ASSET TRACKING IN THE SUPPLY CHAIN AND LOGISTICS

ADOPTION TRENDS, INDUSTRY USE CASES, AND MARKET CHALLENGES FOR A FUNDAMENTAL IOT APPLICATION

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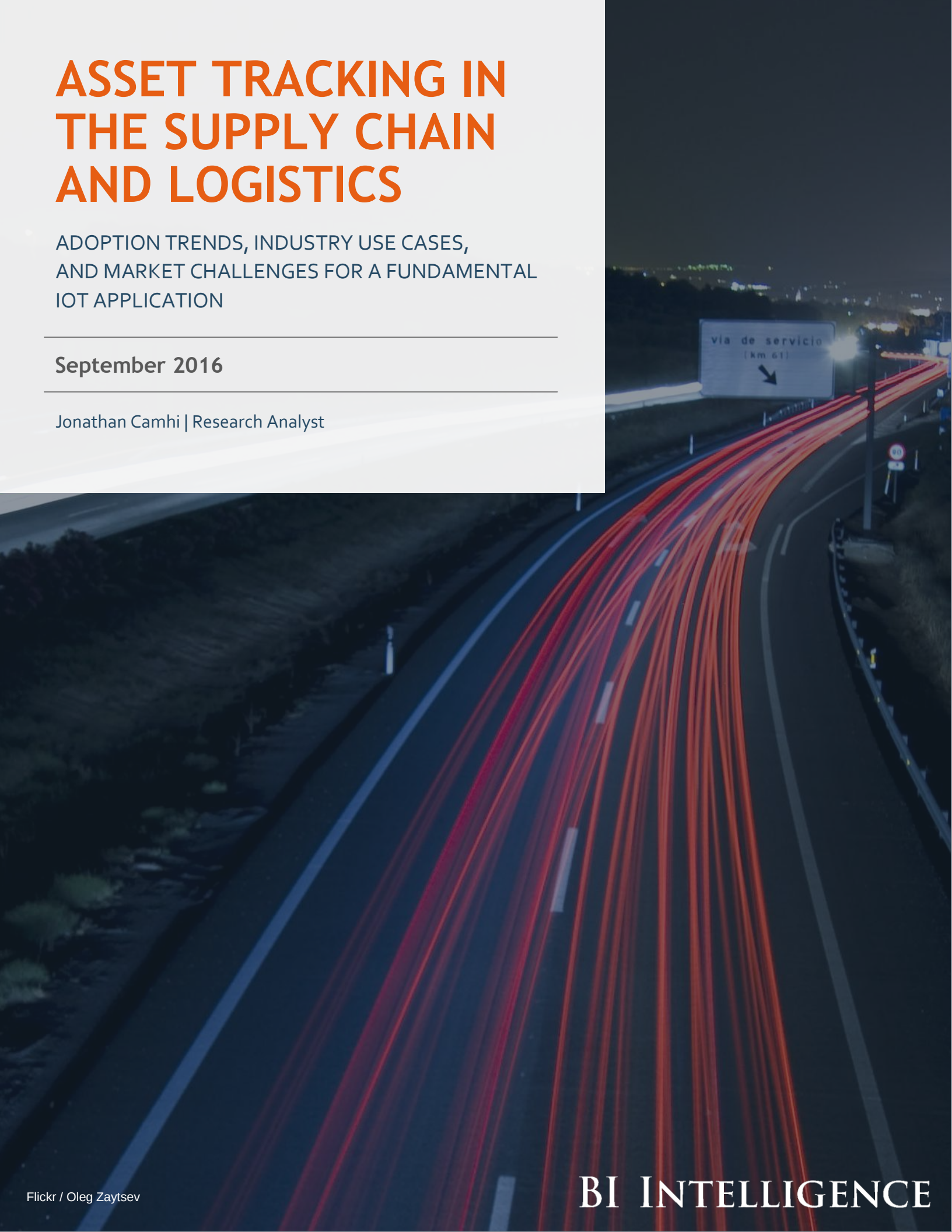
Jonathan Camhi | Research Analyst



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KEY POINTS

- **Asset tracking provides companies with the opportunity to completely overhaul their supply chain and logistics operations by making smarter decisions that can unlock enormous value.** DHL and Cisco estimated last year that the potential economic impact of IoT technologies, like asset tracking solutions, in the supply chain and logistics space tops $1.9 trillion.
- **Asset tracking is not new to the transportation and logistics industry, but legacy options don't stand up well against the many newer sensors and tags on the market.** Logistics providers and their enterprise clients have long used tools like barcode scanners to help track and manage inventory. However, next-generation asset tracking solutions that benefit from an internet connection can provide real-time tracking data that is far more valuable.
- **Analyzing asset-tracking data provides companies with several important benefits that can enhance their supply chain and logistics operations.** These include cutting down transportation and warehouse costs, optimizing employees' time by taking some of their focus off of inventory-related tasks, and improving compliance reporting.
- **Because of the breadth of benefits that asset trackers provide, the adoption of these solutions will likely increase across a number of different industries.** The retail and manufacturing sectors, in particular, are likely to use these solutions heavily, as they rely on their supply chain operations to deliver high volumes of goods on time. Other sectors that stand to benefit include oil and gas, agriculture, and pharmaceuticals.
- **Asset tracking solutions provide the most value when the data they provide is aggregated and cross-referenced with other enterprise data sources.** However, this sort of implementation represents a major challenge for companies due to a lack of industry standards, as well as the long-standing operational procedures within companies, which struggle to react to real-time data.
- **Successfully implementing asset tracking solutions will require deploying them as part of a broader technology roadmap.** This includes employing data processing and analytics tools that help organizations glean insights from tracking data, and making adjustments to operational procedures to provide greater flexibility and easier integration with technology.

Download the charts and data in Excel »

THE IMPACT OF ASSET TRACKING IN LOGISTICS

Like many other areas of the economy, logistics is undergoing a digital transformation fueled by the combination of mobile computing, analytics, and cloud services. This combination promises to help companies cut costs and improve delivery times in their supply chain. Industries that lean heavily on logistics are trying to take advantage of this opportunity: **70% of retail and manufacturing companies already have a digital transformation project underway in their supply chain and logistics operations, according to a recent survey by GT Nexus and Capgemini.**

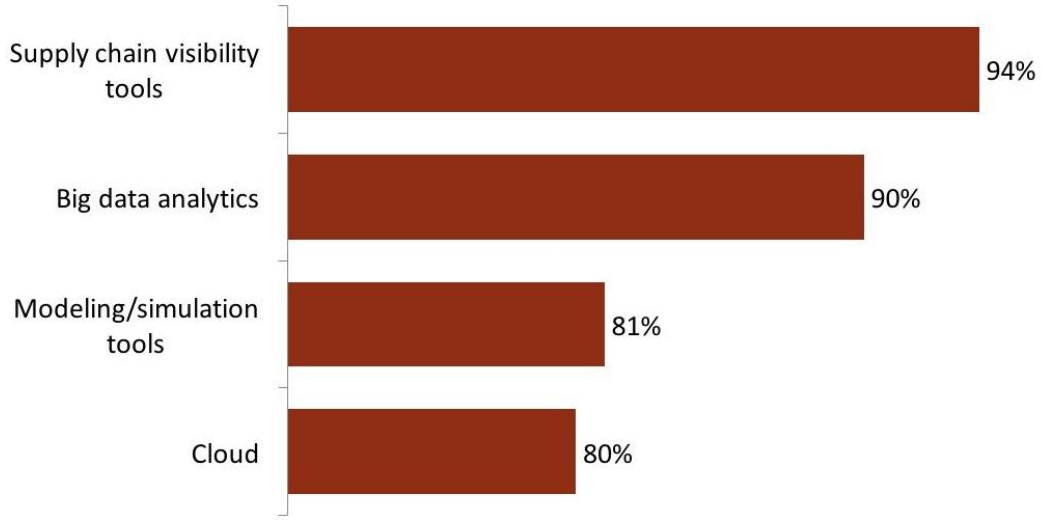
The adoption of IoT technologies is integral to this digital transformation. Logistics is about the movement of physical goods, and IoT technologies connect these physical goods to the internet, providing companies with data about their location and condition. This opens the door for shipping and logistics providers to gain a richly detailed view of their operations in real time, which can lead to opportunities for new efficiencies and revenue streams.

- **Ninety-four percent of manufacturing and retail executives believe that asset tracking solutions are essential to supply chain digital transformation**, according to a GT Nexus and Capgemini survey.
- **And 90% of these executives feel that analytics tools that parse the data provided by asset tracking solutions are essential to this transformation.**

Analyzing asset tracking data provides companies with several important benefits that can enhance their supply chain and logistics operations. These include cutting down transportation and warehouse costs, as well as optimizing employees' time by taking some of their focus off of inventory-related tasks. In addition, the data can improve compliance reporting by providing detailed information about the location and condition of items moving through the supply chain. This is particularly important for industries like agriculture and pharmaceuticals that must provide such information to regulators to prove that their products are safe for consumption. It can also improve customer satisfaction, as this data can help ensure that orders are shipped and delivered on time.

The Top Technologies Enabling Supply Chain Digital Transformation

Global manufacturing and retail executives



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Source: GT Nexus and Capgemini, 2016

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Optimizing their supply chain and logistics operations through IoT solutions, including asset tracking systems, offers enormous economic benefits for companies across nearly every sector of the economy. Cisco and DHL, the world's largest logistics company, estimated last year that the IoT could create $8 trillion in economic value for the global economy. The two companies said that **$1.9 trillion of that economic value would be derived from transforming the supply chain and logistics market through the data gathered from asset tracking and the automation of many functions**, like inventory tracking, that traditionally required manual labor.

In this report, BI Intelligence details the different types of asset tracking solutions that are available to supply chain and logistics operators, as well as the benefits that asset tracking provides in supply chain and logistics operations, including cost savings, new revenue opportunities, and increased customer satisfaction. The report also examines how different industries will leverage asset tracking to improve their operations, and outline the major challenges involved with implementation.

TYPES OF ASSET TRACKING TECHNOLOGIES

Asset tracking is not new to the transportation and logistics industry. Both freight and shipping companies and their enterprise clients have long used barcode scanners and other solutions to help track and manage inventory. But these legacy options don't stand up well against the many newer sensors and tags on the market. In particular, most barcode scanners aren't designed for capturing data about a unique item. Instead, they collect data about types of items, for example by reading a Universal Product Code (UPC). This sort of data can only be used to measure overall inventory levels, and doesn't provide information about the location or condition of specific items. In addition, barcode scanners are labor-intensive, as workers are needed to operate the scanners and read each item. Many newer solutions use fixed readers and don't require manual labor.

Newer asset tracking solutions can provide far more valuable data for companies, particularly when combined with IoT technologies. For example, many of the tracking sensors and tags listed below can be coupled with sensors that measure factors like humidity, temperature, and vibration to provide companies with granular data on the condition of individual items in transit. Additionally, many of these tracking solutions can provide real-time location data, which lets companies pinpoint the exact position of specific items at any time. This real-time data allows these companies to react to events that impact their supply chain and logistics operations, like natural disasters or road closures, much quicker, saving costs and preventing delays. Research firm Technavio recently estimated that the global market for real-time location tracking systems — including systems that leverage active radio-frequency identification (RFID), Bluetooth, the Global Positioning System (GPS), cellular, and other tracking technologies — will grow at a 47% compound annual growth rate (CAGR) over the next four years to exceed $5 billion in 2020.

Active and passive RFID tags provide location data on items they're attached to, and are one of the most widely used solutions for asset tracking because of their low cost. Revenue from RFID tagging systems totaled an estimated $10.1 billion last year, and is expected to reach $13.2 billion in 2020, according to market research firm IDTechEx. There are two types of RFID tags:

- **Passive RFID tags.** These include only two components: an RFID antenna and a microchip for storing information. They are called “passive” because they have no battery power of their own. The tags “wake up” and transmit the data they've stored when they receive a signal from an RFID reader, a device designed to collect data from RFID tags. The tags can cost as little as 10 cents when purchased at volume, making them extremely cheap and disposable. Passive RFID tags are popular for use cases that don’t require real-time monitoring, since these tags only provide information when they receive a signal from a reader. For example, a passive RFID tag applied to a box of merchandise could be read at various points in the supply chain — like when it arrives at a warehouse or store — to track the box’s location at intervals. Passive RFID tags are popular in the retail industry for tagging apparel, so retailers can track their products from their assembly to their final sale. IDTechEx estimated that 4.6 billion out of the 10.4 billion RFID tags shipped this year will be passive tags for this specific use case. However, the firm estimated that only 15% of the total addressable market for this RFID tagging use case has been met so far, meaning that there is still significant room for growth for passive RFID tags in apparel tracking. Further adoption of RFID tracking in the retail sector will likely be driven by the continued rise of e-commerce, as well as greater use of RFID solutions in Asian markets, where there has been little adoption of RFID in apparel.

- **Active RFID tags.** These tags, which have their own battery power, can be divided into two types: transponders and RFID beacons. Transponders wait for a message from a reader to send their information, similar to how passive RFID tags work. Since transponders “sleep” most of the time while waiting for a signal, they have very long battery lives. Transponder tags are most commonly used for security clearance tags and toll booth payments. Meanwhile, RFID beacons typically broadcast their signal every 3-5 seconds for near real-time location monitoring. Beacons are most commonly used for asset tracking in the oil and gas, mining, and freight shipping industries. Because they broadcast their signal more frequently, beacon tags have shorter battery lives than transponders. Prices for active RFID tags vary widely from $20 to $100 per unit when purchased at volume. Active tags can also include additional sensors to track environmental factors that can impact an item’s condition like temperature, vibration, pressure, or moisture.

Both passive and active RFID tags can be packaged in hardened shells to weather tough conditions in factories, warehouses, or vehicles. They can also broadcast at different radio frequencies, although active tags tend to use higher frequencies than passive ones, in order to broadcast at longer ranges. However, even active RFID tags are rarely able to broadcast their signal to a receiver that's more than a couple hundred meters away without draining their batteries — a major drawback of RFID tagging systems. This problem can be overcome by packaging other technologies like GPS trackers into RFID tags, but this makes the tags more expensive. A typical RFID tracking system involves deploying a local wireless network that connects the tags with strategically placed readers that can provide the location of tagged items.

Internet-connected trackers that use long-range networks like cellular or Low Power Wide Area Networks (LPWANs) allow companies to track items over long journeys. Solutions that use these networks typically connect back to satellite systems like GPS, the satellite-based global navigation system run by the US government, much as mobile devices do. In addition, internet-connected trackers can triangulate their position by their distance to the cell tower or base station that they're connected to. GPS trackers that connect via cellular networks are commonly used in telematics and fleet management solutions for tracking the location of enterprise vehicles carrying goods. The downside of using these trackers is that they can lose their connection in areas without network coverage. There are also short-range internet-connected trackers — like tracking devices that connect over a Wi-Fi network in an airport or warehouse to track items moving through the facility.

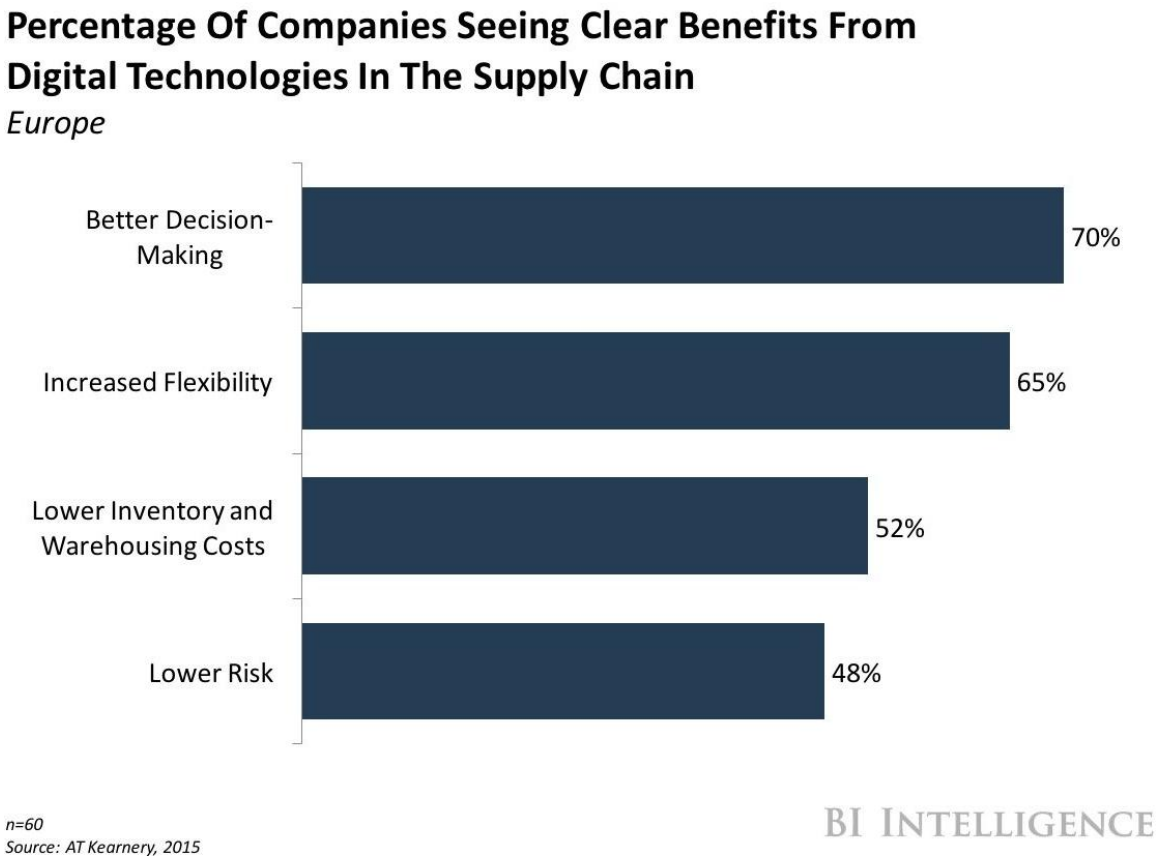
Satellite trackers can provide location data about an asset just about anywhere in the world. Satellite tracking devices are able to broadcast information in areas that don't have cellular coverage, making them very popular in the freight shipping industry — since there is no cellular coverage over most of the world's oceans. However, these solutions cost more: trackers with direct satellite connections cost about $300, compared with around $100 for enterprise-grade, cellular-connected GPS trackers. The higher price means that satellite trackers are rarely used to track individual items, but are instead used to track vehicles carrying items. In addition, satellite trackers cannot transmit types of data other than GPS location data, like information about the status of the items in transit. And GPS tracking doesn't work well indoors, where devices can't receive a direct satellite connection.

Bluetooth tags and beacons provide short-range asset tracking in confined areas. Bluetooth beacons are most commonly used in retail stores to track customer traffic and deliver location-based marketing messages. They can also be used to track specific objects, although their high cost ($30 and up) means they're only cost-effective for tracking large, expensive items like forklifts that move around a warehouse. Bluetooth tags can be used to track people and assets in a variety of situations, including retail stores and warehouses. These tags typically have a shorter battery life (up to one year) than RFID tags, but they can communicate with employees' mobile devices, and therefore don't require an additional reader. They can also provide more accurate location information for tracking items indoors, equipping employees with more precise information when they're searching for a specific item. This can be useful for items that need to stay in a confined space, as Bluetooth tags can send a notification if an item leaves a specified area within a facility.

Near-field communication (NFC) tags can be used in similar ways to RFID. The technology is based on RFID standards, and uses the same radio frequency as high-frequency RFID tags and readers. However, unlike with RFID tags, mobile devices can serve as readers for NFC tags. In addition, NFC-compatible devices have peer-to-peer communication, so NFC tags can be used to deliver messages, like special instructions for an item's handling. Coupled with asset tracking software, employees can also include information for the next person to read the NFC tag, like notes about the condition of the item. This is useful for items that have strict requirements around their packaging or handling, such as pharmaceuticals.

Most projects use multiple types of asset tracking solutions for data gathering. For example, a company could use both RFID tags and a fleet management solution with GPS tracking for its vehicles. Scanning the RFID tags would allow the company to track items at certain points — like when they arrive at a warehouse or are loaded on to a truck — and the fleet management solution would let them track items while they're on the road.

Overall, companies will select the technologies that best fit their needs in terms of the range, cost, and location accuracy. Additionally, many asset tracking providers are integrating multiple location-based technologies into their offerings. For example, GPS and Bluetooth connectivity can be combined into one tag. These solutions will fit use cases for which both short- and long-range tracking are required.



THE BENEFITS OF ASSET TRACKING

Asset tracking solutions provide many benefits for supply chain and logistics operations. They help to speed up operations, while cutting expenses by automating many inventory tracking and management tasks. This, in turn, allows companies to better optimize their staff, space, and available resources. As a result, goods are delivered faster and at lower cost, leading to improved customer satisfaction. Supply chain and logistics operations are very labor- and capital-intensive, requiring companies to maintain fleets of vehicles to transport items and facilities for packaging, processing, and storing them. So even small improvements in productivity and efficiency can have a major impact on costs and delivery times. Here's a look at some of the specific benefits that these solutions provide:

- **Reduced fuel costs:** Asset trackers provide real-time data to companies about the location of their vehicles for supply chain and logistics operations. Combining that information with real-time traffic and weather data allows companies to optimize routes for ships, airplanes, and ground vehicles to avoid traffic congestion and inclement weather. Teletrac, a fleet management provider, reported that companies that implement GPS fleet tracking and management typically see a 10% reduction in fuel costs, with some companies experiencing reductions up to 30%.

- **Reduced labor costs:** These solutions automate several processes in the supply chain and logistics workflow, helping companies to reduce labor costs. For example, locating an item in a warehouse used to require sending a worker to go and find it, but asset trackers provide managers with the real-time location of every item in the facility. This eliminates time wasted on searches and the need for extra man power.

- **Reduced inventory costs:** The data that asset tracking provides can help decrease carrying costs — the costs that a company incurs for holding inventory, including the rent, utilities, and salaries associated with running the warehouse, as well as the opportunity cost of keeping unsold goods on hand. Speeding up operations at a warehouse can reduce these expenses, as items are moved through more quickly with less effort on the part of the staff. This reduces the risk of spoilage (another inventory cost), and since items are pushed out of the warehouse faster, less space and manpower is required. Asset tracking enables this added speed by keeping companies abreast of where all the goods in the facility are located, as well as the placement of unused assets like idle forklifts or empty pallets, which makes it easier for employees to find these items when needed.

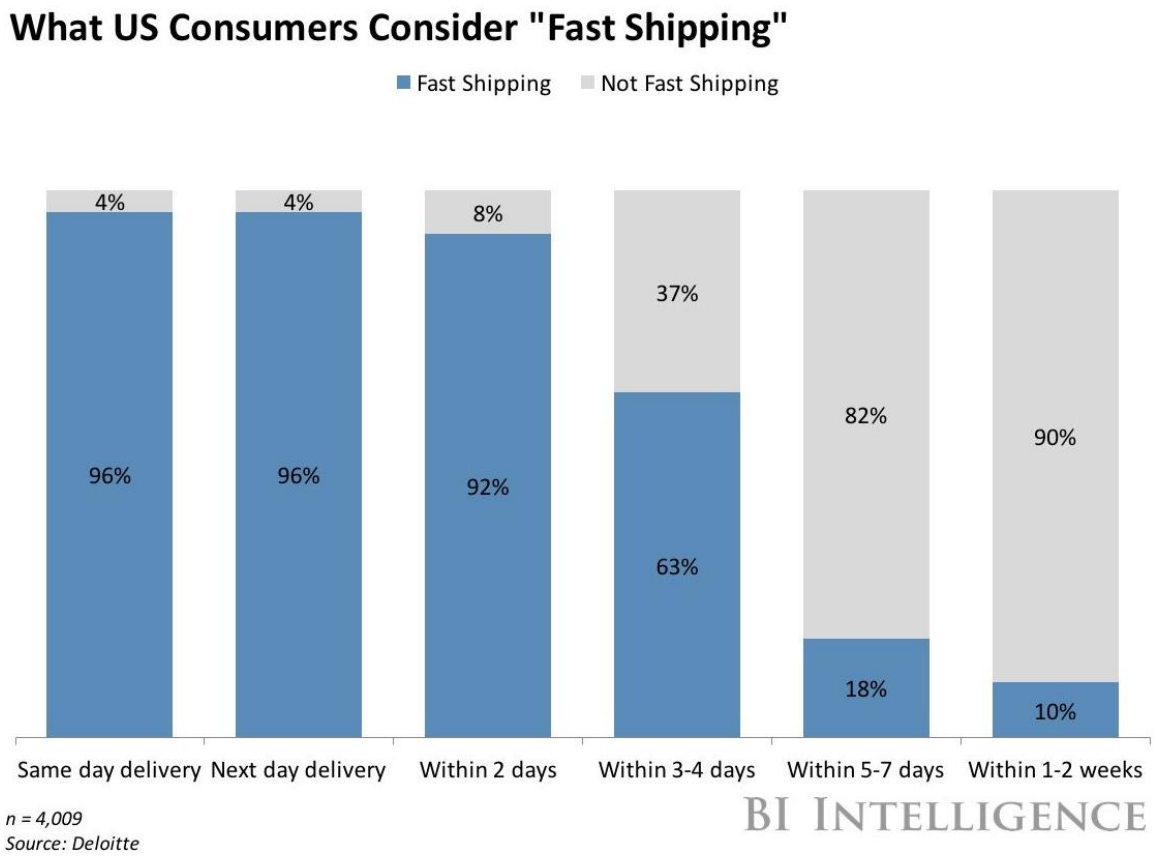
- **Reduced risk:** Lost, stolen, or damaged items have an enormous impact on the global transportation and logistics industry. In fact, global supply chain solutions and services provider BSI estimated that monetary losses caused by cargo theft topped $22 billion globally in 2015. Additionally, the firm estimated that the top five natural disasters worldwide in 2015 cost the global supply chain and logistics industry $33 billion in lost or damaged goods, as well as the costs of delayed and rerouted shipments. Asset tracking can help firms lessen these costs by ensuring that goods aren't lost on their journey, while also helping to recover stolen items. In addition, adding sensors into asset tracking solutions can decrease the risk of damaged goods. For instance, if items must be stored at a certain temperature in transit, then temperature sensors can alert staff to any danger from heat or cold. Asset tracking can also help record the safety of items to help industries like food services and agriculture comply with regulations, reducing their compliance risk.

- **Optimize space:** Companies typically have unused space in their transportation vehicles, warehouses and distribution centers, and store locations. That unused space represents a cost for companies, as they have to pay to maintain it, even though they're not using the space in any way that enhances their business. Asset trackers can alert companies to unused space in these vehicles and locations, creating opportunities for new revenue. For example, the average freight truck on the road today is only about 70% full, according to a white paper from asset tracking provider Zebra Technology. That unused space represents a $2.5 billion revenue opportunity for the trucking industry, as companies can reroute trucks to pick up additional goods on their journey to gain additional business.

- **Optimize staff:** Since asset tracking automates many functions traditionally performed by hand, like monitoring inventory, workers are free to perform additional, more valuable tasks. For example, Bluetooth or RFID tagging solutions used to track in-store inventory can provide employees with real-time alerts when items on the shelves run out. This eliminates the need for sales floor employees to check inventory at all, enabling them to spend more time with customers.

- **Value-added services:** Companies that use asset trackers can expand their services by passing on some of the data they collect from these solutions to their customers. For example, DHL provides all of the information it collects on events that can impact transportation and delivery times — including road closures, labor strikes, and natural disasters — to its clients through its Resilience360 service. This allows its clients to see the events that might affect their planned deliveries in real time.

- **Increased customer satisfaction:** Customers expect their goods to be delivered on time, and asset tracking makes this easier to accomplish by helping to optimize routes for deliveries. This is particularly valuable because customer expectations around speedy delivery are on the rise. Amazon already provides same-day delivery to its Prime members in many US cities, and plans to deliver packages within 30 minutes when its Prime Air drone delivery system deploys. As a result, e-commerce and other sectors are under considerable pressure to drive down their delivery times, as well.

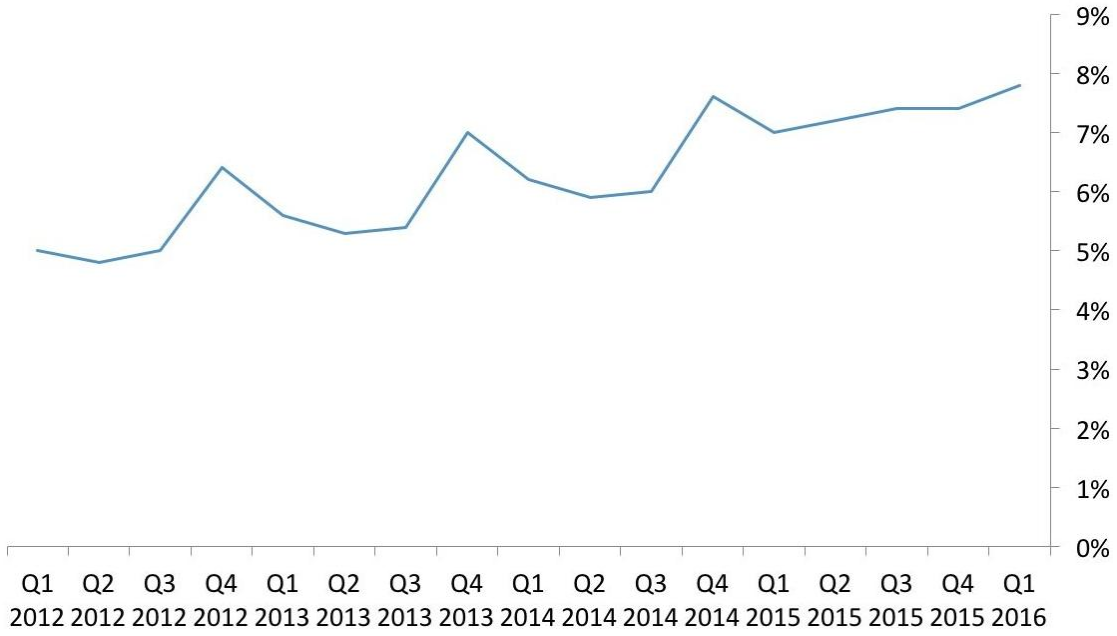


HOW ASSET TRACKING MEETS INDUSTRY-SPECIFIC NEEDS

Because of the breadth of benefits that asset trackers provide, their adoption will increase across a number of different industries. The retail and manufacturing sectors, in particular, make heavy use of such sensors and tags, as they rely on their logistics operations to deliver goods on time to their customers and production facilities. These sectors also generally deal with very high volumes of products, so improved inventory and management can drastically improve their operational efficiency. Other sectors that stand to benefit from asset tracking include oil and gas, agriculture, and pharmaceuticals. Here are some of the ways that different industries will likely leverage these solutions:

Retail: Retailers are becoming more and more focused on e-commerce and m-commerce, making supply chain and logistics an increasingly important part of their businesses. These companies want to ship and deliver online orders as quickly as possible while avoiding delays or lost packages that cripple the online shopping experience. Retailers can use the data from these solutions to provide tracking information to customers, identify bottlenecks in their logistics operations, and reroute shipments to avoid delays.

Share Of US Retail Sales From Digital



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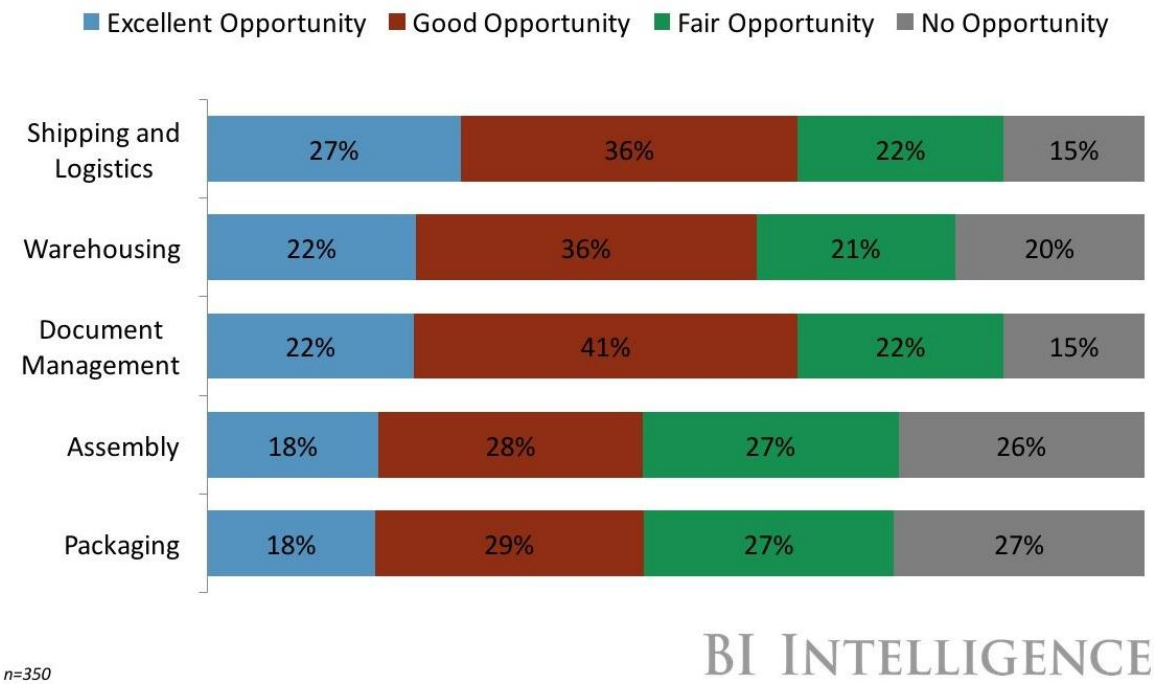
Source: US Census Bureau

Additionally, asset trackers can help retailers deploy resources across their logistics operations more efficiently. Retailers are focused on expanding their logistics networks, in response to the rise of e-commerce. They're leasing out warehouse space faster than developers can build new warehouses, and increasingly bringing logistics operations in-house to ensure that packages are delivered quickly and on time. But keeping up with increased demand is no easy feat — UPS was only able to deliver 91% of its packages on time in the week leading up to Christmas 2015, down from 97% the year before. Data from asset tracking solutions can tell retailers where they need to deploy more trucks or other logistics resources to get the most impact from these investments. And as more retailers bring their logistics operations in-house, shipping carriers will be forced to implement greater asset tracking solutions to help speed up deliveries and remain competitive.

Manufacturing: Increasing automation is improving manufacturers' ability to predict the time it will take to assemble goods. The inconsistent variable, now, for many manufacturers is the time it will take to receive the necessary supplies to start production — if a shipment of supplies is delayed because of traffic, weather, or a road closure, it could lead to costly downtime. Unplanned downtime on a factory floor can cost a manufacturer up to $20,000 per minute, according to industrial robotics manufacturer FANUC. This can be easily mitigated with the implementation of asset tracking solutions. In fact, the biggest opportunity for manufacturers to leverage IoT technologies is in their supply chain and logistics operations, a global survey by MPI Group found earlier this year.

Best Opportunities For Manufacturers To Leverage IoT Solutions

Global



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n=350
Source: MPI Group, 2016

Asset tracking technologies that let manufacturers know when supplies will arrive at their factories allow them to adjust production schedules and avert unplanned downtime. For example, FreightVerify, a connected supply chain technology provider, partnered last year with cloud-based platform company Covisint to provide manufacturers with real-time data about when their supplies will reach their factories by using GPS tracking and predictive analytics.

Mining and oil and gas: Resource extraction companies can benefit from asset tracking solutions in almost every aspect of their operations. Placing asset tracking devices on equipment at oil wells and mines can help smooth operations at these sites by ensuring that equipment is available when needed. For example, tracking vehicles around a mining site enables employees to quickly find an idle vehicle when they need one. Meanwhile, asset tracking solutions can provide real-time data on inventory levels at oil refineries and storage facilities, helping these facilities to anticipate and respond to inventory shortages before they happen. In addition, asset tracking allows these companies to monitor shipments throughout the supply chain, giving way to faster delivery times and lower fuel costs.

Agriculture and food services: Companies in these industries need to ensure that their products don't spoil while in transit. Asset tracking solutions that include sensors to measure temperature and other factors can ensure that food arrives safely at its destination. These solutions are also useful to food services and agriculture companies when it comes to compliance reporting. In the US, the 2011 Food Safety Modernization Act has been updated with rules and provisions that require companies to record their procedures for keeping shipments of food safe from spoilage or contamination. Asset trackers can record the temperature at which food is stored during transport, helping companies to prove compliance with these regulations.

Pharmaceuticals: As with the food services sector, pharmaceutical companies need to ensure that their products are properly packaged and safe for consumption. The pharmaceutical industry has specific regulations to ensure the safety of products while they're in transit. For example, the 2013 Drug Supply Chain Security Act requires that pharmaceutical companies track individual products through the entire supply chain to help facilitate drug recalls. In addition, tracking pharmaceutical drugs through the supply chain can reduce pharmaceutical fraud from the sale of counterfeit drugs. The World Health Organization has estimated that global sales of counterfeit drugs top $75 billion annually. The ability to trace a specific bottle of medicine to its origin via tracking data from tags and sensors can help prevent such fraud, and ensure that patients receive the correct medicine.

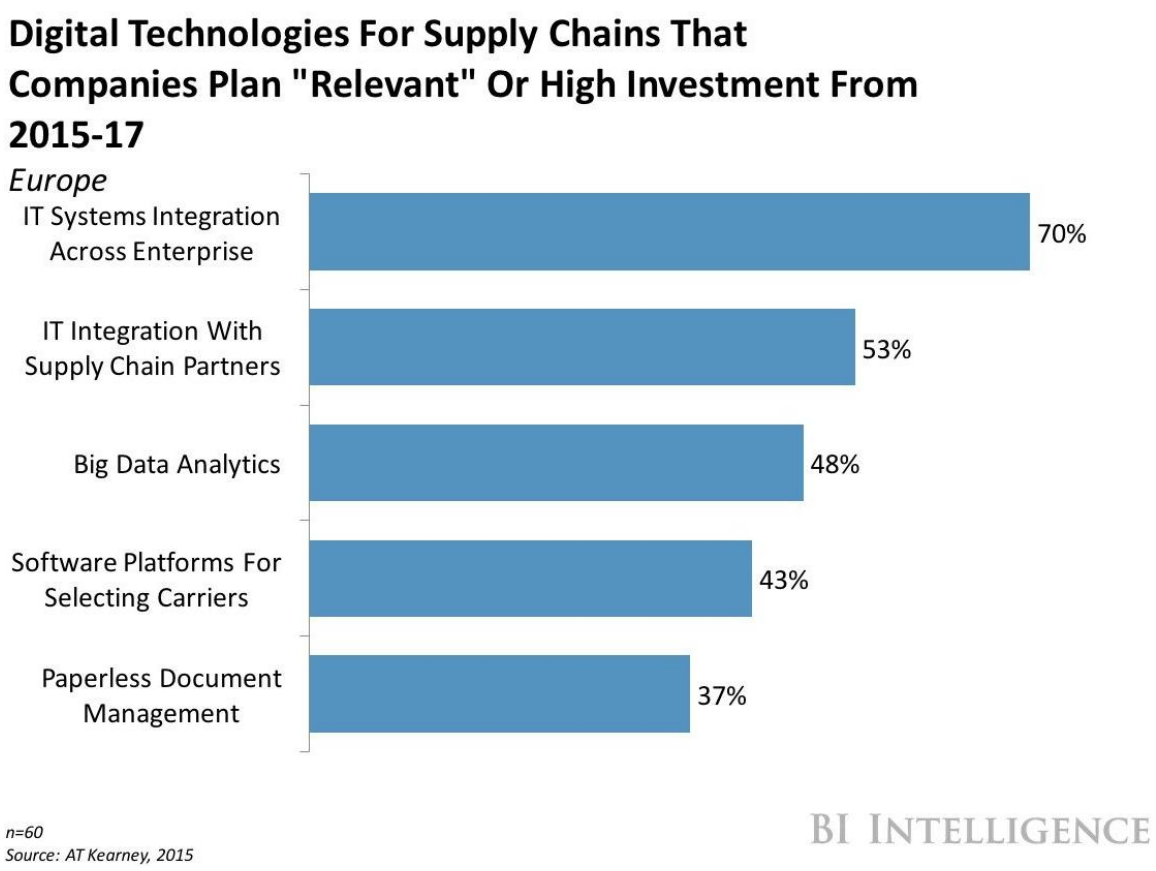
TOP ADOPTION CHALLENGES

The challenges for companies in implementing asset tracking solutions begin with deciding on the scope and goals of the implementation. Asset tracking implementations that are limited in scope — like a freight shipping company tracking individual containers, or a warehouse tracking individual pallets as they move about the facility — are easy to implement on their own.

However, these implementations can provide greater value when the data they provide is aggregated and cross-referenced with other enterprise data sources, as well as put through analytics engines to produce operational insights. For instance, if the freight shipping company can combine the tracking data on its shipping containers with data on customer orders, then it can optimize its shipping routes for individual enterprise clients, helping them to get their goods faster.

Making use of asset tracking solutions in more advanced implementations is where the major challenges lie:

- **Integrating data from asset tracking solutions with other enterprise software systems can be very difficult.** This is largely due to a lack of data standards in the asset tracking market, which makes it hard to format data for integration with other systems for aggregation and analysis. The need to overcome this challenge is part of the reason why IT systems integration was chosen as an area of "relevant" or high investment for supply chain operations by 70% of European companies surveyed last year by AT Kearney.



- **Companies that want to take advantage of the loads of real-time data that can be collected by asset tracking solutions also need to adjust their operations to respond to alerts and other data.** This is the biggest barrier to asset tracking adoption right now, according to Zebra Technology CTO Tom Bianculli. Most companies have standard operating procedures that have been in place in their logistics operations for many years, and those procedures have to change in order to react to real-time data, Bianculli explained. As he put it, companies should formulate a plan for how they will adjust their operations before they actually deploy the technology.

- **Meeting this operational challenge also requires a great deal of flexibility in IT systems.** Reacting to data in near real time requires being able to share the right information about assets with the right individuals in real time, so they can make quick decisions based on that data, according to Richard Howells, SAP's VP of extended supply chain. For instance, if a weather event is going to delay a delivery of goods, employees need to be able to see in real time which items and customers will be impacted in order to start examining alternative routes.

The need for flexibility and easy data integration can be met with software platforms that provide data processing tools to smooth the integration of asset tracking data with other systems, helping companies to aggregate their tracking data with other data sources, and share it across their organizations. This flexibility can also facilitate the sharing of asset tracking data with logistics partners and clients, resulting in new revenue sources through services like DHL's Resilience360. These platforms are often based in the cloud, but they can also be deployed on-premise.

The companies that see the greatest value from their investment in asset tracking solutions will be those that implement them as part of a larger technology roadmap that includes the adoption of cloud and analytics tools, SAP's Howells predicts. If companies fail to take this broader approach to asset tracking, the benefits they receive from their asset tracking solutions will be limited, and measuring their ROI will be difficult, potentially hampering demand for the solutions. However, enterprise adoption of asset tracking solutions will likely continue to rise, as there is still a large untapped market for them. Even if companies don't have the backend solutions for data management and analysis in place, they will still implement asset tracking solutions to gain more tracking data, knowing that they can figure out the backend later on.

THE BOTTOM LINE

- Asset tracking provides companies with the opportunity to overhaul their supply chain and logistics operations. DHL and Cisco estimated last year that the potential economic impact of IoT technologies, like asset tracking solutions, in the supply chain and logistics space tops $1.9 trillion.
- Asset tracking is not new to the transportation and logistics industry, but legacy options don't stand up well against the many newer sensors and tags on the market.
- The benefits of analyzing asset tracking data include cutting down transportation and warehouse costs, optimizing employees' time by taking some of their focus off of inventory-related tasks, and improving compliance reporting.
- Because of the breadth of benefits that asset trackers provide, we expect that the adoption of these solutions will increase across a number of different industries. These include retail, manufacturing, oil/gas, agriculture, and pharmaceuticals.
- Asset tracking solutions provide the most value when the data they provide is aggregated and cross-referenced with other enterprise data sources — but this sort of implementation is challenging for companies.
- Successfully implementing asset tracking solutions will require employing data processing and analytics tools that help organizations glean insights from tracking data, and making adjustments to operational procedures to provide greater flexibility.

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