

# Accurate slow mover replenishment

## The challenges

- For many retailers, wholesalers, and manufacturers, more than 70% of merchandise in stores are slow movers, meaning they sell fewer than 1 per week
- Traditional forecasting methods represent these forecasts as decimals (e.g. 0.1/day – see graph below)
- As an example, since a retail store will never sell a fraction of a product (they will either sell one or none) these decimal forecasts are always wrong, and always misrepresent the activity at the retail level



## Past impact

- Assume safety stock in each of 100 stores or branch is 2; one on shelf, one in back room
- Decimal forecast for each store on Monday is 0.1 unit; on Tuesday is 0.1 unit, etc.
- This drops on-hand count in each store to fewer than the 2 safety stock, so replenishment is ordered
- DC receives orders for 100 items for replenishing all stores, even though most did not or will not actually sell the slow mover that day
- This is the “bunching” effect
- DC only carries 4 as its safety stock, it cannot satisfy the demand from the underlying stores or branch, so DC places replenishment order for 100 to supplier



Retail store 1 On-hand: 2   Safety stock: 2   Lead time: 1 day							Retail store 2 On-hand: 2   Safety stock: 2   Lead time: 1 day						
Day	Mon	Tue	Wed	Thu	Fri	Sat	Day	Mon	Tue	Wed	Thu	Fri	Sat
Forecast	0.1	0.1	0.1	0.1	0.1	0.1	Forecast	0.1	0.1	0.1	0.1	0.1	0.1
PlanArriv		1					PlanArriv		1				
Proj OH	1.9	2.8	2.7	2.6	2.5	2.4	Proj OH	1.9	2.8	2.7	2.6	2.5	2.4

  

Retail DC 1 On-hand: 5   Safety stock: 4   Lead time: 1 day						
Day	Mon	Tue	Wed	Thu	Fri	Sat
Planship	2					
PlanArriv		6				
Proj OH	3	9	9	9	9	9

## The result

- Some stores or branches are likely to be overstocked with supply from the DC if the forecasted demand did not materialize
- Others may run out of stock since the DC had limited supply and couldn't ship to them – potential lost sales
- DC placed vendor replenishment order when one wasn't needed, inflating total corporate inventory – large overstock
- Inflated inventory incurs purchase costs, inventory carrying costs and the overstock may become unsaleable, obsolete or require steep markdowns to move
- DC will not have a continuous view of the demand from the stores – cannot reasonably calculate DC safety stock with coverage
- Without demand projections, reasonable vendor to DC purchase order planning cannot be executed

## The solution: Slow mover replenishment

- Translates decimal forecasts into integer forecast
- Integers are spaced across stores to reflect actual demand

Retail store 1 On-hand: 2   Safety stock: 2   Lead time: 1 day							Retail store 2 On-hand: 2   Safety stock: 2   Lead time: 1 day						
Day	Mon	Tue	Wed	Thu	Fri	Sat	Day	Mon	Tue	Wed	Thu	Fri	Sat
Forecast			1				Forecast						1
PlanArriv			1				PlanArriv						1
Proj OH	2	2	2	2	2	2	Proj OH	2	2	2	2	2	2

  

Retail DC 1 On-hand: 5   Safety stock: 4   Lead time: 1 day						
Day	Mon	Tue	Wed	Thu	Fri	Sat
Planship		1			1	
PlanArriv					6	
Proj OH	5	4	4	4	9	9

- Integer-based forecasts better reflect actual sales at stores
- Replenishment plans are more realistic
- Shipments to stores or branches are based on the probability of a sale
- DC's safety stock and replenishment plans are based on more realistic demand profile
- The sum of the store or branch integer reorder forecasts matches the original total forecast

## Appropriate representation



## The benefits of integer forecasting and replenishment



Replenishment better matches actual demand



Eliminates much of the overstock inventory in the stores or branches



Better aligns DC replenishments with actual demand



Supports collaboration with suppliers to reduce costs and improve service levels