

# The “Dot on the Map:” The Symbol for Supply Chain Intelligence from Beginning to End.

## *Creating Business Value through Integration*

“Begin with the End in Mind.” This quote from Stephen Covey’s *7 Habits of Highly Effective People* conveys the effectiveness of a project by approaching it from the beginning with a clear vision of its direction and ultimate destination. In the global supply chain, there is a vision of safe and efficient commerce. This vision requires the deployment of technologies in many areas of the supply chain to deter, detect, and mitigate risk. However, the deployment of such technologies is often slow and fragmented because the reasons for implementation are often restricted to individual business units and ultimately lack the opportunity to create broad and significant value savings across an enterprise.

To reach this safe ending, a transparent and connected supply chain, the solutions deployed today must be global and have the flexibility to integrate easily with other technologies. In perfect form, asset tracking and visibility technologies should be integrated into the ERP systems that govern the enterprise so that supply chain professionals have **control at each step** rather than risk fragmented visibility due to isolated technologies in manufacturing, warehousing and inventory, and logistics and distribution.

Best practices in their respective domains multiply their value for the supply chain when the technologies work together. Product authentication, real-time status, and advanced tracking join together to enable sure, safe delivery. Product authentication is now possible at the batch level with formulation fingerprint technology. Auto-ID technologies enable real-time status of work orders, parts and inventory, and associations with bill of materials. When products leave the factory, GPS and sensor-based tracking technology make possible real-time receipt of goods and speed up cash flow with real-time invoicing, as well as provide intrusion detection and theft recovery. All of these solutions are connected and enabled seamlessly through an ERP system, so that when a supply chain professional arrives to work ready to double-click on a desktop icon, it is the icon of an ERP system like SAP rather than the icons of five or ten different applications deployed separately.

A connected supply chain offers benefits to the entire enterprise. Benefits are realized even when processes are running well, meaning no alerts regarding counterfeit products, over-stocked inventory, or theft incidents are being dispatched. These are critical notifications to their recipients and provide significant value at the time incidents occur. However, these are benefits resulting from solutions deployed by isolated business units to achieve a near-term goal of reducing risk, often the “beginning” to optimizing the supply chain. When connected together, they create significant value through **new, efficient processes** that ultimately lead to a faster path to cash for the company as a whole. By enabling real-time invoicing and linking shipping manifests, batch information, with real-time receipt of goods in the right condition, companies effectively reduce the cost of capital associated with the delay of cash flow. Knowing for sure that the supply chain is secure means not having to waste time and money in speculative spot-checks and follow-up activities. In

short, connecting the supply chain yields consistent, macro-level benefits while simultaneously insuring against risks that may occur in micro-level stages like counterfeiting and intrusion detection.

Finally, with the “end” in mind, support for *all modes of travel* over which a product may be shipped is a necessary part of the connected supply chain. Products shipped with wireless devices should have the same transport options as if they were shipped without them. The operational workflow of the shipper when securing their cargo should not be impacted by technology constraints and mode of travel decisions between air, land, and sea. Nor should certain product lines be eliminated from the connected supply chain because they are delivered via commercial airlines governed by FAA rules on wireless communications. The technology that supports the connected supply chain provides coverage for all products and enables data captured during transport to be seamlessly linked to the systems that provided visibility to them during manufacturing and production.

Pharmaceutical manufacturing and distribution is one of the many supply chains where asset tracking and visibility technologies are deployed. Attention is high to create processes that reduce the potential for a patient to ingest counterfeit drugs and to protect multi-million dollar loads during transportation. A 2008 CASA study identified 365 Web sites either advertising or selling prescription drugs. How does the connected supply chain protect the customer at the point of dispensing medication and ensure its integrity throughout transportation from origin to destination while simultaneously providing the manufacturer macro-level benefits that improve cash flow?

Using in-dose, anti-counterfeiting technology from InfraTrac, pharmaceutical manufacturers are able to *tag the dose itself*, authenticating its production from manufacturing down to the batch level. According to Sharon Flank, CEO of InfraTrac, a company that provides near-infrared spectroscopy to distinguish real from fake, supplier from supplier, and batch from batch says, “counterfeiting strikes wherever there are profits to be made. Some counterfeits are relatively faithful copies of the drug, but are often expired, diverted, or diluted. Many, however, bear little resemblance to the real thing.” With InfraTrac’s formulation fingerprint, in as little as a second, the sample is analyzed, and then compared to a database of stored information. If it does not match a known batch, it’s a counterfeit.

After manufacturing and batch authentication, the products are packaged into individual boxes and are protected with security monitoring devices in two ways: 1) a SENTRY™ monitoring device equipped with GPS, shock, temperature, and FlightSafe™, a software feature to enable FAA compliant air travel in the event of same day delivery requirements later in the supply chain, is placed in the box; and 2) a ContainerSafe™ device with intrusion detection is slid onto the intermodal container door to seal the entire shipment. The SENTRY device inside the box enables complete visibility to package handling, location, and environmental conditions from origin to destination. The ContainerSafe device on the intermodal container deters intrusion by leveraging its door open and close sensor and light detection.

During the process of packaging and loading the products onto the intermodal container, the manufacturer also associates the product batch information from InfraTrac with the shipping manifest through their SAP or other ERP system. That data is then automatically coordinated with the OnAsset Vision Platform which associates the shipping documents with the SENTRY and ContainerSafe devices securing the cargo. When the customer receives the drug at the pharmacy, it will be the right drug from an authenticated batch and will have made it there safely on secure trade lanes that combine land, sea, and air travel.

At the macro-level, now that multiple systems are working together, a series of electronic events take place that create substantial business value for the manufacturer. At final receiving, the pharmacist opens the box to authenticate the batch and get it ready for the customer to pick up. The light sensor on the SENTRY device inside the box combined with the geofence or virtual zone designating the pharmacy as the final destination sends a message to the OnAsset Vision Platform which then communicates to the SAP system that the shipment has arrived, is in good condition, and the box has been opened. To the OnAsset Vision Platform, this sequence of events is a business rule that notifies SAP that goods have been received. With this information, the SAP system converts the shipping documents into invoice documents and immediately distributes them. For some manufacturers the delays in distributing invoices can take as long as three to four weeks. In simply speeding this process through the use of real-time asset tracking and visibility technologies, the cost of capital can be significantly reduced by decreasing the time it takes to receive and deposit payment.

Smarter and more efficient supply chains involve technologies at every stage within the process, from product and inventory traceability to WAN technologies that leverage a wide variety of communication and sensor options. If we begin with the end in mind, then solutions deployed today must have the flexibility to collaborate with multiple systems in order to distribute richer information that will drive business value. So, the next time you see a “dot” on Bing or Google maps representing a location fix on your cargo, expect more than GPS coordinates. With the right systems in place working together, the dot is but one symbol of the connected supply chain that provides real-time visibility to batch contents, location, chain of custody, security, routing, and very importantly, represents systems that leverage one another to determine what to do next.

*OnAsset Intelligence Inc. is a leading integrated service provider of intelligent wireless technologies and software solutions designed to help companies connect, locate, track, and manage fixed and mobile assets in real-time. Working to creating a transparent supply chain, OnAsset solutions include the SENTRY™ hardware platform, including FlightSafe™ for commercial air freight monitoring and ContainerSafe™ for intermodal container security, wireless data communications, and the OnAsset Vision Platform for 24x7 Web access to critical remote asset information.*