



IIOT

In Manufacturing



The Scope

What is the scope of Internet of Things (IoT) in manufacturing?



Industrial Internet of Things (IIOT)

- Digital/Connected factory
- Facility Management
- Production Flow Monitoring
- Inventory Management
- Plant Safety and Security
- Quality Control
- Packaging Optimization
- Logistics and Supply Chain Optimization



Digital/connected factory

IIoT enabled machinery will assist in transmitting operational information to the partners like OEMs and engineers. Apart from this, a digitally connected unit will help in establishing a better line of command and also in identifying the key result areas (KRAs) for managers.

A man and a woman in high-visibility vests are looking at a computer monitor in a factory setting. The man is wearing glasses and a blue shirt under his vest. The woman has her hair in a ponytail. They are both looking intently at the screen. The background is a blurred industrial environment.

Facility Management

IoT sensors in manufacturing equipment help with condition-based maintenance alerts. IoT sensors ensure that the machinery works in the prescribed environment. With this, the manufacturers can conserve energy, reduce costs, prevent machine downtime and also enhance operational efficiency.

A photograph of two industrial workers in a control room. A man in a white hard hat and glasses stands behind a woman who is seated at a computer workstation. Both are wearing high-visibility yellow safety vests over dark work clothes. The woman is pointing at a tablet device she is holding. The background shows a dimly lit industrial facility with various pipes and machinery.

Production Flow Monitoring

Starting from the refining process to the packaging of the final products, IIoT can monitor all the steps in the production line. This real-time monitoring of the processes helps in preventing any delay in production and also eliminates any unwanted tasks in the program inventory.

Inventory Management

IoT applications assist with the monitoring of events in a supply chain. With the help of these systems, the inventory can be tracked and traced globally on a line-item and the users can be notified if there are deviations. This optimizes the supply chain and ultimately reduces shared costs in the value chain.



Plant safety and security

IoT and big data analysis can assist in improving workers' safety and security. The Key Performance Indicators (KPI) of health and safety should be effectively monitored for better safety. Any lagging indicators can be addressed during the initial stage itself.



Quality control

IoT sensors help in collecting the product data as well as third-party aggregated data from several stages of a product lifecycle. All these syndicated data and other data acquired can be later used to analyze, identify and correct quality-related issues.



A woman in a warehouse setting, wearing a headset and a high-visibility yellow vest, is scanning a cardboard box with a handheld device. The background shows industrial shelving and other workers in similar vests.

Packaging Optimization

By installing IoT sensors in products or their packaging, manufacturers will get to know as to how the products are being handled by multiple partners. Smart tracking will help in tracing or keeping track of any product related problems during transit due to issues pertaining to weather or road conditions.

Logistics and Supply chain optimization

Industrial IoT (IIoT) provides real-time access to supply chain optimization by keeping track of material, products, and equipment as they move through the supply chain. The manufacturers can then feed delivery information into systems like PLM, ERP among others. This data will help the manufacturers in predicting issues, reduce the inventory and prevent the need for capital requirements.

Summary

There is an endless unfolding of technologies that is happening, but not every evolving technology will have the potential to break through the business and social construct.

It is believed that IIoT is an important technology that can create economic transformations. It has been estimated that it can create an economic impact of up to

\$6.2 trillion by 2025.

It also has the substantial potential to drive the productivity of about \$36 trillion and operating costs across the manufacturing industry as well as healthcare and mining.