



Leveraging Performance Metrics to Justify an SCE Investment

An Interview with John Hill

Considering an investment in supply chain execution (SCE) systems or technologies, but not sure of the potential payoff? Do the math first, advises John Hill, member of the Supply Chain Execution Systems & Technologies Industry Group (SCE) of the Material Handling Industry of America (MHIA).

“The potential value of an SCE system or technology investment can be estimated through analysis of current performance, followed by establishment of and comparison

with metrics-based improvement targets,” says Hill. “The key is alignment of the SCE solutions with the metrics appropriate to the operational environment. Once in place, the metrics can be used to calculate the likely return, and, once deployed, the SCE solution(s) can be used to monitor and audit performance to ensure that the targets are achieved on an on-going basis.”

Hill and members of MHIA’s SCE Group have developed a systematic approach to establishing key metrics and improvement goals for warehousing and transportation operations to assist prospective users with SCE technology assessment and investment justification.

SCE also produced a handy “cheat sheet” (see chart at right) that pinpoints which systems impact which metrics, while delivering the information necessary to regularly audit and benchmark performance post-implementation.

Performance metrics (far left column), how to calculate those metrics (blue column), and the corresponding SCE technologies and systems that enable performance improvement in each area and generate the data for monitoring and maintaining that performance.

METRICS		Enabling Technology & Systems						
		F/OMS	AIDC	WCS	WPM	WMS	TMS	SCV
ON-TIME DELIVERY	Orders On-Time	●	●	●	●	●	●	●
	Total Orders Shipped	●	●	●	●	●	●	●
ORDER FILL RATE	Orders Filled Complete	●	●	●	●	●	●	●
	Total Orders Shipped	●	●	●	●	●	●	●
ORDER ACCURACY	Error-Free Orders	●	●	●	●	●	●	●
	Total Orders Shipped	●	●	●	●	●	●	●
ORD. CYCLE TIME	Ship Date - (minus)	●	●	●	●	●	●	●
	Customer Order Date	●	●	●	●	●	●	●
DAMAGE	Total Damage \$	●	●	●	●	●	●	●
	Total Inventory \$	●	●	●	●	●	●	●
DAYS ON HAND	Avg. Inventory Value	●	●	●	●	●	●	●
	Avg. Daily Sales	●	●	●	●	●	●	●
STORAGE USAGE	Avg. Inventory Sq. Ft.	●	●	●	●	●	●	●
	Storage Capacity Sq. Ft.	●	●	●	●	●	●	●
DOCK-TO-STOCK	Average Dock-to-Stock Hrs	●	●	●	●	●	●	●
	per Receipt	●	●	●	●	●	●	●
VISIBILITY	Receipt Data Entry -	●	●	●	●	●	●	●
	Time of Physical Receipt	●	●	●	●	●	●	●
ORDERS / HOUR	Orders Picked & Packed	●	●	●	●	●	●	●
	Total Labor Hours	●	●	●	●	●	●	●
LABOR \$ / SALES	Total Warehousing Costs	●	●	●	●	●	●	●
	Total Revenue	●	●	●	●	●	●	●
WHSE \$ / SALES	Total Warehouse Costs	●	●	●	●	●	●	●
	Total Revenue	●	●	●	●	●	●	●
TRANSPORT \$ / SLS	Total Transportation Costs	●	●	●	●	●	●	●
	Total Revenue	●	●	●	●	●	●	●
WHSE/TRAN \$ / SLS	Total Whse & Trans Costs	●	●	●	●	●	●	●
	Total Revenue	●	●	●	●	●	●	●

Below is a template SCE created for profiling current performance and establishing and valuing improvement target achievement.

PUTTING A VALUE ON SCE DEPLOYMENT

Measure	Calculation	Current	Target	Value
On-Time Delivery	Total Orders On Time / Total Orders Shipped	87%	97.5%	\$
Order Accuracy	Errorless Orders / Total Orders Shipped	92%	99%	\$
Order Cycle Time	Actual Ship Date - Customer Order Date	12 Hrs	8 Hrs	\$
Inventory Accuracy	Actual Qty. by SKU / Reported Qty. by SKU	96%	99.9%	\$
Damaged Inventory	Total Damage \$\$\$ / Total Inventory Value	.75%	.25%	\$
Days on Hand	Avg. Inventory Value (\$) / Average Daily Sales \$	50 Days	42 Days	\$
Storage Utilization	Avg. Inventory Sq. Ft. / Storage Capacity Sq. Ft.	78%	85%	\$
Orders per Hour	Orders Picked & Packed / Total Whse. Labor Hrs	15/Hr	20/Hr	\$
Lines per Hour	Total Lines Picked / Total Whse. Labor Hrs	40/Hr	58/Hr	\$
Cost per Order	Total Warehouse Costs / Total Orders	\$4.26	\$3.62	\$
Cost % of Sales	Total Warehouse Costs / Total Revenue	3.1%	2.7%	\$
Potential Annual Savings				\$
Probable Cost				\$

The SCE Group encourages end users to pick the metrics that best fit their environment and adapt them to assure accurate profiles of actual performance.

“Take Orders per Hour, for example,” notes Hill. “A single warehouse may ship pieces, cases and mixed and full pallets. Pallet pick rates are generally much lower than the rates for the cases, and even lower than piece picking rates. Accordingly, in that all three are important to operational performance, metrics should be calculated and targets set independently for each.”

Once established, a comparison of current and target metrics—coupled with an estimate of the potential incremental value of target achievement—will help to determine if it makes sense to proceed with an SCE investment.

“When contrasting current performance levels with the levels you expect an SCE deployment will help you to achieve, set realistic target numbers,” Hill adds. “Also, consider not only the benefits an SCE system can bring to your operation, but also what other elements may need to be modified to achieve your goals, such as improved facility layout and the proper material handling equipment—and make sure you include associated costs in your investment calculations.”

When preparing your targets, the SCE Group advises, don't evaluate each metric independently. "If you put an emphasis on on-time delivery and push orders out the door faster than blazes, how will that impact performance in other areas, such as damaged inventory and picking accuracy?" asks Hill.

To validate your estimate of potential return, it's critical to solicit input from other departments within the organization.

For example, "Ask sales management, 'If we were to improve on-time delivery, how would that impact your ability to increase sales?'" says Hill. "They'll probably say, 'that would be good,' and if you press them, they may be reluctant to give you a number. So follow up with, 'How many customers and orders did we lose because we were unable to deliver on-time, or because of errors in some of the orders that were delivered on-time?' I guarantee that anyone in sales is going to know precisely how many orders they lost, and you can quickly add the lost margin on those sales into the value column."

Involving others within the broader organization not only lends credence to your ROI estimates, but also helps to build support for the SCE initiative across the company.

Want to learn more about how a SCE deployment can help improve your facility's performance?

Hill and the SCE Group will give a presentation on this topic during ProMat 2013 (www.ProMatShow.com), January 21-24 in Chicago, as one of the free, on-floor seminars.

Supply Chain Execution Systems & Technologies Group (SCE) members are the Industry's leading suppliers of Supply Chain Execution software, hardware and services. They supply solutions worldwide and in virtually every major manufacturing and distribution sector. The SCE Industry Group is a recognized independent authority for end users and suppliers on market trends, standards, technology developments, and applications. Our mission is to promote the market growth and effective use of supply chain execution systems, technologies and services.

For more information on supply chain execution technology and its use, visit www.mhia.org/sce. To view the current members of the SCE Industry Group, visit www.mhia.org/industrygroups/sce/members.

SCE Systems & Technologies

Forecasting and Order Management Systems (F/OMS) include demand sensing and forecasting; order capture, entry and administration; distributed order management; and order fulfillment

Automatic Identification & Data Capture Systems (AIDC) include bar code, wireless (RFDC), RFID, voice, sensor, pick, put and pack-to-light technologies for receiving, Q/A, put-away, replenishment, picking, packing, shipping, track and trace

Warehouse Control Systems (WCS) provide device control for conveyors, sorters, carousels, AS/RS, mini-load, robotic, and other material handling equipment as well as related process management functionality

Warehouse Management Systems (WMS) direct receiving, inbound Q/A, put-away, replenishment, slotting, picking, packing, outbound Q/A, shipping, cycle counting; dock scheduling and yard management; inventory management/optimization; and cross-docking, flow-through and put-to-store

Workforce Performance Management Systems (WPM) (also called Labor Management Systems) capture time and attendance data, support best practices/preferred methods development including engineered labor standards; measure performance and feed incentive tracking and payroll systems

Yard Management Systems (YMS) handle carrier appointment scheduling; gate check-in/check-out; deploy and track trailers by location in yard; control trailer movement in the yard and to and from appropriate docks

Transportation Management Systems (TMS) for domestic and international transportation management, global trade management, international trade logistics; planning, procurement, routing, carrier rating and management, load consolidation, scheduling, load tendering, shipment tracking, freight payment; communication portals, shipment visibility; parcel carrier management, fleet management

Supply Chain Visibility Systems (SCV) monitor inventory and order status; trigger event management and exception handling; perform analytics; and communicate with trading partners through performance dashboards and reports

Consulting, Integration and Deployment Services include benchmarking, network optimization, process/workflow assessment and design; system and technology requirements definition and supplier selection; integration, testing and training; systems deployment and commissioning