

Machine Learning and sustainable manufacturing

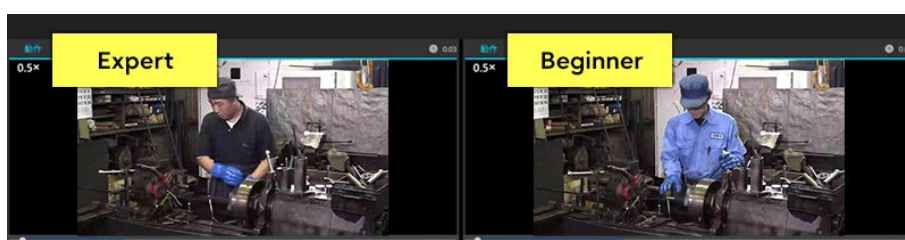
Today, companies are required to respond flexibly to changes in the business environment, taking uncertainty into account. By simulating scenarios that take uncertainty into account in the virtual world and quickly feeding them back into the real world, companies can make decisions with certainty and speed in terms of various risks and costs.

Machine Learning (ML) is a subfield of Artificial Intelligence (AI) that gives computers the ability to learn without explicitly being programmed. ML can enable the flexibility to respond and has the added benefit that it will allow people to do their jobs more efficiently and more accurately. At the very least ML and AI enables opportunities for improvements on a range of optimisation.

At Fujitsu Data & AI we are often asked how to get started in this space. One easy way to show value is to first aim at improving the working conditions of the staff most affected.

With AI and ML, it's not about replacing humans, it is about giving people the tools needed to allow them to be more efficient and connected to their work. It is also often the case, that the technologies can operate in places that are not safe for humans, or in environments where it would be too cumbersome to have humans doing the roles.

An example of this would be utilising camera vision to have “eyes on glass” in a manufacturing environment, to ensure that safety was adhered to. For example, humans operating equipment that they aren't trained to use, or having people in places they aren't supposed to be, which puts them in harm's way. Or it could simply be for training purposes, to demonstrate the difference between experienced operators as opposed to newer team members.



So how does ML assist with sustainable manufacturing?

By leveraging the power of ML and predictive analytics, we can optimise production processes, reduce waste, and increase efficiency.

With production comes consumption. The integration of digital data will also enable the creation of new ecosystems, such as supply chain resilience and reduction of GHG emissions in society. A strong ecosystem can avoid supply chain issues caused by rising customer expectations of shorter lead times, expanded products and services, and tailored experiences.

Manufacturing can often be left with a difficult dilemma: increase the carbon emissions and energy consumption to produce more products, or conserve consumption and potentially fall behind market demand, upsetting customers.

Having supply and demand predictive analytics, coupled with good ML algorithms and integrated data, gives the best possible chance of coming up with the least bad outcome, whilst continuing to meet customer demand.

However, the consumption of materials is energy intensive and converting raw materials into products takes valuable resources. ML and AI can assist implementing a move to more renewable resources, or in minimising the waste – and therefore the impacts of the resources you are consuming. Predictive analytics powered through ML facilitates process engineers with the ability to identify and scale processes that can optimise their use of these critical resources.

ML is a very powerful tool in the hands of process engineers. At Fujitsu our data scientists and analysts are heavily focused on optimisation through smarter use of data and using the concept of continuous improvement.

For organisations to understand the opportunities ML can add to production lines and factories, Fujitsu work with you to identify clear use cases aligned with business objectives, we connect your data to a powerful data platform, and drive the organisation mindset shift to a more data-centric decision-making process.

Sustainable manufacturing is becoming a cost-saving option. Sustainable approaches are becoming more financially viable and risk resilient. The insights and optimisations ML can bring to manufacturers could improve overall working conditions and safety.

Adopting these new technologies, changing production planning methods and relying on data driven processes is often a daunting subject to tackle for many. For most companies we work with, ML and AI have the power to increase the demand for manufacturing. With a 'human-centric' approach and advanced digital processes achieving integrated and sustainable manufacturing processes can move from ideation to reality, in a fast and iterative way.

At Fujitsu, we've been developing AI solutions for decades. Using our wide-ranging experience within the field of AI and data-driven business transformation, we apply what we know to advise our customers where they should be deploying AI and which platforms and solutions they should use.

To discuss and explore how ML and AI can assist your business, [email us](#) today or call +61 3 9924 3000 (Australia) or +64 4 495 0700 (New Zealand) to discuss how one of our Data & AI specialists can help.

Contact

Fujitsu Data & AI
+61 3 9924 3000

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