

Industrial IoT Solutions - Key Application Areas

by **Satya K Vivek** | June 29, 2021



Industrial internet of things (IIoT) refers to a framework of interconnected machines and devices. Industrial processes that used to be manual in the past are now automated, thanks to IIoT technologies. Today IIoT is a fast growing sector that accounts for the maximum IoT spending in the world.

IIoT enables not only monitoring of the most complex processes, but also automate most of them and provides intricacies to problems of varying complexity. Some of the key application areas of IIoT are:

Connected Factory – Equipments and machinery in a factory can be embedded or instrumented with sensors, so that it could transmit data regarding its operational status and conditions. A digitally connected units help in establishing remote monitoring, command, and control that delivers continuous improvements.

Facility Management – Factory equipments are made smarter by using IIoT technologies that not only monitor its operational conditions, but also configured to send alerts and notifications on pre-defined anomaly conditions. This triggers conservation of energy, cost savings, and increased efficiency.

Production Flow Monitoring – IIoT technologies enables monitoring of production process end-to-end in real-time. This allows reducing cost through better management of operations and reduced wastes and reworks.

Inventory Management - IIoT systems allow tracking and traceability of global supply chain. The end customers get notified of any significant deviations to the specification of the product they are expecting. Organizations can track their products, equipment, and materials in real-time using IIoT. Companies use this data to manage their supply chain, reduce inventory and lower the capital requirements.

Plant Safety and Security - Big data analytics combined with IIoT technologies can significantly improve plant security of its workers. IIoT solutions play a big role in ensuring better health, safety and environment in factories.

Quality Control - IIoT Sensors collect product data throughout the product development life cycle stages. Information from multiple sources such as raw materials used, production environment parameters, end user feedback, etc. makes the analysis and correction of potential quality issues more robust.

Packaging Optimization – Multiple factors that affect a product’s performance with the actual end users such as usage & handling patterns, deterioration during transit and impact of weather or road conditions can be gained by embedding smart sensors in the product or in packaging. Through these insights, manufacturers can reengineer their products and its packaging.

Logistics and Supply Chain Optimization – IIoT applications provide real-time supply chain information which gets automatically integrated with enterprise systems like ERP, PLM etc. This will enable all stakeholders to trace dependencies, production cycle times and material flow leading to reduced inventories and hence capital.

Energy monitoring and optimization: Organizations can track the energy usage in the facilities using IIoT systems and optimize the processes for maximum efficiency. This results in lower operating costs.

Increase machine utilization: When the machines stay connected to the internet, it is easier to utilize them to their full potential. This significantly raises productivity levels and helps to cut expenses.

The sheer variety of functions that an IIoT-based system can perform makes it extremely versatile and beneficial. For successful implementation of IIoT, a company has to first arrange for a reliable

platform. The platform should be able to provide all the necessary software, hardware, and connectivity. Gadgeon's Delpheon industrial IoT platforms promote shorter development cycles and cost-efficiency.