

SUPPLY CHAIN INSIGHTS

NEXT-GENERATION TMS AND WMS: WHAT CAN THEY DO FOR YOU?

Traditionally, transportation and warehouse management systems (TMS and WMS) were complex, costly and time-consuming to implement. That meant big companies were the primary users.

However, new digitalization platforms, technologies, integration capabilities and applications are making TMS and WMS accessible – and affordable – to the rest of the business world.

So, if you haven't looked at TMS or WMS solutions in a while, whether as a possible first installation or an upgrade, it's now time to do so.

TMS: The basics

A TMS helps companies manage all aspects of freight's movement from origin to destination efficiently, reliably and cost effectively. These solutions enable firms to manage freight sourcing, planning, execution and settlement, and provide visibility and performance management across all transportation flows.¹

Essentially, they create "a transportation control tower that gives you real-time visibility of freight flows across all your operations," explains Michael Baumann, Vice President, Transportation Management Center of Excellence at DHL Supply Chain.

"This visibility – knowing what's moving, where and what's coming – allows you to do proper forecasting and develop predictive analytics that anticipate your freight flows for coming weeks," Baumann explains. "Having just that



capability is a significant breakthrough for companies. It generates savings well beyond just lower freight rates."

Adoption of TMS solutions continues to grow. Gartner Group predicts the global market for these applications will reach \$1.7 billion by next year, a compound annual growth rate of almost 7 percent.²

The reason for this growth is simple. According to Gartner, TMS can save a company anywhere from 5 to 10 percent in transportation spend.

What's new with TMS?

Next-generation TMS offer a number of new capabilities that bear reviewing.

■ **New platforms, greater affordability**

TMS solutions today are offered not only on installed base platforms, but also on the Cloud and via subscription-based services (software as a service – SaaS). TMS, in fact, were one of the first execution-based supply chain applications to move to the Cloud.

Cloud and SaaS offerings make TMS more accessible and affordable to a larger population of companies – including the medium- to small-sized organizations. As a result, Gartner reports a 15 percent growth in TMS usage within small- to mid-sized firms, with some vendors recording more than 20 percent growth in these markets. Now, companies with just \$15 to \$20 million in annual freight spend can afford to implement the new TMS platforms.³

¹ "5 Benefits of TMS (Transportation Management System)," Cerasis, 2013, <http://cerasis.com/2013/06/13/benefits-of-tms/>.

² Bart DeMuynck, "Magic Quadrant for Transportation Management Systems," Gartner, 2016.

■ **Real-time visibility – for real**

For years, shippers have wished for true real-time tracking / visibility of their freight as it moves across land, ocean and air, which has proved elusive.

Here again, that’s changing. “Visibility (capability) has exploded over the last 12 months,” notes Bart De Muynck of Gartner in a recent article. “Companies want the same kind of visibility and shipment tracking they get as consumers shopping on Amazon. More and more TMS providers are building that into their solutions for B2B applications.”⁴

■ **Uberization options**

Uber-like freight applications enable shippers to “shop” for transportation via their smart phones or tablets, and then track the movement of that freight via a mobile device. These applications are particularly good for handling the “easy” freight – e.g., spot-market purchase of last-mile delivery.⁵

A number of start-up and existing players have jumped into this market space. For example, in mid-2017, DHL introduced Saloodo!, a digital road freight marketplace platform. Other providers are popping up around the world – e.g., Freightos, Convoy, Uber Freight and UShip, to name a few.

The new TMS allow for access to these ‘uberized’ marketplaces.

■ **Faster, smoother installs and integrations**

Because of their complexity, traditional TMS took as much as a year or two to install. “For many companies,” says Baumann of DHL, “this enormous timeframe was a barrier to even considering a TMS. The ROI just was too long.”

The latest TMS, thanks to streamlined design and integration abilities, cut installation times dramatically, making them more affordable. “We’ve seen installation times fall from two years to two quarters or even fewer,” Baumann reports.

TMS developers are also expanding integration capabilities to include not just the traditional enterprise systems like ERP, but also manual data (voice, email and text), self-service portals, web services and other application programming interfaces (APIs). This makes TMS more flexible and adaptive to the way business is done today.⁶

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Warehouse Management Systems (WMS)

WMS applications handle the complex activities of a distribution center, including receiving, put-away, stock-locating, inventory management, cycle counting, task interleaving, wave planning, order allocation, order picking, replenishment, packing, shipping, labor management and automated materials-handling equipment interfaces. Additional functionality can include labor management, slotting, yard management, voice picking, parcel manifesting, value-added services, light manufacturing / kitting and third-party logistics (3PL) billing.⁷

An effectively implemented WMS can generate considerable savings, as Figure 1 illustrates.

**FIGURE 1:
WMS SAVINGS**

Potential cost savings	
Labor utilization	10–35%
Inventory reduction	5–30%
Floor space utilization	10–30%
Maintenance	0–10%
Shrinkage	50–75%
Rolling stock	10–20%
Increase shipping accuracy to	99%+
Increase data entry accuracy to	99%+

Source: JDA Software Group, 2013.

While use of WMS in large companies in North America and Europe is fairly mature, demand for these systems is growing in the emerging geographies of Asia, Latin America, the Middle East and Eastern Europe. Statista predicts the market for WMS solutions will grow from \$1.2 billion in 2015 to \$4.1 billion in 2024.⁸

³ Bridget McCrea, “State of Transportation Management Systems: Trends to track in 2017,” Logistics Management, 2018.

⁴ Ibid.

⁵ Ibid.

⁶ “What’s Changed with a Modern TMS?” 3GTMS, 2016.

⁷ C. Dwight Klappich, Simon Tunstall, “Magic Quadrant for Warehouse Management Systems,” Gartner, 2017.

⁸ “Size of the warehouse management systems (WMS) market worldwide, from 2015 to 2024 (in billion U.S. dollars),” Statista, 2018, <https://www.statista.com/statistics/685785/worldwide-warehouse-management-systems-market>.

What's New in WMS?

"The core functionality of a WMS today hasn't changed a lot in 10 years," observes Antony Cotterill, Vice President, Global JDA Center of Excellence, DHL Supply Chain. "The screens and user interfaces are better, the processing speed is faster, but the basics are still there – process pallets or goods in, ship pallets or goods out, manage what goes on inside the four walls of the DC, connect with the TMS."

That said, here's a look at what's new with today's WMS.

■ Connecting to 'smart' technologies

WMS is expanding its connections to the new 'outside world' of smart technologies. Developers are designing interfaces to the Internet of Things, wearable / vision picking devices, augmented reality, dynamic asset positioning in the warehouse (e.g., forklifts), and collaborative robots.

Progress is slow, because the work is difficult.

"Developers have to write new APIs for everything, and that's a complicated, iterative process," Cotterill says. "But we'll get there, I have no doubt."

■ Solving the 'one-off syndrome'

WMS modifications, which were the norm in traditional implementations, can add 50 percent or more to the cost of a solution. And even if a company selected only one vendor, every time it installed the WMS in a new facility, each install location added custom bolt-ons. "If you have 21 warehouses," says Cotterill, "and implemented them sequentially, by the time you got to the 21st warehouse, the number of bolt-ons made it difficult to manage any updating or refreshing on a global basis."

WMS vendors and large users are working to solve for this costly and cumbersome 'one-off syndrome.' DHL, for example, is working with JDA Software Group to devise a system that provides universal refreshes to the full WMS suite. "This enables 'global' system updates and refreshes that are consistent across all locations – a tremendous advantage," Cotterill explains.



Bottom line benefits

Clearly, TMS and WMS vendors are adapting their solutions to the new world of integrated supply chain digitalization. Applications are less monolithic, accessible via cloud and alternative platforms, more affordable and adaptable, extensible, and easier to maintain. This means these technologies are now within reach for even small companies.

That accessibility has a powerful benefit. It helps level the competitive playing field between large and small competitors. It gives 'the rest of the business world' access to technologies and the advantages the big companies have had for decades.

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