



Flexibility in Quick Replenishment and Inventory Management

This is the latest in a series of articles on the Perfect Order concept and best practices that trading partners can utilize in achieving the goal of an error-free supply chain. The articles are based upon a recent study commissioned by the Retail Compliance Council and conducted by Supply Chain Visions, Georgia Southern University and Compliance Networks; and the "Supply Chain Management Process Standards," published by the Council of Supply Chain Management Professionals, authored by Supply Chain Visions.



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In the August-September issue of the *Journal of Trading Partner Practices*, we discussed best practices relating to the Fulfillment and Warehouse Management System (pick & pack, consolidation & loading, shipment documentation, and WMS) and how these best practices impact achieving the perfect order. Some highlights of warehousing and fulfillment practices best practices are:

- "Pick-to-Light", RF terminals, wireless speech system or similar WMS system enables automated order communication to personnel.
- Load consolidation with break-bulk processing at remote terminals.

- ASNs automatically sent by EDI or Web when required by customer.
- WMS fully integrated with other business systems
- Dynamic location assignment including lot control zoned put away, quality assurance, and ABC frequency of access.

We now turn to the processes that support Customization and Postponement, a practice that delays the final product configuration until an order is received. Customization and Postponement has the benefit of allowing a company to respond quickly to market demand while lowering inventory costs by holding inventory in a less finished state. In a retail situation, customization and postponement may not entail complete assembly of products. However, product packaging, final configuration of product and kitting of product bundles is very common. A properly managed customization and postponement model can help companies achieve the perfect order.

Workload Scheduling and Balance

Workload scheduling is the process of balancing the flow of pick orders into the pick areas. When a postponement or customization model is used, the process of balancing work in a work cell is slightly more complex. Work cells support small lot production by having all the people, equipment and processes in place to configure a product from start to finish. Effective work cells have the ability to self-manage priorities and to balance work flow in the cell. Workers should have visibility to order priorities and orders in the queue, so that on-time customer delivery performance can be met. The time it takes to kit, assemble, test and package product must

be balanced across product families to allow for a level flow through the work cell. Picking operations and scheduling must be closely tied to the work cells to ensure an uninterrupted flow of materials (kits) into the cell.

Manufacturing and kitting (pick) processes must support a build to order or on demand manufacturing model. In a build to order model, product is configured into its finished form when the order is received; typically no finished goods are held for build to order products. To support this type of manufacturing model, assembly and product configuration areas should be arranged in work cells or as flexible assembly lines.

Workload scheduling and balancing best practices are characterized by:

- Kitting / assembly processes to support "to-order" and "on demand" type processes
- Visible, clear, integrated, self managing / prioritizing process (e.g. using Kanban based replenishment)
- Assembly times are balanced with kitting time and component lead times
- Self-directed operators, in the work cell, automatically re-allocate tasks to dynamically balance the cell

Physical Process Alignment

The flow of goods into the pick area must support the processes that are used in the area. This is physical process alignment. Materials should be staged to allow multiple products to flow through the same work area. Feeding materials to the work cells to meet specific orders must be accurate, flexible and ruthlessly efficient. Automation of material handling can play a role in a successful postponement



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and customization model and the company’s ability to meet competitive service levels and delivery targets.

Physical Process Alignment best practices are characterized by:

- Use of automated material handling equipment, product readers (AutoID and bar code), and equipment such as scales, carousels, and pick-to-light
- Use of automated guided vehicles (AGVS) for high volume repetitive pallet and product movements

Operator Versatility

Cross training of work cell members adds to the versatility of the operators and their ability to perform multiple processes. Versatile operators are critical to a successful postponement and customization model, as is process standardization. Training should be continuous and managed by the work cell, and the training status of all cell members should be tracked and be visible. Self directed training programs (such as web based training) work very well in this environment. Many companies tie compensation, in part, to the employee’s skills and training levels. Operator Versatility best practices are characterized by:

- All jobs within the cell are expertly covered
- Cross training is an integral part of the cell’s working practices
- Visible skills matrices and training

plans in place to implement skills beyond current task requirements

Cell / Shop Floor Performance Measures

Metrics and measures allow operator performance to be tracked. In order to achieve and maintain best practices, the performance of the work cell must be tracked and be posted for all to see. Key performance data should be easily derived by the team from company systems. Ideally, performance measures are used to drive continuous improvement projects. Performance results and continuous improvement project outcomes should be shared across work cells to help drive best practices across the entire warehouse.

Cell / Shop Floor Performance Measures best practices are characterized by:

- The system is used to record and track actual performance to standards
- Cell / Shop Floor employees use performance measures to identify and implement improvement opportunities on a proactive basis

Conclusion

Customization and Postponement best practices can help a company achieve the perfect order by shipping complete orders with on-time customer deliveries. Self directed work cells or flexible assembly lines support configuration of multiple products adding flexibility to order scheduling. Automation is used by many companies to speed material flow with in the warehouse and work cells. Flexibility is the key to sustaining a product customization and postponement model, and to improving on-time and complete delivery performance.

The next article in the series will look into best practices that support Transport and Deliver Infrastructure.

Companies wishing to obtain a copy of the Retail Compliance Council’s report, “Benchmarking the Perfect Order,” should contact Kate Vitasek at: kate@scvisions.com, Companies wishing to obtain a copy of the “Supply Chain Management Process Standards,” should contact WWW:CSCMP.org.

The Perfect Order Index (POI)

% On Time X % Complete X % Damage Free X %

Accurate Documentation = POI

A Perfect Order is characterized as being on time, complete, damage free, and having accurate documentation. The Perfect Order Index (POI) is a measure of these four performance attributes. The POI strives to capture the needs of the customer from their perspective and is a better measure of customer satisfaction than order fill rate alone.