SPARK IoT for CPG

SPARK IoT Applications Optimizing CPG Processes With IoT Innovation From Production To Distribution

Innovation in CPG Technology

CPG organizations have learned to consistently innovate and deploy new ideas rapidly through optimizing supply channels, identifying consumer trends, and utilizing various marketing and product positioning strategies at retail locations.

This responsive approach to the market has helped to increase market share, consumer traction, and profitability across brands and products.

CPG Industry Components Contributing to IoT Innovation

Many consumers now prioritize convenience and availability over brand loyalty with roughly 45% of U.S. consumers switching brands or retailers due to lack of product availability.

To handle future disruptions, CPG firms are building more efficient supply chains by optimizing every element of the process, from planning to forecasting to distribution.

- Companies need to drive cost efficiencies and economies of scale in their manufacturing process as 54 percent of consumers consider themselves to be more cost conscious than before the pandemic and 29 percent of shoppers surveyed reporting increased purchase of budget brands.

- Consumers are willing to pay a 20 percent premium on personalized products or services. Companies can improve the brand experience by helping consumers find or customize the right product for them and by creating engaging interactions with smart, connected devices or apps.

Consumer Packaged Goods companies need to reinvent how they develop, make, move and market their products to meet consumer demand, disrupt perceptions of commoditization from private labels and keep market share against emerging regional and new product brands in the market.

Many companies are buying and configuring IoT cloud solutions to build great brands, increase organizational dynamic response to market opportunities, and drive operational efficiency with proven, industry-specific innovations and solutions.

IoT in CPG: Solution Approach

In today's market with expanding direct to consumer channels, the same attention to rapid innovation and responsiveness is now required through the manufacturing and distribution processes to ensure and support product availability in the supply channels, minimize production disruption, lower costs, and optimize quality control for product safety requirements.

These innovation technologies include advanced sensors, embedded software and robotics that collect and analyze data and allow for better decision making. Even higher value is created when data from production operations is combined with operational data from ERP, supply chain, customer service and other enterprise systems to create whole new levels of visibility and insight into operational processes.

This technology leads to increased automation, predictive maintenance, self-optimization of processes, and increased responsiveness to customer and industry requirements.

The Opportunity for Manufacturing Data Innovation

A single production line can generate more than 70 terabytes of data per day–yet most data remain unanalyzed. Innovation with emerging technologies embeds the latest next level technologies like AI, IoT integration, and security to efficiently extract value and act on these untapped data components

Analyzing the large amounts of data collected from sensors on the factory floor ensures real-time visibility of manufacturing assets and can provide tools for performing predictive maintenance in order to minimize equipment downtime in the factory.

Using IoT devices in smart factories leads to higher productivity and improved quality. Replacing manual inspection with AI-powered visual insights reduces manufacturing errors and lowers costs. By applying machine learning algorithms, manufacturers can detect errors immediately.

The Cost of Production Disruption

How much does factory production disruption cost? For almost nine in ten firms surveyed, an hour of factory disruption could be as much as USD 300,000. And one in four say that a single hour could cost upward of USD 1 million to as much as USD 5 million. (Source: ITIC)

Implementing a Platform for IoT Innovation

Every company operational system needs a comprehensive platform to automate business processes and to enable and integrate transactions, innovation and manufacturing processes — and AWS IoT Smart Factory platforms are based on the cloud and utilize open APIs that orchestrate the exchange of data between systems.

Industry leaders that effectively implement operations technology service management benefit from consistent architectures that are easy to scale and maintain while allowing for local innovation and flexibility. With Smart Factory as a Service companies get a proven Smart Factory platform with the expertise and services to effectively deploy and support the system.

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Categories of IoT functions for CPG Companies

CPG Manufacturing

The next revolution in CPG manufacturing is here. However, consumer packaged goods companies are still challenged to squeeze out additional productivity, increase asset utilization, and improve quality —all while lowering costs

Quality Control

Reduce the cost of goods sold and improve manufacturing yield with computer vision, IoT and AI/ML capabilities allow companies to capture production information dynamically and utilize predictive services to optimize production efficiency and quality control.

Environmental Impact

Innovation with IoT helps CPG companies monitor and analyze manufacturing operations to reduce energy costs—including water usage, energy consumption, transportation costs, and greenhouse gas emission—up to 18% and understand environmental impact.

Production Efficiency

Use ML and AI capabilities to decrease unplanned disruption by 48%, improve average OEE by 16%, and increase manufacturing yield by capture, analyze, and visualize disparate plant data to predict production problems before they occur so you can optimize your manufacturing process.

Categories of IoT functions for CPG Companies

CPG Distribution

Supply chains pose a complex challenge for modern CPG businesses. Companies must orchestrate millions of moving parts: forecasting demand, transporting materials, planning production lines, managing global transportation networks and distribution centers, and ensuring delivery to retail and consumer channels.

Automate and improve supply chain processes with the broadest set of IoT platform, database and ML services to help ensure product availability, optimize inventory, and cut costs.

Track and trace products through the entire supply chain identify potential risks, improve forecasts, optimize inventory levels, and drive cost out of distribution efforts while delivering products to wholesalers, retailers, and consumers dynamically.

Ensure Product Availability

Use dynamic visibility of the supply chain and AI to improve forecast accuracy up to 50%; predict potential out-of-stock risks from supply disruptions, manufacturing issues, and potential delivery delays; and develop strategies to reduced late deliveries by 60%

Optimize Inventory Levels

Innovation with IoT improves forecasting, inventory management and warehousing, transportation and logistics operations to deliver on-time, in-full and also increases inventory turns at distribution centers.

Lower Supply Chain Costs

Reduce fulfillment and transportation costs by as much as 20%. Amazon has 25 years of experience optimizing multi-channel fulfillment and logistics to consumers.

SPARK IoT for CPG

SPARK IoT applications rely on the cloud for processing, analytics, storage, and machine learning, but also need to do some processing, like ML inference, close to where data is generated to deliver intelligent real-time responsiveness, and reduce the amount of data transferred.

Develop industrial applications for predictive quality, maintenance, and operations monitoring with AWS IoT and Machine Learning services, and a combination of infrastructure services deployed on-premises or at the edge, like AWS Outposts and AWS Snowball. Securely collect and analyze manufacturing data at the factory edge to optimize processes and improve safety, productivity, and quality.

Power innovative processes and optimize production at global scale with IoT platforms, edge computing, and advanced analytics tools to improve manufacturing operations.

ROI Benefits from SPARK IoT

» Lower variable operation costs

» Increase Production Efficiency

» Minimize Production Disruption

» Implement Product Safety Quality Control Processes

Utilize IoT components to improve business operations by:

» Enabling access to disparate plan data to improve Overall Equipment Effectiveness

» Adding AI and Machine Learning for real-time predictive analytics capabilities

» Creating a disaster recovery plan in the cloud