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SAP Transportation Management: What is in it for the Chemical Industries?

By Steve Banker

Summary

With the release of TM 8.0, SAP has a solution with best of breed functionality and a highly scalable architecture. In developing this product, one of their key targets has been the chemical industry. SAP has paid particular attention to providing an end to end solution that will meet the needs of the chemical industry. This Brief examines both some of the major features and functions transportation management system (TMS) users seek from a holistic solution, their applicability to the chemical industry, and SAP's capabilities in those areas. This brief also looks at some areas where chemical companies need industry specific functionality and the differentiated functionality SAP offers in support of this industry.

The Chemical Industry Has Not Invested in TMS

ARC talked to 20 logisticians in the chemical industry over the last six months. The interviews focused on the special challenges associated with chemical logistics, whether these companies were using a transportation management system (TMS) solution, and whether they felt a TMS solution would have value for them.

> The scope of the TMS solution set has grown, creating greater opportunities for savings and service differentiation than in the past. It is time for chemical companies to take another look at TMS technology.

Based on this research, and annual market studies on the TMS market, it is clear that the vast majority of chemical companies have not invested in an end-to-end transportation management system. In ARC's latest study of the global market for TMS, we found that less than 4 percent of total TMS revenues come from the chemical industry. And a large proportion of chemical industry investments in TMS came from companies buying point solutions rather than the holistic, end-to-end TMS

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solutions.

TM 8.0 is a holistic transportation solution that covers end-to-end business scenarios such as domestic and international inbound and outbound shipments. The solution offers full integration and synchronization with SAP ERP and other modules of the business suite, like SAP GTS and the EH&S area.

The end-to-end transportation process starts with procurement and extends through contract management, planning & optimization, execution & visibility, and ends with freight audit & pay.

Transportation Procurement

In recent years, some TMS vendors have added procurement capabilities to their TMS solution. While SAP provides comprehensive strategic service sourcing and procurement capabilities as part of their Supplier Relationship Management solution, general purpose procurement tools cannot provide robust transportation optimization.

While strategic procurement can be a major savings area for other industries that is much less true in the chemical industry. There are fewer carriers available to chemical companies because of the need for specialized equipment and the need for carriers to be HazMat certified. The chemical industry also makes heavier use of rail and ocean than most other industries. There is also a more limited scope for procurement savings in Ocean and Rail. In rail, for example, if you need to get to a particular destination, it is often the case that the final destination will be serviced by just one line.

TMS Functionality	Importance to Chemical Industry	SAP Pros and Cons
Strategic Bid Optimization	Less important	Lacks this functionality
Spot Procurement (Broadcast Tendering)	Less important	Has this functionality

Contract Management

TMS Functionality	Importance to Chemical Industry	SAP Pros and Cons
Centralized Routing Guides	Less important	Has this functionality
Business Share Logic	Equally important	Has this functionality
ERP Order Management	More important	A differentiator for TM 8.0.

Centralized routing guides help to eliminate maverick spend and enforces the rates that have been agreed to based on the strategic procurement engagement. This is core functionality for any TMS solution.

Following procurement events, companies often promise a carrier a certain volume in exchange for a price break. If a shipper is using more than one carrier per lane, it is important that this be tracked and that allocations between carriers are made in such a way that promises made during procurement are kept. One company that shipped chemicals via parcel and LTL to laboratories, told ARC that this was a particularly onerous and time consuming task for them.

SAP is the leading supplier of enterprise solutions to chemical companies. More than 3,000 chemical companies worldwide run SAP. Because of this, the functionality SAP calls Order Management is particularly important. This part of the TM solution allows for out-of-the box integration of SAP ERP master data (customer, supplier, material, plants). This is also the functionality that converts orders, returns, and intercompany inventory movements into transportation requests that TM can build into shipments. This functionality is designed to improve the total cost of ownership and speed implementations of the TMS solution.

Other TMS companies may claim to be integrated with SAP; and they are, to a point. But what this module allows SAP to do, that others cannot fully match, is bidirectional order syncing between the ERP and TM solution - changes in an order in ERP or TM cascade back and forth.

Planning & Optimization

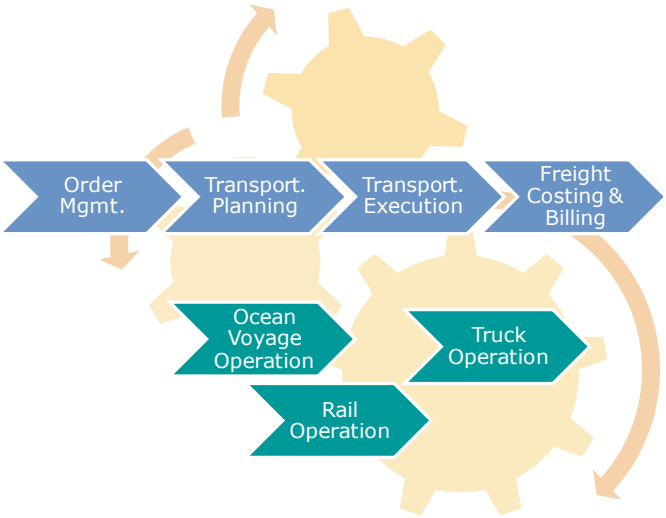
TMS Functionality	Importance to Chemical Industry	SAP Pros and Cons
HAZMAT Freight Unit Planning	High importance	When integrated to SAP's EH&S, a key differentiator.
Trade Compliance Planning	More important	When integrated to SAP's GTS, a differentia-tor
Mode Selection	Equally important	Has this functionality
Business Share Con-straints	More important	Has this functionality
LTL to TL Optimization	Less important	Has this functionality
TL Routing	Less Important	Has this functionality

The place where the SAP solution probably offers its greatest differentiation is in logic that insures that classes of hazardous materials that should not ship together, do not ship together. Part of this functionality resides in their TMS solution. The solution breaks sales order lines into freight units. The freight unit might represent a parcel, a container, or some volume of material for a particular chemical. TM 8.0 then makes a call out to their environmental, health & safety (EH&S) solution to insure that the freight units in question can travel together. If freight units can travel together, higher level optimization becomes possible. Without this capability, a TMS can't optimize shipments containing different classes of chemicals. The integrated solution set can also produce the necessary hazardous goods transportation documentation, another critical feature for shipping chemicals.

ERP solution providers always argue that one advantage they offer over best of breeds is the smooth integration to other important solutions. This is not always true. Sometimes the integration is kludgy; users, for example, may be forced to navigate far too many screens. However, SAP gave clear evidence that the integration between TM 8.0 and EH&S was seamless with straight forward navigation and user interfaces.

Because the chemical industry is a more global industry, with more cross border shipments than in many industries, integration between the TMS and global trade management (GTM) solutions is also important. This

functionality was also demonstrated. Here again, freight units are created - different freight units contain commodities that may be subject to different trade rules; then calls are made between the TM and SAP's Global Trade Services (GTS) solution. And once again, the integration was smooth and the screens well designed.



TMS is far more prevalent in the consumer goods, food & beverage, and retail industries. For companies in these industries, the most significant cost reductions have been driven by complex optimization that consolidate less-than-truckload (LTL) shipments into less-expensive truckload (TL) shipments with multiple drop-off points. This form of optimization drives double-digit savings on freight.

But the chemical industry ships a far higher proportion of its goods by rail and ocean than most other industries. For both modes, there are limited optimization opportunities.

Several companies we talked with shipped primarily in full train car shipments. The cars unload, turn around, and come back empty. For a variety of reasons, this is the norm.

But there are forms of optimization, that SAP does, that do apply nicely to the chemical industry. This is labeled as "Business Share Constraints" in the planning chart. Chemical companies shipping to Europe often do network based planning where shipments move through hubs. For example, if shipping to central Europe you might plan to move the goods through either Antwerp or Marseilles. If different ocean carriers are used for these hubs, and they have been promised certain volumes, the optimization engine needs to be able to put a penalty cost in place if certain volumes by hub have been exceeded. SAP's optimization engine can do this.

Similarly, carriers may have only so much of a specialized form of equipment available. This means that the shipper can ship only a certain volume

per time period with that carrier. The optimization engine needs to be able to respect these constraints. SAP can also do this.

Execution & Visibility

TMS Functionality	Importance to Chemical Industry	SAP Pros and Cons
Tendering Process Management	Equal importance	TM 8.0 has this capability.
Ocean bookings	More important	Robust functionality
Message cleansing	Equal importance	Can be done through partnership with Crossgate.
Milestone alerting	Equal importance	This is done through integration with SAP's Event Management solution.

When it comes to ocean bookings, TM has the right functionality. TM enables pre-booking of space with ocean carriers before orders are received. When orders are received, TM finds the best path through the transportation network, taking port-to-port lanes into account. Shipments are broken into stages based on the transportation proposal. These stages can be planned all together or independently. When TM plans the ocean stage, it uses confirmed ocean bookings as resources.

Whenever users are surveyed about what they want in their supply chain solutions, visibility ranks high. Milestone alerting is an advanced form of transportation visibility. Visibility is achieved through the inclusion of SAP's Event Management capabilities in the SAP TM solution. But event management is enriched with specialized transportation-specific content. It is also pre-configured and ships with the solution.

Freight Audit & Pay

TMS Functionality	Importance to Chemical Industry	SAP Pros and Cons
Freight audit engine	Equal importance	Has this functionality
Landed Costs	More important	Has this functionality

This analyst is a big fan of TMS solutions offering freight audit and pay functionality. These solutions reliably reduce overcharges by carriers by two percent in the first year, and one percent on an ongoing basis.

In the chemical industry, the ability to accurately calculate the transportation components of landed costs, by SKU and customer, is of high importance. This is a highly competitive industry. There are newcomers in emerging nations that have lower labor costs and better access to the most attractive consumer-growth markets. Further, there are state champions in the Middle East that have privileged access to key feedstocks even as energy costs have become highly volatile. For existing chemical companies in North America, Europe, and Japan, understanding their costs so they can make the most competitive choices has become imperative.

Conclusion

Five years ago, many TMS solutions had little capacity to deal with non-road modes; rarely included robust freight audit; and were much more limited from a BI perspective. The ROI chemical companies will garner from a TMS implementation will depend on their supply chains. Nevertheless, there are so many places where a TMS can add value that a chemical company that approaches logistics from a global perspective is bound to find value.

Based on TM 8.0's best of breed functionality and architecture, and robust chemical industry features, it is time for chemical companies to take another look at TMS. Because of SAP's installed base in the chemical industry, we expect the chemical industry will become a high growth vertical for the TMS market, and that SAP will rather quickly assume TMS market leadership in this vertical.

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