CIPS KNOWLEDGE

Warehouse Management Systems (WMS)

A WMS controls inventory movements and information flow, managing every aspect of warehouse operations.

This knowledge paper is supportive of Procurement professionals operating at Managerial level of the CIPS Global Standard

01 CPD HOURS

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Warehouse Management Systems (WMS)

Introduction

WMS are operating tools based upon the needs of warehouse operation which provide tools and information for the management of the warehouse. In general, every warehouse performs four basic functions: receiving a product, storing it, picking and shipping it. More generally WMS incorporates many processes, from supplier receipts to customer shipments, and controls all inventory movements and information flows across these processes, managing every aspect of warehouse operation from receiving through to shipping (Singer, 2011).

WMS can be manual or computerised (Ayub, 2007). A manual control system uses physical, paper-based technology to streamline warehousing operations but due to the rate of change and demands for accurate and real time information combined with expectations of next-day service, the use of manual systems in the 21st century is almost unrealistic while computerised control systems became crucial. Computerised WMS are generally designed to merge computer hardware, software, and peripheral equipment, with improved operating practices for managing inventory, space, labour and capital equipment in warehouses and distribution centres. The sophistication of these systems can vary from simple stock location control to systems that can add value by maximising customer satisfaction, minimising mistakes, identifying and coordinating work, and reporting past, present and future work status (Ayub, 2007; Singer, 2010).

Implementation of a WMS allows a company to increase its competitive advantage by reducing labour costs, improving customer service, increasing inventory accuracy, and improving flexibility and responsiveness. In addition, it offers the potential to manage inventory in real time and provides up-to-date information regarding orders, shipments, or receipt and any movement in between (Ayub, 2007).

Definition

Warehouse management systems (WMS) are the advanced technology and operating processes that optimise all warehousing functions (Ayub, 2007).

Successful Application

WMS implementation is more than just a software project developed and implemented by an external vendor. It is important for the end-user company to take ultimate ownership of the planning process.

Generally, it should be responsible for facilitating preparation, acquisition of equipment, acceptance testing and end-user training. A common mistake made by organisations when implementing WMS is relying solely on the software vendor to develop and administer the project (Rafla, 2006).

Steps to Successful Application

1. Design for operational improvement.
2. Manage risk, communications and expectation: unknown factors and human failings increase risks when implementing a WMS and while risks cannot often be eliminated, they can be managed.
3. Develop a solid project plan: companies should take final ownership of the master project plan that ties software implementation with facilities preparation.

4. Prepare to deal with adversity by paying attention to facilities preparation: regardless of how well WMS is planned or executed, things may go wrong.
5. Build a knowledge base and perform training.
6. Perform testing as it can help validate that modifications, interfaces, configuration and base functions produce acceptable results and perform according to specifications.
7. Produce documents: vendors usually provide users with manuals and configuration guides, but often these documents don't describe custom modifications.
8. Take control of the WMS launch.

Singer (2010)

Hints and Tips

- Successful implementation of WMS requires a considerable time investment to address all the operational, facilities, systems and training activities (Singer, 2010).
- It is sometimes recommended that a company should implement WMS only if the standard logistics functionality is insufficient for its needs (Hill 2002).
- When organisations do not have the sufficient internal resources necessary to successfully implement WMS, hiring additional employees or partnering with outsiders is advisable (Singer, 2010).
- Some companies fail to invest the necessary resources required to succeed. Once costs are tallied up for all the required software and hardware, many organisations start looking elsewhere to hold the line on costs. Thus, the importance of investing in facilities preparation, testing, documentation and training is often overlooked (Singer, 2010).
- To have a successful implementation, an organisation must pay attention to the operational and people sides of the implementation (Singer, 2010).

Potential Advantages

- WMS can reduce lead times by limiting inventory movement and improving inventory record accuracy. This in turn reduces the need for safety stock which increases inventory turn- over and working capital utilisation (Rafla, 2006).
- Investments in WMS can be returned in as little as six months. Average paybacks usually take place between one and two years from implementation (Young, 2009).
- Implementation of a real time WMS can significantly reduce the paperwork traditionally associated with warehouse operations, as well as ensure timely and accurate flow of inventory and information (Rafla, 2006).

Potential Disadvantages

- WMS require increased master data maintenance (Hill, 2002).
- Expert knowledge is required to configure WMS to achieve considerable benefits (Hill, 2002).
- WMS provide better automation of processes but require more maintenance and process discipline (Hill, 2002).

Performance Monitoring

Direct vs. indirect labour: a WMS is justified if it significantly reduces the paper component of warehouse operations as well as the costs associated with data entry by clerical personnel (Hill, 2002).

Estimated savings: the data or best practice knowledge to determine savings through de- tailed or discrete analysis of warehouse operations estimates can be expressed as percentage reductions (Hill, 2002).

'Headcount' reduction (Hill, 2002).
Annual vs. recurring savings: benefits realised from a WMS may occur once (e.g. inventory carrying cost savings achieved in the first year through the elimination of safety stocks) or become recurring, for example, labour savings (Hill, 2002).

Return on investment (ROI): (1) payback method (assessment of the length of time it takes for WMS savings to pay for the WMS investment); (2) net present value, that is, value of the return over a specified period calculated in terms of present value (Hill, 2002).

Case Study

New Age & Beyond was using a paper-based system and relied heavily on employee memory in running its 10,000 sq.f. warehouse. When the company, which ships its products to approximately 700 retailers and takes online orders directly from consumers, implemented a new WMS, it achieved an increase in order accuracy from 70% to 99.9% and in unit items shipped per day from 300 to 1,000, reduction in order picking time by 26 minutes and real-time visibility into warehouse inventory levels (Ayub, 2007).

Case Study

In August 2011 SuperGroup, owner of the Superdry brand, implemented an upgrade programme to its warehouse management systems. To meet future growth in demand, SuperGroup was looking to increase capacity and efficiency at its Barnwood site. During transition, the company experienced short-term issues which resulted in a significant reduction in stock and range of sizes reaching its UK stores. The total cost of these reductions (including additional temporary warehousing capability) was estimated from £6-9m and the increase in stock levels was expected to reduce by £2m (SuperGroup Plc, 2011).

Case Study

The UK-based Davant Products supplies plumbing, drainage and insulation products to major retail and trade outlets, including B&Q, Wickes and Travis Perkins. Integration of the company's WMS allowed Davant to improve its customer service to clients and encouraged old clients to return. In addition, Davant's managed to reduce stock costs from £1.75m to £1.25m in 11 months (Logistics Manager, 2011).

Web resources

Blogspot on WMS http://uk-wholesalesuppliers.blogspot.co.uk/2011/02/how-success-of- wholesale-business.html
Blogspot on WMS http://kurthatlevik.wordpress.com/2011/06/25/how-to-choose-a- warehouse-management-system/
WMS: Overview and implementation
http://www.inventoryops.com/warehouse_management_systems.htm