

# **G. RINGGER CONSULTING, INC.**

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*Providing Engineering, Quality System, Training,  
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# The 3 Pillars of your QMS

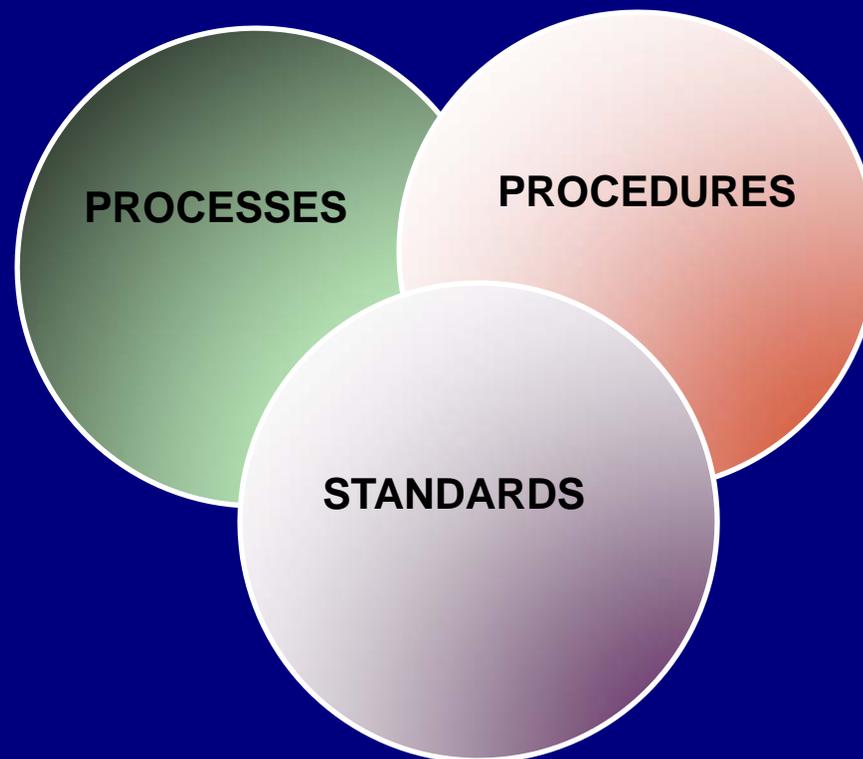
Processes/Procedures/Standards

*So, how should I audit my  
company?*

# We typically view our business by company departments & functions

- Operations & IT
- Finance
- Logistics
- Purchasing
- Sales
- Warehousing
- Marketing
- Quality Control
- Airframe Sales
- Engine Sales
- Inventory Services
  - Purchasing
  - Repair administration
- Outside Sales

# Processes / Procedures / Standards



# **BLOCK # 1**

## A Review of Standards

# Standards

For the purposes of this discussion,  
Standards are those criteria that we  
must adhere to, either by law, by  
industry, or by the customer

Let's take a look at where these come  
from...

# Standards that impact your business

## Government

- FAA
- DOT  
(HAZMAT)
- OSHA
- EASA
- ICAO
- FCAA

## Industry

- ASA 100
- ISO 9001
- ISO 14001 EMS
- AS9100/AS9120
- C.A.S.E. 3A

## Customer

- PO
- RO
- CONTRACTS

# Understanding Your Company's Commitment to Comply with Standards

## Quality System Requirements:

- ISO 9001 Quality System Standard
- + AS9120 Quality System Standard
- + ASA-100 Quality System Standard
- + C.A.S.E. 3A Quality System Standard
- + Your customer requirements
- + FAA Requirements &/or DOT Requirements
- + State Dept. & importing country CAA requirements

## **Your Company's Quality System Requirements**

# ASA-100 Standard

## 12 Quality System Elements

1. Quality System
2. Self-Audit/Evaluation
3. Facilities
4. Training
5. Procurement
6. Receiving Inspection
7. Measuring & Test Equipment
8. Material Control
9. Certification & Release of Materials
10. Shipping
11. Records
12. Technical Data Control

# ISO 9001 / AS9100 / AS9120

## 8 Clauses

1. Scope
2. Normative references (part of the requirements)
3. Terms and definitions
4. Quality management system
5. Management responsibility
6. Resource management
7. Product (and/or service) realization
8. Measurement, analysis & improvement

# **BLOCK # 2**

## A Review of Procedures

# Procedure (ISO 9000, per 3.4.5)

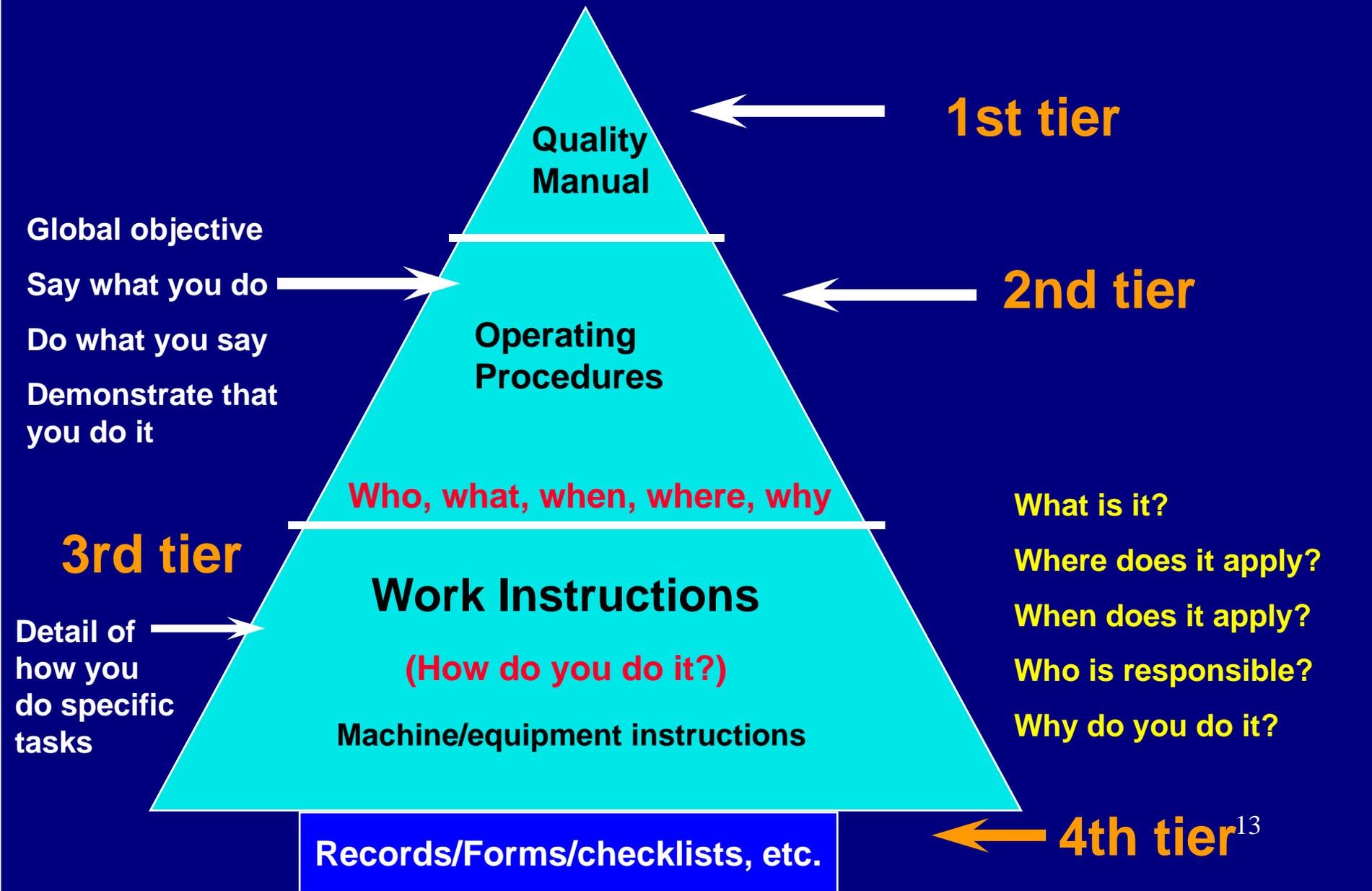
Is a specified way to carry out an activity or a **process**.

- Procedures can be documented or not.

## Examples include:

- Manuals
- Documented Procedures (SOPs)
- Work Instructions
- Forms; Signs; Checklists; placards, etc.

This is where your company's procedures reside.



# **BLOCK # 3**

## A Review of Processes

# Process (ISO 9000, Par 3.4.1)

Are interrelated or interacting activities which transform inputs into outputs

- Inputs to a process are generally outputs of other processes.
- Are generally planned and carried out under controlled conditions to add value.

# So, what is a Process?

Activity that transforms inputs into outputs



## Resources:

People  
Facilities/Equipment  
Material  
Methods

## Results:

Products  
Services  
Performance

# How is a Process *Managed*?

## Monitor & Measure the Process

make sure: inputs are right, transformation activities consistently work, and desired results are achieved, then - improve the process as needed



### Right Resources:

- Qualified People
- Right Facilities/Equipment
- Correct Materials
- Proven Methods

### Desired Results:

- Quality Products
- Quality Services
- Customer Satisfaction

# How is a Process Measured?

**Efficient**  
No Waste

**Effective**  
Desired Results Achieved



**Resources are not  
wasted**

**Desired Results  
Are achieved**

# The overall business cycle viewed as a process

turning customer requirements (inputs)

...into customer satisfaction (outputs)

# Manufacturing functions viewed as a process ...

turning raw materials (inputs)

...into products (outputs)

# Assembly Shop functions viewed as a process ...

turning sub-component parts  
and assemblies (inputs)

...into fully assembled  
components (outputs)

# Repair Station tasks viewed as a process...

turning unserviceable  
parts (inputs)

...into serviceable parts  
(outputs)

# Quality System Elements viewed as processes...

A process can be any linked set of activities,  
including many discrete quality system  
elements ...

Sales...Contract Review

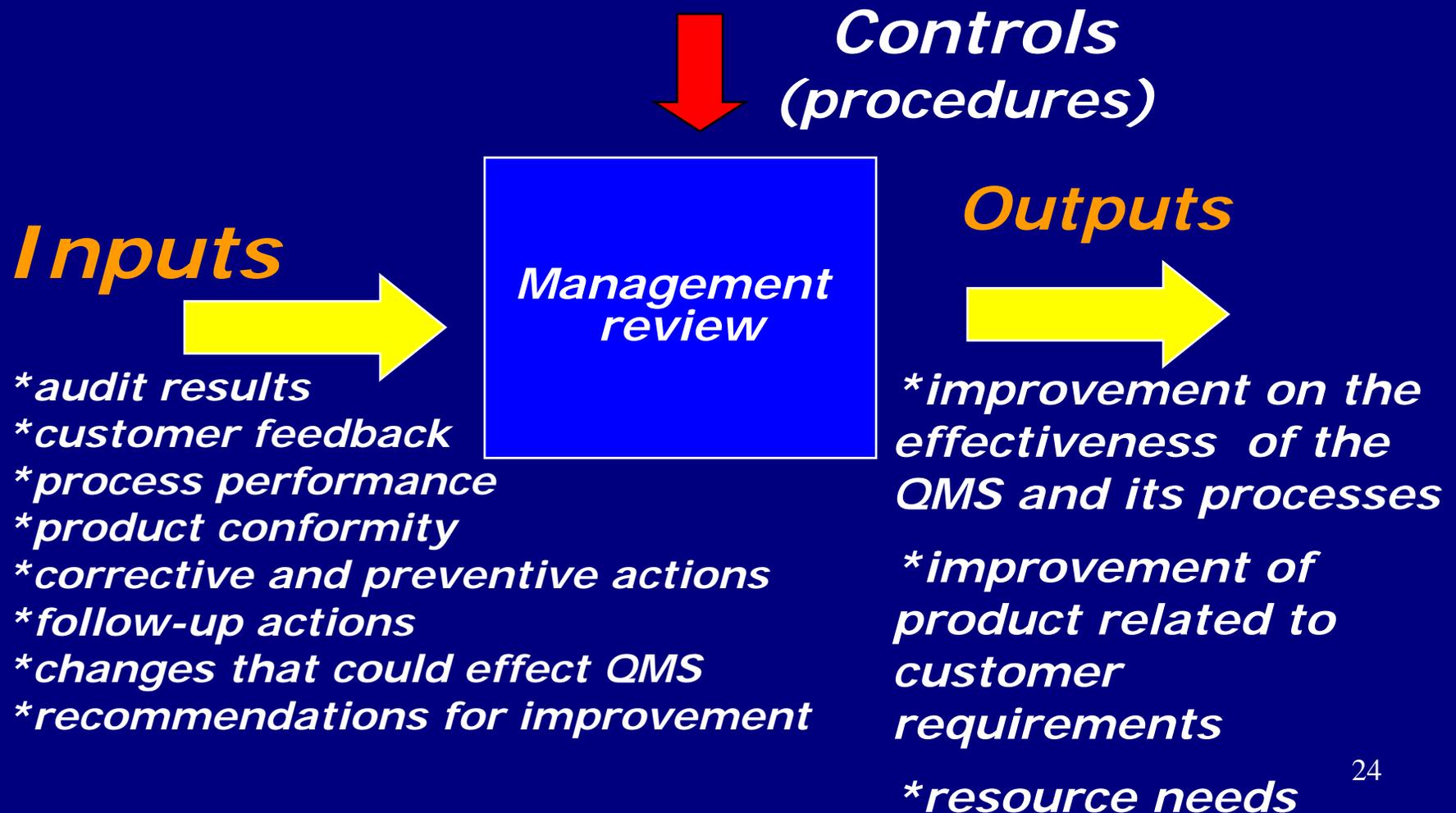
Design...Purchasing

Document Control, Records Control...

Internal audits, Corrective/Preventive Action,  
Management Review.

More?

# Management Review viewed as a process ...



# When auditing processes, what should we be looking for?

Here's a simple and effective tool to help you gather together the information you need to assess your company's processes...

...the Turtle Diagram.

# The infamous Turtle Diagram

**With What ?**  
(materials/equipment /facilities)

**With Who ?**  
(competency/skills/ training)

**Inputs**  
(customer requirements; Standards; Regulatory requirements)

**Activity**

**Desired Outputs**  
(product conformity/OTD)

**How ?**  
(methods/procedure s/techniques)

**Measurable Performance against Objectives**

So, let's look at some actual  
processes.....

# Typical Distributor Processes

1. Purchasing
2. Receiving
3. Inventory Control
4. Sales
5. Parts Picking
6. Outbound Inspection

## Global Processes / Procedures / Standards

- Document Control Process / SOP 4.2.3 / ISO 4.2.3; ASA-100 Section 1 & 13
- Record Control Process / SOP 4.2.4 / ISO 4.2.4 / ASA-100 Section 13
- Internal Audit Process / SOP 8.2.2 / ASA-100 Section 2
- Corrective Action Process / SOP 8.5.2 / ASA-100 Section 2
- Preventive Action Process / SOP 8.5.3
- Control of Nonconforming product Process / SOP 8.3 / ASA-100 Sections 3D, 8C, 9

### **With What (materials/equipment/facilities)**

- Telephone / fax / e-mail / copier /office space
- Approved Supplier List

### **With Who (competency/ skills/training)**

- Trained purchasers
- VP (For>\$5K approval)

### **Inputs (cust. requirements; Standards; Regulatory requirements)**

- Inventory Planning; Sales flow-down from cust. RFQ or PO; Market analysis; inventory min/max data
- ISO, Par 6.2, 7.4;
- ASA-100 Clause 4, 5

## 1. Purchasing

### **Desired Outputs (product conformity/OTD)**

- Part conforms to P.O.
- Part arrives on-time

### **How (methods/procedures/ techniques)**

- Purchasing Procedure 7.4
- Training Procedure 6.2
- Purchase Order forms

### **Performance against Objectives**

Supplier performance:

- % Received date vs promised date/by monthly goal
- % I/B rejects by monthly goal

### **With What (materials/equipment/facilities)**

- Telephone/fax/e-mail/copier/warehouse space/scanners/forklift/unpackaging station/good lighting/inspection station/ESDS mat/caps&plugs/preservation materials

### **With Who (competency/skills/training)**

- Trained receivers & I/B Inspectors

### **Inputs (PO requirements; Standards; Regulatory requirements)**

- PO/SO
- ISO, Par 4.2.3; 4.2.4; 6.2, 7.4.3; 8.2.4; 8.3
- ASA-100 Clause 4, 6,
- OSHA

## 2. Receiving

### **Desired Outputs (product conformity/OTD)**

- Correctly accept or reject the part
- Receive in a timely manner

### **How (methods/procedures/techniques)**

- I/B Checklist against PO requirements
- Visual inspection
- Purchasing Procedure 7.4
- Control of nonconforming product procedure 8.3
- Forklift Work Instruction
- Packaging Work Instruction
- ESDS Work Instruction
- Training Procedure 6.2

### **Performance against Objectives**

- % accepted correctly by monthly activity
- % rejected correctly by monthly activity

### **With What (materials/equipment/facilities)**

- Telephone/fax/e-mail/copier / warehouse space/scanners /forklift/preservation station/good lighting/caps&plugs/preservation materials/boxes/foaming station / barcode reader/printer

### **With Who (competency/skills/training)**

- Trained inventory personnel

### **Inputs (PO requirements; Standards; Regulatory requirements)**

- Stocking Sheet
- ISO, Par 6.2, 6.3; 6.4; 7.1; 7.5.1
- ASA-100 Clause 4, 6
- OSHA

## 3. Inventory Control

### **Desired Outputs (product conformity/OTD)**

- Place part in correct Bin location
- ID part with correct barcode label
- Inventory in a timely manner

### **How (methods/procedures/techniques)**

- Inventory Procedure 7.5
- Pick-ticket Form 7.5-01
- barcode label
- Control of nonconforming product procedure 8.3
- Forklift Work Instruction
- Packaging Work Instruction
- ESDS Work Instruction
- Training Procedure 6.2

### **Performance against Objectives**

- % line items placed in correct Bin location
- 100% lines inventoried within each 24-hour shift-change
- checked quarterly during inventory cycle-audit
- % rejected correctly by monthly activity

### With What (materials/equipment/facilities)

- Telephone / fax / e-mail / copier /office space
- Assigned Sales Account List

### With Who

#### (competency/skills/training)

- Trained Sales staff
- VP (For>\$5K commitment)

### Inputs (customer requirements; Standards; Regulatory requirements)

- Customer RFQ or PO; Market analysis; inventory min/max push-lists
- ISO, Par 6.2, 7.1.2; 7.2; ASA-100 Clause 4, 10 & Table A Column 3

## 4. Sales

### Desired Outputs (product conformity/OTD)

- Part conforms to customer P.O.
- Part ships on-time

### How (methods/procedures/ techniques)

- Sales Order forms
- Sales Procedure 7.2
- Training Procedure 6.2

### Performance against Objectives

- Supplier performance:
  - % Actual ship date vs required delivery date /by month
  - % OTD by month against goal

### **With What (materials/equipment/facilities)**

- Telephone/fax/e-mail/copier / warehouse space/forklift/preservation station/good lighting/caps&plugs/preservation materials/boxes/foaming station / barcode reader/printer

### **With Who (competency/skills/training)**

- Trained inventory personnel

### **Inputs (PO requirements; Standards; Regulatory requirements)**

- Pick Ticket
- ISO, Par 6.2, 6.3; 6.4; 7.1; 7.5.1, 7.5.3, 7.5.5, 8.3
- ASA-100 Clause 3A, 4, 6, 8, 9, 12
- OSHA

## 5. Parts Picking

### **Desired Outputs (product conformity/OTD)**

- PICK part FROM correct Bin location
- ID part with correct barcode label
- Deliver to O/B in a timely manner

### **How (methods/procedures/techniques)**

- Inventory Procedure 7.5
- Pick-ticket Form 7.5-01
- Barcode label
- Control of nonconforming product procedure 8.3
- Forklift Work Instruction
- Packaging Work Instruction
- ESDS Work Instruction
- Training Procedure 6.2

### **Performance against Objectives**

- % line items picked from correct Bin location
- 100% lines picked correctly within 1 hour from Pick-Ticket printout time stamp

### **With What (materials/equipment/facilities)**

- Telephone/fax/e-mail/copier/warehouse space/scanners/forklift/unpackaging station/good lighting/inspection station/ESDS mat/caps&plugs/preservation materials

### **With Who**

### **(competency/skills/training)**

- Trained shippers & O/B Inspectors

### **Inputs (SO requirements; Standards; Regulatory requirements)**

- Customer PO/SO
- ISO, Par 6.2, 7.2.1, 7.5.5; 8.1, 8.2.4
- ASA-100 Sections 4, 6, 11
- OSHA

## **6. O/B Inspection**

### **Desired Outputs (product conformity/OTD)**

- Correctly accept or reject the part
- Inspect & ship in a timely manner

### **How**

### **(methods/procedures/techniques)**

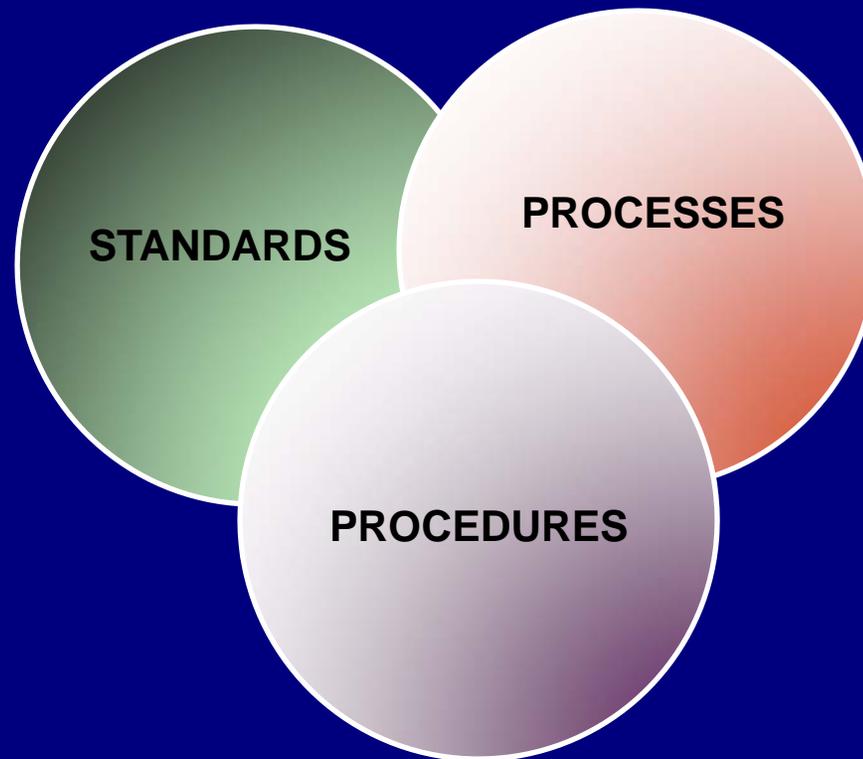
- O/B Checklist against customer requirements
- Visual inspection
- O/B Inspection Procedure 7.4
- Nonconforming product SOP 8.3
- Forklift Work Instruction
- Packaging Work Instruction
- ESDS Work Instruction
- Training Procedure 6.2

### **Performance against Objectives**

- % accepted correctly by monthly activity goal
- % rejected correctly by monthly activity goal

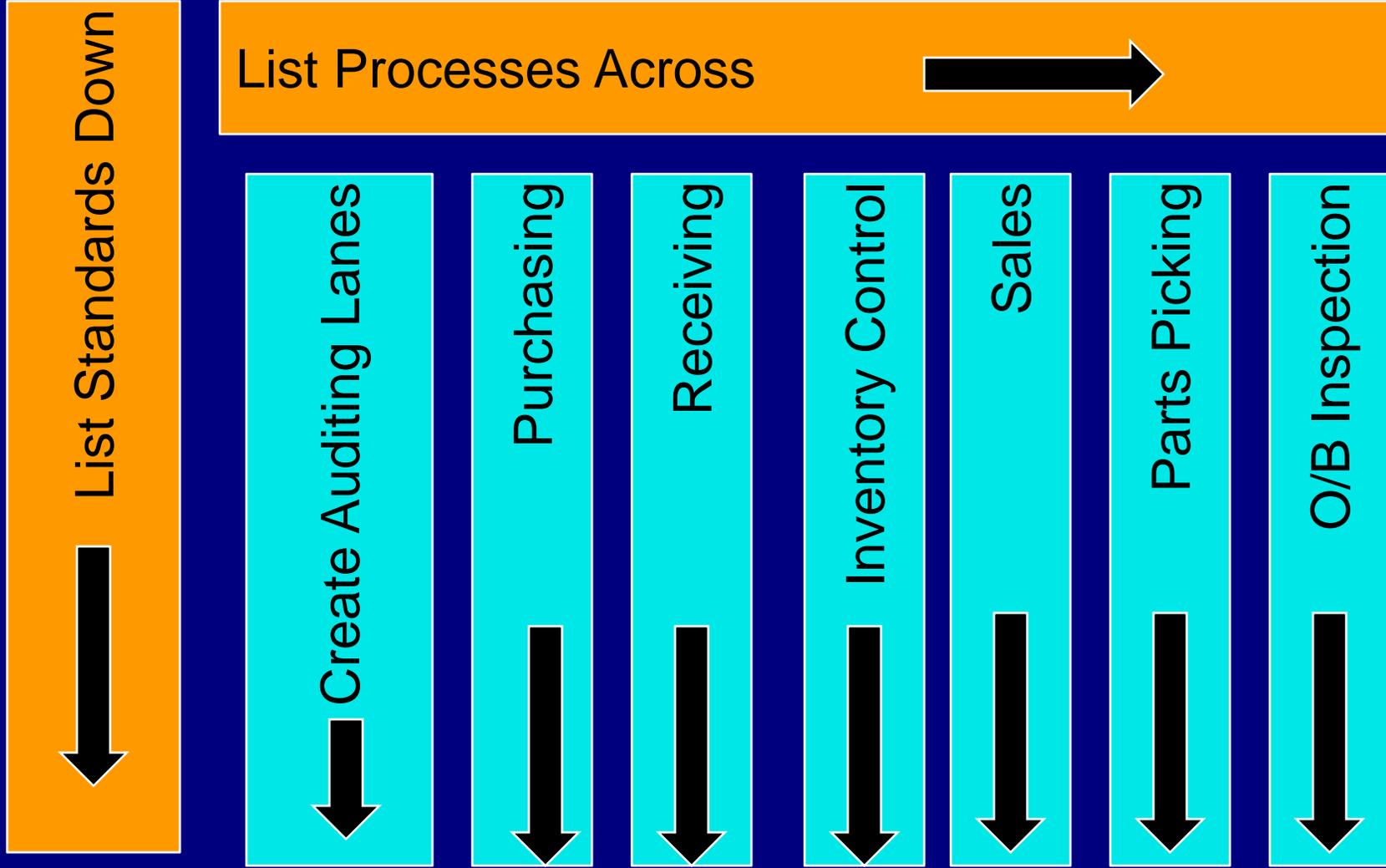
# Block 4

## Linking them all together...



...By using a Process Cross-Reference Matrix

# A Cross-Reference Matrix Layout



Let's look at 2 examples

Using the ISO 9001 Standard

&

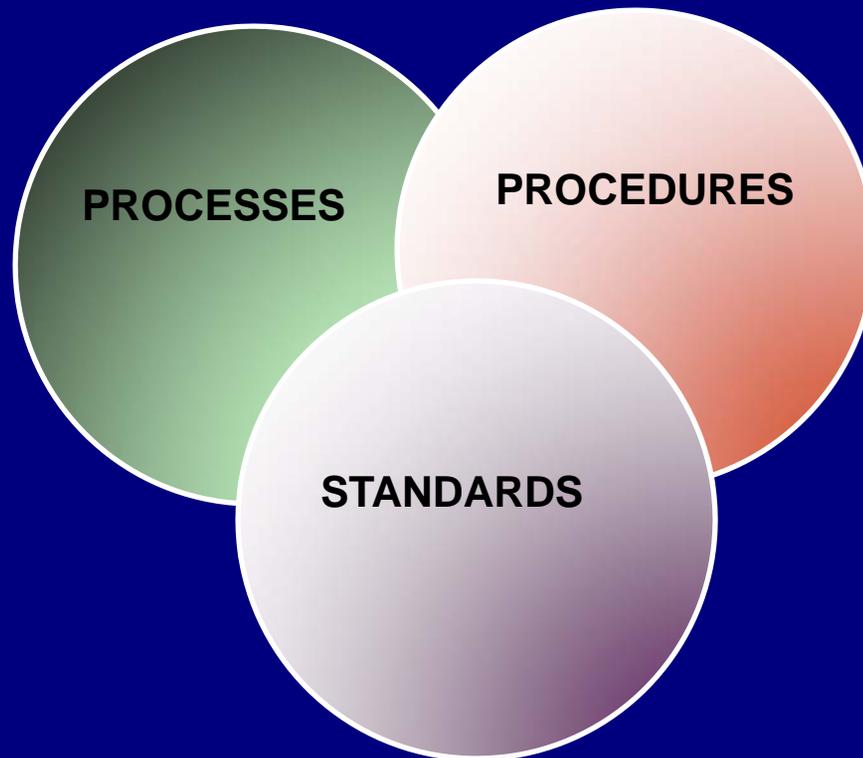
Using the ASA-100 Standard

(see handouts...)

# Audit Steps to Success

1. Understand your Processes / Procedures / Standards.
2. Define your processes using a turtle diagram (or similar tool)
3. Generate a Process Cross-Reference Matrix
4. Select a Process to audit (Stay in your lane!)
5. Go Audit!

# Questions?



Thanks for attending!

and remember...

“To stop learning.... is to stop living.”

George J. Ringer

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