IOMA

INVENTORY MANAGEMENT
R · E · P · O · R · T

Improving Logistics and Supply Chain Management

ISSUE 03-07 www.ioma.com JULY 2003

How to Create a "Tight" WMS Cost Justification Proposal

History is littered with potential WMS projects deferred or delayed because a "solid" case to justify the investment was not made. This difficult task has just been made easier with the release of two white papers that *IMR* highly recommends for anyone contemplating a WMS project, or who are in the midst of a cost justification initiative.

Written by two respected authorities, taken together, the papers provide a great overview of the benefits of WMS, while offering a series of guidelines and recommendations to help build a proper cost justification document.

Two provisos before starting on the ROI quest. "Keep in mind that the return on investment will be a function of the readiness of your organization to accept change," John M. Hill, principal, ESYNC (Watsonville, Calif.; john.hill@esync.com), writes in *Justifying Warehouse Management Systems* (www.esync.com). If, for example, your company has no prior WMS experience, the cultural impact of a new system may be more dramatic than it might be for those currently using a legacy WMS.

"Advanced WMS features such as task interleaving and assignment optimization that provides the greatest return may be available in the software, but you may want to consider delaying their introduction until the workforce has fully assimilated and embraced the features of the basic package," Hill explains. "Such phasing will impact your ROI calculations by driving a portion of the return later into the payback period."

Marc Wulfraat, partner, KOM International, Inc. (Montreal; www.komintl.com), in *Warehouse Management System Cost Justification,* explains, "It is normal that only after a six to twelve month period following the implementation of a WMS software project, will the distribution operation first begin to realize the benefits of the new system."

During the initial time period after start-up, minimal productivity gains and sometimes productivity losses are experienced, therefore, the time required for transition to a WMS-run environment should be factored into the ROI cost justification, as savings are not immediate.

Savings opportunities identified–and quantified. WMS savings can be generally found in a number of categories, among them:

- **Labor cost savings.** "Warehouse labor cost reduction is typically the major contributor to the cost justification of a WMS investment," Wulfraat delares.

  "Establishment of labor savings requires a thorough review and match of each current warehouse process against the projected time/cost of process execution with the WMS and adoption of best practices," Hill explains.
- **Equipment related** savings. Taking labor out of an activity often results in the reduction or elimination of associated equipment.
- **Space related savings.** A WMS should improve space use through better inventory deployment and consolidation based upon advanced cube utilization algorithms.
- **Inventory savings.** "The implementation of WMS in conjunction with bar coding and radio frequency technologies provides such accurate inventory levels that most accounting firms now accept inventory asset information without the need to perform a physical count," Wulfraat explains. Then document the savings (see Table 1, below).

  "Reduction of inventory carrying costs can be a major ROI contributor," Hill declares. "A WMS can reduce, if not eliminate the safety stock requirement through improved accuracy."

► **Transportation related savings.** Eliminating warehouse inefficiencies reduces or eliminates expedited transportation charges.

► **Information systems related savings.** The cost of the system being replaced must be considered. There is one caveat that should be reflected in the WMS cost equation, Hill mentions. "Deployment of a WMS will also require one or two more system administrators." Generally, however, when viewed against the back drop of total IT administration costs, a WMS should provide overall lower costs.

► **Employee related costs.** "Positioned as a productivity tool, given a well-managed training program, a WMS can generate substantial goodwill within the labor force and improve employee retention," Hill argues.

► **Customer service related savings.** Difficult to quantify, lost sales or customer goodwill due to inefficient warehousing operations has an economic effect, Hill maintains. Nevertheless, make every effort

to quantify these costs.

Development of the ROI package. Hill's approach to WMS justification includes the following steps:

►**Identify areas of opportunity.** Use current performance metrics to identify warehouse issues by functional area; look at material and data flow in each to identify opportunities for improvement.

►**Collect data.** Collect fixed, variable and transaction based cost data on warehouse operations. Determine the amount of labor expended to execute each type of task.

►**Define benchmarks for performance measurement.** Specific operational benchmarks or key performance indicators are critical to establishment and characterization of project potential as well as measuring success once the system is operational. Combine financial analysis with the documentation of KPIs expressed as operational goals (see Table 2, below).

►**Learn more about WMS capabilities.** –A thorough understanding of how a WMS works, how it supports optimized practices and how those practices "fit" within your environment must be established. "An activity-by-activity discrete analysis will not only tighten your ROI proposition, it will also enable you to establish the downstream performance targets against which the success of the program can be measures," Hill explains.

►**Estimate the savings.** This should be comprehensive, conservative and defensible, he advises.

►**Determine cost of WMS.** While the obvious source is the solution vendor, first establish the type and level of WMS system required for your company. Technology issues including platform, database, middleware, must be considered during alternative analysis.

►**Calculate ROI.** Do this analysis as soon as the opportunity has been identified and subsequently refined and recalculated upon package selection using the vendor's final costs.

►**Payback audit.** Often overlooked, but a critical step in justification: the post-implementation audit to determine how you did against your financial analysis and performance targets (KPIs). Rerun the analysis on a regular basis (6, 12, 18, 24 months).

Table 1. Sample WMS Cost Justification Analysis

Category	Description	Potential Payback
Physical Inventory Count	**Current Operations:** • Facility shutdown for a total 4 days/year (once every fiscal quarter). • 30 operators hired per count at double pay. • Average cost including fringe is $188 per operator-day. • Inventory count books are keypunched, resulting in 600,000 data keystrokes. **Proposed Operations:** • Real-time system-directed cycle counting will be interleaved throughout day-to-day operations replacing our current cycle count methods • Eliminates need for physical inventory count	• 120 operator days x $188 per day saves *$22,600 per year.* • 600,000 data entry keystrokes yields 3,000 errors at $7.50 per error = *$22,500 per year.*

(Source: Warehouse Management System Cost Justification)

Table 2. Sample Key Performance Indicators

MEASURE	CALCULATION	TODAY	FUTURE	VALUE
Inventory Accuracy	Actual Qty per SKU / System Reported Qty	%	%	$
Damaged Inventory	Total Damage $$$ / Inventory Value (Cost)	%	%	$
Days on Hand	Avg. Monthly Inventory $ / Avg. Daily Sales/Month	Days	Days	$
Storage Utilization	Avg. Occupied Sq. Ft. / Total Storage Capacity	%	%	$
Dock to Stock Time	Total Dock to Stock Hours / Total Reciepts	Hours	Hours	$
Inventory Visibility	Receipt Entry Time / Physical Receipt Time	Hours	Hours	$

(Source: Warehouse Management Systems