

Composabl FAQ

Most Commonly Asked Questions



FAQ

Question: What is Composabl?

Answer: Composabl is a SaaS platform that combines and orchestrates technologies to create powerful decision-making AI agents. Modules within a Composabl agent can use machine learning, deep reinforcement learning, optimization, control theory, expert rules, and language models to solve real-time & real-life enterprise needs.

Question: What is Composabl solving for most effectively?

Answer: Currently the Composabl Platform is seeing the most success in creating intelligent autonomous agents for industrial and engineering applications where complex decision-making, optimization, and control are required. Interestingly, however, more and more innovative use cases are coming to the fore, including in cybersecurity, smart buildings and BOM (build of materials).

Composabl's intelligent autonomous agents improve on existing automation by adding six attributes of human-like decision-making:

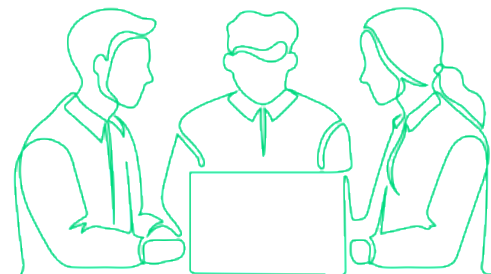
- Perception:** Ability to see, hear, predict, cluster, and classify.
- Learning:** Ability to practice and become adaptable.
- Strategy:** Applying different strategies in different situations.
- Forward Planning:** Making decisions based on likely future conditions.
- Deduction:** Reacting to conditions that are not directly perceived.
- Language:** Communicating with human operators in natural language.

Question: What is an intelligent autonomous agent?

Answer: An autonomous intelligent agent is a sophisticated system capable of complex decision-making in real time, adapting to changing conditions. Agents can perceive their environment, make decisions, and take actions to achieve specific goals.

Agents are defined by this ability to perceive and act rather than by any specific technology. Many of the most successful agents combine multiple technologies, such as machine learning, reinforcement learning, control systems, and large language models.

LLMs and other generative AI technologies can be included in agents but lack the decision-making capabilities to be agents themselves.



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Question: What is the anatomy of an agent?

Answer: Autonomous intelligent agents are structured in layers. The first layer is the sensors, the eyes and ears of an autonomous agent. They collect data from the environment, providing the raw input needed for the agent to understand its surroundings. In an oil refinery, for example, sensors might monitor temperature, pressure, and chemical composition to detect any anomalies or safety issues.

Next, the perception layer processes the data collected by the sensors, transforming it into meaningful information. This layer uses algorithms and models to interpret sensor data, enabling the agent to recognize patterns, detect changes, and understand the current state of the environment. For instance, in the oil refinery example, the perception layer would analyze sensor data to identify potential hazards or deviations from normal operating conditions.

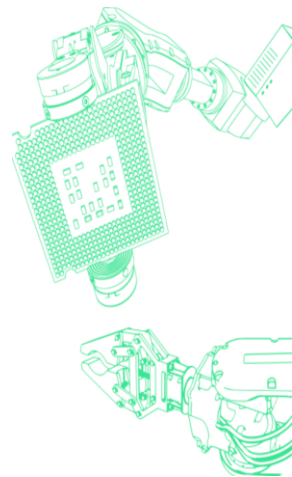
Finally, the skills layer is where the agent's learned abilities are stored and applied. This layer includes the specific tasks and actions the agent can perform, which have been taught through Machine Teaching. These skills are modular, allowing the agent to combine them as needed to respond to various situations. For example, if an explosion occurs in an oil refinery, the agent will use its skills to follow standard operating procedures, just as a human operator would. This might include shutting down certain processes, alerting human operators, and guiding emergency responses.

Question: What are the enabling technologies of the Composabl platform?

Answer: Composabl is an orchestration platform that allows you to combine technologies into modular agents without writing extensive code. It is built on a Python SDK that communicates with a no-code UI with a drag-and-drop agent builder studio.

Any machine learning model, controller, optimizer, or other existing tool can be imported into Composabl to use in an agent. The core technologies that form Composabl modules are:

- **Machine learning:** Provides agents with advanced perception abilities, such as using computer vision to measure product specifications.
- **Deep reinforcement learning:** Allows agents to practice tasks, learning and storing knowledge about how to perform the task most efficiently.
- **Large language models:** Enables agents to communicate with humans, take in information in natural language, and analyze and explain their decisions.
- **Controllers, optimizers, and expert rules:** Manage the parts of the task that are well handled with non-AI solutions.



FAQ

Question: How does the Composabl Platform empower engineers?

Answer: Composabl allows engineers to leverage AI without getting a PhD in data science or machine learning. Using expert process knowledge, engineers can decompose tasks and processes into known, explainable, valuable skills. These skills become the modular building blocks of agents.

Using Composabl's no-code UI, engineers can combine AI with advanced perception, control theory, optimization and expert rules into agents that outperform existing automation.

Question: I have never heard of Machine Teaching. What do I need to know about it?

Answer: Machine Teaching is the methodology for designing, building, training, and deploying intelligent autonomous agents. You can think of Machine Teaching for intelligent agents as analogous to prompt engineering for generative AI: the art and science of how to use the technology to create valuable results.

Machine Teaching builds on machine learning, with the insight that algorithms' ability to learn provides an opportunity to accelerate their performance by "teaching" them – infusing human expertise into the agents to make them more efficient and explainable.

Machine Teaching uses three major techniques to apply human expertise to improve agent performance:

- Skill decomposition:** breaking down complex tasks into manageable parts that agents can learn and execute.

- Action masking:** limiting the actions that reinforcement learning skills can attempt as they practice and experiment to exclude unworkable solutions (like sailing a boat upside down or packaging the product before it is made).

- Heuristics:** including modules with heuristic if-then rules to constrain the agent's behavior within well-understood situations.



FAQ

Question: What internal team members do I need, or team skills should we have to be most successful?

Answer: Composabl enables cross-functional teams with diverse expertise to work together on complex AI projects. While 87% of industrial AI solutions never reach deployment, Composabl projects successfully deploy because they integrate the expertise of engineers and subject matter experts with that of data scientists and IT.

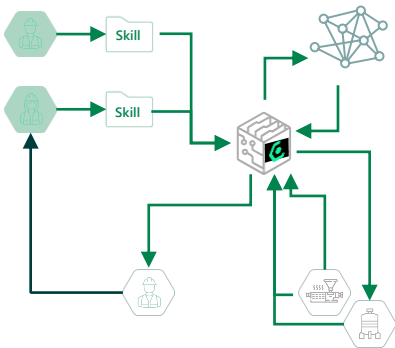
The construction of the Composabl platform allows each stakeholder role to specialize and apply their specializations in different aspects of the software:

- **Process Engineers** build, define skills, build agents and coordinate stakeholders in the Agent Builder Studio.
- **Controls Engineers and Data Scientists** import controllers and ML models, respectively, through the Composabl SDK.
- **Technical staff** at tech, controls, and AI companies submit pre-trained skills to the Composabl Skills Marketplace using the Composabl SDK.
- **Plant staff** and other stakeholders audit agent behavior with the Composabl Agent Historian.
- **IT and software engineers** export Composabl agents and the Composabl Runtime connects to machines, processes, and software.

We have seen that the Composabl customers that bring IT, OT & SMEs around the same table to solve problems are the most successful in deploying agents.

Question: Does Composabl allow rapid prototyping of AI solutions?

Answer: The Machine Teaching methodology includes standardized design patterns that make it possible to very quickly design and iterate a suite of agents for a use case. These agents can then be trained, and their results compared using Composabl's reporting and analysis features. It is common for several agents designed with Machine Teaching to outperform the benchmark, leaving business leaders with multiple good options to choose from.



Question: How do I take the Composabl agent I trained and deploy and apply it to my real-world problem?

Answer: Once you are ready to deploy you can run in the cloud, on the edge, or on prem. You can utilize Azure, AWS, Composabl clusters or any other option you have for compute support.

FAQ

Question: Where do agents train?

Answer: Composabl agents can train on local machines, on your cloud using your own Azure subscription, or on Composabl's clusters using our Training-as-a-Service offering.

Typically, agent builders will begin by training locally with a few training runs, to validate the simulation and basic agent design, and then proceed to training on the cloud for training at scale.

Question: How do I train an agent?

Answer: Autonomous intelligent agents train in simulation, making millions of decisions to improve their performance before being deployed to control actual machines or systems. This training process is like how humans practice to perfect their skills.

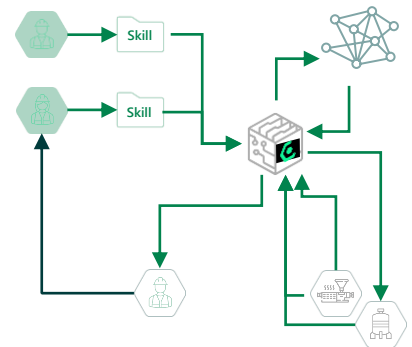
In Composabl, all the agents created for a use case will train on the same simulation so that you can compare their performance.

Question: How do I deploy agents?

Answer: Composabl agents are containerized functions that can communicate via API. You can easily deploy Composabl agents on prem, on the edge, or in the cloud with Composabl runtime offerings.

Question: What is Training as a Service (TAAS)?

Answer: Training-as-a-Service is our hosted compute cluster that you can rent to train your agents. You can also train your agents on your own cluster or on a cluster hosted by your cloud provider of choice.



FAQ

Question: What does it take to develop a simulation to train an agent?

Answer: Simulations can be created from physical principles or from accurate, high-resolution historical data.

The process of creating a simulation using historical data involves using AI to generate synthetic data based on the real data, similar to creating a digital twin. This expands the scope of the simulation and allows the agent to practice in situations that may not have actually occurred but are still important.

Composabl is developing a product offering to simplify creating a data-driven simulation. In the meantime, simulation support consulting can be added as a service offering from Composabl or one of our system integrator partners.

Question: What happens if I cancel my software subscription after a few years of building and deploying agents?

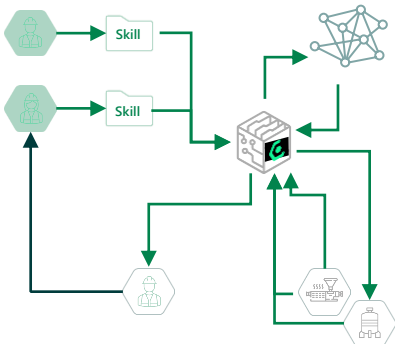
Answer: Agents are like sim cards that plug into the Composabl runtime (the phone in this analogy). Composabl customers own their data, sims and anything else they publish on the Composabl Platform and within their agents (for example, controllers and ML models). What you will want to keep in mind is that the Composabl platform enables ease of building and deploying that other technology does not enable.

Question: If I want to share about this incredible platform with my team, where do I begin?

Answer: We recommend sharing the Composabl [Website Resource Page](#) and highlighting the following assets to start with first:

- **Case Study:** Machines Learn Better When You Teach Them
- **Video:** The Future is Human and Machine Collaboration
- **Book:** Designing Autonomous AI

Additionally **follow Kence** on LinkedIn and get your mind blown:
<https://www.linkedin.com/in/kence/>



Composabl

FAQ

Architecture that puts modular intelligent building blocks into the hands of engineers.

