7 WAREHOUSE WASTES TO ELIMINATE

The optimised setup of a WMS and MHE reinforces better warehouse management via a ‘virtuous circle’, writes BRUCE MYERS.

Warehouse design and configuration are important but often overlooked in supply chain design and strategy. This article explores warehouse optimisation’s cost benefits and related process improvement steps, and lays out the approaches to reduce warehouse errors, ensure optimal shelf replenishment, and optimise the use of manpower, space and technology.

Supply chain network planning can significantly improve margins, support expansion into new markets, enhance the customer experience, and reduce operating costs. Warehouse optimisation help anticipate long-term demands on warehouse(s) and allocating resources, including labour and equipment, potentially cutting millions of dollars of cost out of your supply chain. Whether you manage a growing enterprise or have acquired less-than-productive warehouse assets, here are some of the many ways warehouse optimisation can improve your operational and supply chain results.

Despite rapid advances in materials handling equipment (MHE) and warehouse management system (WMS) sophistication, many warehouses limp along with traditional manual picking methods. In fact, many companies lack basic warehouse planning or management. According to CBRE estimates, manual picking methods mean 75-80 per cent of employee time is spent walking the warehouse floor.

FINANCIAL AND OPERATIONAL DRAINS

Warehouse optimisation seeks opportunities to reduce or eliminate these seven financial and operational drains:

1. Unnecessary transport – including any unnecessary shifting or moving of products that is not actually required to perform inventory processing, expediting and shipping
2. Excess finished product that is not being processed – but is simply stacked or moved to keep it out of the way, ostensibly for future processing, but it is more often taking up useful warehouse space
3. Unnecessary movement – of people or equipment (via moving or walking) that exceeds the amount required to perform the necessary processing
4. Excessive waiting – as people or equipment are held up in an inefficient system, while waiting for the next production process step
5. Overproduction – as goods are produced ahead of demand, resulting and buildup of unnecessary stock and carrying costs
6. Over-processing – resulting from poor equipment and poor process design, that creates unnecessary activity
7. Defects remediation – which involves effort to inspect for and fix product defects

Careful weeding out of waste provides valuable benefits. A Dematic study found that optimised pick path planning and product slotting (in a pharmaceutical environment, for example, where 57 per cent of operatives’ time was spent travelling) typically increased pick time speed by 10 to 18 per cent by removing the time required for finding, travel and other support activities.

Effective warehouse optimisation also requires a careful cost/benefit analysis that explores all aspects of the engagement – from system design to the building, land, equipment, software and labour costs and viability of operating methods and procedures – as well as the tangible returns you can expect from your investment in change.

CREATE A VIRTUOUS CIRCLE

The optimised setup of a WMS and MHE reinforces better warehouse management via a ‘virtuous circle’. The best WMS for your company increases supply chain visibility by integrating seamlessly with many popular accounting/order-entry packages and shipping systems to create a total supply chain solution. The seamless transfer of information between your systems means more efficient invoicing, order tracking, and purchasing for your distribution operation. By giving your customer service staff, sales team and even your customers a window into the warehouse using web-based WMS technology, you allow them to track and trace the status of inventory and orders resulting in fewer customer calls and better managed sales expectations.

The new wave of automated MHE can support both warehouse optimisation and supply chain optimisation by speeding turnaround times, reducing full-time equivalent (FTE) employee requirements, and decreasing ever-escalating labour costs. New technologies are now cheaper to install compared with traditional automation systems and can quickly adapt to a changing work environment. Installation timeframes are now weeks versus months, eliminating shut down times that prohibit growth in a fast-paced environment.

For example, Amazon – driven in part by excessive labour costs – purchased a Kiva system that directly impacts their logistics network. Hundreds of autonomous mobile robots and sophisticated control software improve cycle times and reduce labour requirements, from receiving to picking to shipping. The robots pick up the shelves and bring them to the employee, allowing employees to pick the order items, and then return the shelves to their original position, eliminating the requirement for employees to walk the warehouse in search of the required item.

To view a virtuous circle at work, consider a fast-moving consumer goods (FMCG) firm seeking to increase productivity. This firm will benefit from pick-to-voice and put-to-light-trolleys approach – used in conjunction with WMS-directed replenishment, process (re) design and slot management – to increase pick staff productivity and reduce the number of personnel required. A WMS provides better pick path management as well as directed put-away and real-time replenishment, ASN receiving, and reduced processing time. Meanwhile, slotting and process redesign allow the realisation of
**Warehouse optimisation pays dividends**

**CHALLENGE #1:** A large medical consumables, pharmaceuticals, veterinary and equipment products company sought to reduce cycle times, errors and costs; achieve optimal inventory holdings; and explore the commercial viability of maintaining multiple warehouses.

**Solution:** The firm determined their best approach was to employ a best fit WMS; develop and document their WMS functionality requirements from receiving to despatch from the warehouse; establish enterprise resource planning (ERP) system interface protocols; and train personnel in using new technologies.

**Results:** The firm increased productivity by 58 per cent and saved US$3 million in 18 months.

**CHALLENGE #2:** A large automotive distributor with over 95,000 SKUs and a single DC serving multiple dealerships sought to decrease labour costs and increase productivity.

**Solution:** The firm opted to develop a pick-face design for the fastest moving SKUs – including slot sizing to optimise the picking and replenishment tasks and slot sequencing to improve picker productivity – and determined minimum requirements for additional storage equipment.

**Results:** By simplifying the warehouse layout, redesigning and implementing better picking and replenishment processes, investing in a WMS, reducing headcount and training remaining personnel to become more efficient by using the new systems, they increased productivity by 28 per cent and saved US$2.3 million in 10 months.

WMS benefits and proper use of equipment (productivity outcomes are dependent on WMS and pick-tovoice equipment).

The combination of technology, WMS and optimised slotting will reduce the outbound freight volume by 15 per cent (4-ton trucks on some routes can be replaced by 2-ton vans and reduce country freight volumes and cartons). Conveyors reduce the walking distances for pickers and improve the dispatch function; zone skipping conveyors route orders only to zones where picking is required.

**HOW OPTIMISATION ENGAGEMENT WORKS**

A warehouse optimisation engagement is a collaborative venture between your personnel and a knowledgeable consultant. The engagement incorporates some or all of the steps below, depending on your firm’s specific requirements and goals.

Questions to keep in mind during the warehouse optimisation process include:

**Why is my data so important?**

Warehouse optimisation is built on data analysis. During your engagement, a skilled consultant can help you gather and cleanse the relevant data. For example, in the automotive distributor case study, the client captured dimensional data – including from suppliers, where available – and all SKU weight data to determine the customer picking profile. Optimisation projects can require collecting substantially detailed data to allow the consultants to build a complete picture of the business and design for future growth. Such data include:

- Product master data (product identification, weight, width, length, unit of measure, etc.)
- Facility master and customer master data (customer ID, shipment address, post-codes, etc.)
- Shipment details (order date, order number, product number, etc.)
- Customer demand and financial data (including profit and loss information, etc.)

**Why create possible scenarios?**

This step ensures that your firm can explore several possible business cases to make your best choice. Your consulting firm will work with you to evaluate warehouse operating procedures, staffing levels, receiving and shipping volumes, building characteristics (for example, exploring the possible benefits of using cranes, trestle trucks or high-bay racking), access to location, annual operating cost, inventory flow, performance reporting, current workflows and cost analysis and warehouse layout design. The consultant can then help your firm develop improvement initiatives and provide benchmarking and final recommendation input, to ensure you make and implement your best choices.

**Why is choosing the best WMS a key part of warehouse optimisation?**

Different WMS systems provide different benefits. Chosen, implemented and employed effectively, a WMS ensures warehouse productivity and reduces costs. For example, a reasonably large business of 1,200 employees that averages 31 manual picks per hour can achieve a quantifiable 200 picks per hour via full-time equivalent (FTE) personnel reduction and the use of a WMS. In the automotive distributor case study, determining the customer picking profile via available data, laying out the warehouse on the principles of typical order pick profiles and applying basic logistics principles helped the new WMS operate at peak efficiency.

In this step, you might expect the consultant to prepare a detailed functional specification for the WMS to meet your short and long-term warehouse operational needs. During the process, they might prepare a request for proposal (RFP), document and short list suppliers, manage the RFP release and any supplier communication on your behalf, evaluate basic and advanced WMS modules to meet the requirements of the functional specification, evaluate RFP responses from potential WMS suppliers, make a final recommendation, provide WMS implementation assistance including testing interfaces and user testing, and facilitate user training and ‘go-live’ assistance.

**Why focus on the ‘soft skills’ for a successful warehouse optimisation project?**

Technology, WMS, MHE and system or software upgrades and updated operation methods and procedures serve as the backbone of a warehouse optimisation plan. But your project’s success rests largely on choosing a project champion who can develop the project plan; manage project communication including project status reporting, project resources and activities to achieve expected milestones; manage on-site communication; and coordinate and provide inputs to final recommendations. Likewise, good industrial relations – backed by necessary training – will ensure you have the trained managers and staff onboard who can serve as true project owners and will strive to help you meet service level requirements and ensure a smooth transition.

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