How to Save Shipments & Money with IoT In-Transit Visibility

Gain Real-Time Information to Lose Risk: How IoT Sensors & Visibility Protect Your Supply Chain

When expensive goods or materials go missing, it can cost your company a huge amount of money.

There's the cost of the goods themselves – plus the cost of replacing them, the cost of delayed delivery, idled labor and more. The knock-on impact can be massive.

Knowing where your shipments are – and when they are going to reach their destination – is critical information for logistics managers. In-transit shipment visibility gives organizations the ability to respond to supply chain disruption and reduce risks. One key technology for robust in-transit visibility is sensors that communicate over the Internet as part of the Internet of Things (IoT). IoT sensor visibility solutions give supply chain managers access to the precise location and condition of critical shipments. Having up-to-the-minute shipment location and condition information means companies can be proactive, not reactive – and quickly respond to minimize the disruptive impact of shipment delays. Ocean freight shipments are a particularly big blindspot for most companies. Imagine what you could do if you knew your container was still in the port, and not on the vessel.

With real-time in-transit visibility, companies can protect high-value goods from loss, theft and damage while giving customers more precise ETAs – and avoid the direct and indirect costs of replacing misplaced shipments of critical raw materials, components or finished goods.

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3 Types of Shipment Data IoT Sensors Deliver

Shippers have historically relied on many sources – including carriers, 3PLs, freight forwarders, suppliers – to know where their goods are. This information has often been incomplete, with limited or missing details. For example, a shipper may know that a ship has arrived into port – but not if its container made it on the vessel in the first place. Timeliness is also an issue. Often, companies only receive this incomplete information long after the fact, making it less useful – or even useless. Such a fragmented, "passed milestone" approach to shipment visibility doesn't tell companies what they actually need to know about the status of shipments.

> *Organizations need more, better information – and affordable IoT tracking devices gives them practical, economical and trustworthy visibility into their cargo in transit.*

The increasing popularity and availability of connected devices – including mobile devices like phone and stationary devices like 'smart' home appliances – means now, more than ever, the IoT is rapidly expanding. Gartner projects the global number of IoT-connected devices to increase to 43 billion by 2023 – up almost threefold from 2018[1].

There are several types of shipment information IoT sensors can provide that improve in-transit visibility:

1. Location
The initial data IoT sensors on in-transit cargo can gather and share is as simple – and crucial – as location. Being able to answer "Where is the shipment?" remains one of the most important questions for shippers, 3PLs and other supply chain partners.

2. Environment
In addition to location, IoT sensors provide important environmental readings, such as temperature, shock and humidity. Knowing, for example, that a container was subject to shock in transit, where that shock happened, and which carrier had the container at the time – can be essential for organizations with particularly fragile goods. Armed with that data, supply chain managers can decide whether to quickly dispatch a replacement shipment because the original goods are definitely broken or wait to inspect the goods at the next handling point.

3. Security
Security is another key type of data IoT sensors provide. IoT security seals can tell you exactly when someone opens your container or tries to compromise your cargo and are more difficult to open or counterfeit than conventional plastic seals.

Managing by Exception: How to Use Sensor Data Effectively

International Data Corporation (IDC) estimates that in 2025, there will be 41.6 billion connected IoT devices, or "things," generating 79.4 zettabytes (ZB) of data[2]. Sensors can provide companies important, timely data about in-transit goods – but the sheer volume of information can make it hard to find the signal in the noise. So, how can companies surface the most valuable information about exceptions, delays and other issues?

Supply chain data is only useful if you apply rules to which events should drive responses – and what those responses should be. Not every breach reported from a security seal means your goods are being stolen – you should be much more worried if the alert comes in while your goods are transiting through a risky, high-theft area than when they are being inspected at Customs.

Feeding sensor data into a big data-driven visibility platform – equipped to handle previously unimagined amounts of data – is essential. It's also important that the platform has rules to help "manage by exception" – that is, identifying exceptions so humans know when to intervene.

IoT sensors are most useful when the data they collect combines with a sophisticated set of decision-making steps that's relevant to your business and is governed by if-then logic, in virtually endless combinations. A powerful in-transit visibility platform like Savi Visibility™ can handle an infinite number of rules and models, including a super-granular level by route, lane, destination, cargo type and any other consideration. Each customer's unique criteria are automatically and continuously applied to the platform. This acts to constantly update an accurate, predictive ETA and other crucial metrics, making the whole system both powerful and flexible.

Using IoT Sensor-Enabled Visibility to Prevent Shipment Loss/Delay: 4 Real-World Examples

Losing track of a shipment of high-value goods costs your company far more than just replacing the missing items. The impact extends through your supply chain and across your business, with consequences ranging from interrupted production, to extra labor, to lost customers.

Companies in different industries worry about very different supply chain risks, depending on the nature of the goods they move. Supply chain disruptions can vary widely – but the consequences are often expensive – and sometimes even harmful. Here are four real-world examples of organizations reducing risk with IoT-enabled in-transit visibility:

1. Biotech firm locates custom-made construction equipment for plant launch
A global biotechnology customer was building a European plant with custom U.S.-manufactured equipment and then shipped to the site in Europe. The construction site had no storage capacity and was impossible to secure. To manage its limited, unsecure location, the firm created a construction and assembly schedule, then put its specially made equipment in a series of containers scheduled to arrive at exactly the time they were needed.

En route, one-fifth of the containers needed for assembly were not loaded on the ship. Had the containers been lost, the delay could have been catastrophic. The firm would have faced the cost of remanufacturing its custom equipment – and delaying its plant's operational start. More, the company had expensive labor waiting to start work at the site – and would have paid for that idle time on top of the costs of actual construction.

Fortunately, the firm had attached IoT sensors to those containers so the company could track exactly where each one was. Their logistics team knew the containers' precise location and intervened, adjusting with ML-ETAs, and re-planning the labor and construction schedule. The company saved almost $100M – the total of the cost of remanufacturing the custom goods in the containers and all the aggregated costs of delays.

2. Chemical manufacturer tracks essential ingredient

One industrial chemical manufacturer came to Savi after a container of an expensive active ingredient for one of its products sat in a port for three weeks.

The disruption from misplacing this ingredient was huge and cost the company far more than just the value of the ingredient itself. Running out of this essential ingredient caused a complete manufacturing shutdown. Shutting down manufacturing triggered a regulatory requirement that the company clean the entire plant before resuming operations, costing the manufacturer $1M.

Shipment disruptions can have massive ripple effects, costing a company both money and time.

Then – since that chemical ingredient was critical for seasonal business and the shutdown came just before peak season – they were unable to fulfill customer orders, missing out on substantial projected revenue. This disruption was damaging to the company's relationship with its customers, who had to find alternatives suppliers during peak season.

Now, the company monitors the location of its shipments in real time. It can respond proactively dispatching a new shipment, communicating with its customers about updated ETA – to ensure it meets time-sensitive delivery targets.

3. Industrial mining firm manages critical heavy equipment components

A mining company transports heavy industrial equipment, such as haul trucks, across the globe for refurbishing and/or relocation. This equipment is so large that the company disassembles the units into smaller pieces, and then ships those pieces as components. The company not only needs to know the location of each component, but also ensure all the components for an equipment unit stay together.

During these global relocation and refurbishments, the company ships the components across thousands of miles and several different modes including truck, ocean vessels and rail.

This company began using Savi sensors on the shipment of ISO containers and crates to track the movement of its component shipments from door to door.

Each piece of industrial equipment is worth millions of dollars, so losing even one part of one piece represents a big potential cost. Without all the parts, the company cannot successfully reassemble its transported equipment – and would have to not only pay to replace that part to make the equipment whole and functional but also bear the cost of having an important piece of industrial equipment out of commission until its components are reunited.

4. Electronics manufactures secures cargo traveling by truck

An electronics company assembles servers and storage options for its end customers at different facilities, then ships the units to distributors by truck. To protect these valuable goods during transport, it previously used escorts to secure its shipments.

Security of this cargo is a huge concern. This company now uses Savi sensors to safeguard its cargo as the shipments are transported. Savi's Visibility platform provides cargo security status and location to the company's supply chain control room to allow the company to manage by exception. When the cargo dwells for too long at rest stops or deviates from the assigned route, the control room receives a notification so it can take action to resolve the situation.

The Bottom Line

If your shipments don't arrive on time, arrive damaged – or don't arrive at all – it is going to cost your company money. That is the simple truth.

Knowing where your shipments are and what condition they are in – in real time – means you can safeguard your most valuable goods and materials and avoid the costs of replacing misplaced, damaged or stolen items.

Today, IoT sensor-enabled visibility offers a more complete picture of where your cargo is both around the world and across different transportation modes. For supply chain managers juggling spreadsheets and trying to track cargo day in, day out, IoT-enabled in-transit visibility can be a cost-reducing, reputation-saving game-changer.

Learn more   *Manage your supply chain with a comprehensive, accurate snapshot of inventory in transit*

Let's talk   *Get a personal introduction to Savi's in-transit visibility solution*

Footnotes

[1]Gartner, "Forecast: Internet of Things — Endpoints and Associated Services, Worldwide," 2017.
[2]IDC, "The Growth in Connected IoT Devices Is Expected to Generate 79.4ZB of Data in 2025," 2019.