

HOW THE CLOUD PROMOTES SUSTAINABLE MANUFACTURING

Profitability and sustainability can go hand-in-hand when you power the manufacturing production cycle with the cloud.

August 23, 2022 • Industry Today • Pete Zimmerman

A historic reliance on fossil fuel use in manufacturing has led the industry to account for nearly a quarter of direct carbon emissions in the U.S. each year. Now, manufacturers face mounting pressure to operate more sustainably.

In response to public pressure and federal sustainability regulations, manufacturers are adopting eco-friendly practices like the use of protective packaging and renewable energy sources. Major retailers like Adidas even included sustainability as a strategic focus area for the coming years. But despite these efforts, manufacturers still have their work cut out for them to reduce their carbon footprint.

One effective approach to minimizing carbon emissions is a shift to the cloud. By design, cloud data centers operate using less energy than all the

combined on-premise solutions, and cloud-based services can help reduce energy consumption by streamlining manufacturing production cycles. The path toward a greener future is here — and it can start with the cloud.

Inefficiencies are bad for business and the environment

The industrial sector accounts for a third of total U.S. energy consumption, with manufacturing representing more than 80% of the industry's energy use. It's no secret that manufacturing companies require vast amounts of energy and materials to operate, but disruptions such as shipping delays and inaccurate inventory can exacerbate the production cycle's carbon footprint.

For example, the global chip shortage presents challenges in predicting supply, which has paused production for manufacturers of smartphones,

cars, and semiconductors. As a result, manufacturers must use additional energy and resources to store the components they have while waiting for their chip shipment to arrive.

Despite the high energy consumption in the industry, it's still possible for organizations to create a path toward a more sustainable future. Shifting operations to the cloud can move the needle on sustainability as cloud-based services help streamline processes and reduce inefficiencies.

3 ways the cloud minimizes the manufacturing industry's carbon footprint

Supply chain inefficiencies are inextricably linked to energy consumption because manufacturers must pour additional energy into a project when its timeline extends. But when you back operations with



cloud data centers and services such as enterprise resource planning (ERP), you can mitigate the effects of disruption.

Here are three cloud use cases that address some of the most common sustainability challenges in manufacturing:

1. Problem: Energy use of on-premise data centers

Data is integral to supply chain operations – but data centers account for nearly 1% of global electricity consumption each year. Many organizations still use on-premise data storage, which is inherently less efficient than cloud data centers due to underutilization and the need for more physical space.

Use case: Cloud facilities are often located near power plants so less energy is lost through transmission. Cloud data centers also have a higher efficiency growth rate than on-premise solutions, partially due to their high utilization rates and consolidated hardware. Integrate cloud data with software like ERP and customer relationship management (CRM) to power real-time insights on inventory, sales, and other mission-critical data. With access to these insights, you can pinpoint areas with high energy consumption and do the work to reduce it.

2. Problem: Overproduction

Overproduction remains one of the top contributors to waste in the manufacturing sector, often because of inaccurate forecasting and unreliable processes. Creating quantities of products that exceed demand requires additional energy to produce and store the goods until they're sold, or they will go to waste.

Use case: Accurate forecasting is crucial in determining the right quantity of goods to produce to remain profitable and sustainable. Most modern ERP solutions enable integration with external data sources and machine learning (ML) capabilities. This tech stack, combined with internal data stored on the cloud and external cloud data, powers predictive analytics to more accurately anticipate demand for a product or material. Instead of guessing or only relying on historical data, you can make data-driven decisions to avoid both overproduction and underproduction.

The human component of the warehouse industry is vital to the success of automation technologies.

3. Problem: Human error

Mistakes can happen, even in manufacturing environments staffed

by the most seasoned workers. From inaccurate data entry to faulty parts, these mistakes and defects waste time and resources that decrease efficiency and slow down production time. Additionally, if you make an error like an incorrect assembly of a product, some of its components may go to waste, requiring additional materials and energy to create a new product.

Use case: The integration of cloud data with AI and machine learning (ML) technologies helps power core capabilities for manufacturers like automation. The combined technologies use data to continuously learn and improve performance, identifying the most efficient way to complete a task. By automating critical and often tedious processes such as data entry, quality control, and machine assembly, you reduce the risk of human error and free up time for more strategic tasks. Additionally, automation reduces production time and lowers energy consumption.

Profitability and sustainability go hand-in-hand when you power operations with the cloud. By streamlining processes to reduce inefficiencies in the manufacturing production cycle, your business can decrease energy consumption, and manufacture products faster and with fewer errors.

