

Practical Guide to Leveraging AI Automation in Your Process Orchestration Workflows

Contents

- The promise of AI-powered automation 3**
- AI automation possibilities in process orchestration 3**
 - Predictive AI 4
 - Key challenges 4
 - Implementing predictive AI automation..... 5
 - Generative AI 5
 - Key challenges with AI automation..... 6
 - Implementing generative AI automation..... 6
 - Assistive AI..... 7
 - Key challenges 7
 - Implementing assistive AI automation..... 7
- Using custom AI integrations alongside process orchestration .. 8**
- AI automation: endless possibilities 8**

The promise of AI-powered automation

The rise of [generative AI](#) for seemingly endless use cases has captured the world's imagination and driven a renewed fascination with AI. AI is now accessible and tangible for the average user, rather than a vendor-driven dialogue. However, there is so much buzz that it can be difficult to distinguish between hype and reality in AI automation.

Even today, AI-powered automation and process orchestration can play a tremendous role in everything from carrying out its own tasks, to orchestrating human tasks, to driving continuous improvement. According to Gartner¹, by 2027, AI-powered innovation teams will deliver projects that are up to 75% more successful compared to traditional human teams, leading to accelerated value creation from applied innovations. However, to implement AI effectively and usefully, you need to do it purposefully.

This guide is all about understanding AI's potential as you, your team, or company tries to orchestrate business processes toward greater outcomes. What can be done today vs. what will happen 6-18 months from now? How can process orchestration be used alongside AI in a [hyperautomation stack](#)? What are some of the potential challenges or concerns associated with its implementation? What is the business impact? We'll explore these questions and more in this guide.

AI automation possibilities in process orchestration

While much of the current buzz around AI is driven by applications like [OpenAI's ChatGPT](#), there's much more to what can be accomplished with AI automation in process orchestration. For this context, we've segmented the opportunities for AI-enabled automation into three main categories:

- **Predictive:** Predictive AI can use data collected from process instances as these processes operate to make improvements to the models and overall process flow.
- **Generative:** Generative AI can be leveraged to create a new process, refine existing processes, or generate code from natural language commands.
- **Assistive AI:** This style of AI can use machine learning to assist or automate task completion and decision-making.
- Let's dive into some of the possibilities for each segment today and in the near future.

What is process orchestration?

[Process orchestration](#) coordinates the various moving parts (or endpoints) of a business process, and sometimes even ties multiple processes together. Process orchestration helps you work with the people, systems, and devices you already have — while achieving even the most ambitious goals around end-to-end process automation.

¹ "Use Generative AI in Applied Innovation to Drive Business Value," published May 15, 2023

Predictive AI

According to the [2023 State of Process Orchestration](#) report, process complexity is one of the main challenges to implementing effective automation. Seventy-two percent of the survey respondents agree that real-world, mission-critical processes are becoming more complex to maintain. And as more tasks become automated to meet customer experience demands, 69% say it is harder to visualize end-to-end processes.

You can't improve what you can't see. If you aren't collecting the proper data from your process instances, there is no effective way to visualize or improve your process models. That's where predictive modeling comes in.

As some of the most commonly used AI models in production, predictive models leverage historical data to make a prediction about the future. By using these models, businesses can analyze their past [process execution data](#) to identify patterns and trends that can help optimize future processes, reduce costs, and enhance customer experiences.

Business analysts and data scientists can use this data to train a new model or feed it into an existing model to make predictions about future process instances using the existing execution data. For example, it's possible to predict how long an instance will take to complete based on the tasks and variables in the process flow.

In addition, teams can use predictive models to make predictions on the most effective decisions for a [Decision Model and Notation \(DMN\)](#) model. One possible application is in fraud detection modeling in financial services. Another is using an image recognition model to decide if surveillance video footage represents a risk or not (e.g. unauthorized person breaking in) and triggering a certain action (e.g. sounding an alarm, calling authorities, or taking another action).

Key challenges

For many teams, the availability of AI-ready process data is a challenge for AI-enabled automation and continuous improvement. Many companies don't have the capability to collect data from their process instances alone. That's because many technologies organizations leverage for automation, such as robotic process automation (RPA), operate in silos. In the absence of process orchestration, there's no way to effectively orchestrate siloed processes, let alone visualize or interpret data from end-to-end processes.

When organizations do have data from their process instances, they often spend an inordinate amount of time making that machine learning-ready. This process requires a lot of data preparation from over-extended and under-resourced data scientists and data engineers.

Typically, [80% of the effort in a data analysis project](#) is spent on data preparation. These efforts delay the training process that takes place before machine learning models enter production.



Implementing predictive AI automation

To overcome these challenges, choose a process orchestration platform that enables you to collect data across all process instances. Process orchestration can aggregate data across disparate automation technologies within your stack, and use that data for continuous improvement and process optimization.

Look for a solution that provides AI-ready datasets for model training. This will reduce the amount of time that it takes to get predictive models into production. A sample dataset could include information such as:

- Number of open incidents
- Total number of incidents per process instance
- Number of user tasks executed
- Total duration of each flow node of a specific “task” type
- Total duration of an event
- And more.

Generative AI

We are just beginning to scratch the surface when it comes to the possibilities of generative AI. [Gartner reports](#) that 70% of companies are in exploration mode with generative AI.

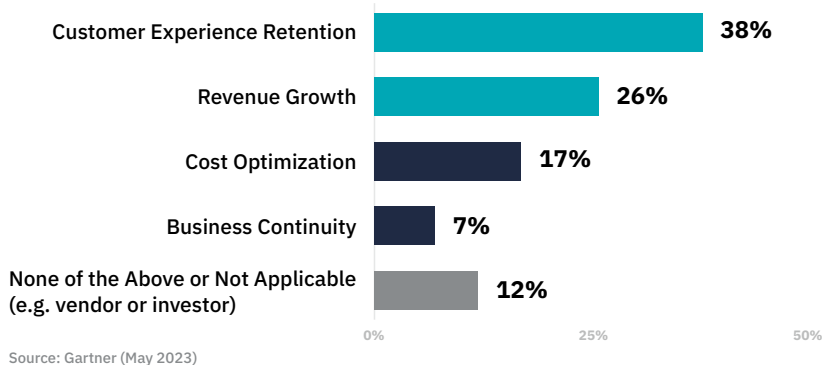


Figure 1: Primary Focus of Generative AI Investments (Percentage of Respondents)

Fortunately, platforms like ChatGPT provide testing ground for companies who want to experiment with a generative AI API for automation and process orchestration. So far, developers have created many interesting [experimental applications](#) using the underlying chat and speech recognition technology within these generative AI models.

Generative AI automation could use ChatGPT to augment human workflows in a [community market application process](#). A market might screen vendor applications. ChatGPT could extract relevant data from an application form, and feed that data into a process

that accepts or rejects applications based on certain criteria. ChatGPT could subsequently auto-generate acceptance or rejection emails, validate vendors' physical addresses, and create vendor descriptions for the market's website.

Setting up such a process could add tremendous efficiency for human workflows. Screening vendors that want to sell certain types of products reduces the number of emails that the team has to read. Generating emails eliminates the time the team has to spend crafting messages and promotes consistency in the way applicants are rejected. Generating a description for the website shortens the time the team has to spend writing website content and ensures every vendor has a description on the site. Automatically validating the vendor's business address eliminates the chance that the team will forget to do so.

Other examples of possible applications for developers and testers could include using generative AI to generate testing data to ensure an end-to-end process is working as expected. Or, teams could experiment with open source code generators (e.g. [GitHub Copilot](#)) to develop and code a process model.

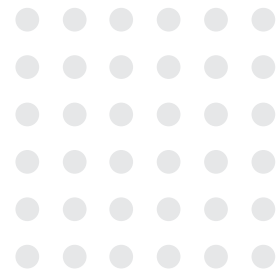
Key challenges with AI automation

While generative AI applications are currently being used in production, there are a few important considerations to keep in mind when used in an AI automation setting.

- **Hallucination:** Generative AI is [prone to hallucination](#), or making up facts based on its training dataset. Therefore, it still requires a high degree of human supervision for important tasks to avoid mistakes.
- **Security:** By default, OpenAI [does not use data submitted via their API to train or improve their models](#). However, sending sensitive data over the internet to a tool such as ChatGPT carries some risk. In real-world processes, consider avoiding submitting personally identifiable information (PII) and private business information to online generative AI tools. Be sure to adhere to company policies for data security and the use of these types of tools.
- **Legal risks:** Using code generators and open source software could present [legal risks related to copyright](#) and licensing of code.

Implementing generative AI automation

Look for a process orchestration solution that has pre-built connectors to generative AI applications like OpenAI's API for ChatGPT. Connectors are an easy way to start experimenting with ways to use ChatGPT and OpenAI's [Moderation API](#) directly within your processes.



Assistive AI

For AI-powered automation, assistive AI can be used to assist humans or automatically make a decision as a human would, based on certain conditions. This technology is meant to accelerate basic human decision-making, and thereby increase the efficiency of a process.

This technology could be financially significant for a number of reasons. Nearly [three billion business decisions](#) are made every year. [Research from Bain](#) shows a 95% correlation between decision effectiveness and financial performance. Unfortunately, according to findings from McKinsey, [72% of executives report](#) that bad decisions are as frequent as good ones. The average S&P 500 company [wastes approximately \\$250 million](#) annually because of ineffective decision making.

Assistive AI can increase the degree of automation in many scenarios. For example, by looking at process execution data, assistive AI can be used to create self-healing processes. The technology could identify process bottlenecks, suggest how to improve them, and automatically update models (or update models after a human verification step). In process testing, assistive AI could look at a requirements document and auto-generate baseline test cases for a variety of situations, such as forms. Based on previous human behavior, the system can generate tests that might “break” a form, such as incorrect numeric fields, exceeding character limits, and more.

Key challenges

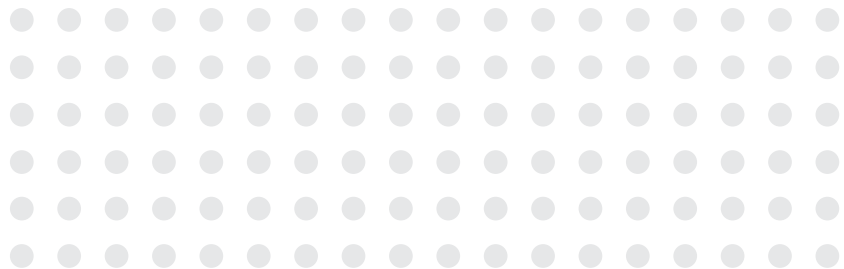
The main challenge with assistive AI at this stage is its maturity. Today, this technology is mostly augmenting and assisting human decisioning. There is a maturity curve still present at most organizations where machines are not fully automating decisions.

Much of the hesitation comes from a lack of explainability underlying AI-driven decisions. It’s important to be able to explain why a machine is making certain recommendations or decisions to [root out bias](#) and other errors in automated processes. Bias stems from using historical decision data to train the machine learning model. Identify the bias in the dataset, and it’s possible to identify the bias in the decision.

Implementing assistive AI automation

Many applications of assistive AI are forward-looking and experimental. Organizations with a high level of AI maturity can leverage machine learning-ready datasets from a process orchestration system blended with other internal datasets to predict patterns and derive meaningful decisions.

Automated decisioning should start with a human in the loop to verify the efficacy of the machine’s decision. Validating machine decisions with humans is an important step toward training the machine learning algorithm for optimal accuracy and bias reduction.



Using custom AI integrations alongside process orchestration

There are limitless possibilities to integrate existing AI applications into automation and process orchestration workflows. These applications can improve the efficiency of processes or add automation capabilities where there were none before.

Some examples include

- Image recognition
- Video analysis
- Computer vision
- Knowledge mining
- Fraud detection
- Speech transcription
- Machine translation
- Data analysis

AI automation: endless possibilities

AI, when used in conjunction with process orchestration, has major potential for organizations to increase the efficiency and effectiveness of their operations, or increase the degree of automation in their organization. From continuous process improvement, to augmenting human workflows, to automating decisions — the possibilities for AI automation are truly endless. It's exciting to see how organizations are experimenting with these technologies today, and we expect to see even more options emerge as successful experiments are validated.

Camunda is actively incorporating AI into its own process orchestration platform, as well as enabling external AI integrations from customers.

About Camunda

Camunda enables organizations to orchestrate processes across people, systems, and devices to continuously overcome complexity and increase efficiency. With Camunda, business users and developers collaborate using BPMN to model end-to-end processes and run sophisticated automation with the speed, scale, and resilience required to stay competitive. Hundreds of enterprises such as Atlassian, ING, and Vodafone design, orchestrate, and improve business-critical processes with Camunda to accelerate digital transformation. To learn more visit camunda.com.