access that a doctor needs is different than that of a member of the finance or IT staff. A robotic process automation solution allows each user to have an individual account with role-based access appropriate to their position.

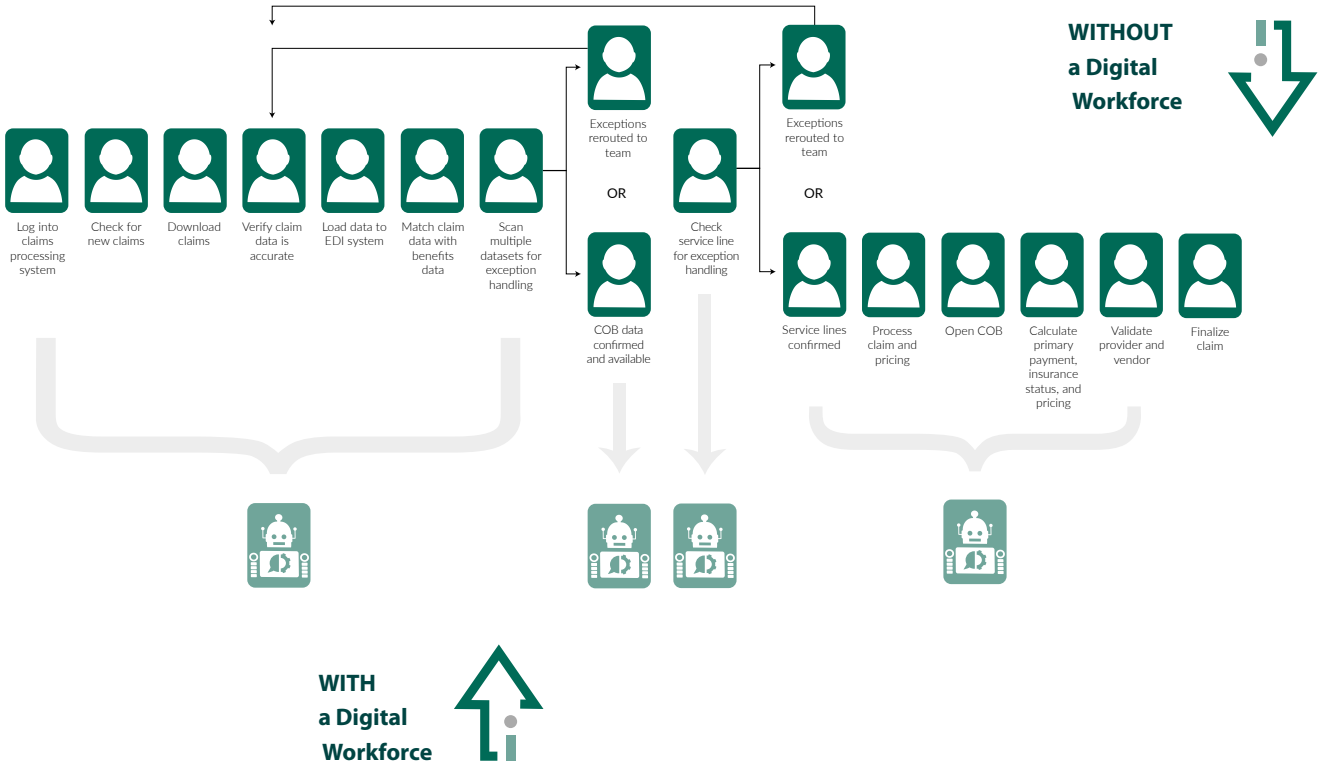


Role-based Security:
Security features that give unique access permissions to each user or group of users.

Insurance

Insurance companies deal with a high volume of paperwork and complicated workflows. A potential customer requesting a quote—an action that seems simple enough from the consumer's perspective—triggers a series of processes that may involve disparate data sources and legacy systems. RPA easily handles this and other insurance processes.

For example, software robots can manage almost every step in the claims adjudication process, including logging into the claims processing system, downloading and verifying claims, matching the claims with benefits information, and calculating payments. The human workforce only needs to deal with exceptions that require human judgement.



Retail

Retail companies run on information. There are constant updates to sales and inventory data, often from many different locations. E-commerce sites collect browsing and shopping cart information to better advertise their offerings. An increasing number of brick-and-mortar stores have integrated with mobile apps to allow customers to learn about products while they shop. Robotic process automation helps integrate all these complex data streams into actionable information.

In retail, RPA is likely to be used for back office tasks like order processing and inventory management. RPA's flexibility helps manage processes for stores on different schedules. A software robot might collect sales data for a report at the end of the day. If no data is received from a certain store, the bot will check if that store was closed. If it was closed, the robot will continue the process without that store's data. If the store was open, a different next-step can be triggered, like an error notification to the operator or a delay to wait for the data.

Manufacturing

The manufacturing industry is already known for its physical robots, so software robots are a natural fit for back office processes like procurement and inventory management. With global competition rising and customers expecting faster-than-ever delivery, RPA can be key to helping increase productivity and reduce time to market.

The **ERP system** is the cornerstone of any manufacturing company. Robotic process automation can interface with ERP software for comprehensive enterprise data integration and custom reporting options that may not be available directly from the ERP.

Hi Tech and Telecommunications

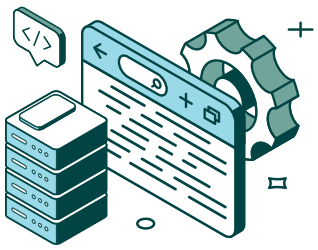
Telecommunications is a competitive industry where success is determined by the quality of customer service provided. At the same time, telecom companies are burdened with a high volume of repetitive back office processes. These tasks eat into time better spent on customers, and slow processing speeds and human errors hurt the customer experience.

Robotic process automation increases accuracy, improves operational efficiency, and provides quick and easy access to data—critical for providing great service.

Energy and Utilities

Utilities are critical to quality of life, so businesses in this sector can't afford to have any errors or downtime. Robotic process automation excels at monitoring systems and taking automatic action if a problem is discovered.

Of course, as in other industries, RPA streamlines back office work like metering processes, billing, and reporting, as well as front office customer service tasks. Utilities are often highly regulated, and RPA helps generate the reports an auditor is looking for.



ERP:
Enterprise Resource Planning software integrates a broad set of activities including product development, sales, and more into a single database.

Robots in the Real World

The overarching benefits of RPA across industries are clear. Let's look at some specific software robot examples.

Data Management Bots

Before RPA Every day an employee logs into a website, copies financial data from the site and pastes it into an Excel report. Then the employee uploads the report to SharePoint.

After RPA Every day a robot logs into a website, copies financial data from the site and pastes it into an Excel report. Then the robot uploads the report to SharePoint.

IT Services Bots

Before RPA A request comes in for a password reset. Between more urgent tasks, an employee finds time to complete the request.

After RPA A request comes in for a password reset. A robot intercepts the request, recognizing it as an easy, rules-based task, and resets the password.

Human Resources Bots

Before RPA A new employee joins the company. He fills out a variety of forms, often asking for redundant information. An HR employee uses this information to create an IT support ticket. IT provisions the new user in Active Directory and VMWare and completes the ticket. HR emails the employee's new manager that the employee has been successfully onboarded.

After RPA A new employee joins the company. He fills out a form which is automatically synced with other forms asking for the same information. A software robot reads the information on the form and uses it to provision the employee in Active Directory and VMWare and email the employee's manager.

Claims Processing Bots

Before RPA An employee logs into a claims processing system and checks for new claims. The employee downloads the claims, verifies them, and loads them into an **EDI system.** Then the employee coordinates the benefits. If there is any exception or problem, it is set aside for another employee to handle later. The first employee calculates payments and finalizes the claim.

After RPA A robot logs into a claims processing system, downloads and verifies any new claims, and loads them into an EDI system. Then the robot coordinates the benefits. If there is any exception or problem, the claim is sent to the human employee to look at. The robot takes care of the rest.

EDI:
Electronic Data Interchange is the electronic exchange of business information using a standardized format.

Accounts Payable Bots

Before RPA An invoice arrives from a vendor by email. An employee downloads the attachment, matches the invoice against a purchase order in the ERP system, and puts the invoice into the proper queue for processing.

After RPA An invoice arrives from a vendor by email. A robot uses **OCR** to read the invoice, match it to the purchase order, and route it to the proper queue for processing.

Call Center Bots

Before RPA A customer calls to ask about a problem with her order. The human customer service representative talks to the customer while simultaneously clicking through multiple systems to find the customer's information, the status of the order, and her order history. The customer is forced to wait for the representative to find each piece of data. After the call, the representative takes the time to add new information acquired on the call to the database.

After RPA A customer calls to ask about a problem with her order. The robot presents the representative with all the data he needs to provide quick and friendly service. The representative then moves on to another call while the robot updates the database.

The RPA Vendor Landscape

The fact that RPA is a newer technology can make it difficult to find your ideal robotic process automation solution. Understand that on popular software review sites, RPA software may be found under other names, most commonly business process automation or business process management. Moreover, vendors are not entirely aligned in how they choose to define robotic process automation of software robots.

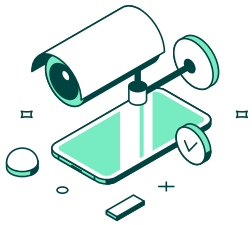
The best strategy is to look at the offerings, not the terminology. Examine your current requirements and think about your future objectives. We recommend considering the following areas:

- Deployment time and costs
- Ease of use for business and IT
- Scalability
- Security and auditing features
- Central monitoring and analytics dashboards
- Pre-built automated actions available

The Top Players

New companies are entering the RPA space every day, but there are a few established vendors who are recognized as having top solutions. They include:

- Fortra (Automate)
- Blue Prism
- Automation Anywhere
- UiPath
- NICE
- WorkFusion



OCR:
Optical Character Recognition is the recognition of printed or handwritten text characters by a computer.

The Future of Robotic Process Automation

Robotic process automation is just getting started. As the technology matures and becomes more widespread, we'll see increasing innovation in automation—both from the creators of RPA solutions and from the businesses that use them.

One of RPA's greatest strengths is its ability to interface and merge with other technology. The next years will see a growth in RPA working with other powerful solutions, including cognitive computing and business process management applications.

The use of software robots has the potential to change work as we know it. Gartner's Cathy Tornbohm says that tasks like data entry and formatting are likely to be replaced by RPA, while the McKinsey Global Institute claims that about 60 percent of all occupations could see 30 percent or more of their constituent activities automated. This doesn't necessarily mean lost jobs, but an opportunity to focus the human workforce on high-value tasks. Through better integration of systems, the elimination of mind-numbing manual work, and increased productivity, RPA has the potential to lead digital transformation.

FORTRA

Fortra.com

About Fortra

Fortra is a cybersecurity company like no other. We're creating a simpler, stronger future for our customers. Our trusted experts and portfolio of integrated, scalable solutions bring balance and control to organizations around the world. We're the positive changemakers and your relentless ally to provide peace of mind through every step of your cybersecurity journey. Learn more at fortra.com.