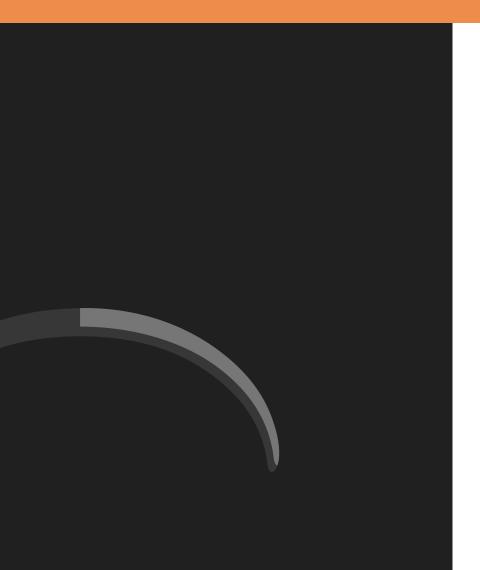
Inventory Management What Am I Going to do with All this Stuff?



Presented by Andrew W. Repak, CPA, CMA, CFM, VCO



Logistics

lo·gis·tics lə'jistiks/, noun,

the detailed coordination of a complex operation involving many people, facilities, or supplies. synonyms:organization, planning, plans, management, arrangement, administration, orchestration, coordination, execution, handling, running "the logistics of deploying forces in the field"



Department of Accounts (DOA) Guidance

• Topic No. 30505, Physical Inventory

• Topic No. 30515, Supplies and Materials Inventory



•The most important thing



The most important thingTypes of operations



The most important thingTypes of operationsInventory systems



The most important thing
Types of operations
Inventory systems
Inventory processes



- The most important thing
 Types of operations
 Inventory systems
 Inventory processes
- Performance measurements



- •The most important thing
- •Types of operations
- Inventory systems
- Inventory processes
- Performance measurements
- Obsolescence



THE MOST IMPORTANT THING



The Most Important Thing

Know Your Customers



Warehouse



Warehouse

• Static storage

Distribution Center

• Focus on distributing items quickly



Warehouse

- Static storage
- Slower turn around

- Focus on distributing items quickly
- Faster turn around



Warehouse

- Static storage
- Slower turn aroundHigher holding costs

- Focus on distributing items quickly
- Faster turn around
- Lower holding costs



Warehouse

- Static storage
- Slower turn around
- Higher holding costs
- Tie up funds

- Focus on distributing items quickly
- Faster turn around
- Lower holding costs
- Less funds tied up



Warehouse

- Static storage
- Slower turn around
- Higher holding costs
- Tie up funds
- Inventory for emergency use

- Focus on distributing items quickly
- Faster turn around
- Lower holding costs
- Less funds tied up



Type of Operation - Simple





Type of Operation - Complex









Protect employees and visitors from injury Personal protective equipment (PPE)



Protect employees and visitors from injury
Personal protective equipment (PPE)
Material Handling Equipment (MHE)



Protect employees and visitors from injury
Personal protective equipment (PPE)
Material Handling Equipment (MHE)
Slips and trips



- •Personal protective equipment (PPE)
- •Material Handling Equipment (MHE)
- •Slips and trips
- Inventory on shelves or racking



- Personal protective equipment (PPE)
- •Material Handling Equipment (MHE)
- •Slips and trips
- Inventory on shelves or racking
- Hazardous materials



- Personal protective equipment (PPE)
- •Material Handling Equipment (MHE)
- •Slips and trips
- Inventory on shelves or racking
- Hazardous materials
- Protect the inventory from theft



Protect employees and visitors from injury

- •Personal protective equipment (PPE)
- •Material Handling Equipment (MHE)
- •Slips and trips
- Inventory on shelves or racking
- Hazardous materials
- Protect the inventory from theft

Control access to storage areas



- Personal protective equipment (PPE)
- •Material Handling Equipment (MHE)
- •Slips and trips
- Inventory on shelves or racking
- Hazardous materials
- Protect the inventory from theft
 - Control access to storage areas
 - Security cameras



- Personal protective equipment (PPE)
- •Material Handling Equipment (MHE)
- •Slips and trips
- Inventory on shelves or racking
- Hazardous materials
- Protect the inventory from theft
 - Control access to storage areas
 - Security cameras
 - •Guards

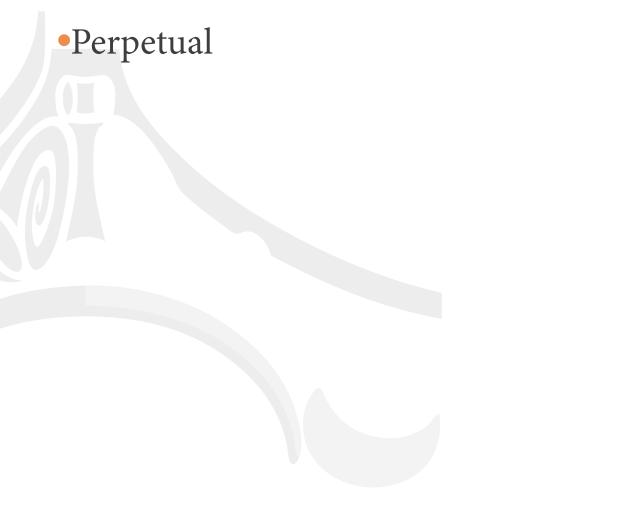


Inventory Systems











Inventory Systems

PerpetualPeriodic

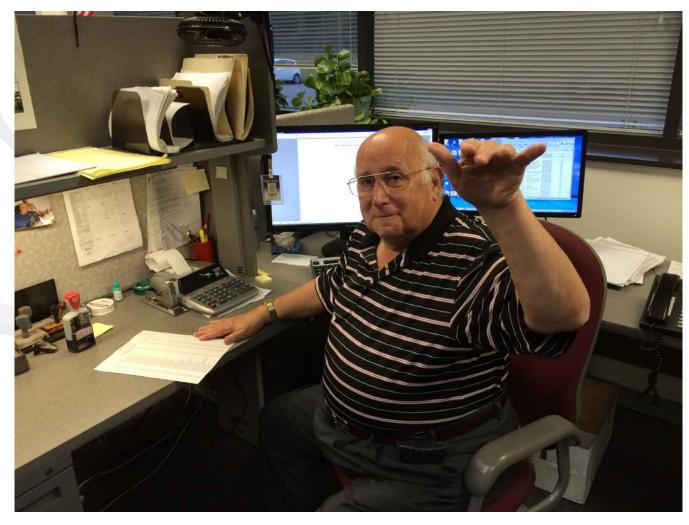


Inventory System – Paper Records

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Inventory System – Paper Records





Inventory System – Excel Spreadsheet

	Widget	Thingamabob	Dodad	Whatchamajig
In Stock	14	16	22	4
Beginning Balance	10	15	20	25
Tom	-1		-3	
Dick		-4	-3	
Harry				-10
George				-8
Purchase	5	5	5	5
Sam (return)			3	
Pete				-8



Reports Window Help 21011					Product Lookup ·	010004							
n Type: Rack Reserve Zone: Z21-L					HOT ROLL MIX								
Length: 48 in Section: Width: 42 in Aisle: 21					uu aa kaa kaa kaa kaa kaa kaa kaa kaa ka				terrer la m				
Height: 70 in Bay: 01					Warehouse: VI	DC	Owner 01	<u>▼</u> <u>≥</u> ta	itus: (all)	Lotcod	e:	Ψ.	
sitions: 12 Level: 1 Stack: 2 Position:					UOM 🛆		Actual Book	Inbound		Alloca Hard Al			
Stack. 2 Position.					BG TOTAL		2956 840 2956 840	3950 3950	288 202 288 202	202 202	0		
y Product Destination Order #	Recv Description	Ti/Hi Lot Code	Exp Date Status	Route	1.01.12			0000					
BG 912004 20021	9/30/2014 HOT ROLL MIX 50#	5 x 10											
100105265					Total Packsize:	BAG	<u> </u>						
						Location	Location Type		Recy Date	Task Type	Status !	Staged? Ha	iz Ma…
					VDC VDC	STAGE13 DOOR18	Staging Door 5	15 BG 50 BG	10/10/2014	Loading Shipping			
					VDC	D00R18	Door 1	100 BG	10/10/2014				
					VDC VDC	D00R18 D00R18	Door 1 Door 1	10 BG 15 BG	9/29/2014 10/10/2014	Shipping Shipping			
6 912004 100106124	10/10/2 HOT ROLL MIX 50#	5×10			VDC	20021	Case Pick 6	6 BG	10/10/2014	Snipping			
100106124					VDC	21011	Rack Reserve	250 BG	10/10/2014				
					VDC VDC	21011 21011		10 BG 74 BG	9/30/2014 10/10/2014	Replenishment Replenishment			
					VDC	21011	Rack Reserve	26 BG	10/10/2014				
					VDC VDC	51441 51451	Floor Reserve	700 BG 100 BG	10/28/2014 10/28/2014	Putaway Putaway			
		5 40			VDC	51471	Rack Reserve 1	100 BG	10/28/2014	Putaway			
912004 20021	10/10/2 HOT ROLL MIX 50#	5×10			VDC	51541	Floor Reserve	700 BG	10/24/2014				
100106125					VDC VDC	51551 51571	Rack Reserve 1 Rack Reserve 1	100 BG 100 BG	10/24/2014 10/24/2014				
					VDC	51581	Rack Reserve	500 BG	10/14/2014				
						51581	Rack Reserve	100 BG	10/20/2014				
					VDC								
				-		Tasks / Histo				1			
912004 20021		510			Product /		ry 🖌 Configuration 🖊		•				
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	10/10/2 HOT ROLL MIX 50#	5×10			Product	nd (Detailed)		× 🕅 108%					Busines
	10/10/2 HOT ROLL MIX 50#	5×10			Inventory On Ha	nd (Detailed)		× 🕅 108%		<u>]</u>			Busines
	10/10/2 HOT ROLL MIX 50#	5×10			Inventory On Ha	nd (Detailed)		X M 108%		1			Busines
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912004 912004 912004 912004 912004 100106134	10/10/2 HOT ROLL MIX 50# 10/10/2 HOT ROLL MIX 50#	5×10 5×10			VDC 912004 L 95		Owner: (all) Ot Zone HOT F Z51 Z51 Z51 Z51 Z51	Invento Produc	ry on Han t Type(all)	d (Detail Pallet No 00105873 00105872 00105870 100105870 100105880 00105868	Product: 9120	Qty 50 50 50 50 50 50 50 50	UOM BG BG BG BG BG BG
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912004 912004 100106133 912004 100106134	10/10/2 HOT ROLL MIX 50# 10/10/2 HOT ROLL MIX 50#	5×10 5×10			VDC 912004	.ocation	I /3 Owner: (all) O1 Zone HOT F Z51 Z51 Z51	Invento Produc	ry on Han	d (Detail Palet No 00105873 00105870 00105870 00105880 00105868 00105868 00105868 00105868 00105868 00105868	Product: 9120	Oty 50 50 50 50 50 50 50 50 50 50 50 50 50	UOM BG BG BG BG BG BG BG BG BG BG BG BG BG
912004 912004 100106133 912004 100106134	10/10/2 HOT ROLL MIX 50# 10/10/2 HOT ROLL MIX 50#	5×10 5×10			VDC 912004	Implement (Detailed) Implement (Detailed)	W 1 / 3 Owner: (all) 01 20ne HOT F 251 251 251 251 251 251 251 251 251	Invento Produc	ry on Han t Type(all)	d (Detail Pallet No 00105873 00105872 00105871 00105869 00105869 00105868 00105868 00105868 00105868 00105868	Product: 9120	Qty 50 50 50 50 50 50 50 50 50 50 50 50 50	UOM BG BG BG BG BG BG BG BG BG BG BG

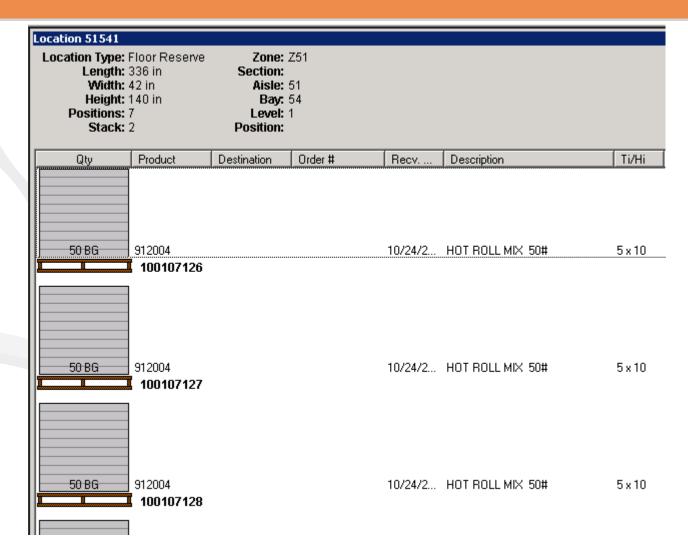


Product Lookup - 912004

HOT ROLL MIX 50#

<u>W</u> arehouse:	VDC	<u>O</u> wner	01	<u> </u>	atus: (all)		Lotcode:
UOM 🛆	Conversion	Actual	Book	Inbound	Outboun	d Soft A	lloca Hard Alloc.
BG	eaches	2135	866	3850	345	145	145
TOTAL	BG	2135	866	3850	345	145	145
Total Packsize:	BAG						
Wareho	△ Location	Location	Type Qty	UOM	R	ecv Date	Task Type 🛛 !
VDC	20021	Case Pick	35	BG	10	/24/2014	
VDC	51421	Rack Res	erve 400	BG	10	/29/2014	
VDC	51451	Floor Rese	rve 100	BG	10	/28/2014	
VDC	51471	Rack Res	erve 100	BG	10	/28/2014	
VDC	51541	Floor Rese	rve 100	BG	10	/24/2014	Pick from Res
VDC	51541	Floor Rese	rve 600	BG	10	/24/2014	
VDC	51551	Rack Res	erve 50	BG	10	/24/2014	Replenishment
VDC	51571	Rack Res	erve 50	BG	10	/24/2014	Replenishment
VDC	51581	Rack Res	erve 700	BG	10	/28/2014	







Inventory On Hand (Detailed)

Preview |

BusinessO	Je
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	Inventory on Hand (Detailed)						
VDC	Owner: (all)	Product Type (all)	· ·	Product: 912004	ŀ		
	01						
Location	Zone	Lot	Pallet No	Expiration	Qty	UOM	
912004	HOT ROL	L MIX 50 p1					
51541	Z51		100107143		50	BG	
51541	Z51		100107142		50	BG	
51541	Z51		100107141		50	BG	
51541	Z51		100107140		50	BG	
20021	Z20-L		0001012348		35	BG	
51541	Z51		100107137		50	BG	
51541	Z51		100107136		50	BG	
51541	Z51		100107135		50	BG	
51541	Z51		100107134		50	BG	
51541	Z51		100107133		50	BG	
51541	Z51		100107132		50	BG	
51541	Z51		100107131		50	BG	
51551	Z51		100107130		50	BG	
51571	Z51		100107129		50	BG	
51541	Z51		100107128		50	BG	





















ReceivingQuality Assurance



Receiving
Quality Assurance
Storage (put away)



Receiving
Quality Assurance
Storage (put away)
Stock Rotation



Receiving
Quality Assurance
Storage (put away)
Stock Rotation
Order fulfillment



Receiving
Quality Assurance
Storage (put away)
Stock Rotation
Order fulfillment
Quality Control



 Receiving •Quality Assurance •Storage (put away) Stock Rotation •Order fulfillment Quality Control •Delivery







•Receiving •First line of defense



Receiving
First line of defense
Unloading the goods



Receiving
First line of defense
Unloading the goods
trained staff



Receiving
First line of defense
Unloading the goods
trained staff
material handling equipment



•Receiving

- •First line of defense
- Unloading the goods
 - •trained staff
 - material handling equipment
- •The receiver should have a copy of the purchase order (PO)



•Receiving

- •First line of defense
- Unloading the goods
 - trained staff
 - material handling equipment
- •The receiver should have a copy of the purchase order (PO)
- •Compare delivery documentation, such as the PO & Bill of Lading (BOL), to the actual goods received.



•Receiving (concluded)

•Inspect the goods for quantity and damage.



Receiving (concluded)

- •Inspect the goods for quantity and damage.
- •Document the quantity and quality on the vendor's paperwork and maintain a copy.



Receiving (concluded)

- •Inspect the goods for quantity and damage.
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- •If you sign a BOL without noting any deficiencies, especially quantity differences, the vendor will invoice for the full amount.



Receiving (concluded)

- •Inspect the goods for quantity and damage.
- •Document the quantity and quality on the vendor's paperwork and maintain a copy.
- •If you sign a BOL without noting any deficiencies, especially quantity differences, the vendor will invoice for the full amount.
- •Ensure goods are entered in your inventory system before they are used.



•Quality Assurance





•Quality Assurance





•Quality Assurance





•Storage (put away)



•Storage (put away)

•Put the items in the best place for retrieving them



•Storage (put away)

Put the items in the best place for retrieving them
Accurately record where the goods are stored



•Storage (put away)

- •Put the items in the best place for retrieving them
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- •Each location should only hold one specific item, when possible



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 - •FIFO



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Stock Rotation

- •FIFO
- •LIFO



Storage (put away)

- •Put the items in the best place for retrieving them
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Stock Rotation

- •FIFO
- •LIFO
- •Order fulfillment



•Quality Control



•Quality Control •Check accuracy





•Quality Control •Check accuracy





•Quality Control

- •Check accuracy
- •Prepare for delivery









DeliveryProper handoffs



Delivery
Proper handoffs
Proof of delivery







•Full Inventory Counts



Full Inventory CountsCycle Counts



Full Inventory Counts
Cycle Counts
Randomized schedule



- •Full Inventory Counts
- •Cycle Counts
 - Randomized schedule
 - •ABC Methodology (Pareto's 80/20 Rule)



- •Full Inventory Counts
- •Cycle Counts
 - Randomized schedule
 - •ABC Methodology (Pareto's 80/20 Rule)

Class	% of Items	% of \$ Value
А	10%	70%
В	20%	20%
С	70%	10%



Discipline









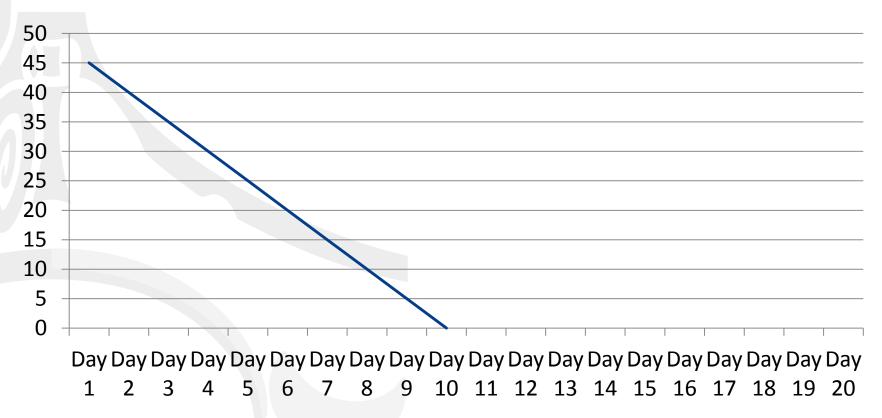
Communication with Customer



Communication with CustomerUsage rates

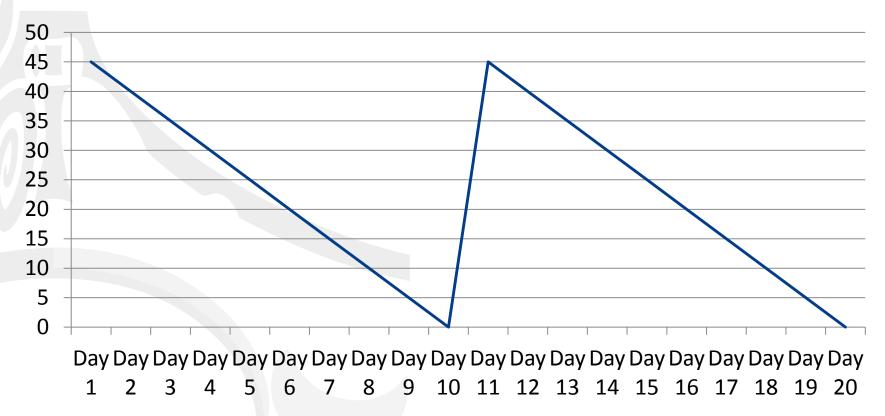


Quantity On Hand





Quantity On Hand





Communication with CustomerUsage rates



- •Communication with Customer
- •Usage rates
- •Lead time



- •Communication with Customer
- •Usage rates
- •Lead time
 - •Order processing time



- •Communication with Customer
- •Usage rates
- •Lead time
 - Order processing timeSupplier lead time



- •Communication with Customer
- •Usage rates
- •Lead time
 - •Order processing time
 - •Supplier lead time
 - Transportation time



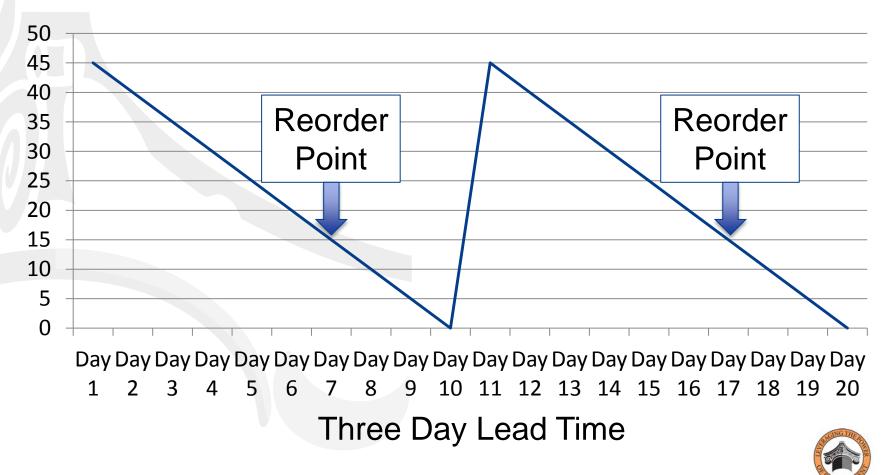
- •Communication with Customer
- •Usage rates
- •Lead time
 - •Order processing time
 - •Supplier lead time
 - Transportation time
 - Receiving time



- •Communication with Customer
- •Usage rates
- •Lead time
- •Reorder point



Quantity On Hand



FORUM

- •Communication with Customer
- •Usage rates
- •Lead time
- •Reorder point



- •Communication with Customer
- •Usage rates
- •Lead time
- •Reorder point
- •Safety Stock



- •Communication with Customer
- •Usage rates
- •Lead time
- •Reorder point
- •Safety Stock

Low safety stock levels	
•High confidence in	
on-time delivery	
•Low demand variance	

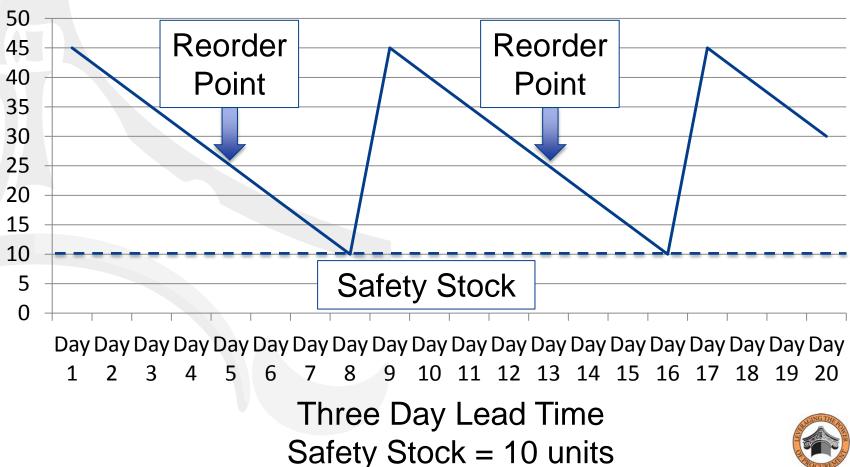


- •Communication with Customer
- •Usage rates
- •Lead time
- •Reorder point
- •Safety Stock

Low safety stock levels	High safety stock levels
•High confidence in	•Low confidence in
on-time delivery	on-time delivery
•Low demand variance	•High demand variance



Quantity On Hand



- •Communication with Customer
- •Usage rates
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- •Safety Stock

Low safety stock levels	High safety stock levels
•High confidence in	•Low confidence in
on-time delivery	on-time delivery
•Low demand variance	•High demand variance

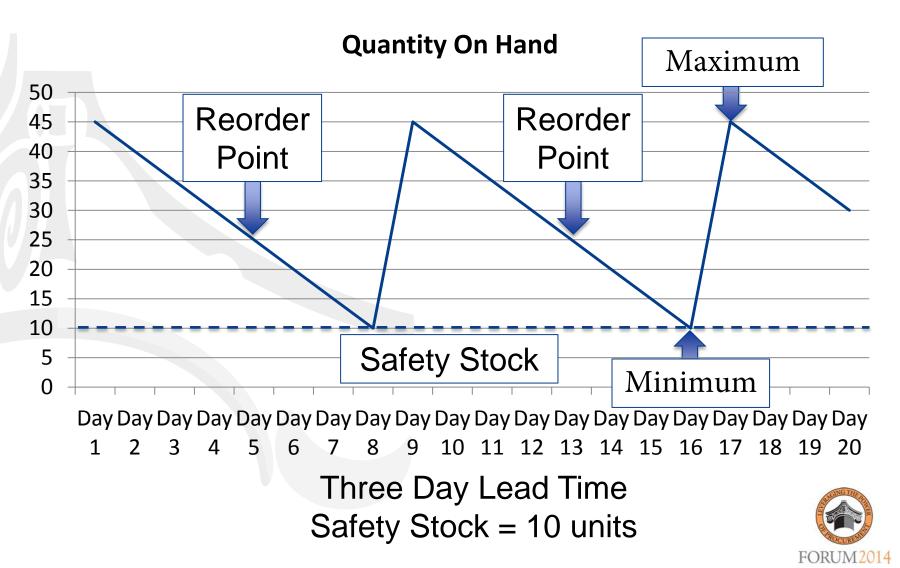


- •Communication with Customer
- •Usage rates
- •Lead time
- •Reorder point
- Safety Stock
- Minimum Quantities



- Communication with Customer
- •Usage rates
- •Lead time
- •Reorder point
- Safety Stock
- Minimum Quantities
- Maximum Quantities





- Communication with Customer
- Usage rates
- •Lead time
- •Reorder point
- Safety Stock
- Minimum Quantities
- Maximum Quantities



- Communication with Customer
- Usage rates
- •Lead time
- •Reorder point
- Safety Stock
- Minimum Quantities
- Maximum Quantities
- •Seasonal Demand



- Communication with Customer
- Usage rates
- •Lead time
- •Reorder point
- Safety Stock
- Minimum Quantities
- Maximum Quantities
- Seasonal Demand
- •Critical Path Method (CPM)







• Inventory delivered right when it is needed.



- Inventory delivered right when it is needed.
- Good for manufacturing with a steady production with a very steady usage rate.



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- Less likely to be able to take advantage of bulk rates
- Not appropriate for organizations required to receive three or more bids.





Number of days	=	365
In Inventory		inventory turnover ratio
Total Asset	=	sales
Turnover		total assets
Working Capital	=	net sales
Turnover		average working capital



Number of days	=	365
In Inventory		inventory turnover ratio
Current Ratio	=	current assets
Total Asset	=	current liablilities sales
Turnover Acid Test	=	total assets cash+net rcvbls+mkt scrts
(or Quick Ratio) Working Capital	=	current liabilities net sales
Turnover		average working capital



November yof days IntroventoRatio RecretevatoRestio **Turnover** Ratio Notalbassof Days **Threaser**ables Acid Test (or Quick Ratio) WoekiAgsEapital **Turnover** Ratio

Cost of **865**ods Sold invantoragetummenterryatio naw renetchis settes avgarcentritablicitieable sales receivaltestatser ratio cash+net rcvbls+mkt scrts current liabilities mett salles averaget wiekingsetspital



November yof days **BebrezetiRytatio** RecretevatoReatio Profibilianzatio Total bessof Days **REREPORTE** Assets Acid Test (or Quick Ratio) WoekiAgsEapital **Equipover**t Ratio

Cost of 865ods Sold invertertag diabalistics rivatio naunananalissates avæaroen inhisonhiktivable totalessets receivaliteta inconver ratio cashit net complete makt series current liabilities mett salles averantetnvilsbellagseetspital

total assets



Inventory Accuracy

Fill Rate

Inventory Turnover Ratio



Inventory Accuracy =

<u>pre-count inventory – the sum of the variances*</u> pre-count inventory

Note: the sum of the variances should be an absolute value

Fill Rate =

number of units correctly filled number of units ordered



12/1/2014

Inventory Turnover Ratio (Turn Rate) =

<u>Cost of Goods Sold</u> average inventory



Inventory Turnover Ratio (Turn Rate) =



Fill Rate vs. Turn Rate



Customer Survey







Minimize losses

Communicate with customers



Minimize losses

Communicate with customers

•Rotate inventory



Minimize losses

Communicate with customers

- •Rotate inventory
- Monitor expiration dates



- Communicate with customers
- Rotate inventory
- Monitor expiration dates
- Monitor quantity levels



Minimize losses

Communicate with customers
Rotate inventory
Monitor expiration dates
Monitor quantity levels
Surplus Property Program



- Communicate with customers
- Rotate inventory
- Monitor expiration dates
- Monitor quantity levels
- Surplus Property Program
 - Previously owned items at great prices



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- Communicate with customers
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- Surplus Property Program
 - Previously owned items at great prices
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 - •They can help you get the salvage value of the item



- Communicate with customers
- Rotate inventory
- Monitor expiration dates
- Monitor quantity levels
- Surplus Property Program
 - Previously owned items at great prices
 - •Need their permission to dispose of property
 - They can help you get the salvage value of the itemGovDeals.com



- •Types of operations
- Inventory systems
- Inventory processes
- Performance measurements
- •Obsolescence
- •Customers The most important thing



Questions?





Inventory Observation



Inventory ObservationManagement Assertions



Inventory Observation
Management Assertions
Existence or Occurrence



Inventory Observation
Management Assertions
Existence or Occurrence
Completeness



Inventory Observation
Management Assertions
Existence or Occurrence
Completeness
Rights and Obligations



Inventory Observation
Management Assertions
Existence or Occurrence
Completeness
Rights and Obligations
Valuation or Allocations



Inventory Observation
Management Assertions
Existence or Occurrence
Completeness
Rights and Obligations
Valuation or Allocations
Presentation and Disclosure



Inventory Observation
Management Assertions
Existence or Occurrence
Completeness



•Existence or Occurrence



•Existence or Occurrence

Records



Actual Goods



•Existence or Occurrence

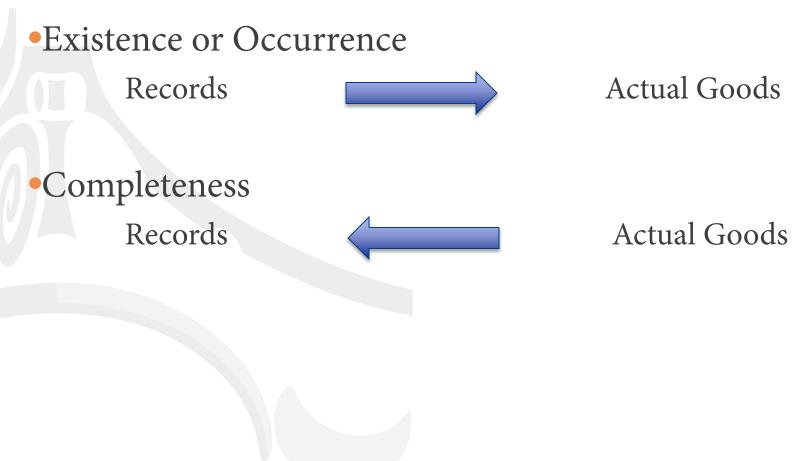
Records



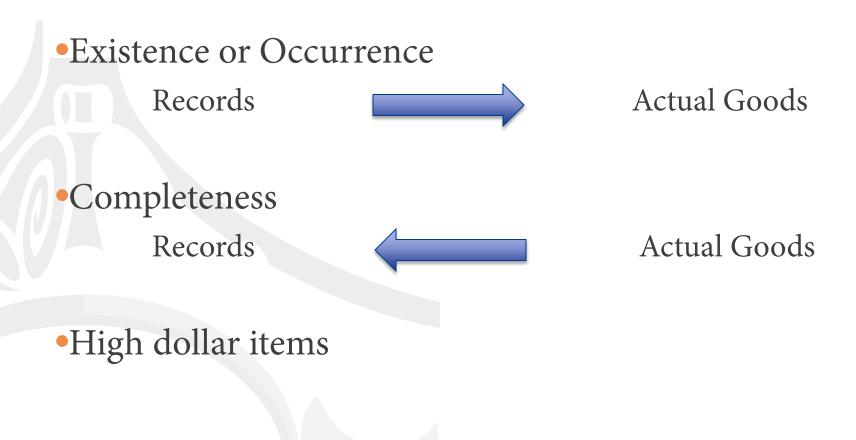
Actual Goods

Completeness

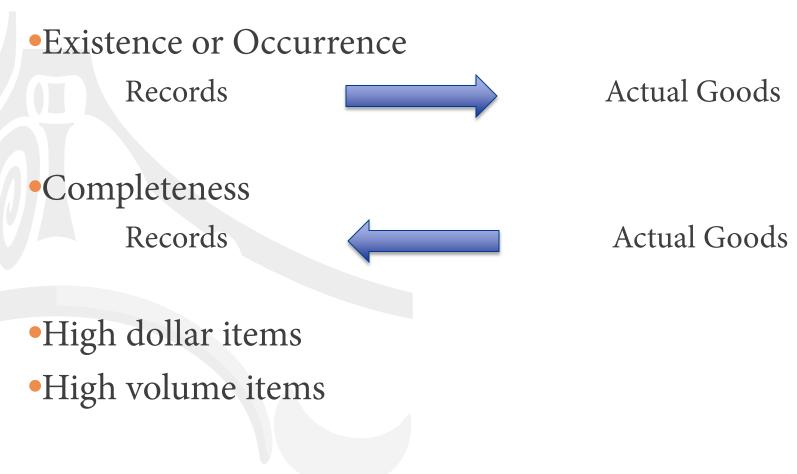














Questions?



Resources

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