

OCF AI SOLUTIONS: MANUFACTURING



PREVENTATIVE
MAINTENANCE

QUALITY CONTROL

GENERATIVE DESIGN

ROBOTICS

DIGITAL TWIN

Artificial intelligence (AI) is a game-changing technology for any industry. As the technology matures and costs drop, AI becomes more accessible for companies. In manufacturing, it can be effective at making things as well as making them better and cheaper. The manufacturing industry has always been eager to embrace new technologies. Now, with OCF's AI adoption, they are able to make rapid, data-driven decisions, optimise manufacturing processes, minimize operational costs and improve the way they serve their customers. This doesn't mean that manufacturing will be taken over by machines – AI is now an augmentation to human work and nothing can

be a substitute of human intelligence and the ability to adapt to unexpected changes.

Predictive maintenance allows companies to anticipate when machines need maintenance with high accuracy, instead of speculating or performing preventive maintenance. Predictive maintenance prevents unplanned downtime by using machine learning. Technologies such as sensors and advanced analytics embedded in manufacturing equipment enable predictive maintenance by responding to alerts and resolving machine issues.

Quality Control Some faults in products are too small to be spotted with the naked eye, even if the examiner is very qualified. However, machines can be equipped with cameras many times more sensitive than our eyes which detect even the smallest defects. Machine/Computer vision allows machines to “see” the products on the production line and spot any imperfections. The logical next step could be sending the pictures of quality errors to human experts or can be fully automated.

Generative design is a process that involves a program generating several outputs to meet specified criteria. Designers or engineers input design goals and parameters such as materials, manufacturing methods, and cost constraints into generative design

software to explore design alternatives. The solution utilizes machine learning techniques to learn from each iteration what works and what does not.

Robotics - It is not surprising that a large share of manufacturing jobs are performed by robots. However, conventional industrial robots require specific programming to carry out the tasks they were created for. Conventional robots now need to be provided with a fixed procedure of assembling parts, but AI-powered robots can interpret CAD models, which eliminates the need to program their movements and processes.

Digital Twin is a virtual representation of a factory, product, or service. The representation matches the physical attributes of its real-world counterpart using sensors, cameras, and other data collection methods. To make digital twins work, the first thing you must do is integrating smart components that gather data about the real-time condition, status or position with physical objects. The components are connected to a cloud-based system that receives all the data and processes it.