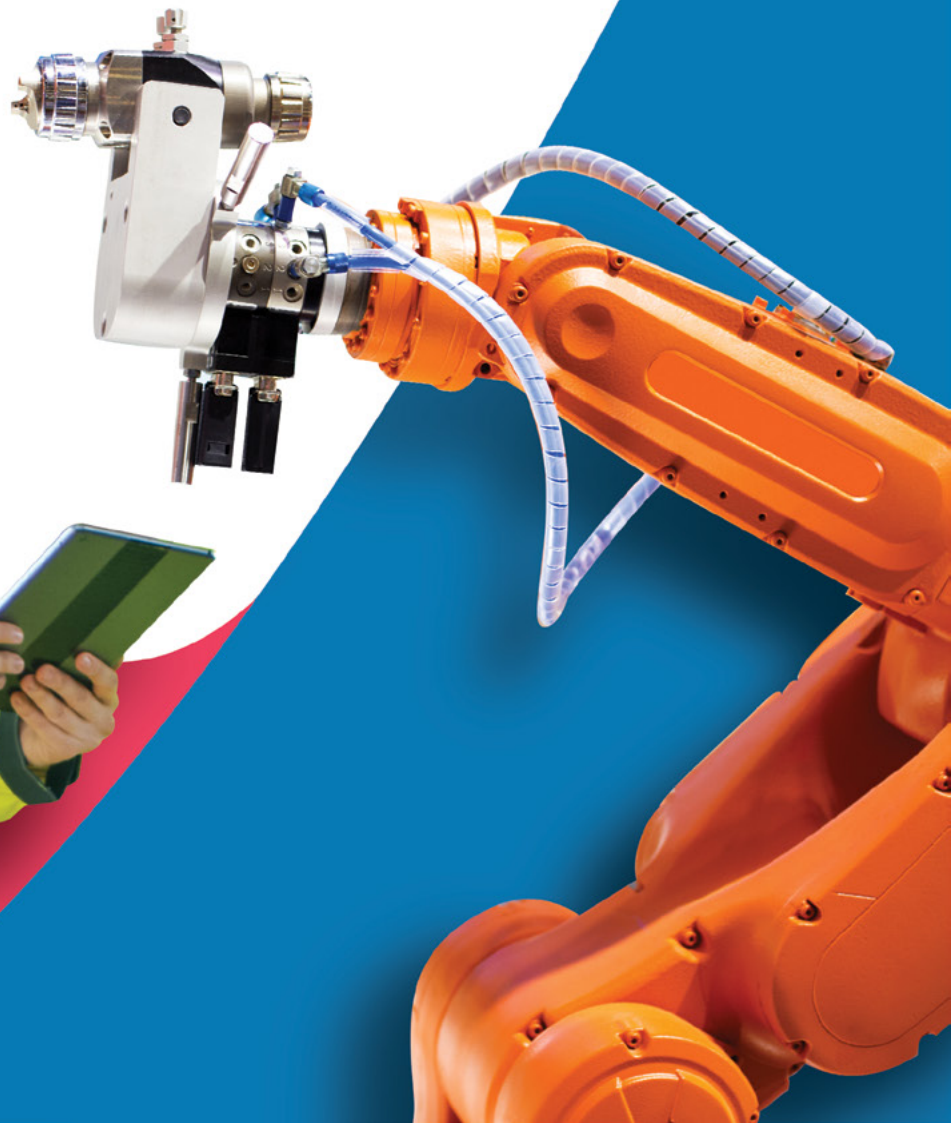




IoT Solutions
Alliance

Robotics as a Service uses AI to deliver industry flexibility



Technology evolution. Every part of our lives and livelihood expects it. And evolving technologies in robotics impacts our lives as well. But how does robotic automation evolve without huge investments in equipment purchases, line changeouts and retoolings? How can robotics be deployed to help produce a variety of customized products across a changing product line, while being productive and cost effective?

The need for flexible robotic solutions

Companies asked to produce customized products require being productive and cost effective when manufacturing at a lower volume or performing tasks in dangerous environments.

Robots can be used to increase productivity in manufacturing, but the typical robot is highly specialized for a particular task. It's ill-suited to the evolving requirements of a manufacturing plant that might have 25 assembly lines and produces a diverse range of products. Capgemini helps create flexible solutions for use in industrial environments, assisting employees with some of their most challenging tasks.

Robotics as a Service

Capgemini integrates its TRY software, machine learning and Intel technology with leading robotics innovators to create flexible and programmable robotic solutions that help manufacturers and other technology businesses assist workers, increase productivity and improve ROI. Capgemini's Robotics as a Service (RaaS) enables businesses to affordably procure, adapt and deploy robots for use cases across many different industries using a flexible AI enhanced service model.

This service model affordably deploys single purpose or multi-use programmable robots to perform different tasks, and assists employees by performing repetitive, mundane and dangerous activities.

Robotics as a service Solution Overview:

Industries

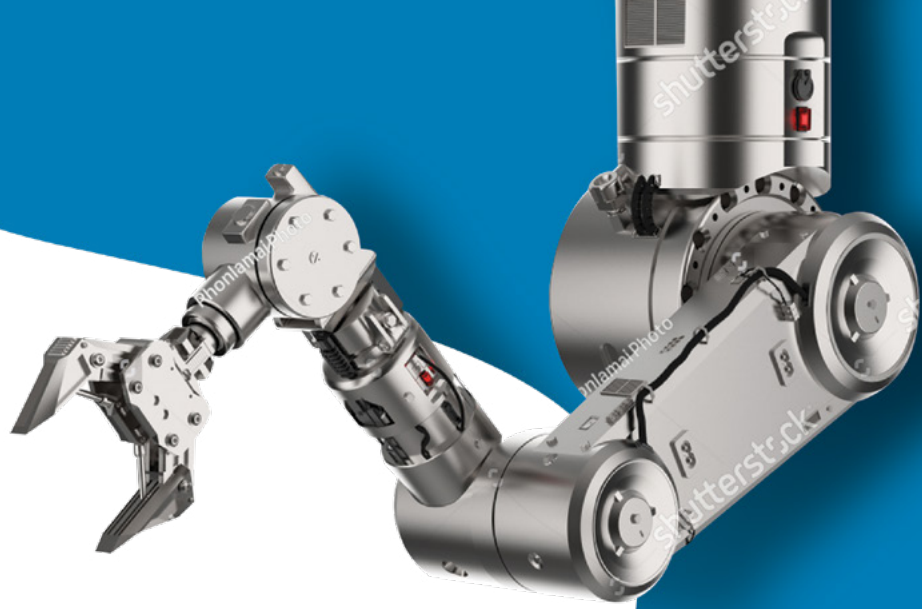
Manufacturing, Industrial, Energy and Utilities, Retail, Supply Chain

Client Challenges / Business Needs:

- Affordably deploy robotic solutions to increase productivity and ROI
- Enable industrial clients to easily train robots for multiple and dynamic tasks
- Deploy robotic solutions for high risk situations

Solution: Robotics as a Service

- RaaS enables companies to acquire robotics capabilities without making a heavy up-front investment
- Capgemini's Teach Robot Yourself (TRY) software and training enables operators to program robots themselves
- Capgemini's versatile XIoT platform, developed in collaboration with Intel, enables industrial data collection and processing from a single dashboard
- Easily integrates with other systems, and ideal for use in assembly lines dealing with diverse products or tasks.



Delivering Robotics as a Service

Using extensive industry experience, Capgemini analyzes customer needs and identifies how robots can help. The robots can use sensor or video processing and computer vision to recognize products, defects, and specific situations or events. Robots are connected wirelessly to an Intel IoT Gateway, which hosts the Capgemini XIoT platform. The open source XIoT software sends the data from the robot to the cloud, where Capgemini analytics software processes the collected data. Users can analyze the number of tasks completed, task success rate, robot sensor data, and additional operational data used for robot predictive maintenance. Data in the cloud can be used with various Artificial Intelligence or big-data platforms to augment the robot's capabilities. For example, an IBM Watson artificial intelligence platform could be used to help identify products along the production line, or help recognize manufacturing flaws. The cloud can also be used for voice processing, so that the robot can be controlled using spoken commands.

Unlike a simple rental agreement, under a RaaS contract, Capgemini and their partners are responsible for delivering the robotic capabilities required, including installation, configuration, and staff training.

How Capgemini helps

Capgemini brings an understanding of industrial best practices and the likely knowledge levels of the solution's operators to help with solution design, deployment and training. The Teach Robot Yourself (TRY) platform enables anyone to program robot sequences using a visual language. Capgemini's XIoT platform aggregates robot performance data. Capgemini dashboards and cloud analytics enable analysis of the robot data.

Teaching robots

Robotics as a Service is designed to be easy for everyone to program. Capgemini has created Teach Robot Yourself (TRY), which enables operators to program sequences by physically manipulating the robot, and using a joystick or on-screen controls. Recorded sequences can be combined in any order and given parameters, such as the speed of operation. The programming language uses visual blocks that lock together like jigsaw pieces, similar to the Scratch programming language widely used in schools. Portable robots can easily be reprogrammed, and moved around a factory to carry out tasks as required. The solution also offers standardized application programming interfaces (APIs), so that engineers can add advanced functions using their usual languages and tools.

Putting robots to work

The RaaS solution has already been used by a large European aircraft manufacturer for testing helicopter cockpits. The solution is able to conduct repetitive movements that users may find boring or other tasks that may be potentially harmful for humans to carry out. And robots are able to work through the night so the manufacturer can get results faster and maximize the use of its test bench.

Unstaffed testing makes new kinds of assessments possible, and reduces the cost of the process. While the robot does the hard physical work, the staff are free to focus on designing the tests and analyzing results.

Combining inspection data with Artificial Intelligence in the cloud, the solution can help predict when structures or parts are likely to fail, so that maintenance cycles can be optimized.

To deploy IoT enabled robotics capabilities without making heavy up-front investments, speak with one of our industry experts. Interested in this solution or other Smart Services?

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Additional References

Robotics as a Service and TRY software:

<https://www.capgemini.com/us-en/service/digital-services/digital-engineering-and-manufacturing-services/robotics-as-a-service-lets-try/>

Video: Collaborative robotics for testing at a large European aircraft manufacturer

<https://www.capgemini.com/mx-es/resources/collaborative-robotics-for-testing-at-airbus-helicopters/>

Learn more about our partnership with Intel:

<https://www.capgemini.com/partner/intel/>



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Capgemini is a global leader in consulting, digital transformation, technology and engineering services. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year+ heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. Today, it is a multicultural company of 270,000 team members in almost 50 countries. With Altran, the Group reported 2019 combined revenues of €17billion.

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