

WESTERNACHER WHITE PAPER

Supply Chain Visibility with SAP Transportation Management Integration

With the advancements in supply chain over the last decade, customer expectations are shifting to understand where a product is at any point in the process. This paper will discuss how to achieve supply chain visibility via EDI integration, through telematics and mobile applications, and from visibility integration partners. Investing in supply chain visibility helps companies shift from reactive to proactive responses and has a short time to a positive ROI.

A blue-tinted photograph of a semi-truck driving on a highway in a snowy, winter landscape. The truck is in the right lane, moving away from the viewer. The road is flanked by snow-covered fields and trees. The sky is a clear, deep blue.

Customer expectations are shifting to understand where a product is at any point in the process.

Supply Chain Visibility with SAP Transportation Management Integration.

In simplest terms, supply chain management can be defined as “source, create, distribute, and return”. These are the pillars of supply chain. In each one of these pillars, there are intricacies that can hinder a supply chain if complications arise. Supply chain visibility aims to make decision-makers aware of situations before they occur to facilitate proactive action, hopefully minimizing and/or preventing negative events. The goal of this white paper is to inform the reader how supply chain visibility will improve the consumer experience which directly results in profits for the business. SAP Transportation Management (integrated with Logistics Business Network Global Track & Trace) will

be referenced as the system of choice throughout the document for increasing the visibility within a supply chain and improving transportation needs.

The goal of supply chain visibility is to have a predictive and prescriptive view of the supply chain. Where predictive analytics will help detect a potential issue in the supply chain so users can take action to remedy the situation, this is accomplished by mass data gathering to compare with historical data. Prescriptive analytics takes predictive analytics a step further to offer solutions and optimize processes for potential issues before user intervention is required.

What is Supply Chain Visibility?

Over the last decade, businesses have become fixated with learning the intricacies of their supply chains, in order to subsequently maximize their benefits. The first step to gain both understanding and optimization of a supply chain, is through Supply Chain Visibility. Supply chain visibility is having the capability to see where products are, as well as being able to report and predict important events before or as they arise. Currently,

the best practices for achieving this include abilities that track and trace product and assets in transit and focus on management by exception. Very simply, it creates visibility that businesses are looking for to improve their efficiency and productivity. In the future, all members of a supply chain will be sharing the necessary information to help automate the process while reducing risk as well as minimizing associated cost.



Fig. 1: Supply chain visibility connectedness

Operational visibility allows for the teams involved with or dependent on the supply chain to be alerted if there is a potential disruption. Teams and planners have the ability to:

- ⊗ Examine average times for shipments in order to create accurate lead times
- ⊗ Accurately forecast shipment and demand to avoid delays and overstock
- ⊗ Provide visibility of where product is at currently, where it is heading, and any need for the product
- ⊗ Inventory at varying levels of granularity, to understand regionally as well as by location
- ⊗ Receive event alerts that enable them to respond and manage events in real time
- ⊗ Communicate to other teams and/or departments effectively and timely, leading to a more transparent consumer experience
- ⊗ Proactively avoid disruptions along the supply chain which usually turn into additional cost and dissatisfaction at multiple levels of the supply chain process

Generally, Supply Chain Visibility at the operational level can be achieved through a combination of tracking applications and intelligent software like SAP Transportation

Management with SAP Logistics Business Network Global Track and Trace. This helps enable businesses and end users with real-time data that helps reduce supply chain risks. This can be done using tracking sensors that are typically paired with the software, as well as 3rd party services provided from companies like FourKites and ClearMetal*. Integration with LBN GTT allows users to identify product availability, resource locations, and orders impacted by delays in the supply chain. In the below table (Fig. 3) there are different examples of sensors used for tracking, and some of the advantages and disadvantages of each:

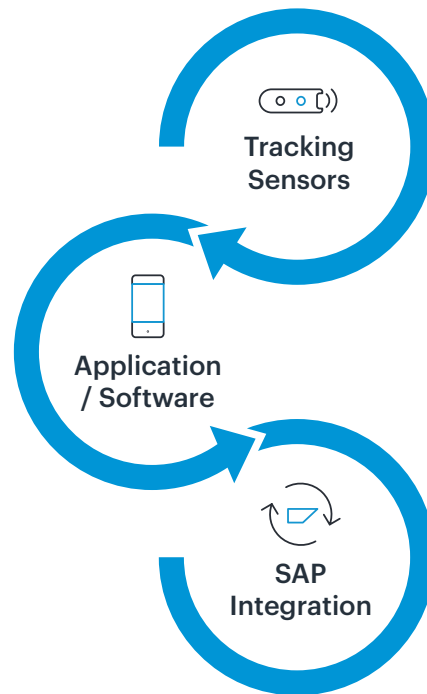


Fig. 2: Integration process

* Following the release of the white paper project44 has since acquired ClearMetal.





TRACKING SENSORS/ TECHNOLOGY	ADVANTAGES	DISADVANTAGES
 <p>Bluetooth Device</p>	<p>Low costs per device, low power to operate devices, can connect to most consumer devices</p>	<p>Set up costs are high, battery lifespan typically only lasts one year, and Bluetooth signal strength can cover small distances.</p>
 <p>RFID Device</p>	<p>Inexpensive equipment, Devices can work in extreme environments, and the system is very reliable</p>	<p>Accompanying software can be expensive, replacing tags can be difficult to track and replace.</p>
 <p>Cellular</p>	<p>Very accurate based on cell towers, can communicate over long distances</p>	<p>Expensive and requires monthly fees for service and only available where cell towers are</p>
 <p>Satellite</p>	<p>Track devices globally, can directly send notifications to computers, smartphones, etc</p>	<p>Very high costs per device, weather and buildings can cause limitations, uses a great amount of data and battery power</p>

Fig. 3: Pros and Cons of Tracking Technology

How to achieve Supply Chain Visibility?

1. EDI Integration

Electronic data interchange (EDI) is a standardization of information that allows different systems to communicate with each other. EDI can create connections that seamlessly integrate with SAP modules to help automate processes, decrease process times, and reduce costs. Two of the many successful EDI integrations Westernacher has completed are

with FourKites and ClearMetal, both of which are discussed below.

2. Integration of Telematics / Mobile App

In addition to EDI integration, Westernacher has developed different kinds of telematic and mobile applications that integrate with SAP Event Management to “enhance” supply chain visibility. For instance, Westernacher’s Driver Application in Fiori (Fig. 4) gives



Fig. 4: Westernacher Driver Application

drivers the ability to manually enter expected and unexpected milestones as they are reached. As milestones are entered by the driver, SAP Event Management will receive an updated time stamp of the event, improving visibility.

3. Integration of Supply Chain Visibility Partners

When it comes to choosing the right software for your business needs, there is an abundance of options that are constantly changing. A common business requirement is to have a simple and seamless integration strategy with carriers, suppliers, and other supply

chain partners to achieve end-to-end visibility. SAP Transportation Management paired with SAP Event Management provide a powerful platform to meet the visibility requirements of most enterprises. To meet more complex visibility requirements, a combined integration of EDI messages and message broker services can be leveraged. To achieve these complex visibility requirements, Westernacher has established strategic partnerships with different visibility partners to seamlessly integrate SAP Transportation Management to their visibility platform through SAP Event Management.



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Supply Chain Visibility Business Cases.

Using ClearMetal, one of the leaders in ocean freight track-and-trace

Recently for a customer, Westernacher integrated ClearMetal into SAP Event Management (EM) for tracking and tracing of the customer's inbound ocean freight. Through

the integration of ClearMetal, SAP EM, and SAP TM – Westernacher's solution provided the ability to forecast lead times more accurately based on historical and real-time data, which leads to improved operational efficiency.

The following details an example of said increased efficiency:

ORDER AND LOAD CREATION PROCESS



ORDER AND LOAD STATUS UPDATE PROCESS

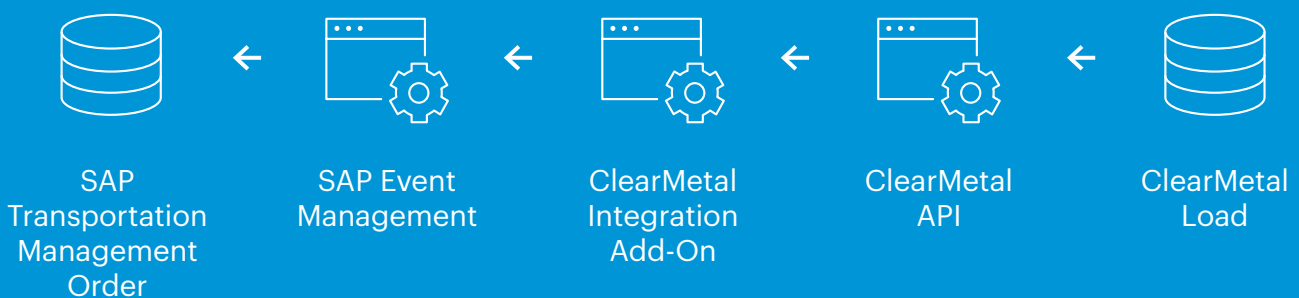


Fig. 5: ClearMetal Integration Process

As shown above, Westernacher developed a custom import tendering program that uses ClearMetal data to accurately predict the arrival of the scheduled vessel at the port of destination. SAP EM receives the data from ClearMetal and passes the data to SAP TM. The customized program in SAP TM takes freight orders that are scheduled to arrive in X amount of days (while accounting for potential additional criteria), and tenders them out automatically. The automation of this step increases the efficiency in the process requiring less user dependent touch points.

Through this process, ClearMetal allows users access to this information either through updates directly to the booking or on their portal instead of them having to check multiple websites or spend time following up with freight partners.

project44, another leader in ocean freight track-and-trace

Has found success in supply chain visibility by acquiring a very large and quickly growing carrier network, providing real-time visibility vessels, and integrating with hundreds of carriers. This increased visibility allows for predictive and prescriptive responses based on real-time events and machine learning.

An integrated solution between project44 and SAP will reduce the oversight required from the business by detecting and managing port congestion, managing by exception, and showing analytics that will impact specific KPI's.

Fourkites, the leading provider of track-and-trace for ground shipments

Working together, Westernacher and Fourkites have found a way to leverage Fourkite's network with Westernacher's knowledge of SAP Transportation Management. When a tracked load gets created in a shipper's TMS system, Fourkites uses its integration with SAP TM to pull relevant data such as origin, stops, scheduled arrival times, and carrier. Based on the assigned carrier, Fourkites will know which GPS or Telematic device to ping every 15 minutes for real-time location updates. As the location is updated, Fourkites will look at different factors including traffic, weather, driver hours, and business hours. These all get factored into the estimated arrival time. During this same time, this information is transferred to SAP TM providing real-time information on the shipment. Status alerts can be set to alert the user when something, such as a delay, occurs so they can call the customer or carrier and determine what can or needs

to be done. Further details about Westernacher's partnership with FourKites can be found on our website: <https://westernacher-consulting.com/business-it/transportation-management/westernacher-insights-fourkites-partnership/>

Supply Chain Intelligence

Any data received from an operational level can be further used for analytical purposes by decision-level making employees, referred to as supply chain intelligence. Supply chain intelligence at its core is the understanding of timeframes and the general operations of a particular supply chain. This information provides another level of visibility into the supply chain and ideally supports the user in a better understanding of certain occurrences by answering what, where, when, and potentially why. On the other hand, supply chain intelligence may further provide predictive analytics to prevent any unpredictable events in the supply chain before those actually happen. In other words, supply chain visibility facilitates the necessary proactivity to identify interruptions in real-time or even beyond that.

Examples of supply chain intelligence:

- ⊗ Accurately predict the effects of a decision, and the relevance it will have on the supply chain
- ⊗ Driver efficiency that allows companies to see which drivers are performing the most efficiently and which are the most cost-efficient for future loads
- ⊗ Forecasting future labor requirements and how that will affect employees along the supply chain

Companies providing supply chain intelligence service:

- ⊗ Llamasoft
- ⊗ Vusion
- ⊗ PeopleNet
- ⊗ Trimble

Some SAP areas have Intelligent Insights, which is a solution that identifies several KPI's, trends, and patterns with real data. Intelligent Insight seeks to help explain top contributors behind specific data points and how to evaluate KPI's. With the help of Intelligent Insights, users can have instant explanations, meaningful visualizations, and predictive analytics.

One popular use case of supply chain intelligence and prescriptive analytics would be, the ORION (On-Road Integrated Optimization and Navigation) project that

UPS has implemented into their transportation system. ORION is a 1,000-page, algorithmic optimization. It's a technique for faster, more practical problem solving, providing a solution for an immediate situation, even if it is neither optimal nor perfect. ORION doesn't necessarily map the perfect route or even the best

one. Rather, ORION gives UPS drivers workable routes, based on experience. It learns over time and speeds up the process. It gets smarter.¹ By the end of 2016, the ORION system had saved over \$400 million dollars, and 100,000 tons of CO2 emissions impacting over 50,000 drivers.

1. UPS Staff Writer, "ORION: The algorithm proving that left isn't right" <https://www.ups.com/us/en/services/knowledge-center/article.page?name=orion-the-algorithm-proving-that-left-isn-t-right&kid=aa3710c2>. (Oct 05 ,2016)

Why should companies invest in Supply Chain Visibility?

In a 2017 survey conducted on the most strategic practices for a business, supply chain visibility ranked third. Conversely, only six percent of companies worldwide have full visibility of their supply chain.² Clearly, companies understand the importance, so why don't more of them have the visibility they value? Because it's a complicated process, that unless extremely organized and disciplined, or without correct utilization of specialized software, is simply more manpower than a business has to spare. The result is that companies aren't optimizing their supply chain to the fullest, and as such are limiting their own growth. With improper visibility, businesses are essentially playing a never-ending game of catchup resulting in a reactive approach to disruptions that happen within their supply chain.

Proper visibility allows for a proactive approach that can

identify real-time interruptions thus correcting them quicker, or even better identifying obstacles before they materialize and avoiding them altogether. Furthermore, full visibility means businesses can access vital information almost instantly, increasing business processes on a grand scale. For example, gaps and bottlenecks in the supply chain become clear and readily identifiable. Knowing where weak links are occurring allows for pinpointing specific processes to improve their weaknesses and run more efficiently. Consumers stand to be one of the biggest beneficiaries of supply chain visibility, as the demand for traceability from big business reaches an all-time high. Consumers are pushing for corporate social responsibility as well as real-time track-and-trace to locate purchased goods. Greencore, an Irish food company, saw a twenty percent increase in on-shelf availability and a three

2. Kate Patrick, "Only 6% of companies believe they've achieved full supply chain visibility" <https://www.supplychaindive.com/news/supply-chain-visibility-failure-survey-geodis/517751/>, (Feb 26,2018).

percent reduction in waste after increasing their supply chain visibility.

Seventy percent of companies that invest in supply chain visibility see a return on investment within thirteen months.³ The modern supply chain is extremely complex, dealing with multiple partners, spanning continents to operate on a global scale. More than ever, supply chains are susceptible to delays, risks, and an entire multitude of disruptions. For instance, without supply chain visibility, it is easy to miss that a pallet of finished goods left the manufacturer and was enroute towards the distribution center, only to have the vehicle break down causing a delay. Identifying this problem in real-time, creates the opportunity to alert the partners downstream who can now adjust estimated arrival times. Our well appreciated partner Fourkites, a leader in global track-and-trace software, asserts that better on-time performance can undoubtedly achieve fifteen to twenty percent savings for businesses.⁴ The accurate forecasting provided by increased visibility establishes more efficient handling, execution,

and lowers labor costs. With every three percent increase in forecast accuracy, businesses see an increased profit margin of two percent.⁵

After learning about the numerous benefits of a supply chain visibility integrated with SAP TM, your next steps should be to reach out to Westernacher for a two-week assessment. This assessment will give personal insight into your company on how TM can help maximize KPI's and lower costs while providing increased visibility to your supply chain.

Plan your change

By investing in supply chain visibility, your business is gaining a competitive edge that helps track and prevent delays in the execution of transportation. Much of this paper has been spent talking about the advantages of adding this traceability to your supply chain, but not about how to put it into action. It starts with choosing an experienced implementation partner to guide your business throughout every step in the process – this is where Westernacher can help.

3. Bird Cassidy, "End-to-end visibility is the future of the construction supply chain" <https://www.getconvey.com/blog/end-to-end-visibility-construction-supply-chain/>

4. Naomi Newman, "3 Reasons to Invest in Supply Chain" <https://www.fourkites.com/blogs/3-reasons-invest-supply-chain-visibility/>

5. <http://www.synchrono.com/supply-chain-visibility-bottom-line/>, (November 16, 2018)

Start your digital transformation with Westernacher.

Westernacher has been innovating business and IT for more than 50 years. We are successful in helping our customers with many different transformation initiatives by providing solutions for operational, organizational and technical issues:

- **Technical:** from implementing EWM, S/4HANA, SCE and other SAP solutions to developing custom ABAP and Fiori solutions.
- **Organizational:** supporting businesses in the transformation to becoming a merchandise-focused retail organization. Providing an engaging vision and training to realize quick wins and removing (cultural) barriers.

- **Operational:** developing innovative business processes to make the most of the new technology and information. Improving KPIs and creating KPPs to move the company from a reactive stage to an orchestrating stage.

To provide you with a better understanding, we offer an Inspiration Day, where we show you what a Planning-centered IT landscape looks like and how it might impact your company. This is achieved through demonstrations and by discussions with our Planning experts.



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