Introduction

As transportation and warehousing expenses continue to increase, companies are re-evaluating these key logistical components. Severely impacted by fluctuating fuel prices, transportation costs alone typically amount to approximately 50% of total logistics expenditures.

And, as demand profiles change, supply chain professionals across the continent are reporting fewer inventory turns, resulting in products spending more time in warehouses and larger, less frequent shipments. Conversely, more smaller shipments for the same volume are increasing cost to serve and eroding margins.

These conflicting challenges are causing logistics professionals to increasingly evaluate inventory and warehouse costs in addition to transportation expenditures. After all, companies do not profit when goods sit idle in the warehouse, or when your vehicle fleet was procured for large single drop shipments and is now doing many more small drops.

In the past retailers and wholesalers could allow their warehouse management systems (WMSs) to operate in isolation from their transportation management activities. In today’s demanding consumer environment, companies cannot afford to lose the gains they have built in other areas of their supply chains because of inefficient execution on the road or in the warehouse.

Companies can make better logistical decisions by using the right technology system integration between warehouse and transportation management. By integrating WMS and transportation management systems (TMS), companies can enable real-time visibility and create cross-departmental workflows, such as: cross docking, throughout the supply chain, significantly improving supply chain execution and profitability.

Leverage the Benefits of Integrated Logistics Systems

Managing all aspects of a supply chain network can be a juggling act, with multi-channel distribution, multi-modal needs and high service requirements. Today’s companies require greater visibility and control than ever before so that customers are assured the right products will be delivered exactly when and where they need them.

To adapt to this ever-changing marketplace, it has become an imperative for companies to know where their inventory is and how to move it to the right spot. To accomplish this, companies should take a holistic view of their supply chains, starting with a more centralized logistics outlook. With full visibility into the activities and information that drive execution, companies not only preserve sales and revenues with more accurate orders, but also control and manage costs by improving the way they organise operations, labour, transportation and inventory.
Unfortunately, traditional operations still have transportation and warehouse management broken down separately. In reality, the two are closely intertwined. It is difficult to manage warehouse inventory without insight into the flow of products in and out of a distribution facility. For example, if a distribution centre does not have visibility into inbound transportation, then it makes it hard for the warehouse manager to plan for people and equipment to unload trucks.

**TMS-WMS Integration Models**

Creating a single-source engine to share data, foster communications and provide visibility between transportation and warehouse management systems can enhance the performance and benefits of each solution beyond implementing each as a stand-alone. However, companies must determine where their priorities lie.

In order for companies to reap the full benefits of this type of integrated solution, they must first determine which model — transportation-driven or warehouse-driven — will best suit their business needs and objectives. The following is an overview of the operational characteristics that would indicate a certain propensity for each model.
### Transportation-Driven Model

- Product profile is weight or volume sensitive (e.g., bowling balls, styrofoam cups, reels of paper);
- Creating the right routes and fully using transportation capacity are priorities;
- Significant investments in sophisticated software that provides strong capabilities to assign routes dynamically.

### Warehouse-Driven Model

- Facilities run at high capacities with physical space constraints;
- Major concerns over levels and mixture of orders as well as space utilization;
- Heavy utilization of specialty or high-end warehousing equipment that supports automation;
- Highly labour-driven operations with shift dependencies and significant amounts of overtime;
- Major investments in sophisticated WMSs that include waving and task management applications.

In a world where customers are used to next day, nominated day, fixed time slot or even same day delivery – not just to one address but to collection points, lockers, etc. – the role and importance of vehicle planning is even more key. The link back from an efficient route to the efficient sequence in which orders need to be assembled in the WMS is becoming much more ‘real time’.

Additionally, companies should consider a number of other factors to determine the most suitable integration model. It ultimately comes down to how companies manage these components:
One common mistake of many companies is that they tend to select the same cheap carrier to decrease costs and avoid the reality of that carrier only getting the parcel on time to the customer 50-70% of the time. Increased customer satisfaction is a further benefit from a WMS/TMS integration.

Most companies fall prey to the common pitfall of looking at these components as siloed issues when they need to take a holistic look at impact to determine the best model.

“Increased customer satisfaction is a further benefit from a WMS/TMS integration.”

System Integration Benefits

TMS has fully matured in the last five years, integrating functions such as: transportation procurement, purchase order maintenance and shipment planning optimisation.

Similarly, WMS has evolved to include broad and deep functionality when it comes to inbound execution and inventory management, and outbound planning and fulfilment.

Even though advancements in stand-alone WMS and TMS solutions have introduced new breadth and depth in functions and capabilities for these critical supply chain areas, without integration, companies will not realize the full efficiencies available in operations execution. Integration between transportation and warehouse management of ownership, for example, by logistics visibility and centralized the following elements that may yard management; appointment shipping documents; order compliance; inbound shipments/ pallet, order and shipment status;

By and large, integration is driven a single source (single vendor) for system where technologies, and terminology all use the same language.
Operational Benefits

An integrated solution synchronises the communication between warehouse and transportation management to increase collaboration between WMS and TMS.

Overall benefits are:

- **Increased overall execution efficiency:**
  - vehicle optimisation
  - reduction in overtime/agency hires
  - better work force planning from better horizon or unload/load plans

- **Better operational visibility:**
  - ability to optimise future fleet
  - ability to determine cost to serve
  - ability to manage customer service levels
  - reduction in DC disruption from order escalation

- **New optimisation between the two technologies:**
  - Transport awareness of warehouse constraints in real-time enabling real-time decisions

A truly integrated solution meets warehouse and transportation management needs from sourcing to consumption.

A flexible and fully integrated suite also links warehouse and transportation optimization engines seamlessly, allowing companies to determine whether transportation or warehouse workflows will drive the system. At the same time, exceptions, changes and updates are dynamically updated in both suites. This type of integrated environment increases productivity by creating real-time execution that synchronizes warehouse and transportation information while providing one unified integration point to enterprise resource planning (ERP) systems.

An integrated WMS/TMS suite, built on one single technology platform, can provide operational and technology benefits that include:

- **Common data model** - Data collected and shared across both models helps drive the integration. A common dataset provides a “single version of the truth,” allowing all departments to work with the same information, which reduces risk and decreases costs.

- **Synchronisation between shipping, order planning and execution** - The solution allows planning and optimization processes to happen in parallel, letting companies take advantage of the most efficient order planning, shipment and fulfilment activities.

- **Common access to system capabilities** - The integration allows for visibility and centralized communications to cover areas that typically get caught in the middle of the two groups, such as appointment scheduling, dock door management and yard management.
Single portal for customers and carriers - Capabilities include greater visibility into purchase orders (ready to ship) and ASN information, as well as real-time shipment and order status.

Efficient exception handling - Advances in exception management include “automatic processing,” which allows customers to preconfigure how inventory is moved — with and without exceptions. When changes and updates do occur, the solution dynamically informs both the transportation and warehouse optimization engines and adapts workflows appropriately.

Elimination of redundant interfaces - In addition to complete data synchronisation, as many as eight interfaces can be eliminated.

Increased communications - The solution provides integrated reporting, alerting, dashboard, scorecarding and business intelligence capabilities.

Better visibility into labour management - When warehouse and transportation are integrated with labour management, companies gain valuable insight into whether resource availability will be a constraint or not.

Ability to support multi-channel supply chains - A truly integrated system simplifies the complexity that accompanies multi-channel distribution. The ability to handle both large and small order processing, transportation and execution gives companies the flexibility to best address every consumer’s needs.

Conclusion

Transportation and warehouse management do not have to operate in silos. The idea of a fully integrated WMS/TMS suite has progressed from concept to reality. When the two systems act as one, they exchange information and provide companies with more flexibility to determine how their supply chain processes are executed.

The synchronisation of warehouse transportation information, layered with the power to manage exceptions, keeps step with supply chain visibility, increased ability to optimize workflows across departments.

Those organisations which can overcome the challenges of integrating operations and systems can reap rewards to deliver a supply chain fully able to optimise future logistics.
Flo Group works with organisations to drive on-going value by solving complex business and supply chain problems. Our team enables the required business and technology change initiatives, delivering roadmaps, solutions and projects that drive optimised logistics performance.

We support industry leading logistics service providers and clients across sectors including manufacturing, retail, consumer products, defence and energy.

Operating globally, we take a holistic approach to logistics incorporating people, processes, networks and technology. Our solutions, based on industry leading technology and best practice, are designed to help our clients realise top line business benefits from their logistics initiatives as well as producing bottom line savings and opportunities for continuous improvement.