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The Guide to the Industrial Internet of Things (IIoT) for Supply Chain

Drive Supply-Chain Operational Efficiency with Low-risk Automation

Streamline and Transform Supply Chain Operations with Powerful Workflow Automation

" For manufacturers, one area of investment is clear: the Industrial Internet of Things. Also known as IIoT and Industry 4.0, this technology holds the key to unlocking drastic reductions in downtimes, new business models, and a better customer experience."

McKinsey, 2021

This guide provides an overview of the rapidly changing technologies — across industries worldwide — that comprise the Industrial Internet of Things (IIoT). Specifically, the guide outlines how data collected, stored and shared in the cloud can provide the robust monitoring and tracking needed to make intelligent decisions across the supply chain lifecycle.

Taking a step back for some perspective, the use of devices in the Internet of Things (IoT) is revolutionizing supply chain. No wonder the industry is set to grow in value to 1.6 trillion by 2025. IoT has quickly become central to the daily operations of enterprises worldwide. Yet supply-chain inefficiencies are having a huge impact in an environment of high consumer demand and are costing industries billions each year in lost productivity.

Like IoT, the Industrial Internet of Things (IIoT) is playing a growing role to solve operational challenges.

It provides companies with advanced warehousing, logistics and transportation solutions, while ensuring smooth process management across all links of complex supply chain.

How Does IIoT Improve Supply Chain?

IIoT is designed for industrial sectors of supply chain such as transportation, logistics, manufacturing, retail and healthcare. It centers on connected devices that facilitate best-in-class intelligence and availability. IIoT also delivers solutions to improve operational efficiency and productivity, and to reduce downtime while optimizing assets and adding transparency to decision-making.

For instance, asset tracking in an IIoT ecosystem provides companies a way to totally overhaul their operational efficiency by enabling them to collect data, visualize it and analyze the information to make better decisions, saving time and money.
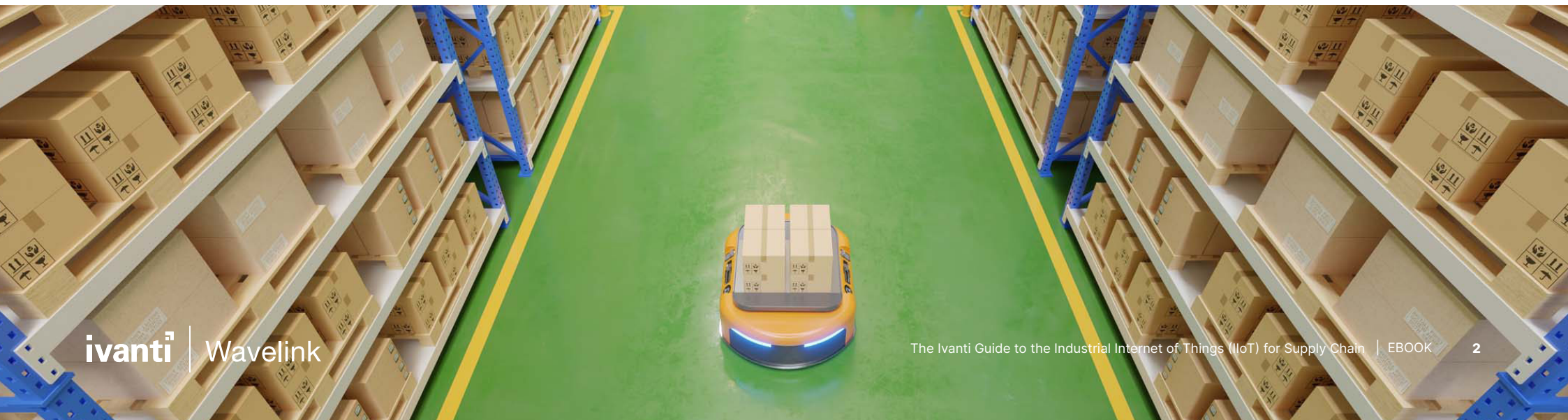
Freight and shipping companies have been using barcode scanners to track and manage their inventory. But when combined with an IIoT platform, these scanners can collect data on broad types of items and open new opportunities to extend beyond the four walls.

What is the IIoT User Experience?

Within the IIoT space, there are differences of opinion on how to best implement IIoT systems. The Ivanti® Neurons for IIoT platform connects machines, devices, workers and systems to maximize uptime, deepen insights and improve visibility. Dynamic workflows leverage the five key platform capabilities of connect, create, automate, analyze and visualize and address primary considerations for building out IIoT applications that are robust, secure and relevant to the user.

Build Robust IIoT Solutions

Many organizations struggle to build out smart technologies for their businesses because they worry about cost, infrastructure complexity, and poor migrations and integrations. We've found that a centralized automation platform is the best solution because it allows organizations to connect, create, automate, analyze and visualize throughout the production and transportation lifecycles. In addition, our Ivanti Neurons for IIoT platform enables end-to-end workflow automation, visibility and control that allow for better global management and monitoring of supply chain operations.

In this guide, we illustrate how several industries are using the Ivanti Neurons for IIoT platform to automate, streamline and optimize their workflow processes. In addition, we offer case studies that highlight how organizations harnessed data-driven solutions to add value to their supply chains.

The IIoT Opportunity in Supply Chain

Second only to manufacturing, transportation accounts for more than 15% of the IIoT global market. Transportation in construction management, in particular, is a growing industry that relies on complex supply chains to fulfill material orders.

There is immense IIoT growth opportunity in this sector, thanks to increasing demand for construction. According to Fitch Ratings, disruptions in the supply chain are the primary reason for ongoing port congestion, which has impacted sales volumes and caused price hikes for raw materials and transportation.

Examples

- Vehicle Fleet Management
- Yard Management
- Remote Asset Monitoring
- Intelligent Distribution and Location Tracking
- Optimized Logistics Systems

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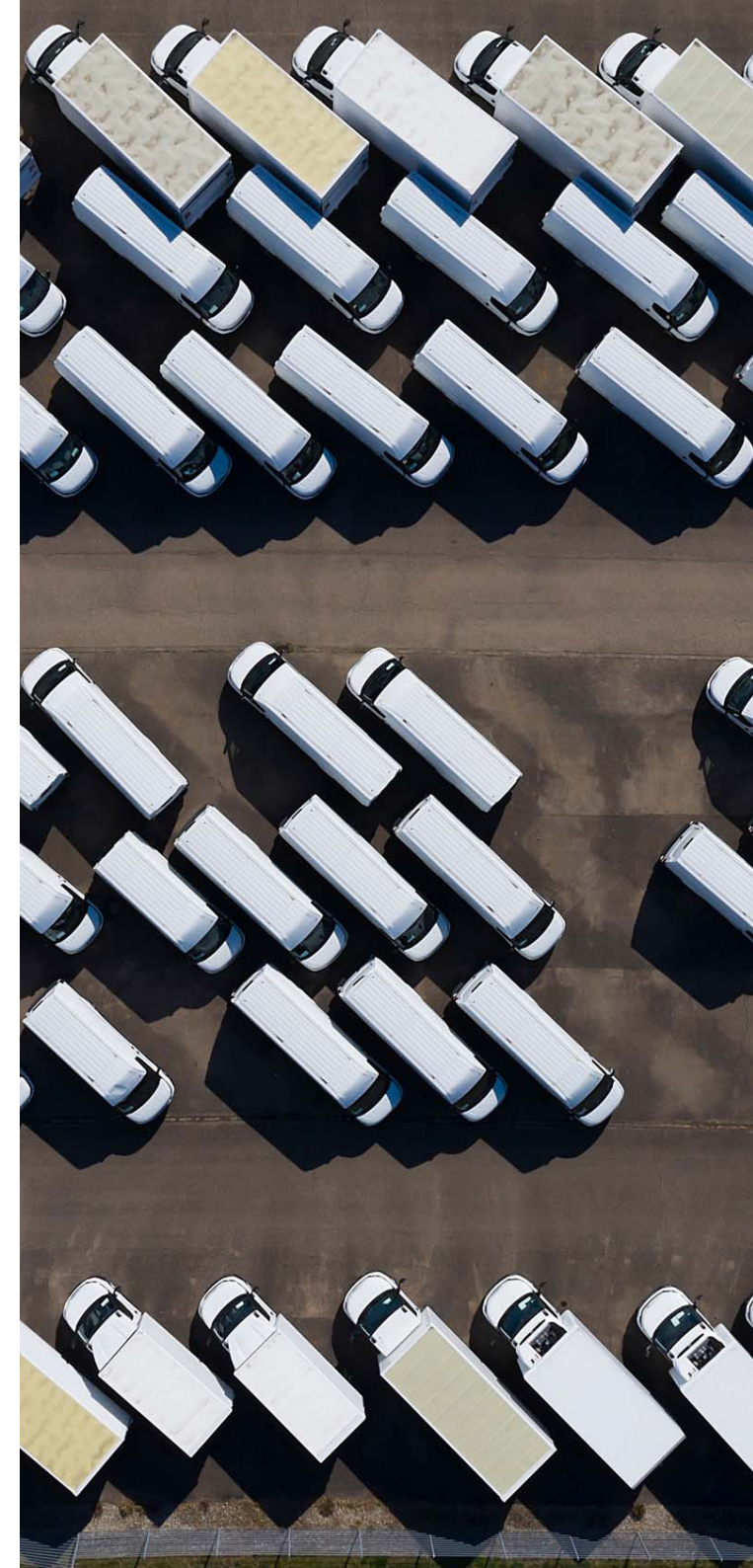
IIoT in Cold Chain

Until recently, the cold chain industry relied on siloed ways of storing and shipping goods. IIoT can capture and integrate data to ensure food and product safety, on-time deliveries and enhanced quality control. For example, an IIoT platform enables transportation and logistics companies to gather data on the temperature inside vehicles, pressure, humidity and other factors that could compromise the product's integrity and triggers automatic condition adjustment.

CASE STUDY **Transport Management**

Global shipping company ends food spoilage and improves efficiency

The Problem

A global shipping company needed more predictive and reliable ways to track cold products that require refrigeration and freezer storage, including ways to predict the ETA of cold goods shipments and ensure food safety at various destinations.

The Solution

With the help of Ivanti Neurons for IIoT, this transportation and logistics company is now able to better predict the ETA of trucks into yards, track loading-dock KPIs and integrate with transport management systems.

The company uses built-in, geo-locating beacons that report the trucks' locations and to better predict the ETA of trucks into yards. It also uses temperature sensors to ensure products stay within safe temperature ranges, to track humidity data, to detect and report the temperature in freezer trucks and more. And with the integration of the Transportation Management System

(TMS), the company can create a custom dashboard that provides a complete view of the entire fleet and prioritize shipments. It's now using IIoT to better manage deliveries and are proactively keeping customers aware of when their goods are arriving, quickly and safely.

The Value

- Vehicle tracking and TMS integration provides increased visibility and improved efficiency.
- Reduces waste, saves energy and prevents food spoilage.
- Identifies the location of all trucks in transit or scheduled to be in transit, allowing to expedite high-priority shipments over lower priority ones.
- The custom, centralized designed dashboard provides exact location, temperature and humidity of the trucks, providing a complete view of the entire fleet.

IIoT in Manufacturing

The manufacturing sector faces global supply chain and operational challenges, including quality control, inventory management and operational efficiency. IIoT can help streamline and expedite order fulfillment, packaging, warehouse safety and more.

With intelligent IIoT technologies, manufacturers can significantly reduce costs while increasing profits. In addition, integrated, cloud-based data management increases productivity, reduces waste and enhances efficiency.

Liquor distributor builds faster and more accurate picking solution

The Problem
Productivity and efficiency are crucial in a busy warehouse and distribution facility. Unfortunately, it can be difficult to pinpoint the sources of productivity problems, as these may be related to a device, a piece of software or one or more employees.

A large European liquor distributor uses large pallet trucks that each contain three different pallets. Pickers use bar-code scanners to scan and pick. If an error occurs at any point in the picking and loading process, it can lead to costly shipping errors and delays in order fulfillment and shipping.

The Solution
To address this problem and improve workflows, the distributor adopted the Ivanti Velocity solution and integrated it into Ivanti Neurons for IIoT to build a custom "pick to light" solution, also known as "light-directed picking."

The distributor built a custom pick-to-light solution on the pallet truck. So, based on a

specific item that the material handler is picking, red, green and yellow lights that represent corresponding pallet locations will light up. Once the pallet location is confirmed, the light on the pallet lights up according to which order number it represented. And just like that, a worker can quickly turn around and see where to place a box of liquor. That's an integration between Velocity and IoT enabled smart lights.

The Value
This distributor gained an accurate, efficient and paperless method of picking, placing and sorting products on the pallet trucks — one that reduces the potential for human error significantly.

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IIoT in Construction

As construction industry booms, so does demand for more nimble solutions for tracking and monitoring building supplies. A construction-industry customer is able to collect certain kinds of data about on-site activity, performance and conditions at the building site and send the data to a central dashboard where it is analyzed to help inform decisions.

Building material supplier automates supply replenishments and visibility

The Problem

One of the largest groups working in sustainable construction specializes in a range of services for construction management. For over 35 years, the company has been at the cutting-edge of construction technologies across the transportation, housing and corporate-construction sectors.

Because the group supplies containers of building materials to construction yards, it needed a way to remotely track the quantity of building supplies remaining on-site in order to determine when to replenish them on time.
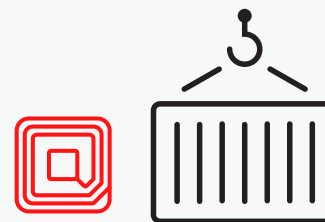
The Solution

With an integration of RFID asset tracking into Ivanti Neurons for IIoT, the group can track the consumption of building materials at each of their customers' projects. The platform is further integrated into their CRM, which allows a salesperson to contact the customer to arrange for Just-In-Time inventory replenishment and ensure the site is never left short of what's needed, preventing construction stoppages.

The Value

This IIoT technology enables this construction group to anticipate when a project will need additional building supplies, allowing foremen and project managers to make informed, timely decisions that prevent both shortages and gluts. As a result, the IIoT-based workflow is now a push-sale model and stock supply is better managed.

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The Ivanti IIoT Platform

At its core, Ivanti Neurons for IIoT connects machines, devices, workers and systems, maximizing uptime, deepening insights and improving visibility. Dynamic workflows leverage five key platform pillars:

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CONNECT

Smoothly integrate data from any connected device and operational technology applications, Ivanti Velocity and more to ensure a single-source repository for diverse business insights.

CREATE

With a low-code/no-code workflow builder, the Ivanti IIoT platform integrates pre-built applications easily so users can implement rapid solutions.

ANALYZE

Sync with Ivanti Neurons' AI/ML engine for powerful predictive-analysis capabilities, including identifying potential failures and processes for improvement.

AUTOMATE

Orchestrate workflows that drive productivity, optimize devices for peak performance and improve process automation in a single platform.

VISUALIZE

Streamline decision-making with real-time contextual dashboards that deliver cross-device insights, deep analytics, and predictive recommendations.

From edge computing to predictive analysis to iterating and optimizing journeys, Ivanti Neurons for IIoT delivers customized solutions for any industrial environment.

Conclusion

In each of the case studies, organizations worked with Ivanti Wavelink to create tailored, problem-specific solutions to IIoT needs:

- Each customer identified endemic organizational problems
- Solutions were designed to tackle each issue individually
- Every solution required collaboration with IIoT partners

Problems and obstacles were overcome by auditing current systems and workflows, and by making informed recommendations relevant to the organization and its partners.

Ivanti Wavelink

Wavelink, the Supply Chain division of Ivanti, is the global leader in supply-chain solutions that focus on task-worker operational excellence in business-critical environments. The world's top organizations use our industry-leading Mobile Enterprise Platform to enhance worker productivity at the edge while offering IIoT capabilities using low-code, low-risk automation — with actionable outcomes.

With Ivanti Neurons for IIoT, you can make fast, accurate decisions that result in breakthrough levels of efficiency and value across your business. Our IIoT technologies uncover key supply-chain insights and efficiencies that enhance operational efficiency while reducing costs.

Contact us to consult your IIoT Supply chain projects

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