



**THE
DEFINITIVE
GUIDE**

TO

**AGENTIC
ORCHESTRATION**

Unlock business
process transformation

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Introduction: What is the challenge?

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The pace of enterprise transformation is accelerating, driven by AI innovations that early adopters are already using to reshape how work gets done. These organizations are building on the foundation provided by automation while incorporating the latest AI to meet new market and customer demands. The momentum is undeniable, with [92% of Fortune 500 companies](#) having adopted generative AI (GenAI) in some capacity over the last few years.



Enter agentic automation.

This innovative new approach combines AI agents—AI-model-based entities able to plan, work, and make decisions autonomously—with robots and humans, working together to automate complex, unstructured, and dynamic enterprise processes end to end. **Agents think. Robots do. People lead.** This new paradigm is bringing enterprises closer to seamless, end-to-end automation within a secure, trustworthy, and governed framework.

However, despite the enthusiasm, many GenAI and agentic AI projects are stuck in pilot, with many ending up in the proof-of-concept graveyard. In fact, [80% report no material return on investment](#) from their GenAI investments.

Why are so many AI pilots stuck in limbo? Operational complexity is one of the main culprits, with large organizations [relying on over 175 applications to run their processes on average](#). Business leaders are rapidly adding AI agents to the mix but, due to a lack of integration, they aren't seeing truly transformative results. Enterprises are heading towards a future where they're running hundreds of AI agents across their operations, with incremental gains offset by growing complexity as well as agent and application sprawl.

It's clear that organizations need an orchestration layer for their systems, processes, and workflows. Only then can they achieve the full potential of agentic automation. With AI agents, robots, and people working in concert, coordination is critical. Imagine an orchestra composed of different instruments but with no conductor—they could each play perfectly and still fail to complete a full symphony.

Many vendors offer effective AI agents, automation, and other capabilities. Yet, finding the right solution to tie them all together to execute priority use cases is far more difficult. Enterprises require a way to intelligently manage and orchestrate all the components of agentic automation so they work harmoniously towards the same business goals.

Enterprises need agentic orchestration.

What is agentic orchestration?

Agentic orchestration is the nerve center of the enterprise—critical for scaling agentic automation across business processes and operations.

Agentic orchestration meticulously coordinates processes involving AI agents, robots, and people, unifying all elements within an automation ecosystem. These are often complex, dynamic processes that demand decision-making, the ability to adapt on the fly, and a deep understanding of the business context. These processes were previously difficult to automate or streamline, placing a heavy load on employees. Now, they can be automated end to end almost entirely through agentic automation and orchestration.

Agentic orchestration functions as the conductor of end-to-end business processes. It avoids bottlenecks, ensures tasks are executed with maximum efficiency, and creates highly responsive, dynamic agentic automations.

Agentic orchestration ensures that AI agents, robots, and people collaborate seamlessly. Understanding the innate strengths of each component, it intelligently assigns work to capitalize on and enhance their impact:

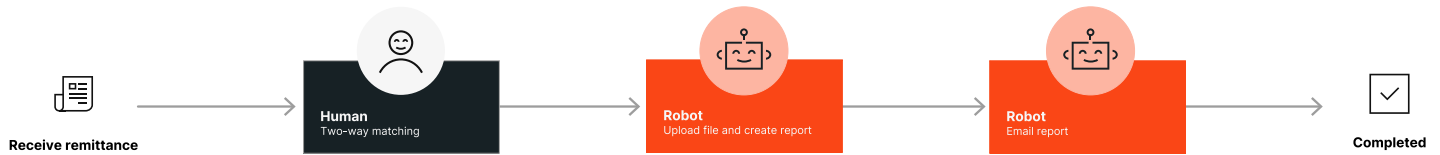
- **AI agents** handle complex, knowledge-based tasks that demand judgment, learning, or adaptation. These agents can interpret data, recognize patterns, and adjust to new conditions in ways that automation robots cannot, making them crucial for handling tasks that go beyond simple rules.
- **Robots** describe a broad range of software entities—including user interface (UI) automation, application programming interfaces (APIs), and AI-enabled robots active in tools like intelligent document processing (IDP). Robots can take deterministic actions and are usually entrusted with rule-based, repetitive tasks that require speed and precision. These are tasks like data entry or system updates, which robots execute reliably and at scale. By offloading such routine work to robots, agentic orchestration ensures these tasks are performed quickly and error-free.
- **People** are looped in for high-level oversight, approvals, and exception management as required. Agentic orchestration understands when a task falls beyond the scope of straight-through processing and routes these critical or ambiguous tasks to people—leveraging human judgment where it's most valuable.



To understand how these components work together, let's see how agentic orchestration transforms a common but critical business process.

Remittance process

Before agentic orchestration

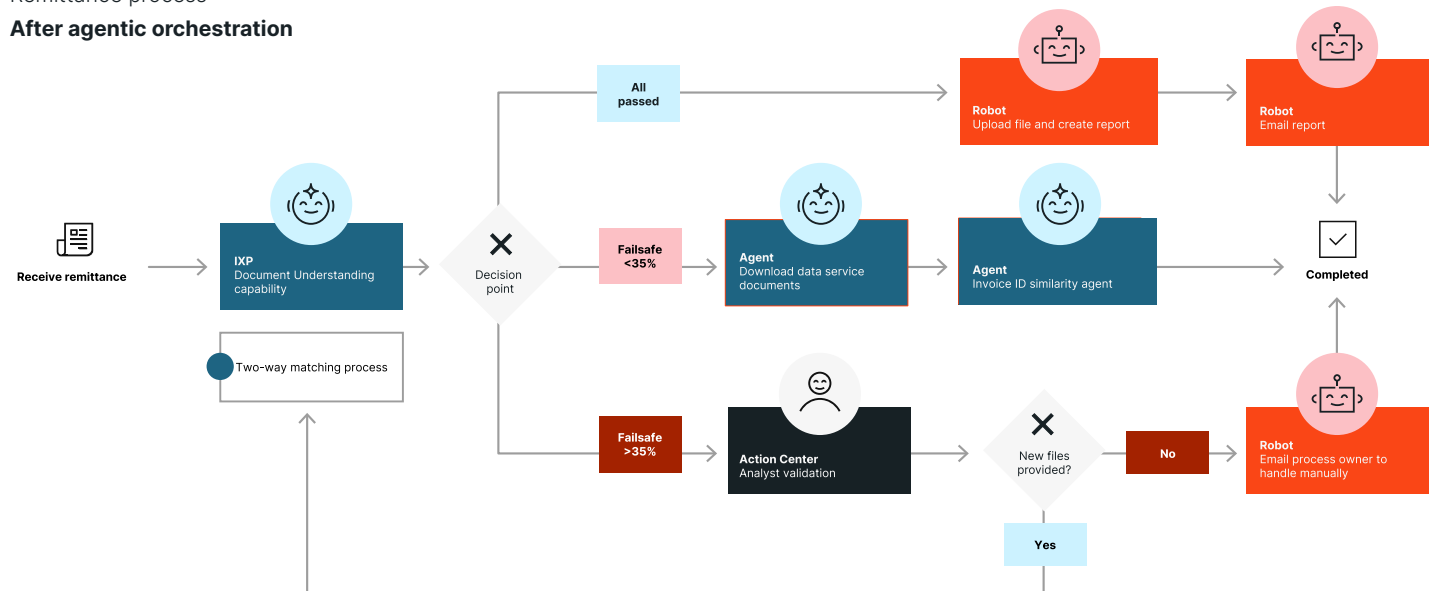


The standard remittance process is highly manual, depending on employees to handle the two-way matching of purchase orders and invoices. Not only does this raise operational overhead, but manual matching increases the likelihood of misapplied payments, reconciliation mistakes, and downstream financial inaccuracies.

Now, this is what happens when we add AI agents and other tools to the mix, using agentic orchestration to coordinate all process components:

Remittance process

After agentic orchestration



Agentic orchestration seamlessly assigns and hands off work to the best capability, tool, or person for the job. Matching is now handled by an intelligent document processing capability like UiPath IXP. Robots execute straightforward tasks with high confidence, while AI agents are called to process cases with more nuance and uncertainty. Rather than being the linchpin of the entire process, the employee's primary role is as a validator for the most complex and uncertain edge cases. In this way, agentic orchestration has created a more dynamic, efficient, and flexible remittance process that reduces employee workload while accelerating processing times.

More than just enabling process efficiency, agentic orchestration optimizes critical processes and aligns them to business goals and outcomes. It aligns business operations with strategic intent, amplifying the quality of output and ensuring consistent goal-directed results. This is achieved through end-to-end transparency and centralized control, providing businesses with unprecedented agility, adaptability, and scalability.

What is the value of agentic orchestration?

Agentic orchestration enables the modeling, implementation, operation, monitoring, and optimization of complex business processes from start to finish. It gives enterprises the ability to orchestrate robots, agents, and people across end-to-end processes that span multiple systems, technologies, and touchpoints.

By maintaining visibility and control over end-to-end processes, organizations can ensure that every automated action contributes to their broader goals.

- **Accelerate agentic AI adoption:** Embed game-changing AI agents into your processes with control, and scale them across your enterprise. Easily model, orchestrate, and optimize agentic processes involving agents, robots, and people.
- **Maximize efficiency:** Transform your automation programs, turning them from scattered tasks into seamless end-to-end processes that generate real value and impact. Integrate these disparate automated tasks into cohesive long-running workflows with humans in the loop for consistent, reliable agentic automation.
- **Improve process outcomes:** Enhance process delivery by simplifying how processes execute and how they are managed end-to-end. Real-time analytics and AI-driven insights enable quick identification of bottlenecks and optimization opportunities.
- **Faster implementation:** Significantly reduce the time required to implement complex, cross-system automations. By providing a comprehensive framework for modeling, implementing, and optimizing end-to-end processes, it eliminates many of the traditional bottlenecks associated with automation projects.
- **Flexibility and maintainability:** Make processes more adaptable to evolving business needs and technological advancements. This allows organizations to incrementally adjust, easily modify processes, track changes, scale operations, and empower business users to make adjustments without deep technical expertise.



Agentic orchestration use cases

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Vertical use cases

| | AGENTS THINK | ROBOTS DO | PEOPLE LEAD |
|---|---|---|---|
| FINANCE & PROCUREMENT | | | |
| Procure-to-Pay, Accounts Payable, Know Your Customer (KYC) & Customer Due Diligence | AI agents analyze invoices, detect compliance risks, and flag anomalies. | Robots enter invoice data, reconcile accounts, and handle routine approvals. | Finance managers and compliance teams provide strategic oversight, making final judgment calls on exceptions. |
| INSURANCE & HEALTHCARE | | | |
| Claims Processing, Pre-Authorization, Multilingual Claims Validation | AI agents interpret claim data or medical records, recommend next steps, and highlight potential fraud. | Robots route documents, populate claim forms, and trigger standard approvals. | Adjusters and healthcare professionals review recommendations, ensuring ethical and policy-driven outcomes. |
| MANUFACTURING & SUPPLY CHAIN | | | |
| Product Lifecycle Management, Predictive Maintenance, Production Line Monitoring Procurement Optimization | AI agents forecast demand, spot machine performance issues, and suggest supply chain adjustments. | Robots update orders, track shipments, and schedule production tasks. | Supply chain managers evaluate the AI's insights and guide major operational decisions. |
| TELECOM & IT SERVICE | | | |
| Network Fault Detection & Resolution, Customer Support, IT System Provisioning | AI agents detect anomalies, predict capacity, and perform root-cause analysis. | Robots open tickets, provision new services, and handle repetitive back-office tasks. | IT teams oversee escalations, prioritize infrastructure investments, and ensure service-level agreements are met. |
| PUBLIC SECTOR & COMPLIANCE | | | |
| Document Processing & Services for Citizens, Regulatory Compliance Auditing, Integrated Government Services | AI agents interpret regulations, flag non-compliance, and classify documents. | Robots handle form intake, perform ID checks, and route cases for review. | Government officials validate complex policy decisions, ensuring fairness and transparency. |
| HR & WORKFORCE MANAGEMENT | | | |
| Employee Onboarding, Recruitment Screening, Performance Management, Resource Scheduling | AI agents scan resumes, predict workforce gaps, and recommend development plans. | Robots generate offer letters, schedule interviews, and update HR systems. | HR managers shape the final hiring decisions, drive employee engagement, and ensure a positive workforce culture. |

Who can agentic orchestration help?

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Agentic orchestration empowers a range of business leaders to address their most pressing challenges and maximize the benefits of agentic automation:

IT leaders

Manage a complex tech stack

CHALLENGE:

Enterprises use a host of different tools for automation, process modeling, and process intelligence, adding technological redundancy and inefficiency. Simplifying and consolidating this for the organization can be difficult.

SOLUTION:

Agentic orchestration consolidates automation, intelligent process insights, modeling, monitoring, and management—all in one place. The result is vendor consolidation and lower TCO, breaking down silos between functions and departments.

Mitigate risk from GenAI

CHALLENGE:

AI agents can make mistakes and inject a layer of unpredictability into business processes. How can IT leaders ensure AI agents are brought into critical processes in a secure and scalable way that doesn't bring unwanted risk to their organization?

SOLUTION:

Agentic orchestration helps IT leaders define business rules and guardrails with standard business process modeling and notation (BPMN) and decision model and notation (DMN) rules in agentic processes. An additional AI governance layer and unified admin ensures compliance with policies and allows full observability of agents. IT leaders have the tools to ensure governance and quality, while prioritizing ethical AI and compliance.

Enable data-driven technology decisions

CHALLENGE:

Improvement initiatives often face challenges due to the unstructured nature of business operations, making it challenging to incorporate data-driven insights effectively. IT leaders can also lack clear metrics to justify and gauge the success of their IT investments.

SOLUTION:

Agentic orchestration gives organizations the insight to ensure every action drives ROI and supports business goals. It enables IT-led AI and automation initiatives to be guided by data, not guesswork.

AI and automation leaders

Design secure agentic workflows

CHALLENGE:

AI and automation leaders recognize the benefits of adopting AI agents, but many are uncertain of how best to empower their teams, reimagine processes, and create frameworks for responsible AI deployment.

SOLUTION:

AI and automation leaders will be able to design agentic processes across systems with industry-standard BPMN. They can equip their teams with tools to deploy, operate, and monitor agents across their workflows.

Orchestrate a hybrid workforce

CHALLENGE:

AI agents can introduce risk and unpredictability into mission-critical processes. AI and automation leaders also have the added challenge of ensuring tasks are allocated to the right component for seamless execution.

SOLUTION:

Agentic orchestration enables AI and automation leaders to elevate the impact of agentic automation on business-critical processes and scale adoption within their organization. They have a clear framework to orchestrate multiple AI agents, robots, and people across well-defined processes, with clear guardrails that comply with company policies.

Measure and improve agent impact

CHALLENGE:

Given the complexity and unstructured nature of business processes, it can be difficult to infuse data to guide transformation programs. Furthermore, AI and automation leaders often struggle to measure the impact and prove the value of their initiatives.

SOLUTION:

Agentic orchestration allows for continuous monitoring and learning from real-time data to identify bottlenecks, surface opportunities, and proactively improve agents over time. This means AI and automation leaders can prove the ROI of agentic automation to both executives and process owners, turning performance into proof.

Line of business (LOB) and process owners

Manage the complete process lifecycle

CHALLENGE:

LOB and process leaders juggle many different tools to manage the end-to-end process lifecycle.

SOLUTION:

Agentic orchestration empowers LOB and process owners to model, implement, operate, automate, monitor, and optimize their long-running processes.

Improve hybrid workforce collaboration

CHALLENGE:

LOB and process owners are responsible for handling complex processes that incorporate a myriad of tools and cross numerous enterprise systems. However, it's not always clear how they can seamlessly move work between agents, robots, and people to execute these processes.

SOLUTION:

Agentic orchestration gives them the ability to infuse more agency into their processes. They can configure complex business rules and decision management to ensure processes are executed seamlessly across agents, robots, and people.

Continuously improve processes

CHALLENGE:

LOB and process owners have a top-down mandate to make processes more efficient and drive value for the organization. Yet, the prevalence of unstructured processes makes it difficult to gain a clear understanding of how processes are performed and how they contribute to overarching goals.

SOLUTION:

With agentic orchestration, they can leverage process intelligence for valuable insights into their processes and KPIs. This helps to uncover inefficiencies and drive continuous process improvement.

UiPath Maestro: The conductor of agents, robots, and people

Agentic automation cannot succeed without agentic orchestration. UiPath delivers both, enabling you to automate your most complex, critical processes and orchestrate them across systems, end-to-end.

UiPath Maestro is the agentic orchestration capability of the UiPath Platform. UiPath agentic orchestration can coordinate any and all AI agents (whether they are custom, UiPath-developed, or third party) with automation robots and people across the enterprise.

While many business systems offer in-app agents, the UiPath Platform is ideal for cross-system use cases thanks to its broad coverage of reliable integrations with most business systems. This foundation allows UiPath to capture the full observation and context of agentic workflows. UiPath Maestro enables both compliant execution and autonomous decision making, delivering trusted AI agents that are governed and observable through the dedicated UiPath AI Trust Layer.

UiPath Maestro differentiators:

1.

CONTROLLED AGENCY: Seamlessly design end-to-end workflows that include agents, robots, and people.

- **BPMN 2.0:** The ability to model processes with BPMN ensures the right guardrails are in place for agents operating within a broader process.
- **Human-in-the-loop escalation:** Agents are balanced with deterministic automation and human intervention. Agents can escalate to people directly or as part of the BPMN model, ensuring the right level of control and flexibility.

2.

VENDOR-AGNOSTIC: Integrate any agent or automation into processes and orchestrate across multiple systems.

- **Works with any agent and automation:** Integrate agentic and automated tasks into workflows—whether they're built with UiPath or other vendors.
- **Cross-system workflows:** Orchestrate end-to-end processes that traverse multiple systems, ensuring flexibility and interoperability.

“UiPath Maestro is the orchestration layer that connects everything - robots, AI agents, and systems inside and outside UiPath – ensuring seamless coordination across several complex automated processes. By extracting business rules from these automations and orchestrating them with AI agents and people, we can create simpler, more stable and effective automated processes”

Brian Lucas
Sr. Manager of Automation, Abercrombie & Fitch



Abercrombie & Fitch

3.

PROCESS ACTIONABILITY: Unparalleled process control through actively overseeing and managing process instances as they move through different stages of the process.

- **Process instance management:** Oversee and track specific instances as they progress, ensuring tasks are completed correctly.
- **Process actions:** Use actions to intervene and control processes, including rewind, replay, pause, resume, edit variables, cancel, go to step, and migrate to new version.
- **Configurable process KPIs and dashboards:** Essential information about orchestrated processes in one place, including the total number of processes, in progress and completed processes, incidents and filtering capabilities.

4.

HOLISTIC PROCESS DISCOVERY: UiPath combines both top-down (processes and systems) and bottom-up (tasks and communications) approaches. This enables a real-time, comprehensive representation of end-to-end processes.

- **Real-time intelligence:** Process operations teams and admins can monitor live instances of running processes, view execution heatmaps, debug instance failures and exceptions, and mitigate issues. They can also fix variables, pause, skip, rewind, or restart process instances as needed.
- **Continuous improvement:** Monitor and learn from real-time process data to identify bottlenecks, opportunities, and proactively improve agentic processes over time.

“We’re exploring UiPath Maestro for one of our Request-To-Quote workflows. Maestro enhances process visibility, allows for integration of AI agents for complex tasks, and provides orchestration for effective workflow management and control. We find the BPMN modeling functionalities particularly useful for our process design.”

Anssi Talarino
Head of Intelligent Business Process Automation, Elisa



5.

CONTINUOUS OPTIMIZATION

Full observability of processes across systems, agents, people, and automations to drive process improvements.

- **AI-powered process intelligence:** UiPath offers comprehensive visibility into work performed by people, robots, and agents, both within and outside systems. Use capabilities to simulate processes, uncover bottlenecks, root-causes and inefficiencies.
- **Model-driven process improvements:** Start by creating a BPMN model of your process or begin discovering end-to-end processes and identifying optimization opportunities.

6.

BEST-IN-CLASS ENTERPRISE TOOLS

The UiPath Platform provides better AI integration and easier access to best-in-class automation and enterprise tools to support the discovery of unstructured processes.

- **Best-in-class automation:** UiPath robots are trusted by over 10,000 leading enterprises worldwide to handle deterministic but mission-critical tasks.
- **UiPath IXP:** Unlock all enterprise data with advanced intelligent document processing for all documents, communications, and a growing number of enterprise content types.
- **AI Trust Layer:** Deploy, monitor, and control the latest AI models with UiPath AI Trust Layer, a comprehensive management layer for AI governance and compliance.

“As we step into the agentic era, Cognizant is proud to partner with UiPath to shape the future of automation. UiPath Maestro is redefining what’s possible, bringing true end-to-end orchestration that goes beyond task automation to intelligent, agentic processes. We’re harnessing Maestro to integrate AI agents into critical workflows like incident management, help desk support, and industry specific workflows like fraud, claims, pharmacovigilance, unlocking transformative value for our clients.”

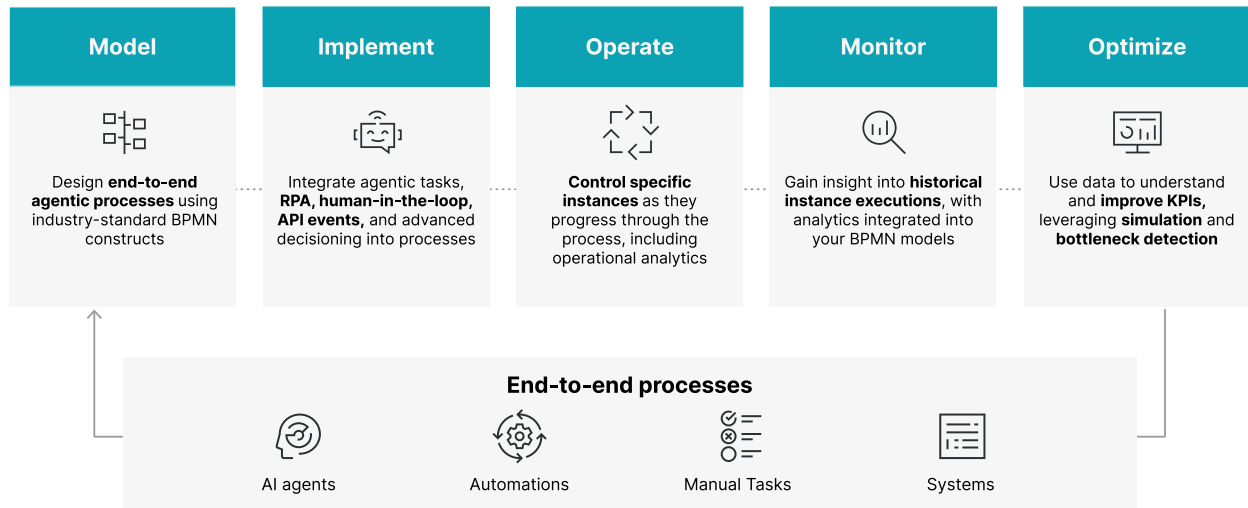
Chakradhar (Gooty) Agraharam
VP, Global Head, Intelligent Process Automation, Cognizant



How does agentic orchestration work?

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UiPath Maestro enables customers to orchestrate work between multi-platform AI agents, robots, and people. It supports the entire agentic process lifecycle:



The agentic orchestration layer

As enterprises embrace AI agents, they must navigate growing process complexity, integrate diverse automation tools, and maintain critical human oversight. Without an orchestrated approach, organizations risk fragmented automation efforts and limited visibility into AI-driven workflows.

Agentic orchestration is the key to unlocking the full potential of agentic automation. By providing centralized control, real-time monitoring, and seamless coordination between AI agents, robots, and people, agentic orchestration ensures that automation initiatives are scalable, efficient, and aligned with business objectives.

With UiPath Maestro, organizations gain a powerful agentic orchestration capability that enables controlled, vendor-agnostic, and continuously optimized processes. By integrating AI agents with enterprise processes in a governed and observable manner, UiPath Maestro empowers businesses to automate complex, mission-critical operations with consistency and confidence.

Get started with agentic orchestration:

[Try UiPath Maestro now](#)

[Learn more about UiPath Maestro](#)

[Talk with an expert](#)

Glossary of terms

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AI agents:

Agents are AI-model-based entities able to work independently and on behalf of people. They have AI skills, enabling them to communicate in natural language, plan the steps to accomplish a process, and coordinate with business tools like AI models, robots, and other agents for process-level outcomes. Agents are goal-oriented, using context to make probabilistic decisions, and are best for complex high adaptability tasks. Agents can choose and use various tools to accomplish tasks, gathering context and taking action (often through robots). They learn how work is done and continuously improve.

Agentic automation:

Agentic automation is an advanced strategy in intelligent enterprise automation that integrates traditional RPA, AI, and human decision-making capabilities, fostering an ecosystem where people, robots, and AI agents work synergistically to optimize operational processes, driving efficiency and productivity.

Agentic orchestration:

Agentic orchestration is the enabler of agentic automation, effectively managing and assigning tasks and responsibilities among people, robots, and AI agents depending on their capabilities. It acts as the conductor in an automated symphony, ensuring operations are smooth, efficient, and aligned with the business's strategic outcomes.

Robots:

Robots are rules-based software entities that perform predictable, deterministic actions, making them ideal for routine, repetitive tasks. In agentic automation, they serve as secure and efficient execution tools, acting under the direction of AI agents and people, where they play a key role in safely accessing sensitive data and ensuring compliance.