



TOUCHSTONE
Technology > Transformation > Transcendence

Industrial IoT For Manufacturing

The Future Is Here

Re-invent Your Supply Chain

With Industrial IoT (IIoT)

Facts and Challenges

IoT has already initiated the fourth industrial revolution - known as Industry 4.0 that will trigger the huge paradigm shift in manufacturing. Today manufacturing industry is at a cross road standing at a very critical point that is posing new challenges and here is what you need to know:

1. Most manufacturing companies think of flow of material separate than the flow of information and try to sync the two along their supply chain. After the emergence of IIoT flow of the material and information will become inseparable as products will be inextricably linked with their information so becoming an information-driven organization will no longer be simply an option for most manufacturing companies, it will become a business imperative.
2. With rapidly growing consumption, more and more demanding customers, increasing customer expectations and concerns, exorbitant cost of operations- be it inventory, fuel or fleet, are some of the performance critical areas where manufacturing companies can identify problems and predict the trends that may lead to customer churn.
3. According to a report published by IDC - **Manufacturing, Transportation and Utilities were the top three industries** with the highest IoT spend of \$178B, \$78B and \$69B in 2016. All three are asset intensive industries. Global IoT spending is expected to reach \$1.29 trillion (CAGR 15.6%) by 2020 and will reach \$4.7 trillion between 2013 and 2022.
4. Top three IoT use cases in manufacturing industry were - **Manufacturing operations, Production asset management and maintenance and Field services**. Out of total \$178B spend in manufacturing industry, 57.5% (\$102.5 billion) was spent merely on manufacturing operations in 2016.
5. Out of the total \$4.7 trillion spend expected between 2013 and 2022, **Asset utilization, Employee productivity, Supply chain & logistics, Customer experience and Innovation** are expected to account for \$1.0T, \$0.8T, \$1.0T, \$0.9T and \$1.0T sequentially.
6. Manufacturing companies are finding themselves in unfamiliar terrains where they must connect their processes, resources, systems with their equipment and devices to leverage the data in order to reduce cost, improve productivity, enhance efficiency and stay competitive.
7. Smart sensors are transforming the world for manufacturing industry redefining the value creation through monitoring, predictive analysis and managing the assets, equipment, working conditions, risks to personnel safety and health and other areas.
8. With increasing complexity of supply chain operations, interconnected multiple factories, need to coordinate with multiple suppliers across the globe, keeping track of hundreds of products and linked information along the supply chain needs a robust stable architecture to keep everything interlinked.

Some IoT Use Cases for Manufacturing Industry

Strength of IoT lies in its ability to monitor, control, and compile data derived from sensors, IoT enabled devices and other “things” involved in manufacturing and leverage this data for predictive analytics to unveil the change potential, value creation and cost reduction. In order to strive to achieve optimum process efficiency, increased productivity and cost reduction in this new data-rich era, manufacturing companies must attain the visibility of the real time information right from the production floor that can help them to make faster decisions. Below are some of the use cases where IoT can help manufacturing companies:

Production Monitoring

Smart manufacturing, Manufacturing flow optimization, WIP inventory reduction, Waste elimination, Performance monitoring and optimization, Optimizing operational cost through real-time information and visibility traversing across the manufacturing operation and making required adjustments

Manufacturing Asset Management

Asset tracking and remote monitoring of equipment performance, potential breakdowns and damages, quality, remote monitoring and control of equipment temperature to conserve energy

Equipment Condition Alerts and Notifications

Identifying bottlenecks, Ensuring interrupted production line, Increase throughput, Minimize downtime, Optimize the availability and utilization of machines through preventive, corrective and predictive maintenance

Transportation Monitoring

Freight monitoring, Fleet maintenance, Fuel consumption, Driver's behavior

Identifying Causes of Product Quality Issues

Identifying causes of product quality issues by aggregating and analyzing the data collected in different stages across the entire supply chain

Other IoT Use Cases in Manufacturing Supply Chain:

- IoT can be deployed in production plants, warehouses and distribution facilities and point of sales to collect data. This data when combined with data collected from third party supply chain partners may unveil heaps of invaluable information such as product logistics visibility of forward and reverse flow of goods across the supply chain, consumer preference, buying behavior and consumption pattern
- Smart Temperature and Air quality control systems
- Mitigating risks related to safety and health hazard
- Transportation of hazardous products
- Controlling hazardous waste
- Controlling harmful radiations
- Preventing the leakage of harmful gases and liquids
- Predictive maintenance to reduce equipment failure and service cost
- Packaging, transportation and shipping management
- Supply chain resource allocation and shared cost reduction by sharing data with supply chain partners

Why Touchstone

Understanding how to leverage IoT investment and move to the next level of data intensive business intelligence can be very difficult for any organization specially keeping pace with the 6 Vs of the data - volume, variety, velocity, veracity, visibility and value. The key factor in achieving better business value is to understand that the gap between the maturity level of the business intelligence within the company and the maturity level of the company itself must match as much as possible.

Gaining greater visibility into the future and complete control of your strategic decisions with the help of smart connected devices and sensors derived data makes more business sense especially when it comes to improving your company's operational efficiency and financial performance.

Touchstone is a leading complete embedded sensors solutions and full service IoT company . Our end-to-end embedded sensor solutions and IoT services enable you capitalize on the huge potential that IoT brings to the table. It entirely transforms the way you look at your processes, resources, system and information by providing actionable insights from your data. Touchstone's IoT services can help you in "Smart Management" of your company. Touchstone is perfectly capable of understanding your business needs and aligning your your technology initiatives with your organizational goals through developing innovative solutions with measurable results and helps you managing the next paradigm change of your company.

About Touchstone

Touchstone ITS is a Management Consulting and IT Services company that architects business solutions and provides IT services to companies across the U.S. Touchstone helps its clients maximize ROI on their business processes and IT investment with short delivery cycle, seamless systems integration and superior support services.

Make Touchstone your partner for embedded sensor solutions and IoT services.

Contact us today at **(909) 972-0001** or email at **info@touchstone-its.com**