



Automation Design Concepts

Adv. Advisory | ACCTG 528 | Class 06
MPAcc Class of 2026

FOSTER
SCHOOL OF BUSINESS

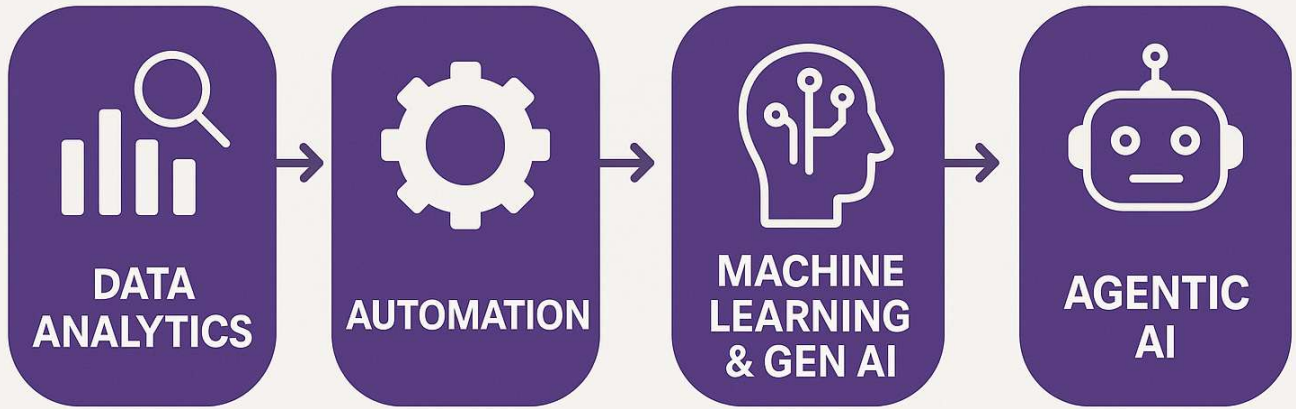
W UNIVERSITY of WASHINGTON

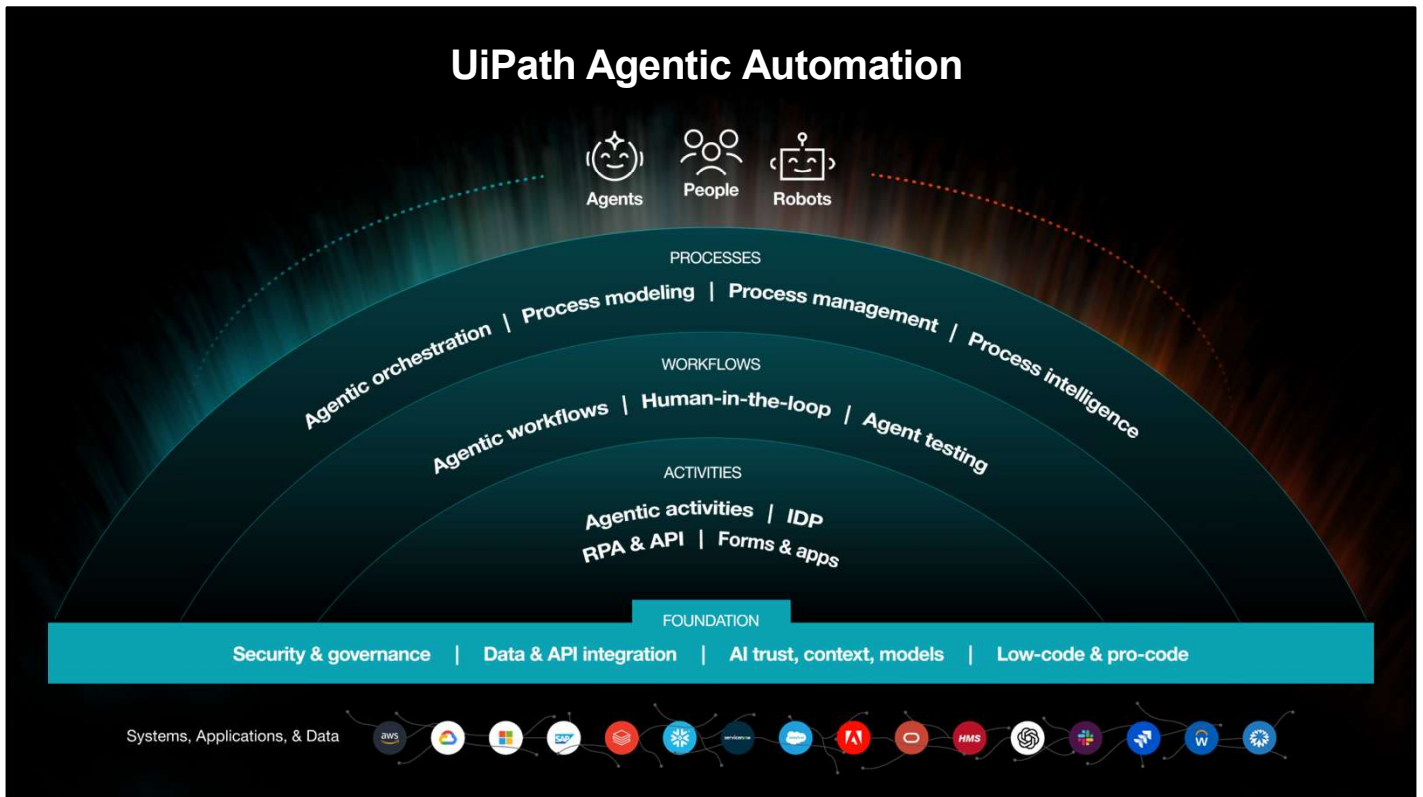
What will we do today?

- **Review**
 - (Initial) Review of Submissions
 - Admin: Teams
- RPA Models
 - The Automation Spectrum
 - Process Assessment
- Introducing Agentic Workflows
- Optional introduction to set-up requirements for an open source approach (time- & interest-permitting).



Course Diagram (high-level)





- Everything happens in one place: the UiPath Platform—where AI Agents aren't just assistants, they're true work partners, transforming complexity into a seamless, orchestrated operation.

- We break it down into three powerful layers: **Activities** (the building blocks—reading, processing, integrating), **Workflows** (connecting the dots with human-in-the-loop and testing), and **Processes** (the big picture—managing, optimizing, and enhancing enterprise operations).

- Agentic Orchestration / Maestro takes automation even further—coordinating UiPath Agents, third-party AI models, people, robots, and tools into a single, intelligent system.

- Your existing systems don't need to be reinvented—our platform integrates seamlessly with your data, applications, and workflows while maintaining enterprise-grade security, governance, and AI trust.

- We're not just compatible with your tech stack—we enhance it. From cloud providers like AWS, Google, and Azure to enterprise apps like Salesforce and SAP, we turn digital chaos into a symphony of efficiency.

UiPath versus open source (e.g., python)

- UiPath is a closed source software, typically used at the enterprise level
 - It offers community licenses to individuals/small businesses (currently they renew indefinitely)
 - Large overhead w/ orchestration can be overkill for some desktop apps.
 - Has good built in LLM connectors.

UiPath versus open source (e.g., python)

- Open source alternatives will largely have to be constructed from scratch (orchestration layer in particular).
 - For example, python can be used to replicate many of the desktop-level processes, but making the workflow in a logical order is not longer drag & drop.
 - Open source with locally installed LLMs (not using an API), has the data not leave the local environment:
 - Positives: privacy and control
 - Negatives:
 - Python upskilling costs
 - Hardware dependent (←likely our biggest hurdle)

What will we do today?

- **Review**
 - **(Initial) Review of Submissions**
 - **Admin: Teams**
- RPA Models
 - Automation Model Spectrum
- RPA to Agentic workflows discussion
- Optional introduction to set-up requirements for an open source approach (time- & interest-permitting).



Submissions – high-level

- Very wide dispersion of RPA workflows:
 - Extremes: From not started to nearly complete.
 - Majority:
 - Most intermediate cases appear stuck in moving data between RPA steps, or
 - Translating the workflow diagram into logical RPA steps
 - Edge cases: Might require more powerful tools (document understanding, more developed data manipulation frameworks).

Admin: Team formation

Goal: 10 teams of 4 individuals/team

- Balanced, but requires some shuffling of Fall Qtr Teams
 - Potential solution:
 - Refresh teams based on:
 - Existing working relationships
 - Topic alignment

What will we do today?

- Review
 - (Initial) Review of Submissions
 - Admin: Teams
- **RPA Models**
 - **Automation Model Spectrum**
- RPA to Agentic workflows discussion
- Optional introduction to set-up requirements for an open source approach (time- & interest-permitting).



Automation models

There are six automation models tailored to meet a broad spectrum of automation needs.



FOSTER SCHOOL OF BUSINESS, UNIVERSITY OF WASHINGTON

foster.uw.edu

Facilitator notes:

Explain what automation models are and list the different automation models. Also, briefly explain each model and emphasize its benefits to the participants.

Detailed notes:

Business procedures can differ greatly depending on the industry. Some are straightforward, going from A to B, while others involve multiple interactions between people and systems to move forward. In some cases, a process might need to repeat certain steps to achieve the intended result. Basically, these business processes take time, focus, and energy, as their characteristics and intricacies change from one industry to another.

There are six models tailored to meet a broad spectrum of automation needs, merging the best of user-friendly and business-focused strategies. The models are fully unattended; partially unattended; human in the loop; attended, interval; attended in tandem; and hybrid automation.

Model 1: Fully Unattended

Automation is a game-changer for handling massive amounts of data. Moving and processing data manually across various systems is time-consuming and error-prone. Fully Unattended robots are the perfect solution. They handle data processing without human intervention, ensuring efficiency and accuracy.

Tired of tedious and repetitive business processes? This automation model offers a solution! Start with human involvement and then hand off the rest to a Partially Unattended robot. This frees you to focus on high-value activities while ensuring the process is completed successfully with thorough documentation and notifications.

Next in the row is the human in the loop automation model. Certain process types requiring intermittent human intervention and complex decision-making can be challenging to automate with traditional tools. However, with this automation model, business rules are embedded into the process, allowing the robot to perform tasks and prompt for input only when necessary, simplifying your role.

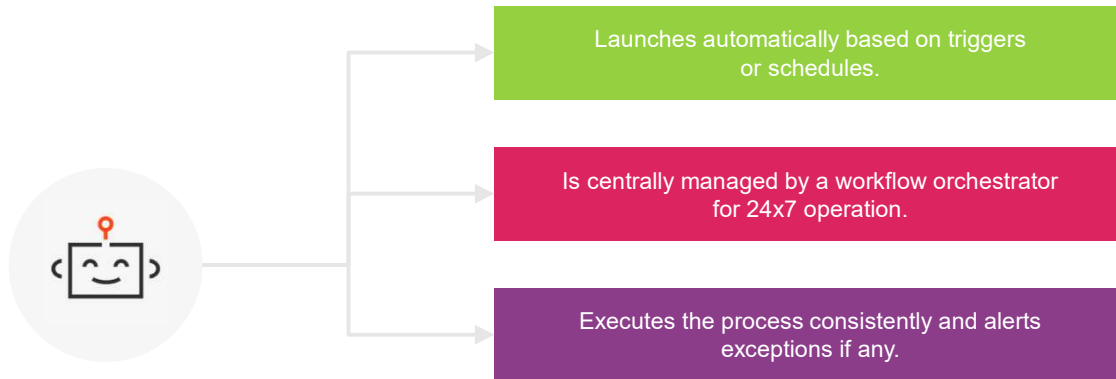
In the attended, interval automation model, the attended robot can launch on-demand, run processes from the robot tray, and mimic your actions precisely. The only drawback is that sometimes your machine is occupied during the robot's task. However, you can use the free time for offline tasks.

Then you have the attended in tandem automation model. In certain situations, it may not be practical or efficient for a robot to take control of your machine. Instead, consider the Attended in Tandem automation model. This approach allows the robot to work alongside you, providing valuable information while you focus on your primary tasks.

Last in the row is the hybrid automation model. Hybrid automation merges attended and unattended robots within a unified platform. Attended robots assist with customer-facing tasks, while unattended robots handle heavy back-end processing. It automates end-to-end business processes, providing flexibility and scalability.

1. Fully unattended: What it does

In this automation model, the unattended robot:



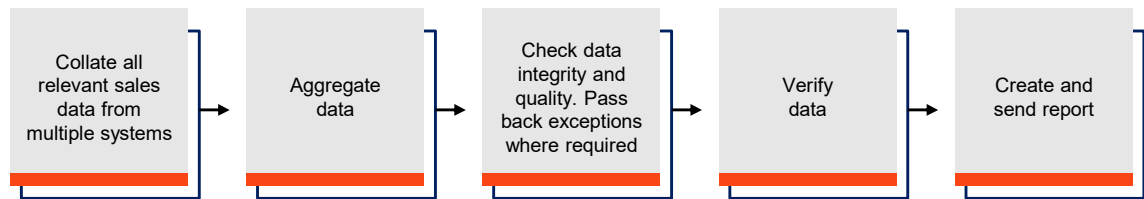
Facilitator notes:

Provide a brief explanation to the participants on how the fully unattended model operates.

Detailed notes:

The first is the fully unattended model. In this automation model, the unattended robot launches automatically based on triggers or schedules. These robots are centrally managed by a workflow orchestrator for 24x7 operation. It executes the same process consistently and alerts you only when exceptions occur. Also, you play a role in orchestrating the process initially and contributing as needed.

1. Fully unattended: A real-life scenario



Facilitator notes:

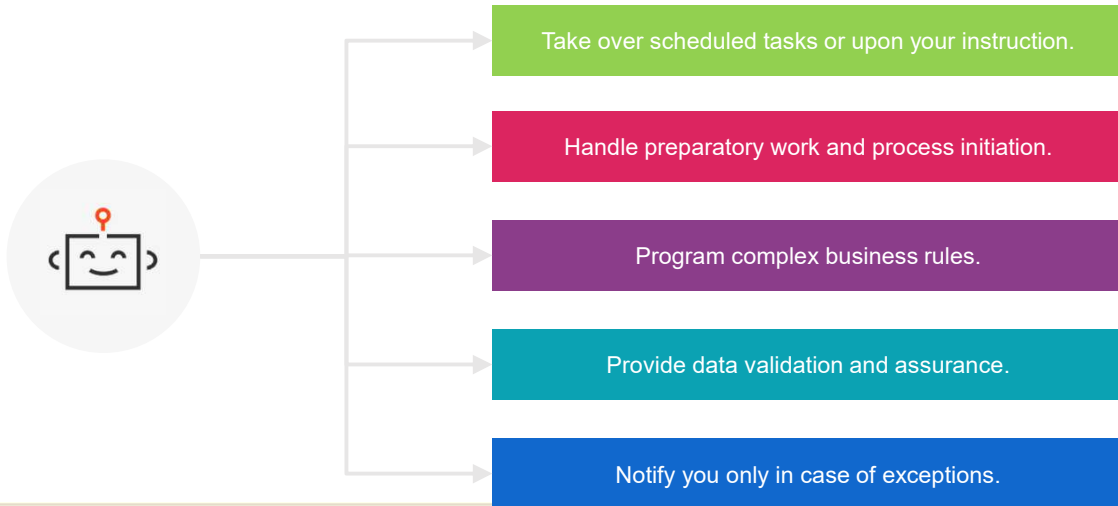
Present a real-life scenario to the participants. This is just a sample, and you may use any such examples depending on your participants.

Detailed notes:

Let's consider a real-life scenario. A global financial services company needs to collate sales figures from multiple systems, including ERP, CRM, and sales databases, every month. It's a labor-intensive task. Enter Fully Unattended automation! The unattended robot completes the entire process, improving accuracy and timeliness in generating the final report for senior management.

2. Partially unattended: What it does

In this automation model, the partially unattended robot can:



FOSTER SCHOOL OF BUSINESS, UNIVERSITY OF WASHINGTON

foster.uw.edu

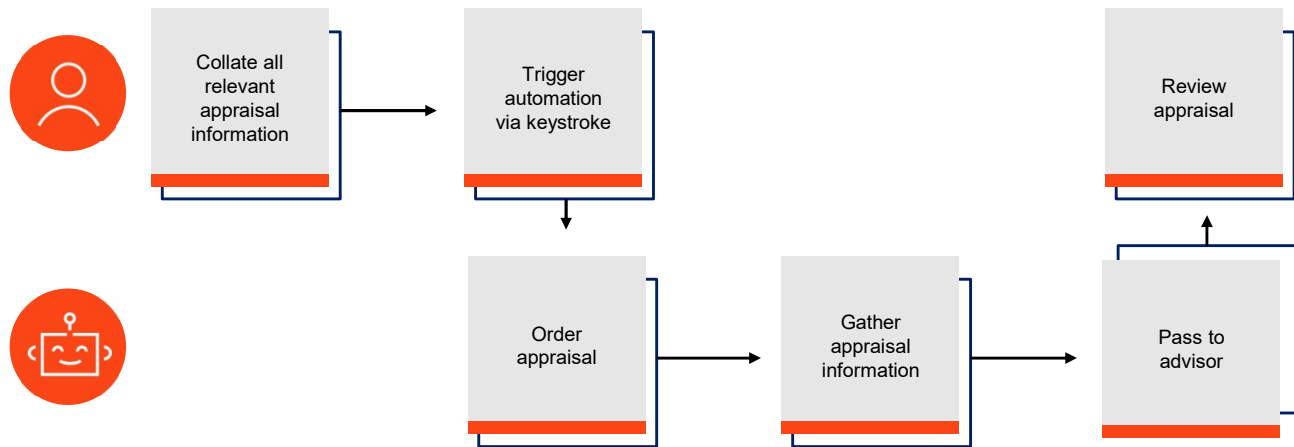
Facilitator notes:

Provide a brief explanation to the participants on how the partially unattended model operates.

Detailed notes:

In this automation model, the partially unattended robot can take over scheduled tasks or upon your instruction; handle preparatory work and process initiation; program complex business rules; provide data validation and assurance; and notify you only in case of exceptions.

2. Partially unattended: A real-life scenario



FOSTER SCHOOL OF BUSINESS, UNIVERSITY OF WASHINGTON

foster.uw.edu

Facilitator notes:

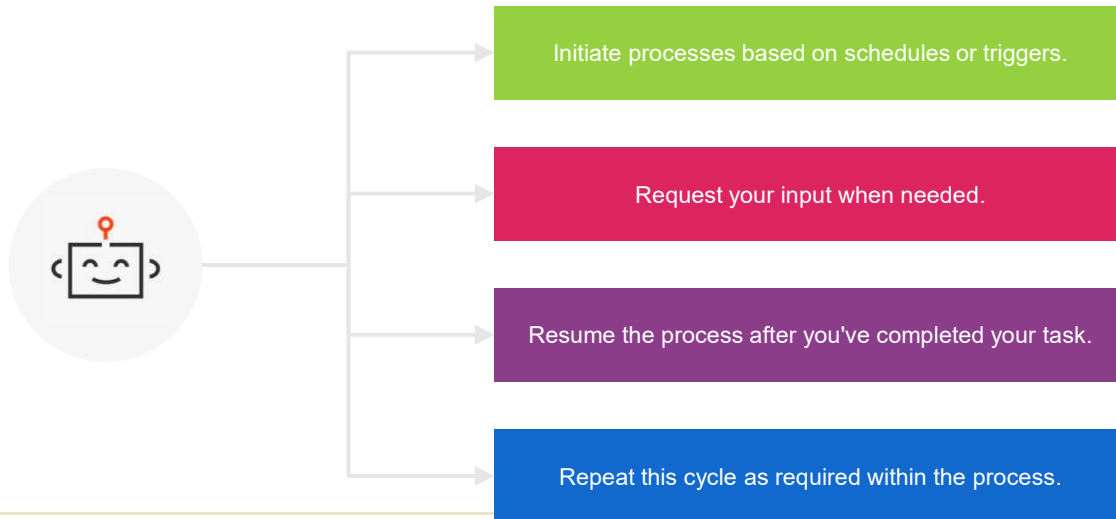
Present a real-life scenario to the participants. This is just a sample, and you may use any such examples depending on your participants.

Detailed notes:

Consider a real-life example, mortgage appraisals. Ordering them manually is time-consuming and prone to mistakes. However, with Partially Unattended automation, lenders initiate the process, and the robot takes over. Appraisal time is significantly reduced, leading to cost savings and fewer mortgage escalations.

3. Human in the loop: What it does

In this model, the unattended robot can:



FOSTER SCHOOL OF BUSINESS, UNIVERSITY OF WASHINGTON

foster.uw.edu

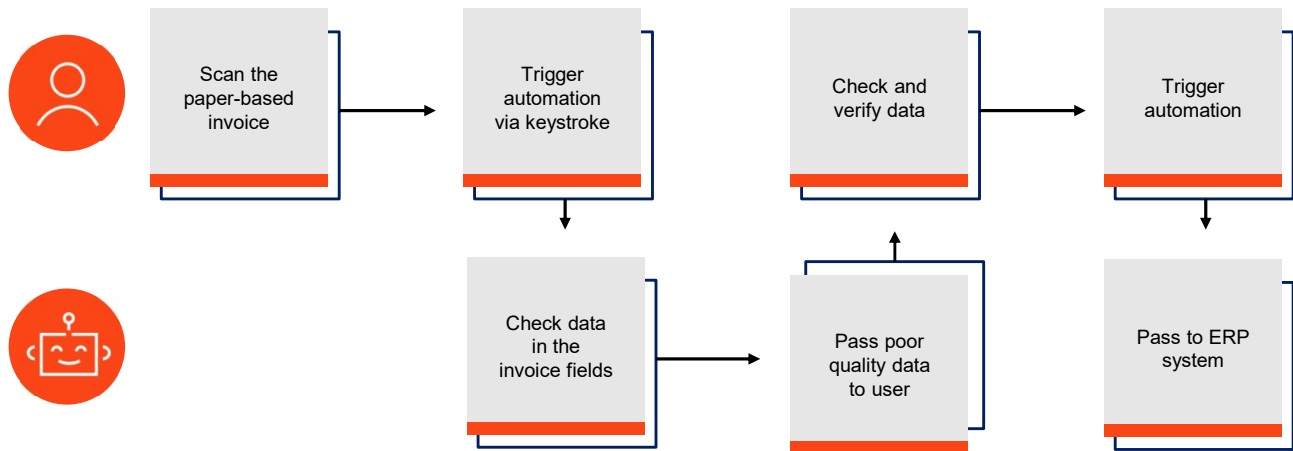
Facilitator notes:

Provide a brief explanation to the participants on how the human in the loop model operates.

Detailed notes:

The unattended robots are deployed in this model. These unattended robots can initiate processes based on schedules or triggers; request your input when needed; resume the process after you've completed your task; and repeat this cycle as required within the process.

3. Human in the loop: A real-life scenario



Facilitator notes:

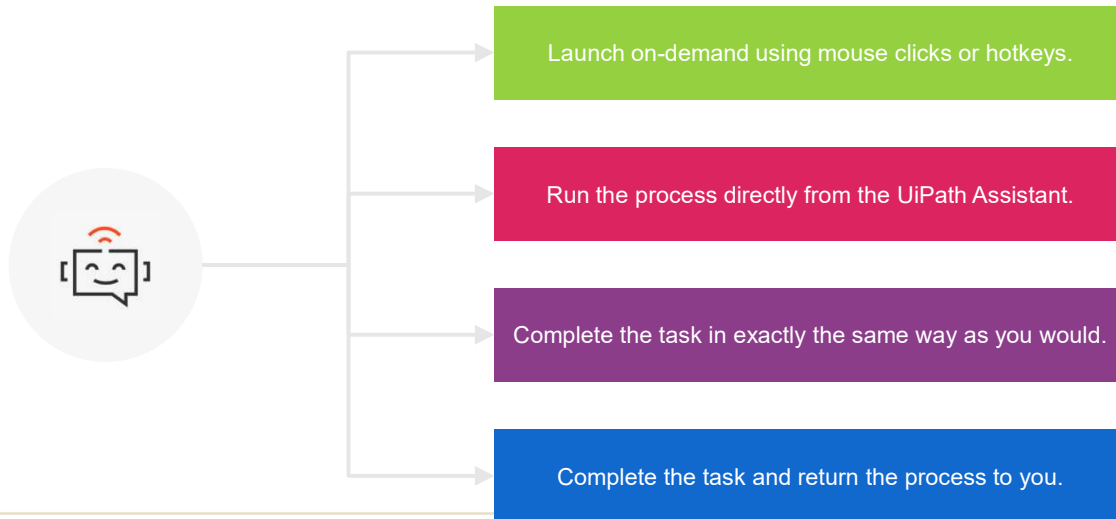
Present a real-life scenario to the participants. This is just a sample, and you may use any such examples depending on your participants.

Detailed notes:

Let's take for example an invoice processing use-case. In invoice processing, OCR technology is used to capture information from scanned invoices. However, if the data quality is low, automation alerts you to review and validate the information before entering it into the ERP system. By combining RPA with AI, the system learns from your validations, reducing the need for future intervention.

4. Attended, interval: What it does

In this model, the attended robot can:



FOSTER SCHOOL OF BUSINESS, UNIVERSITY OF WASHINGTON

foster.uw.edu

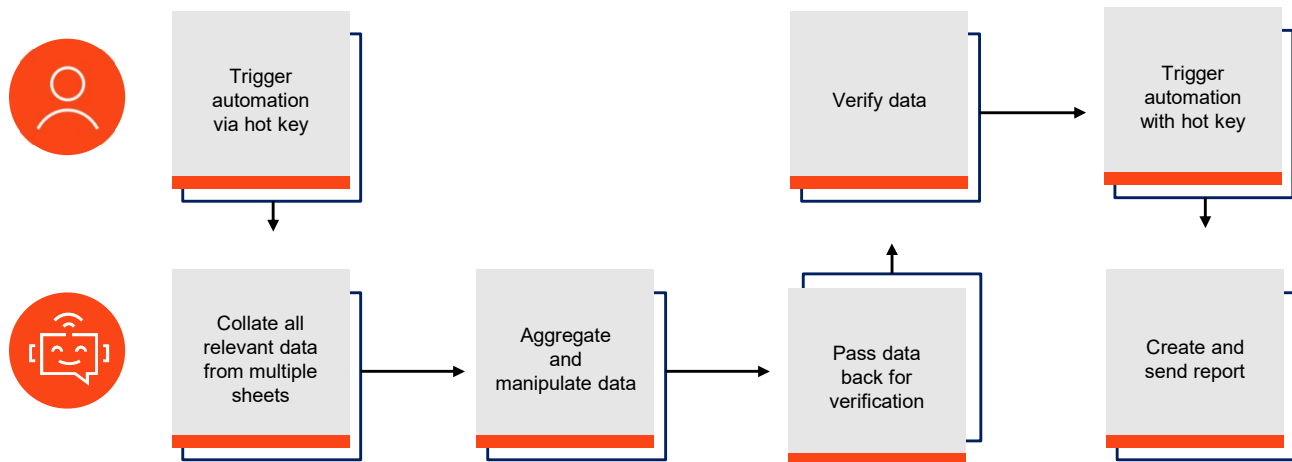
Facilitator notes:

Provide a brief explanation to the participants on how the attended, interval model operates.

Detailed notes:

The attended robots are deployed in this model. These attended robots can launch on-demand using mouse clicks or hotkeys; run the process directly from the UiPath Assistant; complete the task in the same way as you would; and complete the task and return the process to you.

4. Attended, interval: A real-life scenario



FOSTER SCHOOL OF BUSINESS, UNIVERSITY OF WASHINGTON

foster.uw.edu

Facilitator notes:

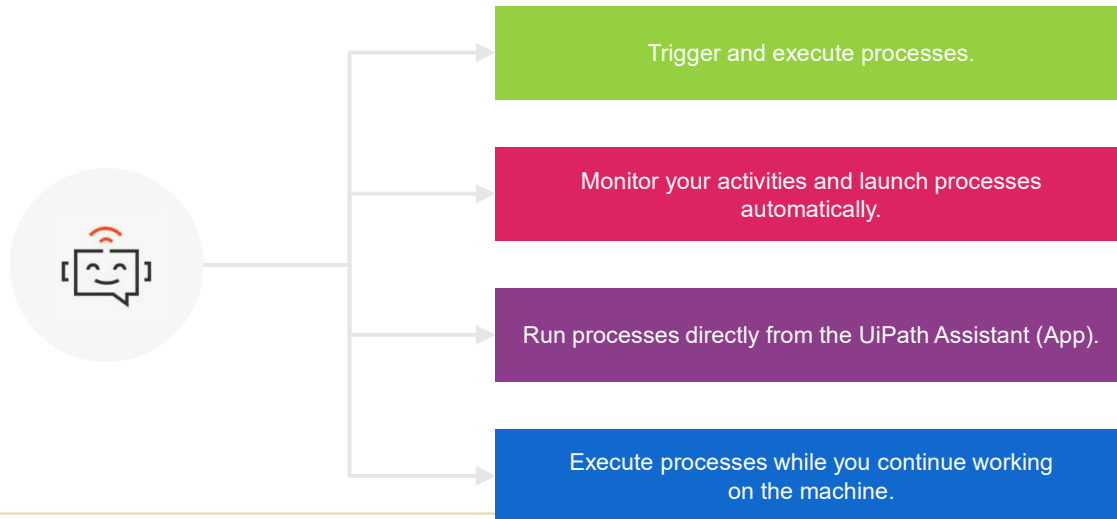
Present a real-life scenario to the participants. This is just a sample, and you may use any such examples depending on your participants.

Detailed notes:

Let's consider a real-life banking scenario. Debit cards at a bank may be declined for 81 reasons. Smooth customer experience relies on efficient call handling by our staff, explaining the reason. Previously, staff faced a cumbersome process of navigating screens, writing down, and calculating data to provide answers. Now, an attended robot swiftly performs these tasks, instantly presenting employees with a clear description of the declined card's reason.

5. Attended in tandem: What it does

In this model, your attended robot can:



FOSTER SCHOOL OF BUSINESS, UNIVERSITY OF WASHINGTON

foster.uw.edu

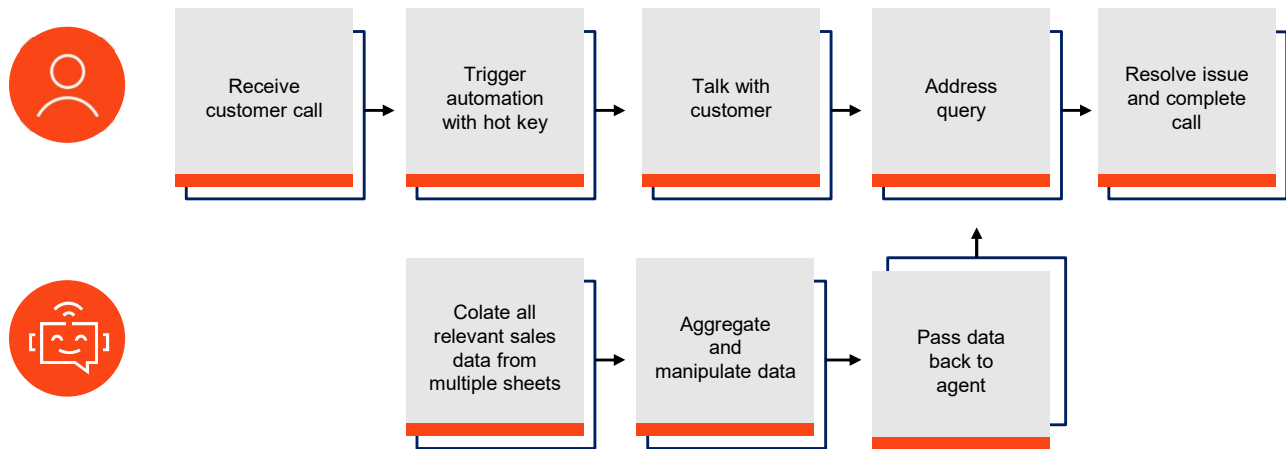
Facilitator notes:

Provide a brief explanation to the participants on how the attended in tandem model operates.

Detailed notes:

Here again, the attended robots are deployed. These attended robots can trigger and execute processes; monitor your activities and launch processes automatically; run processes directly from the UiPath Assistant (App); and execute processes while you continue working on the machine.

5. Attended in tandem: A real-life scenario



Facilitator notes:

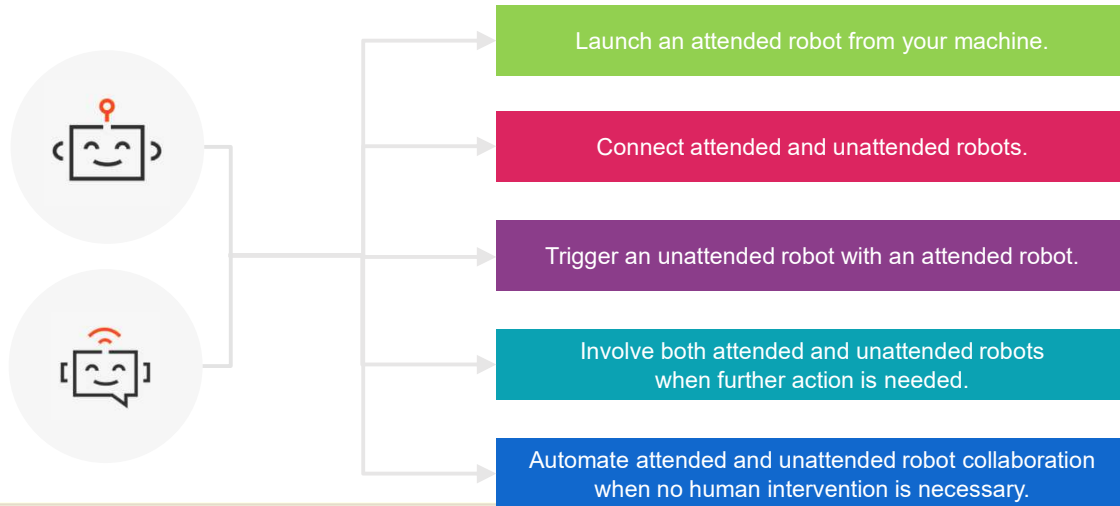
Present a real-life scenario to the participants. This is just a sample, and you may use any such examples depending on your participants.

Detailed notes:

In a customer service scenario, agents often face the challenge of navigating multiple systems during customer calls. This process can be time-consuming and prone to errors, leading to frustrations for both the agent and the customer. With Attended in Tandem automation, agents can seamlessly handle customer queries while the robot operates in the background. The robot accesses, compiles, and presents the necessary information, enabling agents to address customer needs more efficiently. This boosts productivity, reduces resolution times, and ultimately enhances customer satisfaction.

6. Hybrid automation: What it does

In the hybrid automation model, you can:



FOSTER SCHOOL OF BUSINESS, UNIVERSITY OF WASHINGTON

foster.uw.edu

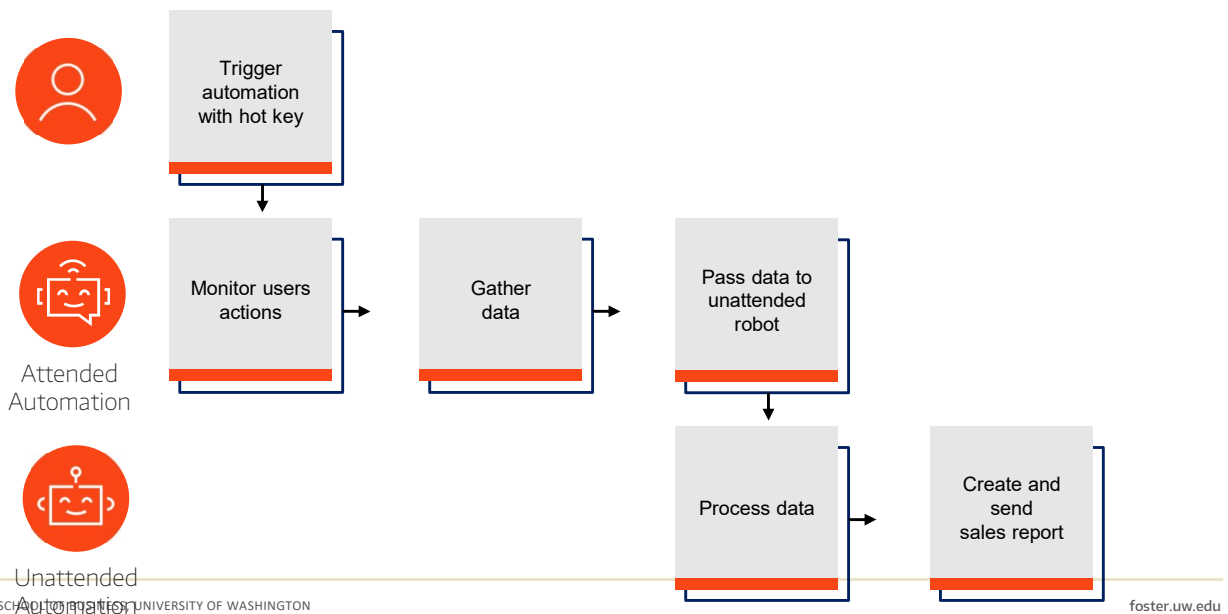
Facilitator notes:

Provide a brief explanation to the participants on how the hybrid automation model operates.

Detailed notes:

In the hybrid automation model, you can launch an attended robot from your machine; connect attended and unattended robots; trigger an unattended robot with an attended robot; involve both attended and unattended robots when further action is needed; and automate attended and unattended robot collaboration when no human intervention is necessary.

6. Hybrid automation: A real-life scenario



Facilitator notes:

Present a real-life scenario to the participants. This is just a sample, and you may use any such examples depending on your participants.

Detailed notes:

Let's take this example: Sales teams can leverage UiPath's Hybrid automation for improved productivity. Attended automation monitor activities, capturing relevant data. At regular intervals or in real-time, the attended robot transfers information to an unattended robot for further processing and sales report generation.

Reflection: What type of bot are you currently planning?

Model	Concept	Limitation
1	Fully unattended	No flexibility
2	Partially unattended	Limited exception handling
3	Human-in-the-loop	Bottlenecks
4	Attended interval	User dependency
5	Attended tandem	Cognitive load still on human
6	Hybrid	Coordination problem

Task: Process Assessment tool

Complete and submit the process assessment tool

Key Insight: The automation spectrum

Automation benefits is NOT just about *more* automation

It is about optimal/better allocation of:

- Human judgment
- Machine execution

Our next goal is to sort these roles out with agents allowing for a broader scope of machine execution.

What will we do today?

- Review
 - (Initial) Review of Submissions
 - Admin: Teams
- RPA Models
 - Automation Model Spectrum
- **RPA to Agentic workflows discussion**
- Optional introduction to set-up requirements for an open source approach (time- & interest-permitting).



Agentic Automation Goal

Move from task automation → decision automation

Focus:

- How workflows evolve
- Where RPA breaks
- How agents fit

Where RPA Breaks

Three typical failure points:

1. Ambiguity in the incoming data (often unstructured data)
2. Non-determinism (too many pathways/choices)
3. Context dependence (not flexible enough, bot needs more human guidance)

Agents vs Robots vs Humans

Robots: deterministic execution

Agents: goal-based reasoning (can handle some ambiguity)

Humans: governance (includes final decisions, fallbacks / escalations)

What is an Agent?

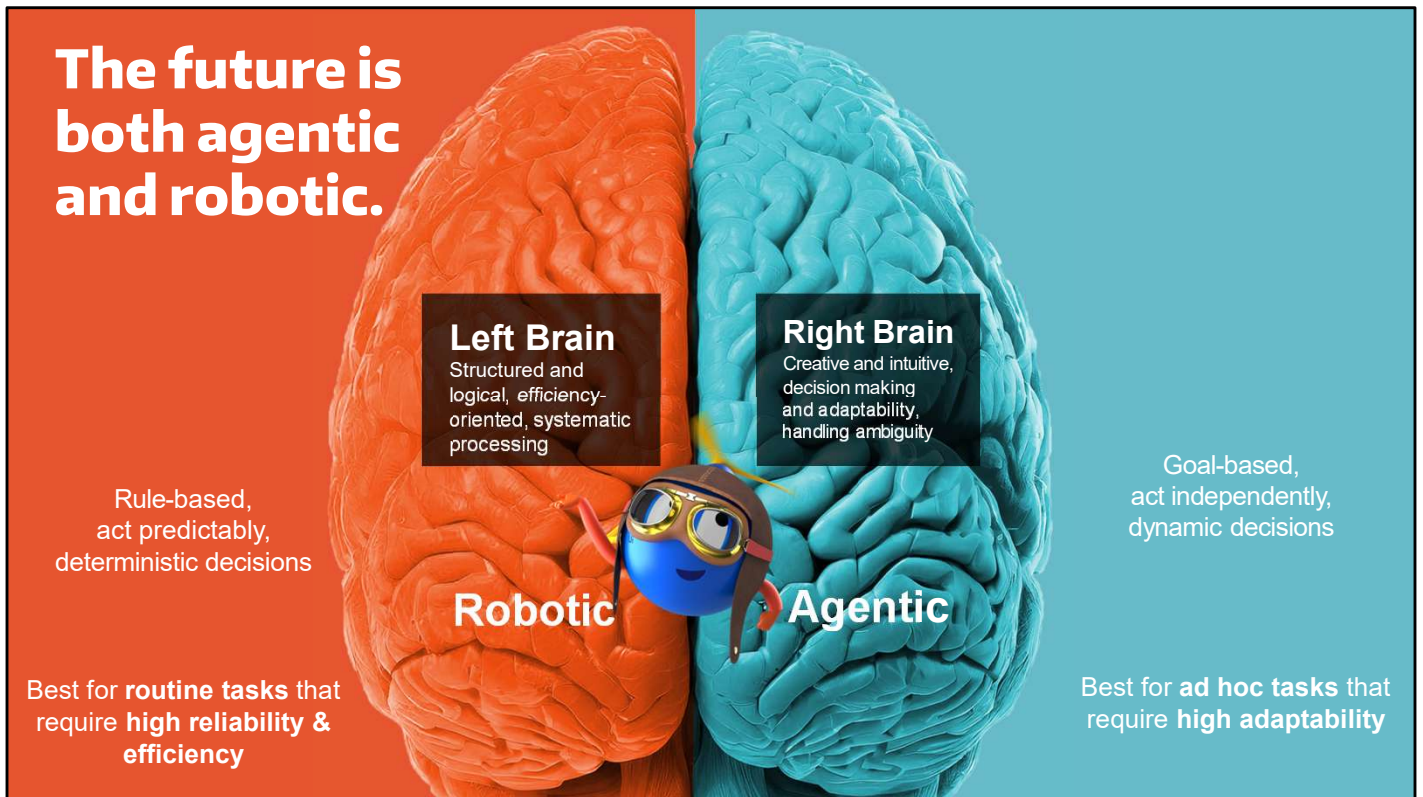
Agent =

- Prompt (role + goals)
- Context (memory, data)
- Tools (RPA, APIs)
- Escalation (human fallback)

Agent Types

Examples:

- Retrieval agents (RAG)
- Decision agents
- Monitoring agents
- Orchestration agents
- Conversational agents



•That’s why the future of automation is a perfect blend of **robotic precision** and **agentic intelligence**—just like the left and right brain work together.

•The **left brain** represents structured, logical, and systematic processing—where robotic automation excels.

•The **right brain** embodies creativity, adaptability, and decision-making—captured by agentic automation.

•By combining both, we unlock unparalleled efficiency, adaptability, and innovation in business operations.

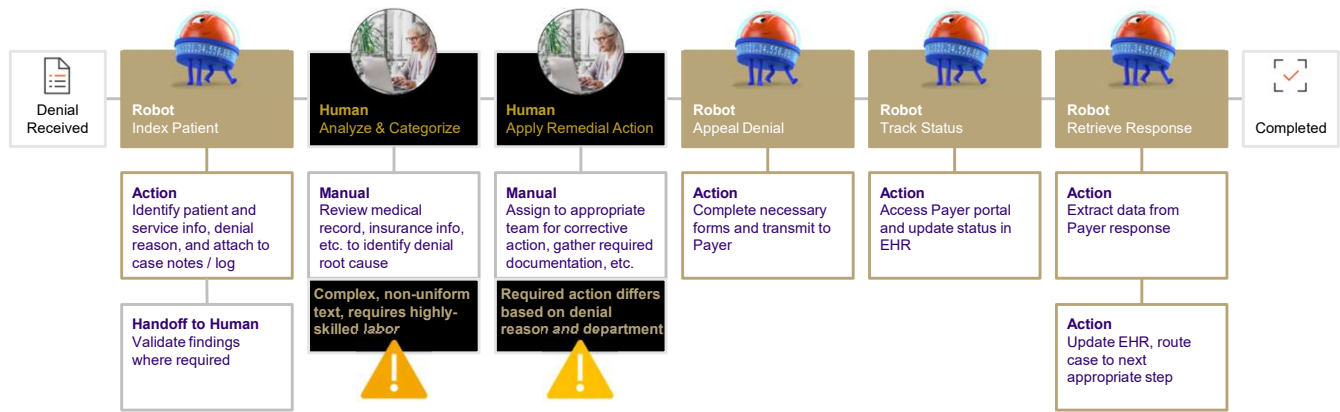
The point of an “agent” is that you give it goals—not tasks.

When To Use RPA v Agent

Scenario	RPA (deterministic)	Agents (non-deterministic)	Hybrid Approach
Structured, rule-based workflows	✓ Best suited	✗ Overkill	✓ Possible if AI adds value
Unstructured or evolving workflows	✗ Limited	✓ Best suited	✓ Good if some tasks are structured
Tasks requiring decision-making & learning	✗ Not possible	✓ Best suited	✓ Use AI for decision-making, RPA for execution
High-volume, repetitive data processing	✓ Best suited	✗ Slower, unnecessary	✓ Use RPA for speed, AI for validation
Regulatory compliance & auditability	✓ Fully traceable	✗ Less predictable	✓ Use AI only if compliance is managed
Cost-effective, quick automation	✓ Cheaper & easier	✗ More expensive	✓ Combine when needed

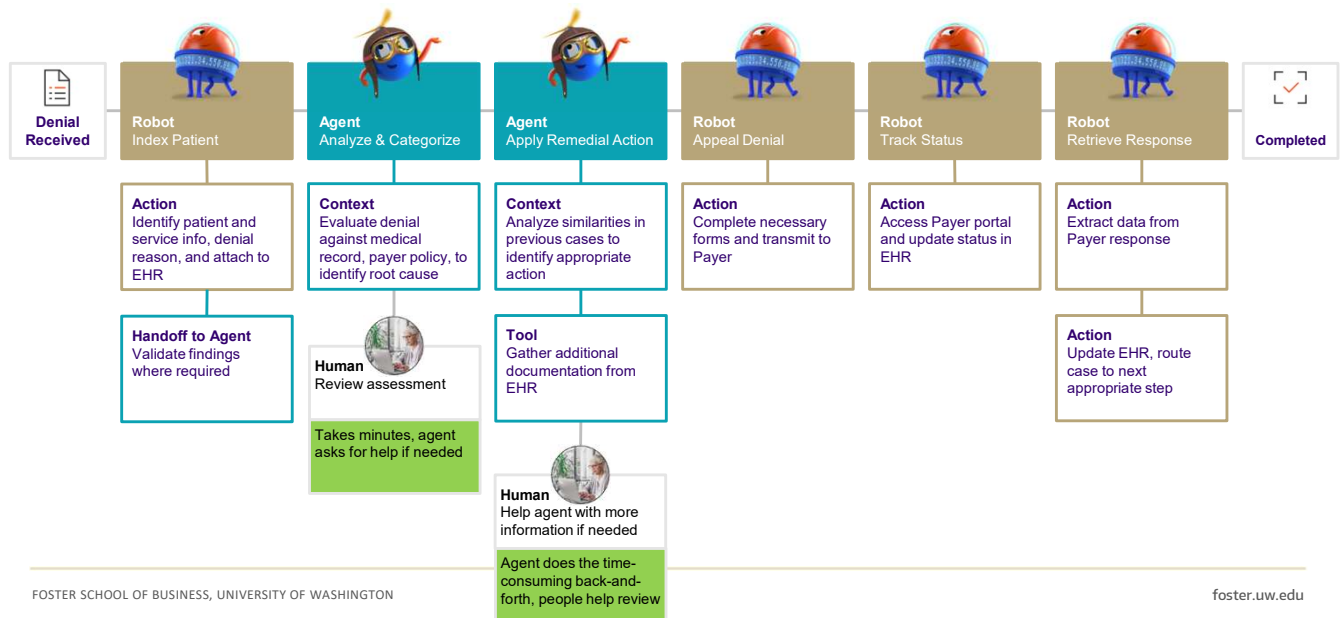
Processing Denied Claims

Robotic Workflow



Processing Denied Claims

Agentic Workflow



- In an *Agentic Workflow*, robots and agents collaborate to process denied claims efficiently, each playing to their strengths.
- Robots still handle structured, repetitive tasks—ensuring speed and accuracy.
- But Agents use contextual understanding and insights to analyze root causes, evaluate prior cases, and determine corrective actions.
- Therefore Humans provide minimal support, stepping in only when agents need quick validation or additional information—saving valuable time.
- By blending automation with agents, we achieve faster resolution, reduced manual effort, and seamless end-to-end processing.

Orchestration Problem

Automation challenge shifts from execution → coordination

Actors:

- Humans (governance / fallback / escalations)
- Robots (deterministic workflows)
- Agents (decision helpers)

Key Takeaways

RPA → efficiency

Agents → decision helpers / adaptability

Orchestration → coordination

Future automation workflows can combine all three

Closing Discussion

Where do your individual and team projects go next?

Individual:

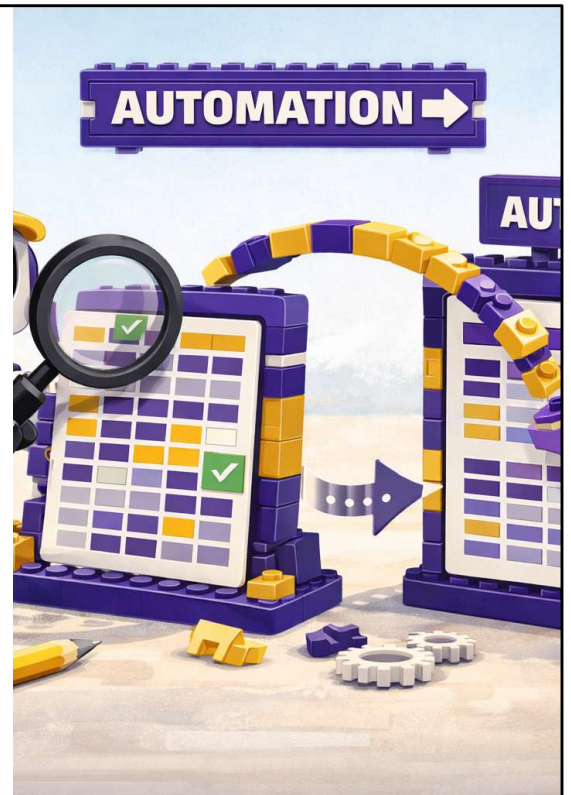
- Appropriate identification rules-based automation
- Selection of appropriate automation spectrum model

Team:

- Appropriate mix of RPA, Agent, and human in the loop
- Selection of best cases for agent decision enhancement

Where we will go next

- RPA
 - Manipulation of files, components
 - Triggers, Controls, Governance
 - Costs and benefits of RPA
- Agentic
 - BPMN revision and extension
 - Tasks for RPA versus Agent
 - Advanced Prompt Engineering
 - Scalability



What will we do today?

- Review
 - (Initial) Review of Submissions
 - Admin: Teams
- RPA Models
 - Automation Model Spectrum
- RPA to Agentic workflows discussion
- **Optional introduction to set-up requirements for an open source approach (time- & interest-permitting).**



Open source

- Hardware/computing requirements discussion
 - Reality of open source agents (that run on your laptop)
 - Free API alternatives
- Software requirements discussion
 - Python upskilling
 - Orchestration: dealing with complexity / debugging

Thank you

FOSTER
SCHOOL OF BUSINESS
W UNIVERSITY of WASHINGTON