Yard Management Technology Trends and Selection Considerations

Published 6 November 2020 - ID G00733346 - 25 min read

By Analysts Simon Tunstall, Bart De Muynck

Initiatives: Technology and Solutions for Supply Chain and Operations; Logistics Strategy and Operations

Yard management demand is growing due to lack of focus and uncoordinated activities between the yard, transportation and warehouses, which is exacerbated by disruptions such as COVID-19. Supply chain leaders should grasp trends, existing capabilities and selection criteria to support their needs.

Overview

Impacts

- Organizations typically understand and prioritize investment in, and use of warehouse management and transportation management solutions, while neglecting the sometimes more impactful benefits that yard management solutions offer.

- Recent disruptions, such as COVID-19, have amplified challenges, with longer dwell times for carriers, more congested yards and distribution center operations, and other inefficiencies, exposing interruptions to the flow of work that existed in nondisruptive times.

- Yards remain notoriously inefficient as companies waste time and resources searching for trailers and inventory poorly located in the yard. Lack of timely location of assets can lead to misaligned inbound processes, incomplete assembly, missed deliveries and spoiled goods.

Recommendations

Supply chain technology leaders responsible for supply chain execution and operations should:

- Model the yard operations across your network and review the performance of your yard activities to determine process improvement opportunities.

- Assess the benefits of yard solutions, and the capabilities within and across WMS, TMS and YMS solutions, that are appropriate to the complexity of your operations, logistics priorities and your current portfolio of logistics solutions by using the benefits described in this research.
Review the technology and market trends detailed in this research to determine priorities for investment to bridge the gap between warehouse and transportation management and adapt to the external pressures changing these environments.

Analysis

Gartner finds that improving yard operations was historically overlooked, even where there were well-identified improvement opportunities. This was typically because of an overfocus on warehouse and transportation management processes, priorities and systems. Due to this overfocus on warehouse management and transportation management in isolation, there was a frequently missed opportunity to coordinate an efficient flow across all three areas. As the impacts of COVID-19 continue to unfold and constrain warehouse and distribution center operations, supply chain leaders are renewing focus on this area.

Gartner has seen an increase in inquiries from clients in this area and has seen additional developments from warehouse management system (WMS) vendors, niche providers and point solutions targeting specific use cases. For an increasingly competitive WMS market, demonstrating stronger extended WMS capabilities, such as a robust, easy-to-use yard management system (YMS), can be a key differentiator.

However, the following users should review a YMS, regardless of their WMS and transportation management system (TMS) landscapes:

- Users with large fleets.
- Users with a high volume of supplier and customer shipments.
- Users who suffer yard, dock door and throughput congestion.
- Users operating a campus of yards or who need to manage networks of yards “yard of yards” holistically, to effectively deploy their resources across their network.

Gartner also finds that distribution centers and warehouses operating in a high Level 3, Level 4 or Level 5 complexity environment have a greater need for extended components, such as yard management and advanced dock scheduling (see Toolkit: Stratify Your Warehouse Operations to Determine the Right-Fit Warehouse Management System and Improvement Strategy) to better coordinate their workflow. These needs may exceed their WMS capabilities. Additionally, users with significant yard operations and no WMS (such as manufacturing sites) should also consider use of a YMS.

Supply chain technology leaders should use this research in conjunction with Gartner’s Market Guide for Yard Management.
**Table 1: Impacts and Top Recommendations for Supply Chain Technology Leaders**  
Viewing partial table. Click here to view full table

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Top Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizations typically understand and prioritize investment in, and use of warehouse management and transportation management solutions, while neglecting the sometimes more impactful benefits that yard management solutions offer.</td>
<td>Review the technology and market trends detailed in this research to determine priorities for investment.</td>
</tr>
<tr>
<td>Recent disruptions, such as COVID-19, have amplified challenges with longer dwell times for carriers, more congested yards and distribution center operations, and other inefficiencies, exposing interruptions to the flow of work that existed in nondisruptive times.</td>
<td>Aim to bridge the gap between warehouse and transportation management and adapt to the external pressures changing these environments.</td>
</tr>
<tr>
<td>Yards remain notoriously inefficient as companies waste time and resources searching for trailers and inventory poorly located in the yard. Lack of timely location of assets can lead to misaligned inbound processes, incomplete assembly, missed deliveries and</td>
<td>Model the yard operations across your network.</td>
</tr>
<tr>
<td></td>
<td>Review the performance of your yard activities to determine process improvement opportunities.</td>
</tr>
<tr>
<td></td>
<td>Assess the benefits of yard solutions and the capabilities within and across WMS, TMS and YMS solutions.</td>
</tr>
</tbody>
</table>

Source: Gartner

**Impacts and Recommendations**

**Organizations Typically Neglect the Evolving Landscape and Opportunities That Yard Management Solutions Offer**

Due to its smaller size compared to the WMS and TMS markets and the frequent lack of collaborative focus between transportation and warehousing operations, the yard is still often neglected and managed in a manual and/or reactive fashion. There are a large number of impactful opportunities, significant market changes and technology trends that deserve focus from forward-thinking supply chain leaders.

Automating the yard and creating better visibility into the operations in the yard, as well as the alignment of the yard with the warehouse and transportation, play a bigger role leading to the next generation of YMS solutions (see Figure 1).
Growth of Vendors and Providers Addressing Specific Needs Related to Yard Management

Additional to the vendors profiled in *Market Guide for Yard Management* and the dock scheduling vendors listed in *Warehousing and Fulfillment Vendor Guide*, Gartner notes the growth of deployment of a number of vendors and service providers. These vendors and service providers support activities in and around each of the three key areas of gate, yard and dock, as well as alleviating congestion and constraints that have grown in warehousing and cross-docking. These include:

- Capstone Logistics, which provides unloading services in North America.
- Eclipse IA, which also provides unloading services and personnel for logistics activities.
- Inbound Technologies focuses on dock unloading productivity and optimization.
- Lazer Spot provides spotting services in North America but also helps assess yard operations and partners with vendors to implement yard management systems and provide training.
- LOGSOL, with its RampMan solution, focuses specifically on loading/unloading activities to support the flow on site.
- Outrider supports the development of electric yard trucks into autonomous yard vehicles.
- Peripass provides multiple yard-related solutions in Europe.
Acquisitions/Investments in the YMS Market

While the yard management market is significantly smaller than either the WMS or TMS markets, Gartner has noted the following investments and acquisitions affecting the YMS market in addition to continuing innovation from YMS vendors:

- A large number of WMS vendors have rolled out basic yard management capabilities where these were lacking, and those that had some existing capabilities significantly enhanced these in the last 18 months (see Magic Quadrant for Warehouse Management Systems and Critical Capabilities for Warehouse Management Systems).

- In December 2019, Lazer Spot, a provider of spotting, shuttling, yard and gate staffing and training and implementation of YMS, was acquired by Harvest Partners from Greenbriar Equity Group, retaining Lazer Spot’s management team. In May 2020, Lazer Spot acquired PHB Transport, further expanding its coverage.

- In March 2020, FourKites, a provider of cloud-based, real-time visibility software solutions, acquired the yard management solutions portfolio from TrackX.

- In June 2020, PINC, a yard management solution vendor, secured a significant growth equity investment from private equity firm Accel-KKR. In September 2020, Accel-KKR announced it had acquired Wabtec’s shipper TMS and that it will combine it with PINC to increase the focus on rail, truck and terminal yard management. In October 2020, PINC announced the further acquisition of RailcarRx, to further expand its portfolio.

Existing and prospective clients of these organizations should take the following actions:

- Gauge how your existing or selected vendor’s strategy supports your needs and strategy for converging supply chain activities and enhances industry-specific capabilities.

- Assess the fitness of the existing or selected YMS, adjacent products and services as a result of the acquisition or restructure.

Stackr focuses primarily on gate/kiosk site access control, truck arrival alerts, panel communications and operations monitoring to support flow management in Europe.

Transportation Warehouse Optimization (TWO) focuses on load optimization/planning and optimization of warehouse and dock scheduling through use of advanced algorithms and artificial intelligence (AI)/machine learning (ML).

Vehnet, with its Lynx solution focuses exclusively on finished vehicle logistics in large port and yard environments for the new and used automotive markets and for third-party logistics (3PL) providers supporting that market.
Gain commercial and service improvements through activities such as scrutinizing contractual terms, gaining formal vendor guarantees in areas such as quality and availability of management and professional services and support staff.

See How to Determine Impacts, Benefits From Recent Acquisitions, Restructures and Investments in the WMS Market for a related perspective on acquisitions in supply chain execution technologies.

Real-Time Transportation Visibility Platforms

Organizations have increasing demands for real-time, or at least near-real-time, visibility into their orders, multimodal shipments and inventory across a network of business partners, both stationary and in transit. This visibility might apply to both upstream from brand owners to their suppliers, contract manufacturers and service providers, and downstream from brand owners to their distribution centers, distributors, service providers, and ultimately, customers.

When it comes to physical domestic transportation, customers are demanding more real-time visibility into in-transit shipments. Last-mile visibility has had a lot more emphasis recently than long haul, over-the-road freight delivery. We also see last-mile visibility for inbound scenarios, where the flow of inbound products to manufacturing or distribution sites needs to be tracked better to ensure that production schedules are met. That will increase the efficiency of the loading/unloading process and decrease congestion in the yards. The yard can take advantage of these newer visibility platforms to stay better informed about truck estimated times of arrival (ETAs). The visibility platforms can also help with rescheduling dock appointments, and therefore, avoiding waiting times and lost warehouse efficiency for the dock assets and labor resources. An indication of this trend is FourKites acquisition of TrackX, together with the increase in collaboration of YMS vendors with real-time visibility providers (see Market Guide for Real-Time Transportation Visibility Platforms).

Trailer Telematics

More trailers have been equipped with trailer tracking devices; this enables the monitoring of activity and the location and condition of the trailer inside a yard as well as its movements outside the yard. The trailer tracking market has quadrupled in the last six years, with North America being the most developed region for trailer tracking. Trailer tracking hardware costs have fallen significantly, while products and services have become more sophisticated. Customers are more aware of the technologies and many see electronic tracking as an efficient solution to maximize the productivity of trailers and resources. YMSs can benefit from these solutions to get updates on the usage and location of the trailers in a given yard, without the need for additional equipment installations.

Real-Time Location Systems (RTLSs) Based on Technologies Like RFID

Some companies have replaced paper-based systems with removable RFID tags (both active and passive) and cloud-based software to improve gate throughput as well as Bluetooth low energy (BLE) sensors. The use of RFID tracking technology and other sensors enables companies to streamline the management of the yard and provides full visibility of the exact location of trailers and containers at the
The new system, employees would walk or drive through the yard with a pen and clipboard to count and locate trailers. This practice led to problems, such as:

- Site congestion.
- Shipment delays and related product shrinkage.
- Costly detention and demurrage penalties due to delays.
- Wasted labor, time and fuel.

RFID and other sensor systems can improve gate throughput while eliminating manual yard checks and paper-based documentation. The improved operational control and tracking of assets can lead to improved productivity. Some vendors address similar problems by using more basic sensors to determine if a location is occupied. But they still require visual checks or the use of capabilities such as optical character recognition (OCR) to determine if the right equipment is in the right location.

Mobility
The increased adoption of mobility is also visible in the YMS space. Most vendors with yard capabilities offer mobile versions of their solutions to easily access the yard operations’ system from a smartphone or tablet. A growing number of fleets also use mobile solutions for the cab and/or trailer. The YMSs can link to those mobile solutions to create better visibility to the load and the asset. This also lowers the cost of the solutions, since companies no longer need costly private wireless networks in the yard, but their yard drivers can be connected to the cloud via mobile devices and a simple data plan. Furthermore, companies can use standardized devices, such as smartphones and tablets, rather than expensive, ruggedized industrial devices.

Drones
Despite the relatively low adoption of drones within warehouse environments, YMS providers continue to experiment with unmanned aerial vehicles (UAVs) to fly around a yard, either autonomously or with the help of a remote control. These drones are autonomous real-time location system (RTLS) aerial robots that can survey large areas of densely packed assets for the purpose of inventory reconciliation or pinpointing where certain inventory is located. The drones use RTLS capabilities and upload the RTLS and video data via Wi-Fi on return to their ground stations. The use of drones is not applicable in every case. But it shows that the YMS — a more mature supply chain product that has been around for many years — keeps evolving and utilizing more advanced technologies to offer increasingly stronger solutions (see Supply Chain Brief: New U.S. Regulations Will Accelerate Drone Delivery Trials).

Autonomous Vehicles
There are several scenarios wherein autonomous vehicles can help the efficiency of the yard as well as the utilization of the truck driver. It is no surprise that several pilots have been undertaken to drive this technology in the yard, which does not have the same regulatory constraints as the open road.
Spatially demarcated areas, such as yard premises, are ideal test areas for autonomous driving: The vehicles do not require road registration, traffic is manageable and unauthorized individuals are not allowed access. For example:

- Outrider combines cloud-based management software with electronic autonomous yard trucks that manage and optimize yard operations to dispatch and monitor multiple trailer moves on-site or remotely. See Cool Vendors in Supply Chain Execution Technologies for more information.

- In the collaborative project AutoTruck, Fraunhofer-Gesellschaft is developing technologies for autonomous trucks in logistics centers. Tired from a long route, the truck driver arrives at the depot. However, instead of driving the vehicle to the loading ramp, waiting there until it is fully loaded and then parking the truck in the parking lot, the driver can take the mandated rest earlier. This allows the carrier more flexibility in delivery scheduling. Instead, the driver leaves the truck at the gate. The truck drives independently to the loading ramp, waits until it is loaded and then parks in the parking lot until the driver is ready to leave.

- Running defined lanes within a restricted area, yard trucks present an easy use case for moving freight from Point A to Point B autonomously. ZF is another example of an autonomous yard truck solution providing an intelligent and dynamic routing system that tells the vehicle where to go, when to go and what to do once it’s there.

- Knorr-Bremse is another example of a company that has built an autonomous semitrailer rig that can drive itself to the loading bay and back across the yard with no driver in the cab.

**Load Optimization**

In addition to capacity issues due to a driver shortage, the transportation industry is challenged with the issue of empty miles and low load percentages. Besides efficiently managing the process of loading a vehicle, some vendors are working on a solution to optimize the fill proportion and effectiveness of the loading process. Zebra is one such vendor that provides a load analytics solution (SmartPack Trailer). The solution provides visibility into key load metrics that can give carriers a competitive advantage and enable them to get packages out faster and more accurately. This could also eliminate costly errors in the shipping process, reduce the number of trucks on the road, save on fuel and maintenance costs, and aid worker productivity and safety.

**Geofencing**

For several years, companies have looked for technologies that could monitor inbound vehicles to determine where they are, and then use this knowledge to more accurately schedule dock door usage. Today, a carrier can book an appointment; but even for good carriers, unforeseen events can cause them to miss those appointments. Geofencing could allow the near-real-time location of inbound vehicles, and, based on a virtual geofence around the facility, an appointment could be confirmed or rescheduled without human intervention.
For example, a company may wish to confirm an appointment when its vehicle is within 10 miles of the distribution center, thus ensuring that it could cycle the truck as fast as possible.

**Cloud Platforms**

Cloud-based systems have provided benefits to many supply chain technologies. Gartner has seen the adoption of cloud solutions increase significantly, especially in areas such as TMS, where multitenant, multienterprise cloud platforms are the de facto standard. The advent of cloud technology has also made an impact on YMSs, offering faster deployments (especially when starting as a stand-alone solution) and lowering costs, thus making the ROI more attractive. In many cases, companies can start using these YMSs as nonintegrated solutions to automate mostly manual processes, and to very quickly increase visibility to yard operations and their equipment.

**Supply Chain Execution (SCE) Convergence**

 Warehousing and transportation are notable points of convergence, but they’re not the only ones. As yard management as a function integrates fully with both transportation and warehouse operations, the convergence across all functions can add substantial benefits. True SCE convergence is when a vendor has developed multiple SCE and related functions on a common technical architecture that shares a user interface (UI), data model and business logic. This is obtainable only from supply chain management (SCM) suite and megasuite vendors that offer all the different components of SCE. These vendors have strong application platforms, some existing converged capabilities and broad visions for SCE convergence. They enable the assembly of end-to-end processes by connecting processes and services that span a variety of previously independent functional areas. While multiple SCM and WMS vendors are expanding their YMS capabilities, which in turn expands the level of convergence, some of the acquisitions (e.g., PINC) and the optimization capabilities of specialist vendors (e.g., TWO) bring some partial convergence opportunities.

**Recommendations:**

- Review the technology and market trends to determine priorities for investment.
- Aim to bridge the gap between warehouse and transportation management and adapt to the external pressures changing these environments.
- Determine the opportunities from the recent acquisitions in the yard management space.
- Additional to reviewing WMS, TMS and YMS vendors capabilities, gauge the applicability of vendors and providers assessing specific yard-related needs.

**Recent Disruptions, Such as COVID-19, Have Exposed Interruptions to the Flow of Yard Work That Existed in Nondisruptive Times**

In seasonal peaks, many distribution center operations struggle with congestion in their yard operations, causing a knock on impact to the overall flow of materials, equipment and operatives on-site. COVID-19 and its impacts on the supply chain have exacerbated these issues and brought them to the attention of...
supply chain leaders and senior executives. There has been an increase in yard congestion, resulting in an increase in dwell times for carriers (with the attendant risk of increased detention fees). It also has resulted in interruptions to materials supply in manufacturing operations and inbound warehouse activities required to support storage and picking, further exacerbating congestion.

In order to address the root cause of these issues and model your yard operations, it is important to understand the interplay between systems as well as the functional capabilities in your yard or network of yards.

Figure 2 illustrates the typical interplay between TMS, YMS and WMS solutions. YMS can operate as a stand-alone solution, integrated with either or both WMS and TMS — or, in some cases, as a solution or separate module provided by WMS and TMS vendors. We have also seen yard management solutions used in complex yards to serve manufacturing operations, even where a WMS or TMS is not present. In some cases, materials flow directly from a yard to a manufacturing production shop floor, and an effective yard solution and dynamic appointment scheduling can be critical in these environments. Existing yard management operations and solutions may be manual or can be fairly rudimentary where the application might simply note manual entries of asset movements entering and exiting the yard. Increasingly, and especially in light of the activity disruptions COVID-19 has exacerbated, these basic processes are insufficient. Yard management requirements are increasingly sophisticated, starting with the need to manage movements in and out of parking spaces and expanding to the advanced use of real-time, asset-tracking technologies, such as trailer telematics, RFID and related technologies (see Market Guide for Real-Time Transportation Visibility Platforms). There is also additional focus on enhancing the usability of solutions for yard and warehouse managers as well as resident and visiting drivers.
Gate/Kiosk
This capability relates to managing the access of vehicles entering and leaving the yard, and alerts the system of the specific arrival of vehicles to trigger the next action. Depending on the environment, the gates can be manned or unmanned, and in some cases, fully automated with kiosks. Gartner has identified increased interest from end users in automating this process to speed up the check-in process and to keep drivers safe through social distancing. Some systems support both manned and unmanned environments, and can act as the communication point with the driver, provide on-site instructions and register the load as on-campus or within the yard.

Yard
This capability relates to determining the location of vehicles and trailers that need to be parked prior to unloading or loading. It also involves auditing the equipment and inventory including condition, and in some cases, temperature monitoring. In addition to deciding the location of vehicles and trailers, a YMS determines where the equipment moves, and may also determine the best locations and dwell times.

Yard capabilities are used to view, manage and amend the entire yard operation or “yard of yards.” This includes planning and directing the work of yard jockeys or hostlers, who move trailers to and from the dock doors and trailer parking spots. The yard jockeys also move trailers around in the yard. In some
cases, a carrier can deliver directly to or pick up from a dock door. However, in many cases, trailers have to be parked, and yard jockeys are then responsible for finding and moving the trailers as needed. Without a reliable system, they often waste time trying to find lost trailers in the yard. The YMS, however, communicates with the yard jockey using mobile technology.

**Loading/Unloading Docks/Bays**

This capability relates to scheduling and directing specific vehicles to specific dock/bay doors. This depends on the availability of bays, and sometimes, the availability of labor, and on the best positioning of deliveries, depending on the proximity of put-away locations within that warehouse operation. Sometimes, this can also be provided by appointment scheduling solutions, which enable the efficient scheduling of appointments between the loading location and the carrier. While dock and appointment scheduling is important in all complex warehouse operations, lack of yard and warehouse space due to disruptions, such as COVID-19, have increased the use of cross-docking. In complex cross-docking scenarios, dynamic dock and appointment scheduling is critical.

Some YMS vendors offer separate modules for each of the three areas. Others offer two combined or all three. Some WMS and TMS vendors may offer one or more as part of their package or as an additional module.

**Recommendations:**

- Model the yard operations across your network and review the performance of your yard activities to determine potential process improvement opportunities.
- Supply chain technology leaders should examine existing and required support for all three key capabilities across their network.

The next section provides further details on the technological capabilities and benefits of YMSs.

**Inefficient Yards Lead to Misaligned Inbound Processes, Incomplete Assembly, Missed Deliveries and Spoiled Goods**

Yards remain notoriously inefficient as companies waste time and resources searching for trailers and inventory poorly located in the yard. In order to justify investments in yard-related technology, supply chain leaders should familiarize themselves with the key capabilities and benefits (see Table 2).

YMSs can offer the capabilities to make yard operations more efficient by increasing the visibility of gate operations, yard processes and dock door activities:

- Yard management includes a set of capabilities that deals with the management and process execution activities related to or impacting a company’s shipping yard and dock doors. It takes into consideration equipment, facility and employee constraints, as well as activity demand.
Yard management can automate the tracking of assets (e.g., trailers or containers) in a yard for the purpose of more efficiently finding and handling them.

Yard management can be combined with optimal dock door scheduling for more efficient use of labor and equipment at the facility or for more optimal inventory movement and product flow through a facility.

Yard management can also be used to track inventory that is stored in the yard, similar to what the WMS does within the four walls of the warehouse.

Some YMSs also include real-time sensory technologies to electronically monitor the locations of improvement vehicles and equipment for increased visibility.

Table 2: Key Use Cases for YMS

Viewing partial table. Click here to view full table

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>Automation of yard processes and increased accuracy.</td>
</tr>
<tr>
<td></td>
<td>Improvement of check-in and check-out processes.</td>
</tr>
<tr>
<td></td>
<td>Improvement of the flow and direction of materials through a facility to best support the utilization of yard and warehouse labor.</td>
</tr>
<tr>
<td>Visibility</td>
<td>Visibility to the yard operations and assets.</td>
</tr>
<tr>
<td></td>
<td>Elimination of lost trailers.</td>
</tr>
<tr>
<td></td>
<td>Visibility to product inventory in the yard.</td>
</tr>
<tr>
<td>Cost Reduction</td>
<td>Reduction of detention and demurrage expenses.</td>
</tr>
<tr>
<td></td>
<td>Reduction of idle rental.</td>
</tr>
<tr>
<td></td>
<td>Reduction of idle dock labor.</td>
</tr>
<tr>
<td>Carrier Analysis</td>
<td>Tracking of carrier commitments and on-time performance.</td>
</tr>
<tr>
<td></td>
<td>Tracking of carrier wait time and unload time.</td>
</tr>
</tbody>
</table>

Source: Gartner (November 2020)
Additional benefits of a YMS include:

- **Velocity:** A YMS provides real-time visibility into asset locations and their operational status, including dwell times in various states. By monitoring all the delays in the visit life cycle, it becomes possible to accelerate operations, such as rapidly identifying empty trailers that are available for outbound loads.

- **Process conformity:** The YMS can ensure that every trailer, tractor and driver entering the facility is checked in and out in a consistent way. Seals are checked, damage is recorded and shipment information is associated with the trailer number.

- **Spotter/yard jockey efficiency:** A YMS greatly improves spotter move times and enables shuttle drivers to electronically receive, accept and confirm the completion of move requests, thus eliminating radio communication and pen and paper in the cab.

- **Carrier collaboration:** Progressive shippers and 3PLs collaborate with their carriers. This collaboration includes providing carriers with access to the YMS so that real-time shipment notifications can be sent.

- **Safety/security:** A YMS can improve safety by eliminating the need to have people walking around the yard performing manual checks. Instrumentation on yard trucks monitors speed, safe practices and hours of service for yard truck drivers. The YMS also helps to secure the yard by tracking all moves from check-in to check-out. A YMS can also support social-distancing by enhancing in-cab driver check-in activities, reducing the risk of viral transmission within crowded warehouse offices.

- **Yard of yards:** Companies with multiple yards do not have access to a network view without a YMS. The network view allows organizations to pool assets, including empty trailers and yard trucks, and to compare operational effectiveness across all locations.

Also, the combination of yard management with dock door scheduling, WMS and workforce management can significantly aid the ability to efficiently cross-dock high volumes of products and materials through the facilities.

The value of the YMS often varies by vertical industry. For internet retailers, velocity is everything, while a manufacturer values knowing where its inventory is in the yard in order to feed the production line. Retail distribution values on-time deliveries that drive customer satisfaction.

It can sometimes be hard to demonstrate the real product flow benefits of a YMS until the system has been implemented; however, cost and risk avoidance rather than purely cost reduction can combine to form a powerful argument. For example, when delivery schedules are disrupted, causing increased waiting times, specific industries, such as food service distribution, may heavily value support for niche capabilities, such as refrigerated container temperature and fuel monitoring to reduce spoilage costs. Accurate visibility of vehicle and driver locations can also support social distancing. Additionally, an advanced YMS can often be financially justified purely on savings in yard activities in an operation that
employs two or more yard truck switchers per shift (sometimes referred to as yard dogs, yard jockeys, spotters, hostlers or shunters).

**Recommendations:**

- Assess the benefits of yard solutions and the capabilities within and across WMS, TMS and YMS solutions.
- Select solutions that are appropriate to the complexity of your operations, logistics priorities and your current portfolio of logistics solutions.

**Evidence**

The information in this research was gathered via secondary research by the analysts, vendor surveys and briefings, and 18 months of analyst interactions with Gartner clients.

**Document Revision History**

Technology Trends and Selection Considerations for Yard Management Systems - 18 March 2019

**Recommended by the Authors**

Market Guide for Yard Management

Magic Quadrant for Warehouse Management Systems

 Guidance From 2,100 Lessons Learned — Institute Governance and Modification Control to Avoid Failure and Delays to Your WMS Implementation

How to Determine Impacts, Benefits From Recent Acquisitions, Restructures and Investments in the WMS Market

Answer These 7 Questions to Position the Strategic Arguments for a New or Replacement WMS

Toolkit: Stratify Your Warehouse Operations to Determine the Right-Fit Warehouse Management System and Improvement Strategy

Market Guide for Real-Time Transportation Visibility Platforms

Cool Vendors in Supply Chain Execution Technologies

Supply Chain Operational Visibility Vendor Guide