

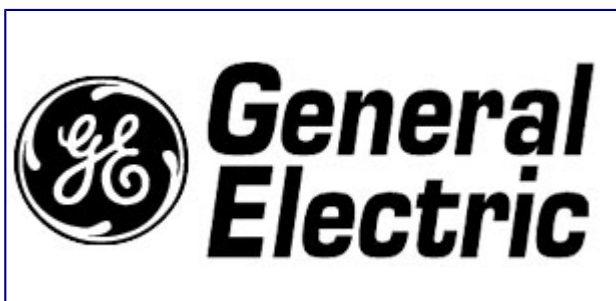
Improve Visibility and Empower Workers to Gain Efficiency, Reduce Risk, and Ensure Compliance

IoT Use Cases for Operations and Manufacturing

- **Inventory and Material Tracking** – Easily locate and monitor key inventory (e.g. raw materials, final products, parts, and containers) to optimize logistics, maintain inventory levels, prevent quality issues, and detect theft.
- **Single Screen Operator View** – Connect factory assets and ERP/MES systems to provide role-based views via augmented reality experiences or connected applications to deliver work instructions and quality capture in-context for increased operator productivity and improved production quality.
- **Real-time Asset Monitoring** – Enable real-time monitoring and predictive diagnostics of assets to automatically trigger and proactively initiate maintenance teams or service networks to minimize downtime and identify maintenance and quality problems before they occur.
- **Connected Operational Intelligence** – Combine, analyze, and deliver insights from disparate and diverse silos of assets, operators, and enterprise systems into unified real-time visibility of KPIs for increased operational performance and improved decision making.

Common IoT Metrics for Operations and Manufacturing:

- Throughput; cycle time; lead time
- Production quality; defects and rework
- Product quality; returns
- Recalls; warning letters; audits
- Manufacturing cost; energy usage; scrap
- Availability; uptime
- Recalls; warning letters; audits
- Non-compliance events per year
- Service cost; warranty cost; first time fix rate



GE Transportation is a leader in the rail industry, providing freight and passenger locomotives, signaling and communications systems as well as rail services.

GE's Grove City manufacturing facility connected their locomotive remanufacturing plant to gain real-time visibility of plant health including labor efficiency, machine health, and production and schedule attainment.