savi™

THE VALUE OF KNOWING



IoT Visibility Reduces Risk, Plain and Simple

Why IoT-Enabled Visibility Is a Game-Changer

Every logistics manager agrees that in-transit shipment visibility is essential for an agile, responsive supply chain. It is integral for preventing and minimizing loss, avoiding customer dissatisfaction, and protecting product and brand integrity. As organizations work towards full supply chain digitization, IoT sensors—sensors that communicate over the Internet or the Internet of Things (IoT)—have become the new darling for their game-changing ability to reduce supply chain risk.

IoT-enabled visibility solutions that share the precise location and conditions of critical shipments enable supply chain managers to shift from reactive to proactive. Armed with up-to-the-minute information on location and condition, they can now more effectively limit major downstream impacts to their company when shipments are delayed. With real-time in-transit visibility, companies can slash the amount of theft and damage of high-value goods in motion. And companies can both reduce customer dissatisfaction stemming from imprecise ETAs and cut supply chain costs, all while improving orchestration and supply chain efficiencies.

Table of Contents

Shipment Replacement Costs Exceed Cargo Value..... page 2

IoT Devices Deliver Two Classes of Information ..... page 3

Avoiding Cascading, Downstream Losses ..... page 4

Audit Trails for Better Partner Management..... page 5

Ubiquitous IoT Adoption ..... page 6

Shipment Replacement Costs Exceed Cargo Value

When a shipment of high-value goods such as a container of custom-manufactured equipment becomes lost, the impact is higher than the cost of replacing the goods. That's the tip of the iceberg. The knock-on effects can include an interruption in production, extra labor costs, loss of customer confidence, and a host of other costly consequences.

Historically, visibility has arrived piecemeal, gathered from multiple sources such as carriers, 3PLs, forwarders, and suppliers. Unfortunately, this data is incomplete—a jigsaw puzzle with many crucial pieces missing. Often information is limited to passed milestones or events of low importance, such as a ship's arrival at a dock—which is less valuable than the time a truck picked up a container for its onward journey.

The advent of affordable IoT asset tracking tags means shippers now have a practical, economical way of gaining maximum in-transit visibility of their cargo, with data specific to their own, unique business needs.



When a shipment is lost , the effects include a host of other costly consequences.

IoT Asset Tracking Tag Applications. Sensor data has been the fastest-growing category of big data for a while, which is fine, except when the sheer volume drowns out valuable information about exceptions, delays, and other issues. It's essential that sensor data gets passed to a big data visibility platform that is equipped to handle previously unimagined amounts of data, and one with the right rules to identify exceptions when humans should intervene.

> *"With more IoT Commercial applications, such as a video doorbell that shows you who's at your front door, industry executives can see the business applications. Now, this technology can go on your cargo."*
>
> **- Jim Haden, Chief Technology Officer, Savi**

Data gathered and disseminated via IoT sensors on in-transit cargo can be as simple as: "Where am I?" – still one of the most important questions for shippers, 3PLs and other supply chain partners.



IoT Devices Deliver Two Classes of Information

Broadly speaking, IoT devices deliver two classes of information. The first is environmental readings such as temperature. "A big one, now, is shock," explained Hayden. "A device will tell you: What G-force was encountered while in transit? Where did it happen? And who was the carrier at the time the shock occurred? This information informs whether you should immediately send another shipment because you know that shock level means it's broken, or intervene at the next handling point to have it inspected. Before, you couldn't get a message saying: 'Hey, somebody just dropped me on my head.'"

The other type of data relates to security. Unlike conventional plastic seals, which are easy to open and counterfeit, IoT security seals let you know exactly when someone opens your container or tries to compromise your cargo. "The sensor tells you: 'Here's what happened, this is who was in charge at the time.' It gives you enough granular information to take action," said Hayden.

Applying Rules to Oceans of Data

It may sound straightforward, but all your supply chain data is of limited use until you apply rules to what actions are required in response to which events. For example, it's okay if your security seals are breached while cargo is being inspected at Customs, but not outside a casino in Arizona. The capabilities of IoT devices come to the fore when combined with a sophisticated set of decision-making steps governed by if-then logic that's tailored by each user, in virtually endless combinations. Savi's in-transit visibility platform, 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 applied within the platform on a continuous basis. This acts to constantly update a **Machine-Learning ETA (ML-ETA)** and other crucial metrics, making the whole system easily and massively scalable.

Avoiding Cascading, Downstream Losses

Different businesses face very different risks, depending on the nature of the goods they move. Regardless of the industry, supply chain disruptions can have expensive, and even harmful consequences, downstream.

A real-world example is a global bio pharma-tech customer that was building a plant in Europe with custom-made equipment created in the U.S. and shipped to the site in Europe. The construction site had zero storage capacity and was impossible to secure. In response, the pharma firm worked out a careful construction and assembly schedule, then put the equipment in a series of containers timed to arrive at exactly the time they were needed.

Luckily, they attached IoT sensors to those containers so they could track exactly where each one was. En route, four out of 20 containers needed for assembly were not loaded on the ship. Had they been lost, there would be the costs of remanufacturing custom equipment and delaying the plant's operational start.

More, the pharma firm had expensive labor waiting at the site. The delay could have been catastrophic. But because they were using sensors, their logistics team knew precisely where the misplaced containers were, and so were able to intervene, adjust with ML-ETAs, and re-plan the labor and construction schedule. It saved them not only the cost of remanufacturing the goods in the containers but all the aggregated costs of delays – in this case, close to $100M!





IoT sensors save costs of lost equipment and operational delays.

Another customer, an industrial chemical manufacturer, came to Savi because a container of an expensive active ingredient for one of their chemical products had been misplaced in a port for three weeks.

This disruption had tremendous impacts, with losses far beyond the value of the ingredient itself. They were forced to shut down manufacturing because they had run out of this essential ingredient. Because they had paused manufacturing, regulations demanded they clean the entire plant—at a cost of $1M—before resuming operations.

Since that chemical ingredient was critical for seasonal business and the shutdown came just before peak growing season, they were unable to fulfill customer orders, missing out on substantial projected revenue. Worse, this disruption was damaging to the chemical company's relationship with customers, who were left scrambling to find alternative suppliers. Following the after action review, the decision was made to reduce risk with in-transit visibility software and IoT sensors.



Audit Trails for Better Partner Management

IoT-enabled visibility of goods in transit also empowers shippers when dealing with disputes with supply chain partners. For example, your carrier says your cargo was unloaded Monday and got picked up Friday, so you owe them demurrage. But your IoT asset tracking tag data tells a different story.

> *"IoT shipment updates are neutral and unbiased. They can save a company a lot of money because they provide an audit trail of what actually happened, as opposed to manually entered EDI messages that represent the carrier's version of events."*
>
> **- Jim Haden**

While EDI messages commonly are latent and not always accurate, shippers should continue to receive EDI data from their partners for specific shipping points. You shouldn't do away with them, because it's useful to know the carrier's version of events. IoT asset tracking data gives you the unvarnished truth of what happened. It's a good idea to use both.

Ubiquitous IoT Adoption

In addition to reducing risk, IoT-enabled visibility safeguards product integrity by enabling actionable business intelligence. To date, Savi has seen the most adoption of IoT visibility technology in industries with high-value or high-consequence goods, such as electronics, pharmaceuticals, and chemicals. Looking forward, as more IoT devices are manufactured at scale, and the prices fall more, adoption is likely to rise sharply across more industries and use cases.

> *"This will become ubiquitous when people understand this level of visibility is accessible now. Then logistics teams will switch to using exception-based shipment management tools. But it takes a complete mindset shift."*
>
> **- Jim Haden**

Adoption will also climb as companies are better equipped to operationalize real-time information. Your world doesn't need to be spreadsheets and endless telephone calls to find out where things are. Now, with the click of a button, no matter what mode or continent, you can see where your cargo is. For the overburdened operations manager whose hair is on fire, trying to find out every day where his cargo is, this will be a tremendous improvement.



WORLD HEADQUARTERS
3601 Eisenhower Avenue
Suite 280
Alexandria, VA 22304

PHONE
1.571.227.7950
1.888.994.SAVI (7284)

FAX
1.571.227.7902

EMAIL
info@savi.com