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Process Automation Guide:

How to Achieve End-to-End Process Excellence

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What's wrong with automation today?

In 2020, Forrester Research called automation a “boardroom imperative.”¹ Since then, organizations have taken the mandate seriously and invested in automation technology. But due to flawed execution, organizations have unintentionally created new inefficiencies.

Many organizations invested piece by piece in various automation technologies. Driven by narrow scopes and overly tactical strategies, and hoping for a quick return on investment, many chose quick-fix solutions that only addressed their immediate needs.

As automation demand grew across the organization, they realized that their automation initiatives did not scale, and defaulted to the same path as before—satisfying the immediate need. Although these investments may have led to some initial efficiency gains, the disjointed nature between initiatives created a reliance on different vendors, misaligned governance during and after implementation, and solutions for narrowly scoped problems or needs.

Without a unified solution to orchestrate these individual aspects into one end-to-end process automation strategy, organizations create disconnected **islands of automation**. In turn, this disjointed approach creates more complex automation challenges across both employee and customer journeys, especially as organizations try to scale their automation initiatives to meet broader automation goals.

IT teams are dealing with the fallout:

- High maintenance costs and upgrade complexity.
- A lack of skilled resources for managing various automation vendors and tools.
- Complex integration needs between technologies.
- Overlapping tools and misaligned governance.

These challenges leave business leaders floundering with no way to create nimble and agile processes, which are must-haves if they want to meet rapidly rising customer expectations. Any organization that hasn't started its automation journey should be wary of these challenges when beginning.

Should organizations give up on automation altogether? No. Properly implemented automation creates the operational efficiencies and effectiveness that are key to staying competitive and driving innovation. McKinsey warns against lagging on automation:



[Intelligent process automation] promises to reduce complexity, replace manual processes, and improve both organizational performance and end-user experience. Companies that lag may soon find themselves in catch-up mode and at an increasing (and perhaps enduring) competitive disadvantage.²

To unlock automation's full potential, organizations need a cohesive strategy: **end-to-end process automation**.

1. [COVID-19 Has Made Automation A Boardroom Imperative](#), Forrester Research, May 13, 2020.

2. [Selecting the right platform for IT automation](#), McKinsey, February 14, 2019.



Why adopt end-to-end process automation?

End-to-end process automation is a strategic approach to automation.

It means your organization can design and orchestrate process automations that connect people, systems, bots, AI, business rules, and data—and scale these across the whole operation. In an end-to-end process automation program, core processes are ideally managed from beginning to end, including all of the steps and activities involved in achieving the desired outcome. This ensures that each process delivers its intended value, with complete control over how governance is defined and enforced.

End-to-end process automation helps you scale up automation initiatives while avoiding or solving the inefficiencies introduced by islands of automation. With an approach like

this, your organization has the visibility needed to ensure the right resources are applied to the right jobs. Clear governance defined across the organization helps you securely address operational changes when they're needed, making you more agile and nimble in response to market pressures.

Automation unleashes innovation by freeing your organization's human capital from repetitive work, enabling them to do what they do best. When you adopt an end-to-end process automation strategy, you'll finally derive automation's full advantage:

- Increasing the effectiveness of your business processes to drive value.
- Empowering operations to adjust to change, whether those changes are due to regulations, economic conditions, or supply chain issues.

3 keys to successful end-to-end process automation.

To execute your end-to-end process automation approach, keep these three guiding principles in mind.

1. Adopt a platform approach.

Even if you have multiple process automation technologies, if they don't work well together, you'll run into substantial challenges when developing end-to-end process automation initiatives. Using standalone systems for different automation tasks is part of what's led to such difficult management for IT teams and stunted growth for business leaders. A platform that unifies these technologies enables you to use the best-fit technology that works well with your data and enables automation-native operations.



To meet this demand for greater business value of hyperautomation, software engineering leaders should expand their focus on capabilities that can deliver automation of use cases ranging from routine to dynamic, from short tasks to long-running processes and from structured to completely unstructured data.³

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Use the best-fit automation technology.

When you take a platform approach, where a full range of process automation technologies seamlessly works together, you can choose the best-fit technology for the job every time. It's simple for you to bring in digital workers to participate in workflows alongside humans as needed. And with a platform,

you avoid the high maintenance costs, complex integrations, and need for skilled resources for managing each instance of automation technology.

Use data effectively.

Automation needs a solid data foundation to succeed, and a platform approach gives you that foundation while enabling you to easily access your data. Platforms should allow you to access enterprise data throughout the automation process regardless of where it lives, with well-defined structures, and properly enforced security.

Look for a platform that offers a data fabric.

While there are plenty of data management solutions out there (data lakes, data warehouses, data meshes, etc.), the strategy that offers the fastest and most effective interaction with data regardless of where it's located, is a **data fabric**.

Learn why a data fabric approach is faster:

[The Data Fabric Advantage: De-Silo Your Data for Rapid Innovation.](#)

Enable automation-native operations.

An automation-native operation means that the operation runs on an automation platform and employs an automation-first approach. To be automation native, your organization needs a platform that enables users to collaborate in any aspect of operations. With automation-native operations, automation experts, citizen and professional developers, and end users have a central place they can collaborate, aligned in a way that ensures automation needs are met and that user experience and business outcomes meet expectations.

3. Gartner® [Beyond RPA: Build Your Hyperautomation Technology Portfolio](#). Refreshed 13 September 2022, Published 22 October 2021. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission. All rights reserved.

Seek out platforms that operationalize AI.

While companies can over-promise on AI, finding an automation platform that actually breaks down or significantly reduces the barriers of AI adoption, and addresses real-world use cases, can serve you well. These AI-augmented tools can deliver even better results for streamlining your processes.



By 2026, enterprises that have adopted AI engineering to build and manage adaptive AI systems will outperform their peers in the number and time it takes to operationalize AI models by at least 25%.⁴

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2. Start small and iterate.

When you're ready to begin your end-to-end process automation journey, the road ahead may not be clear. Starting small with end-to-end process automation and then expanding can be a great way to test and refine your automation strategy without taking on too much risk.

Look for opportunities with well-defined and measurable outcomes, where you can achieve success quickly while still making an impact on the business. Then, use those successes to evangelize buy-in and broader use across the organization. Delivering successful automation results can spark interest in other areas of the organization, driving new automation projects and earning buy-in from leadership.

You might be wondering how this approach differs from using standalone automation systems to get quick automation wins. Here's the crucial difference: When you take a platform approach

to process automation, you have the technology you need for quick wins, **but you also have what you need to scale and grow your automation program across the organization later.**

Ultimately, you want to scale and grow your automation program to its full potential, and the capabilities you get in a platform will prepare you for both immediate success and that future growth.

3. Plan for future growth.

Vested interest from executive-level leadership is essential for successful end-to-end process automation initiatives that need to scale across an organization. Involving all stakeholders—including employees, customers, and partners—early on in the automation planning and implementation process helps ensure that the automation approach is aligned with the needs of the business and leads to better representation as it is evaluated by leadership. With a platform approach and early automation successes, you're well-positioned to gain this buy-in and bring your success to the next department or process.

Think through how you can use and scale automation in a well-governed manner in your department and across departments. One way to do so is to create an automation center of excellence (CoE). This internal business unit is typically dedicated to defining and enforcing the policies governing end-to-end automation initiatives. A CoE takes the lead on responsibilities like selecting process automation platforms, training employees, reviewing automations before they go live, and overseeing ongoing maintenance and optimization.

An automation CoE can help leadership build support for automation among employees by educating them about automation's benefits while ensuring teams follow development best practices. The CoE can also help coordinate automation projects across business units and identify and vet reusable components for future projects.

4. Top Strategic Technology Trends for 2023, Gartner®, 17 October 2022. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission. All rights reserved.

Critical capabilities needed for end-to-end process automation.

To be successful in your automation efforts, you need to apply the right tool to the right job. Here we'll cover four essential capabilities needed for an end-to-end process automation strategy:

- Orchestration.
- Business rules.
- System automation.
- Artificial intelligence.

Orchestration.

Often left out of an automation suite, orchestration is the critical framework for organizing processes from end to end. Process orchestration technology enables designers to lay out automation activities, structure the execution flow, incorporate humans with automations, and decide how activities will flow from one to another. The business is then able to capture a holistic view of process flow, identify areas of improvement, and easily understand total process journeys. An orchestration capability is crucial for connecting people, systems, bots, AI, business rules, and data in complete workflows.

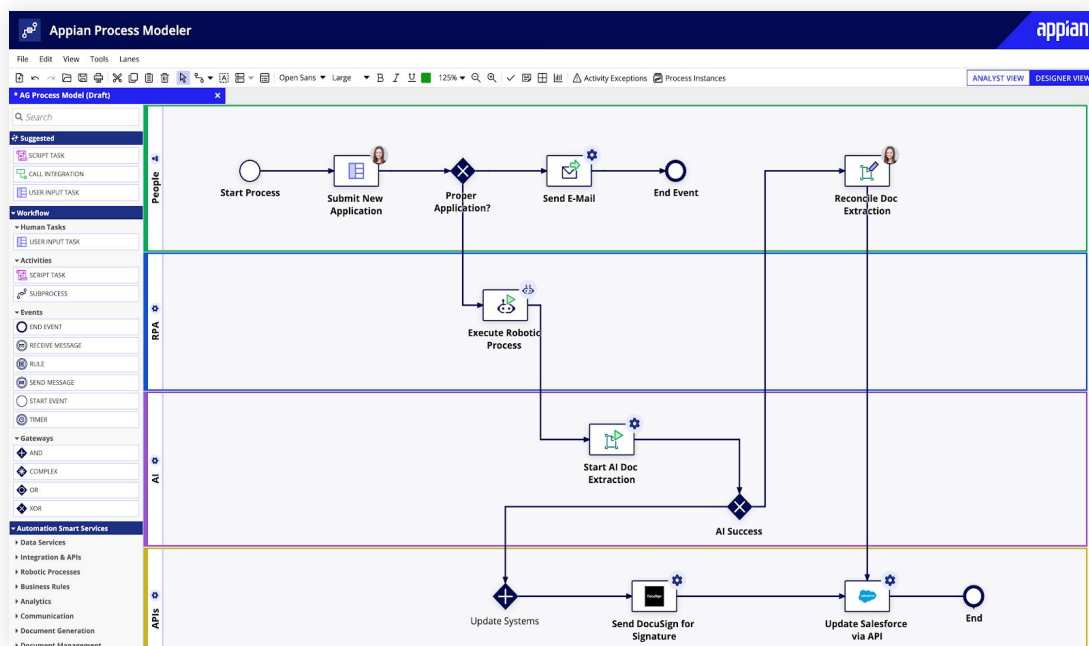
Select process orchestration technology that includes features

like scheduling, error handling, routing, expression evaluations, and data transformation. Importantly, include a full range of automation capabilities, like robotic process automation (RPA) and AI-based intelligent document processing (IDP).

When everything aligns toward a common goal of executing business processes efficiently, your operations will be more resilient, and you'll see a marked improvement in automation outcomes.

Make it easy for your business stakeholders

to collaborate with your IT team. Business users and IT need to speak a common language about their needs and process flows. This kind of collaboration is much easier with a low-code platform for process automation as the foundation, using a standard language like Business Process Modeling Notation (BPMN). Low-code BPMN interfaces help technical and non-technical users alike visualize exactly how the automation technologies will be used.



INS_RouteClaim

SAVE CHANGES

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U	riskScore Number (Decimal)	totalClaimValue Number (Decimal)	region Text	process Process Model	supervisor User				
1	<	0.33	<	25000	=	US	INS Process Low Risk Claim	Laura Davis	
2	<	0.33	<	25000	=	EMEA	INS Process Low Risk Claim	Michael Cooper	
3	<	0.33	<	25000	=	APJ	INS Process Low Risk Claim	Timothy Kim	
4	=	0.33	>=	25000	=	US	INS Process Medium Risk Cl...	Kenneth Lewis	
5	<	0.33	>=	25000	=	EMEA	INS Process Medium Risk Cl...	Mary Lawson	
6	<	0.33	>=	25000	=	APJ	INS Process Medium Risk Cl...	Timothy Kim	
7	from	0.33	0.66	<	75000	=	US	INS Process Medium Risk Cl...	Kenneth Lewis
8	from	0.33	0.66	<	75000	=	EMEA	INS Process Medium Risk Cl...	Mary Lawson
9	from	0.33	0.66	<	75000	=	APJ	INS Process Medium Risk Cl...	Timothy Kim
10	from	0.33	0.66	>=	75000	=	US	INS Process High Risk Claim	Marie Turner
11	from	0.33	0.66	>=	75000	=	EMEA	INS Process High Risk Claim	Mary King
12	from	0.33	0.66	>=	75000	=	APJ	INS Process High Risk Claim	Valerie Boyce
13	>	0.66	<	125000	=	US	INS Process High Risk Claim	Marie Turner	
14	>	0.66	<	125000	=	EMEA	INS Process High Risk Claim	Mary King	
15	>	0.66	<	125000	=	APJ	INS Process High Risk Claim	Valerie Boyce	
16	>	0.66	>=	125000	=	US	INS Process Critical Risk Cla...	Paul Rao	
17	>	0.66	>=	125000	=	EMEA	INS Process Critical Risk Cla...	Edward Phillips	
18	>	0.66	>=	125000	=	APJ	INS Process Critical Risk Cla...	Edward Phillips	
ELSE				INS Create Investigative Case	Gary Howard				

Test Inputs

riskScore

0.46

totalClaimValue

18500

region

EMEA

Set as default test values

TEST

Test Output

Decisions using the Unique hit policy cannot have rows with overlapping logic defined. Only a single row can match at a time.

Business rules.

Business rules instruct workflow technologies to carry out tasks or deliver information in a certain way, depending on conditions or criteria known as business logic. A business rules engine uses business logic in this format: "If X, then Y." This format establishes specific outputs based on specific inputs. Business rules are generally used within decision trees, tables, or other interfaces that require multiple inputs so that the output can take all the requested inputs into account.

Why are business rules an essential part of end-to-end process automation? Business rules govern other forms of automation. For example, rules can drive decisions like:

- Routing documents for processing.
- Calculating a total price.
- Determining how to best route a service request.
- Enforcing corporate policies.
- Ensuring proper formatting of data when captured.

An enterprise business rule framework enables the creation of business rules in a modular way for **maximum reusability** and **management of proper governance**. Organizations that embrace enterprise rules can **enforce the consistency** of logic and policies across the organization. One benefit of this is that you can ensure regulatory compliance. Another benefit is that you gain the agility to adapt business rules to changing market conditions and regulatory requirements.

In Appian, automation experts can use the no-code Appian Decision Designer to quickly create complex decision logic through a guided visual experience. For algorithmic rules, the Expression Designer creates quick calculations and data manipulations. All Appian rules are reusable artifacts that join a shared library of pre-built calculations to enhance any area of an application or process.

System automation.

When you're building an end-to-end process automation plan, you'll need a way to bring all your enterprise systems together. Typically, this is done via application programming interfaces (APIs).

APIs

APIs provide well-defined specifications for how systems can interact with each other. While it's the most efficient way of integrating systems into process orchestration, connecting APIs to process flows can be technical and complex. Automation platforms that provide a low or no-code approach for connecting API integrations can make it simpler to bring system automation into your processes and accelerate delivery time.

For example, the Appian Integration Designer provides an intuitive experience for easily connecting APIs into your processes. It offers pre-built, no-code connectors to hundreds of systems and leverages standard protocols like HTTP and specifications like OpenAPI to broaden the breadth of API integrations that can be supported.

While APIs provide the most efficient way to interact with systems, in some cases, these might not be available. Perhaps the system doesn't support it, or the interaction is based on a client application. For these scenarios, consider robotic process automation (RPA).

RPA

RPA uses software robots to emulate human-to-computer interactions and automate repetitive tasks across applications. RPA bots can do everything a person can, from making keystrokes, clicking, opening browser windows, logging into systems, copying and pasting content, and recognizing icons and images. Automation like this frees your employees from the manual, repetitive work that gets in the way of higher-value activities—like innovating new ways to provide an excellent customer experience.

RPA is best leveraged for these two primary use cases:

- **Connecting systems:** RPA can connect legacy systems that lack APIs.
- **Task automation:** RPA can automate repetitive human tasks performed on client applications, like copying data from one system to another or triggering an alert or notification.

Most RPA technology requires expertise and manual management. But [Appian RPA](#) makes this easy with a simple low-code design you can use to map the steps needed to automate. An [RPA recorder](#) captures actions a human performs and automatically designs robotic tasks with no coding or design input. Appian RPA then manages the assignment of those robotic tasks to a population of digital workers, making it easy for you to scale.

A word of caution about RPA: Although technologies like RPA are part of the automation picture, RPA alone won't scale to support an organization-wide automation strategy. Many automation initiatives have failed because they were based solely on RPA, stretching a single technology far beyond what it can do. For best results, focus RPA on handling user interface interactions and delegate specialized tasks to a better-suited technology.

Get insights on building your automation tech stack from [Gartner® Beyond RPA: Build Your Hyperautomation Technology Portfolio](#).

Artificial intelligence.

Artificial intelligence (AI) provides cognitive decision capabilities that augment and accelerate human decision-making and process routing. In the enterprise, AI has been effectively applied to process unstructured or semi-structured content, such as emails and documents. Given the many formats content can take, organizations can use AI to automatically read and understand the nature of content and accelerate process automation. This application of AI is commonly known as intelligent document processing (IDP).

IDP automates content classification and data extraction. Through applying AI-based IDP, your employees don't have to spend time reviewing and processing content. IDP uses AI to perform optical character recognition (OCR) that scans content, understands the nature of the content, and extracts meaningful information into structured data models.

Appian IDP uses modern AI technology to provide two major capabilities:

- **Content classification:** Appian IDP enables content to be ingested and classified by type to support automated routing in a workflow.
- **Content extraction:** Once content is classified, Appian native AI services extract data and store it in a structured data model.

As an organization classifies and extracts content, Appian IDP employs built-in retraining capabilities to support continuous learning. This means that when a classification or extraction is corrected, Appian IDP automatically retrains the AI services to improve accuracy and make the application smarter over time.


DOCUMENTS

TASKS

METRICS

CONFIGURE

ABOUT

Intelligent Document Processing 

Po Number

859709Q

Issue Date

05/12/2021

Line Items (Edit)

Item Number	Item Description	Quantity	Unit
FP 118465	Front Panel, Type C	2	EA
TE 450987	Turboencabulator, 15 MW	2	EA
MB 207556	Base Mounting Bracket	8	EA
PD 386112	Unilateral Phase Detractor	1	EA

Total

184270

Bill To

35511

Date Needed

05/15/2021

Customer

ACME Corporation

☒ Ela

☐ Existing Vendor

☐ Certified

Approved By

Lisa Williams

1 / 1


Unit	Qty	Item Description	Item Number	Unit Price	Total
EA	2	Front Panel, Type C	FP 118465	156	330
EA	2	Turboencabulator, 15 MW	TE 450987	85000	170000
EA	8	Base Mounting Bracket	MB 207556	52	416
EA	1	Unilateral Phase Detractor	PD 386112	12500	12500
EA	4	Hydrocoptic Marsel Vanes	MV 563218	256	1024

Total: 184270

Additional Options and Configuration

ELA? ☒ Certified? ☐ Existing Vendor? ☒

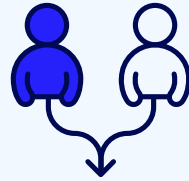
Revised: 07/01/19

Accounting Approval:  Date: 05/12/2021

See it in action: Automating an end-to-end process.

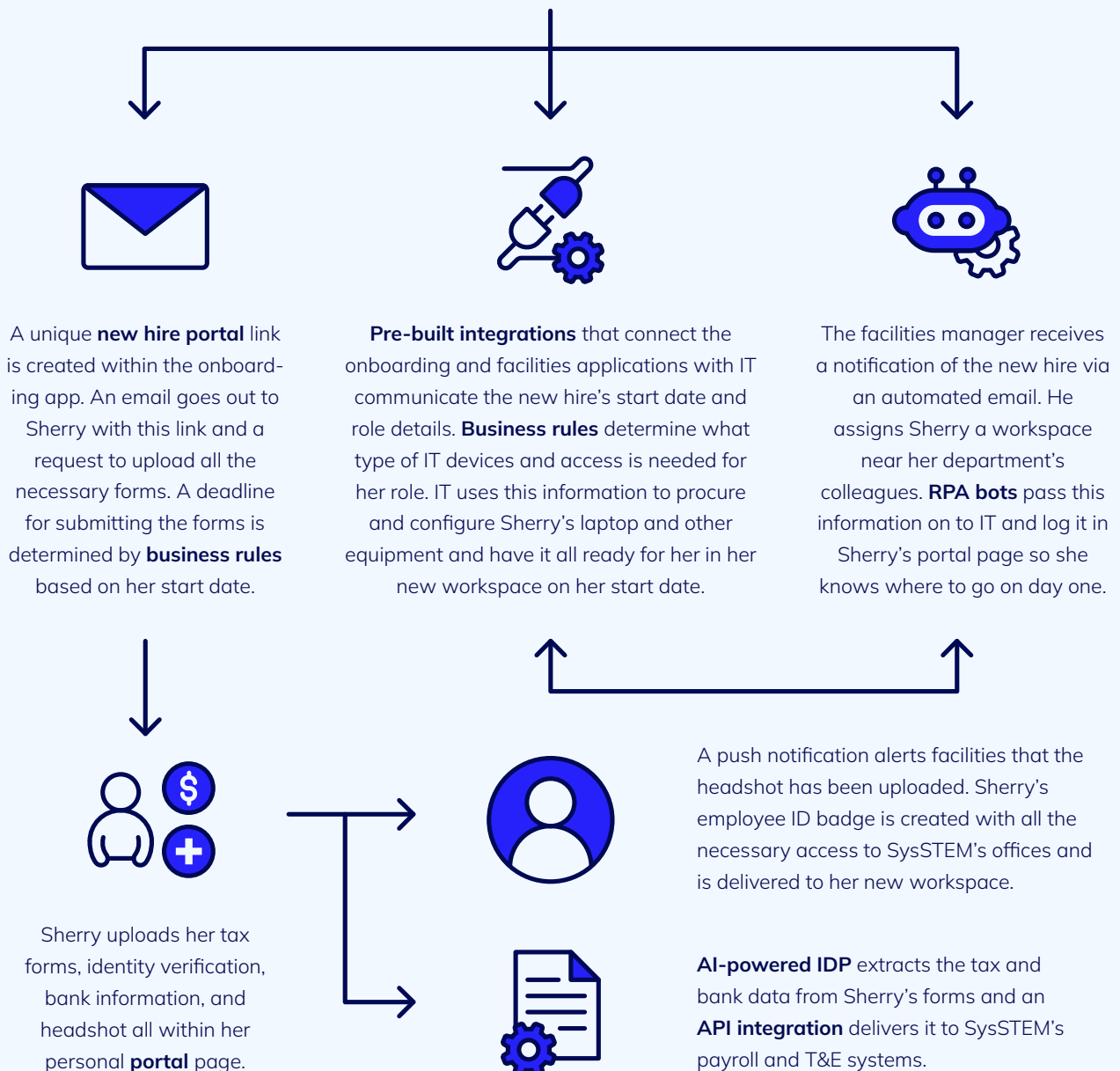
With the proper strategy, automation can create the operational efficiencies and effectiveness that are key to competition and innovation. See how this works in a simplified digital employee onboarding process:

Alex is an HR recruiter at SysSTEM. His company uses a **process automation platform** to create and manage digital workflows, including for new hire onboarding.



Alex has extended a job offer to Sherry for a position as a solution consultant. When Sherry officially accepts the offer, Alex enters her start date into the **new hire onboarding application**.

Setting the start date triggers a workflow, all orchestrated by IT in the platform:





Unlock the value of automation.

When end-to-end process automation is more important than ever, you need a partner who will help your initiative succeed. The Appian Platform for process automation is unified, enterprise-grade, and low-code—and it has everything you need to build and manage powerful processes from end to end.

Everest Group recognized Appian as a Leader in their Process Orchestration PEAK Matrix® Assessment 2023. Learn why we're a leader and what it means to align humans and digital workers in end-to-end process automations. [Get the report.](#)



Appian is a software company that automates business processes. The Appian Platform includes everything you need to design, automate, and optimize even the most complex processes, from start to finish. The world's most innovative organizations trust Appian to improve their workflows, unify data, and optimize operations—resulting in better growth and superior customer experiences. For more information, visit appian.com.
[Nasdaq: APPN]