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# **IoT in the Supply Chain: Anticipating the Demands of the Future**

The future is certainly bright for the Internet of Things (IoT)-connected supply chain. The sector is expected to explode within the next few years, with IoT devices

outnumbering people 26 to one by 2020.

Nearly every industry has benefitted from IoT integration. Optimized devices significantly help to increase supply chain efficiency. According to an IDC and SAP report, most industries will be able to measurably increase productivity by an impressive 15 percent. Here is how the IoT is bringing the very concept of the supply chain into the future.



### **Measure Inventory Orders**

IoT devices in warehouses have the ability to provide inventory managers with an incredibly accurate measurement of demand. Many manufacturers are utilizing the power of RFID technology to track which items are leaving the shelves or moving to another location. Radio frequency identification (RFID) uses tags that are scanned by connected devices to identify individual items and track their locations.

Some companies have gone as far as to incorporate cameras to record data and achieve even more accurate results when it comes to inventory management. Thomas Pink, a luxury clothing retailer, recently partnered with a technology company that uses cameras to measure and interpret inventory data. These cameras are linked with the RFID tags on each clothing item, so any movement triggers the cameras into action. By using cameras within retail locations, the company can visually track the movements and usage of each item, so store managers know exactly which areas need restocking for future orders.

### **Shipment Tracking**

Most of the biggest names in logistics are now using IoT devices to provide highly accurate shipment tracking and delivery schedules. Cisco and DHL have both estimated that implementing these systems has created nearly \$2 trillion in economic value for global supply chains.

This type of technology provides assurance for large or

expensive shipments, as senders can obtain real-time information about a parcel's exact location. It also helps businesses to stay on track for deadlines and expedited items. The accuracy IoT systems provide will help supply chains keep up with ever-increasing demands. By 2018, global shipping is expected to increase by 20 percent. IoT tracking systems will certainly play a large role in the future of logistics around the world.

### **Route Optimization**

By using real-time data from IoT devices in the field, many manufacturing businesses are able to optimize shipping routes with increased efficiency. Weather data services provide real-time information about possible road closures or delays. The technology can also determine demand for weather-specific materials at various locations and when they are needed.

Using connected devices for fleet management significantly reduces the amount of time required to get orders from a warehouse to their destination. UPS uses its ORION system to optimize its trucks routes based on traffic pattern information collected by IoT devices. Doing so has saved the company 10 million gallons of fuel in a single year, and about \$400 million dollars in total.

### **Ensure Product Quality**

When it comes to perishable items, such as food, medicine or chemicals, it's necessary to maintain proper temperature control en route. In fact, nearly half of all U.S. produce is lost due to quality issues related to temperature control. Using IoT devices to regulate temperatures in shipping containers is critical for reducing product loss. Identiv announced its newest sensor system in January 2017, which allows managers to control temperature right from their smartphones via connected tags and cloud services.

In another great example of quality control, AT&T now offers

shipping containers and trailer tracking to ensure the proper handling of shipments, as its devices measure everything from motion and shock to humidity and pressure.

### **Predict and Prevent Problems**

New breakthroughs allow IoT devices to tell the future, at least when it comes to mechanical issues. Just like doctors use stethoscopes and ultrasound machines to diagnose problems, these connected devices use sound and vibration measurements to pinpoint areas of weakness. Using vibration sensors and ultrasonic waves, the Auguscope device sends this information to an algorithm system that actually predicts possible failures.

Having these detailed insights can potentially save millions of dollars when it comes to equipment, while ensuring a safer work environment at the same time.

With regard to acting on predictions, however, the IoT can only help the process so much. The finer details and execution all come down to internal systems, as well as human decision-making. For business that use time-sensitive or mission-critical operations dependent on IoT devices, integration with a project management software-as-a-service (SaaS) tool would be of immense help. Collaboration and task scheduling software like Workzone will help keep multiple teams and departments on the same page, associating roles with processes and tasks, so nothing is lost in translation.

### **Analytics for a Better Future**

The world of the IoT is constantly gathering information and data. In fact, 71 percent of companies are currently collecting analytical information from their IoT devices to fuel future initiatives. From measuring ROI benefits to eliminating weaknesses, recording and measuring analytical information paves the way to a brighter future.

Since IoT devices have the capability to track all sorts of

data, weeding through the numbers and reports can seem nearly impossible without proper training at the analyst and executive levels. Zeolearn offers multiple online courses that range from the basics of the IoT, covering management, programming, and testing, to data analytical training, with an emphasis on predictive analysis, which every IoT-focused organization must be comfortable with as a core function.

The integration of IoT-connected devices has brought about a virtual revolution in countless categories. With proper use, managers can accurately predict the future needs of their supply chain across the board. With the analytical data these devices can provide, the possibilities for future improvements are just around the corner.

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