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Invisible Automation:

Integrating Robotic Process Automation and Machine Learning

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INVISIBLE AUTOMATION:
The Possibilities Are Limitless

"Technology must be like oxygen: ubiquitous, necessary, and invisible."

- Chris Lehmann, Principal, Science Leadership Academy

Many organizations have discovered the need to apply automation to their business processes during these challenging times to meet market demand. Robotic Process Automation (RPA) is the primary and most advanced tool that can help customers do so. RPA applies automation at the user interface level, regardless of the underlying software stack, making it a much better solution than traditional automation options. Because it's operating at the user interface level, this more accurately mimics human interaction to create a more reliable and efficient solution.

RPA was originally developed to automate simple tasks that require minimal cognitive human effort. As more organizations continue to benefit from the operational and productivity gains of RPA-based automation, they are now demanding increased functionality and complex rule application to improve performance capability. This is accomplished by integrating RPA with Machine Learning (ML), a very specific subset of Artificial Intelligence (AI). We call this elegant and powerful combination of technologies ***Invisible Automation.*** This holistic solution optimizes an organization's digital transformation strategy and enables companies to focus on more high-profit initiatives, increase innovative capacity, and explore new market opportunities.

AI/ML Business Strategy: 83% of respondents said that the deployment and development of AI and ML systems would become a core part of their business strategy going forward.

Source: Fintech Futures 2020 AI/Machine Learning in Financial Services Report

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"There's a lot of automation that can happen that isn't a replacement of humans but of mind-numbing behaviour."

- Stewart Butterfield, CEO, Slack Technologies

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What Exactly is RPA?

RPA allows people to configure a "robot" that emulates the actions of a human interacting with various digital systems and applications to complete a complex business process. RPA robots utilize the user interface to capture data and manipulate applications just like humans do. They interpret, trigger responses, and communicate with other systems to perform a variety of repetitive tasks.

Advancing Productivity with RPA

Automates Repetitive Work - Don't lose valuable time to mundane and monotonous work. RPA keeps your employees focused where they should be: on higher level business activities to drive business success.

Bridges Gaps Between Systems - Eliminate time spent navigating multiple applications. RPA integrates your legacy systems and removes silos.

Accelerates Digital Transformation - Speed up processes, eliminate errors, and get work done quickly to enable your team to innovate and bring products/solutions to market faster than ever before.

Applying RPA Across Different Industries & Operations

"Machine learning allows us to build software solutions that exceed human understanding and shows us how AI can innervate every industry."

- Steve Jurvetson, Venture Capitalist

Optimized Insurance Claim Processing: RPA is used to input and process claims to speed up the claims management process. It can also be used for streamlining compliance underwriting procedures and document processing like data extraction and redaction.

Faster Application Processing for Credit Cards: It takes a matter of minutes for RPA software to gather customer documents, run the credit report, and complete a score evaluation based on set parameters to make an automatic decision on whether the customer is eligible for a credit card or not.

Financial Operations: RPA can be used to improve and speed up variety of financial processes, like AP (Accounts Payable) & AR (Accounts Receivable) and banking record reconciliation, and invoice processing.

Speeding Up the Lending Process: Mortgage brokers can accelerate the process based on set rules and algorithms that gather, process, and compile credit checks, employment verification, and financial document inspection prior to approval.

COMMON TASKS FOR AI ADOPTION:

Business executives are turning to AI to cut out repetitive tasks such as paperwork (82%), scheduling (79%) and timesheets (78%)

Source: PWC

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Better Financial Reporting Across the Board: RPA helps financial institutions in preparing reports with accurate data. It gathers information from different sources, validates it, arranges it in a consistent format, and can also schedule the reports to be sent to various required reporting agencies.

Better HR Management: Common human resources-based tasks that can be automated are new hire onboarding, employee offboarding, payroll administration, and reporting. RPA enables stronger data management practices while streamlining HR processes that are rule-based.

Public Sector Administration: From tasks like invoice processing, timesheets, and validating permit applications to contract administration, RPA simplifies these processes and gives time back to government staff to focus on other core department goals.

Other examples of where automation can improve operations across all industries is payroll, processing job applications, tracking attendance/timecards, and critical reporting to maintain compliance standards. RPA tools can complete these tasks and other similar actions at a much faster rate and with far less errors than when executed by a human.

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"The future is ours to shape. I feel we are in a race that we need to win. It's a race between the growing power of the technology and the growing wisdom we need to manage it."

- Max Tegmark, President of Future of Life Institute

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What Is AI & ML?

AI is a broad term given to a system or software that can behave and make decisions like humans for tasks related to a narrow domain. ML is a branch of AI which deals with the science around a computer algorithm that can learn from input data and its corresponding output.

AI/ML ADOPTION: At 17%, AI/ML is the 3rd fastest-growing cloud service for 2020.

Source: Flexera 2020 State of the Cloud Report

ML provides systems the ability to automatically learn and improve from experience by identifying the underlying patterns and trends in data without being explicitly programmed. Deep learning is subset of ML algorithms built to mimic the connections in a human brain and is by far one of the most powerful type of algorithms within the science of AI. In the past decade, deep learning has gained a lot of traction with several landmark advancements made – thanks to new technologies that have powered computational performance gains.

What Is Invisible Automation?

Invisible Automation (IA) is a solution that leverages the powerful combination of RPA and ML. This elegant approach enables the automation of moderately complex tasks that are too difficult for a simple automation solution alone to address. IA mimics human level decision-making capabilities to speed up processes and eliminate errors typically caused by human oversight. This results in more intelligent, superior, and advanced capabilities than traditional automation solutions offer.

The Future of Business Innovation

AI EARLY ADOPTERS:
83% of early AI adopters have already achieved substantial (30%) or moderate (53%) economic benefits.

Source: Deloitte

Invisible Automation can be applied to the more complex and sophisticated processes and workflows. Regardless of the type of business, more advanced technology implemented now makes it easier to adapt to market needs and prepare for more innovative capability in the future. More intelligent algorithms, better infrastructure, and digital resources like Business Intelligent Chatbots drive organizational goals forward for increased efficiency, improved operational performance, and better innovation.

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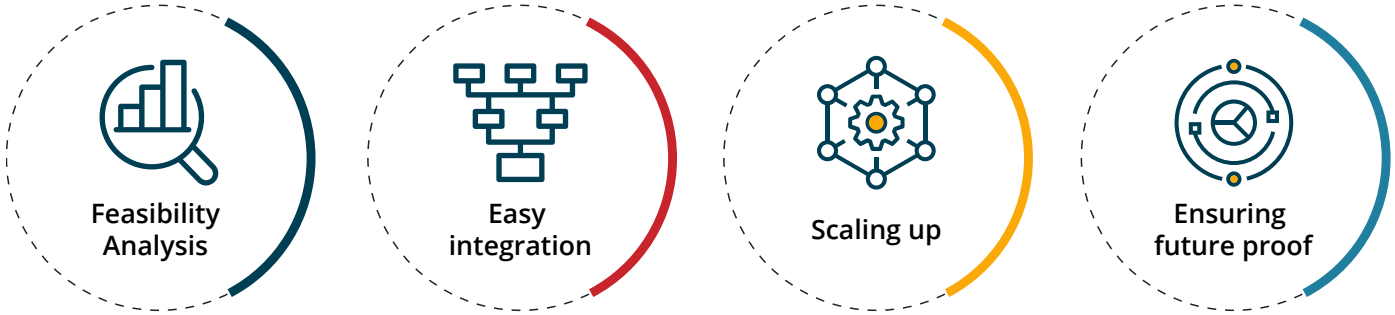
Our Four Core Invisible Automation Steps

Business leaders now understand the urgency of implementing intelligent and automated solutions like Invisible Automation. It is not only about maintaining a competitive edge – it's about staying relevant to customers that are driven by instant-gratification technology in a digital dominant world.

A new organization beginning digital automation efforts can implement these solutions in those areas where you can see immediate gains (Read more in our ML Readiness blog to see if your organization's problem could be solved with an intelligent automated solution). Combining RPA with ML may look simple at first, but there are intricate details that must be considered and incorporated in the design to scale it even further.
Our solution is driven by four key guiding principles:



1. **Feasibility Analysis**
2. **Easy integration with minimal disruption to the existing business processes**
3. **Scaling up the proposed solution in an iterative approach**
4. **Ensuring the solution is future proof**

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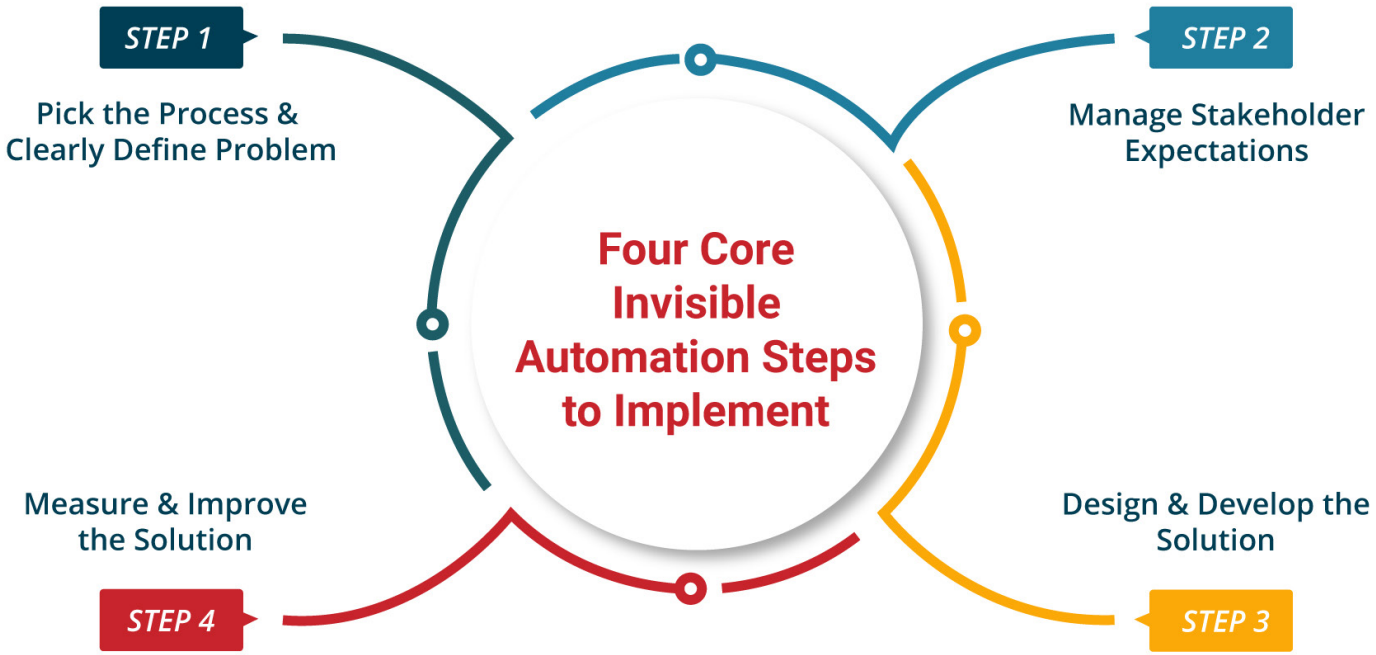
Our Solution Approach

We have the following process defined to help organizations onboard into our Invisible Automation solutions to be fully prepared to embrace the journey of becoming a Digital Only Organization.



"Excellence is a continuous process and not an accident."

- A. P. J. Abdul Kalam, 11th President, India

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1

Pick the Process & Clearly Define the Problem

Pick the Process & Clearly Define the Solution

When it comes to IA implementation, selecting the right set of processes to automate and problem to address is the key to success. To do this, a thorough assessment of all operations across various departments is conducted so the appropriate processes can be identified as good candidates for automation. As most businesses operate in a complex and sensitive environment, conducting such an objective analysis can be a challenging task without expertise.

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"If I had one hour to save the world, I would spend fifty-five minutes defining the problem and only five minutes finding the solution."

- Albert Einstein

The answer lies in the development of a framework that aligns the primary intent of IA with the organization's strategic objectives. This framework examines both the potential risks and the expected value that can be derived from applying an IA solution. The following attributes can be considered and scored in a structured way to ascertain the suitability of a process for automation:

- The total volume of transactions that can be performed without human intervention.
- The amount of labour or resources required to execute repetitive tasks at regular intervals.
- The ability of the components and subcomponents of a process to be digitized.
- The capacity of a process to deliver an excellent customer experience without any manual errors.
- The possible constraints which might obstruct the harvesting of automation benefits.
- The capability of the rules that govern a process, to be mechanically defined and programmed.
- The sensitivity and relevance of a process in the overall organizational workflow.

Apart from the above attributes, other factors like probable impact, compliance requirements, cost-effectiveness, technical complexity, and data privacy might also come in handy for identifying the processes to yield the most significant rewards after a successful IA implementation.

2

Manage Stakeholder Expectations

Manage Stakeholder Expectations

A core component of implementing an Invisible Automation solution is all about managing stakeholder expectations and being very clear about the organizational impact. From top leadership to the grassroots level of team members, everyone should have visibility into the process, solution, and various operations that will be affected. Follow the four key steps below to properly manage stakeholder expectations to ensure your IA solution achieves success and necessary buy-in from all affected business units:

Establish Your Business Case: To begin, a compelling case must be built for the company's leadership to take notice. They must be informed about the need for automation, how essential it is for more productive business operations, and how it is likely to influence the return on investment (ROI).

Identify Your Stakeholders: Once this is done, the next step is to convince the employees that will be specifically engaged in these efforts. A lack of proper understanding on their part can lead to fear that the automation implementation might take their jobs away.

Communicate: The unease that accompanies the thought of automation is genuine and understandable, which is why it needs to be adequately addressed by having open and honest discussions to reassure team members.

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Provide Project Visibility: The devil to all projects is in the details. Plan out the details for this project and share it with all parties involved to ensure a smooth transition and positive adoption of the solution. Provide details such as project timeline, milestones, success metrics, and required resources to complete the implementation.

IA works as a process of filtering out redundancy and improving productivity versus eliminating jobs. Instead, it empowers the team to deal with operational challenges while facilitating the implementation of IA technologies. This also includes coordinating with departments like IT & HR to make sure that the incorporation and configuration of IA are integrated properly, and work as intended. As the employees and leadership get ready to embrace new technology and process changes, it is now time to focus on designing the solution.

"Technology, through automation and artificial intelligence, is definitely one of the most disruptive sources."
- Alain Dehaze, CEO, Adecco Group

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3

Design & Develop the Solution

"Innovation is taking two things that exist and putting them together in a new way."

- Tom Freston, Principal, Firefly3

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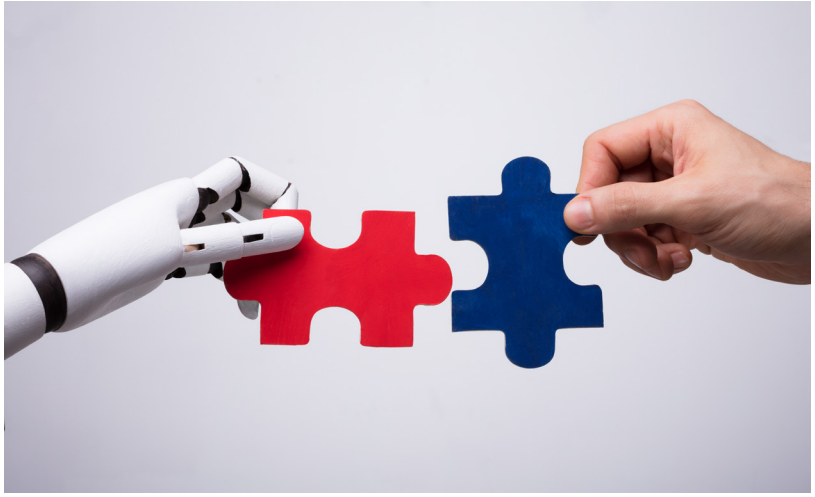
Design & Develop the Solution

Before completing the actual execution, it is imperative to devise a meticulous and structured implementation approach to define the contours of your overall strategy. These following core steps are key to achieving a successful Invisible Automation design and development phase.



Confirm & Communicate Business Requirements: At the initial stage, a team that has been tasked with the implementation of IA, would identify the requisites and provide guiding principles to help individual business units drive automation.

Solution Planning: The next step is to develop an appropriate solution. Carve out a comprehensive process map and mark the specific parts, which you plan to automate. Document this map, clarify the exact role that you expect RPA bots to play and program them accordingly. Throughout this time, ascertain that the various departments and personnel involved are operating in sync. Just as the programming is complete, run a few tests.

Solution Design: The infrastructure, software, and other systemic variations can sometimes lead to the cropping up of minor issues. Therefore, iterate the processes repeatedly and resolve any unexpected hindrances that might arise. After you have considered all the major scenarios, and crafted a fallback plan, get ready to run the pilot.

Test: While the pilot is in operation, the team randomly selects bot outputs for review of performance accuracy and operational validity.

Assess: Evaluate the results which have been obtained during this test run and use them to rectify glitches, if any. If the bots are working correctly, configure them to handle changes.

> ***"Innovation is the unrelenting drive to break the status quo and develop anew where few have dared to go."***
> - Steven Jeffes, Principal, Mahoney Performance Institute

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4

Measure & Improve the Solution

"Measurement is the first step that leads to control and eventually to improvement. If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it."

- H. James Harrington

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Measure & Improve the Solution

The last important step is to identify key performance indicators (KPIs) to measure the success of implementing IA. Although these metrics can vary from one organization to another based on the process, they generally tend to include:

- Measuring how the deployment of IA has affected the back-office processes
- Measuring productivity by comparing the time it takes IA to finish a task versus the completion rate when it was completed by a human prior.
- Calculating the accuracy of the output, which ideally, should have increased to a hundred percent
- Analyzing the accuracy in compliance reports produced by IA, i.e., the efficiency with which the bots are adhering to rules and regulations

A candid assessment would highlight any possible discrepancies and give you sufficient time to rectify them. After the completion of the incubation period, more such evaluations based on these yardsticks should be carried out, so that any gaps left in the successful IA implementation plan can be timely identified and corrected.

Key Advantages of an Invisible Automation Approach

Scalability: IA allows organizations to scale up operations and workload that can be implemented in a matter of hours versus months. Instead of the time and cost it takes to recruit, hire, and train a human worker to complete a task, an automated digital labor force can be deployed quickly at any capacity needed for minimal cost. This solution is especially helpful in times where there are labor gaps due to budget constraints (i.e. COVID-19) or increased transaction volume due to business operation changes or seasonal spikes (i.e. new product launch or holiday shopping).

Improved Compliance and Quality of Tasks: Once implemented properly and given accurate data to work from, an IA bot is 100% accurate and not prone to extraction or transcription errors. They are programmed in detail to follow business logic of target applications to provide a detailed and compliant audit trail.

Increased Innovative Ability: Invisible Automation enables organizations to have a digital workforce in their arsenal that allows more people to devote time and brainpower to critical, high-level strategies and goals. New products, services, and solutions can be developed at a quicker pace with the IA solution covering the menial and mundane tasks to free up the brightest minds in your workforce to do what they do best: innovate.

"Daring ideas are like chessmen moved forward; they may be beaten, but they may start a winning game."

- Johann Wolfgang von Goethe, German Writer & Statesman

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Analytics for Better Insights: Organizations gain improved data quality since manual error reduction leads to more reliable data for more in-depth analysis and reporting. An IA solution interacts with legacy systems to extract data that was a lot harder and more time-consuming to complete manually. Better data collection methods means more sophisticated automated reporting that frees up data intelligence teams to perform more intricate and valuable data analysis activities.

We believe the count of Digital workers will continue to increase and complement human counterparts to improve the human work condition by allowing us to handle more complex tasks. To remain competitive in a business ecosystem driven by a digital-first mentality, it is imperative for companies to begin exploring if an Invisible Automation solution can benefit specific processes and procedures within their organization.

From insurance, HR, banking, and the financial industries to the public sector, IA can be used to improve almost any repetitive, rule-based process. On the following pages, we've provided case studies of how we have applied this IA solution. Will IA be the digital transformation strategy that enables you to disrupt your industry? Connect with an Idexcel expert to let us guide you through your IA journey and discover what's possible.

"There's a way to do it better. Find it."
- Thomas Edison

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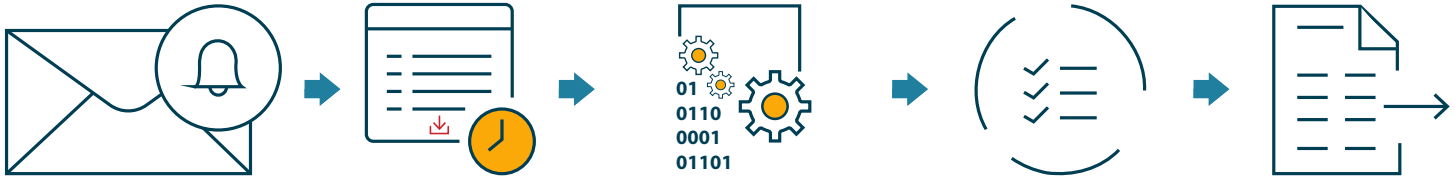
Case Study 1: Invoice Creation & Submission

Challenge: Generating invoices in business is a very common use-case that is applicable for several industries – the only difference being the commodity that is being invoiced. Our client provides staff augmentation services for one of its clients with nearly 65 resources deployed in several client locations. Generating invoices for these resources is a key task that involves several man-hours at the beginning of each month. RPA comes to rescue here to automate repeated and manual tasks required in this invoicing and billing cycle.

Before: The time sheet was manually downloaded from an email, invoices generated using a manual process, and final documentation was uploaded into the system manually.

Solution: The digital worker we built can send the email with timesheets, verify the approvals, extract the data from the timesheets, calculate the cost, and input the values into the proper documentation to submit invoices. Our bot automates the data input, error reconciliation, and can even process certain decision-making required throughout the invoice processing, minimizing the need for human intervention.



Email Employee Reminder → Download Timesheet → Extract Timesheet Details → Validate Timesheet Data → Create and Submit Invoices

Benefits: We were able to save greater than 4 working days for the team every month. Processing time was reduced by 65%, productivity increased by 70%, and efficiency was improved by 60%. Other key benefits of this solution are optimized standardization, significant process improvements, improved productivity, improved compliance, and process reliability.

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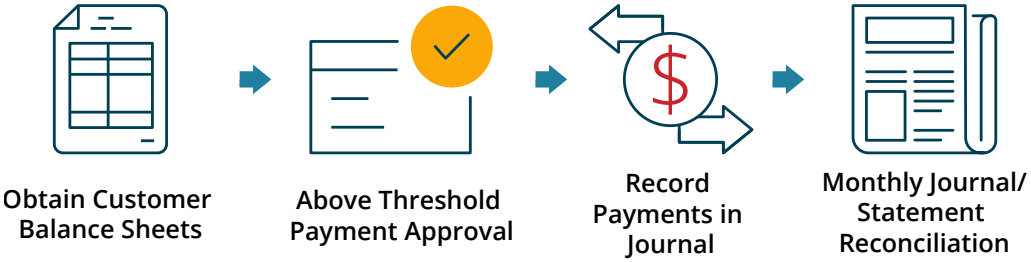
Case Study 2: AP & AR Reconciliation

Challenge: AP and AR management processes are a time-consuming, complex, and critical operation for an organization. There's a lot to keep track of in the workflow, including approvals, the payment itself, and journal entry reconciliation at the end of the month to maintain an accurate balance sheet. Because it is such a specific, detail-oriented, and structured process, AP and AR management consists of numerous repetitive and rule-based tasks. These tasks also demand consistency, accuracy, and adherence to timelines to maintain compliance standards, since they are primarily the subject of financial audits.

Before: Users had to download the balance sheet from email and then perform a matching task by visually observing the data in the ledger. For those transactions, where there is a match, a manual approval was required as a step in the process before publishing the final statement.

Solution: The RPA solution we architected enabled the setup of specific processes for different vendors and clients, establishment of credit and payment approval workflows, processing of payments and receipts, routing orders, and sending late payment notifications.



Benefits: Before AI was applied, the employee charged with this task was spending 40 hours a month of significant production time dedicated to this process and accuracy was compromised due to common manual errors. This automation reduced processing time by 70%, increased productivity by 65%, increased efficiency by 60%, reduced errors by 50%, and reduced overall turnaround time. This solution also helped increase the number of documents processed and introduced critical compliance-dependent procedures to ensure audit readiness and accuracy.

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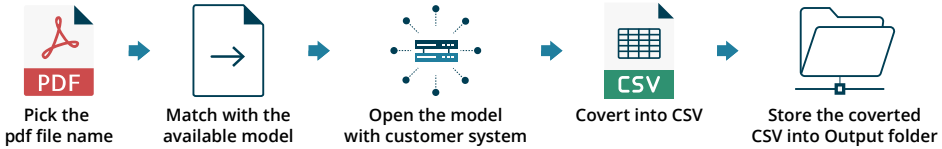
Case Study 3: Automator Tool

Challenge: Conversion of pdf or text documents into CSV format is a very common business operation across industries. Due to the nature of business operations and limited resources, the conversion of these documents was not occurring quick enough, causing a backlog that also caused downstream process delays. With a massive amount of these files and data to convert, the client needed a faster, more efficient, and less error-prone process implemented to increase productivity and keep up with business needs.

Before: The person handling these transactions needed to wait for the input file (pdf/text) to come in a specific folder, then pick that filename from the folder, and identify the available model for a specific file to complete the necessary format conversion. They would then convert the file into CSV, place the input file into separate folders, and delete the input file from the original folder. Since the prior tool provider imparted a new set of conditions in terms of the number of users, repeating the same process for each file takes huge manual effort for one person.

Solution: The RPA solution we built triggers the bot automatically when the file arrives in specific folder. It then picks the file name, identifies the required model, and opens the Automator tool to performs the manual clicks in it to complete the conversion from pdf into CSV. The automated bot then places the converted CSV into the output folder, moves the file into the processed folder, and deletes the processed file from the input folder. The whole process is handled by the automated bot, which minimizes the need for human intervention.



Benefits: The automation implemented reduced significant manual time spent on this task, freeing up the staff member to do higher-level work to increase overall productivity. This automation solution reduced processing time by 90%, increased in productivity by 85%, and increased efficiency by 90%. Overall turnaround time was reduced significantly, compliance improved, and process reliability increased.

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