



# Integrated Systems: The Future of Auditing

Dennis R. Arter, CQA

## Course Outline and Objectives

- Explore common management principles
- Develop a *Grand Unification Theory* of management
- Explore why process-focused checklists are better
- Do some turtles and develop checklist questions
- Do lunch
- Explore pattern recognition and systems perspective
- Dump and chunk to uncover system problems
- Explore technology change and the future (*of everything*)
- Show how artificial intelligence is affecting audits
- Have fun and make friends



## **Eras of management**

### **Control era (product)**

- Define characteristics and inspect to those characteristics (form, fit, function)

### **Assurance era (process)**

- Define processes to achieve results and make sure those processes are being followed. (Say what you do and do what you say)



## **Eras of management**

### **Management era (system)**

- Develop organization systems to achieve results and provide resources to achieve success.

### **Integration era (whole)**

- Combine quality, environment, safety, security into a holistic view. More emphasis on risk management.



## Good and evil

Some systems *promote* Good

- Quality management tries to achieve excellence, efficiency, satisfaction, delight.
- Financial management tries to improve efficiency.
- Human resource management tries to maximize people resources.



## Good and evil

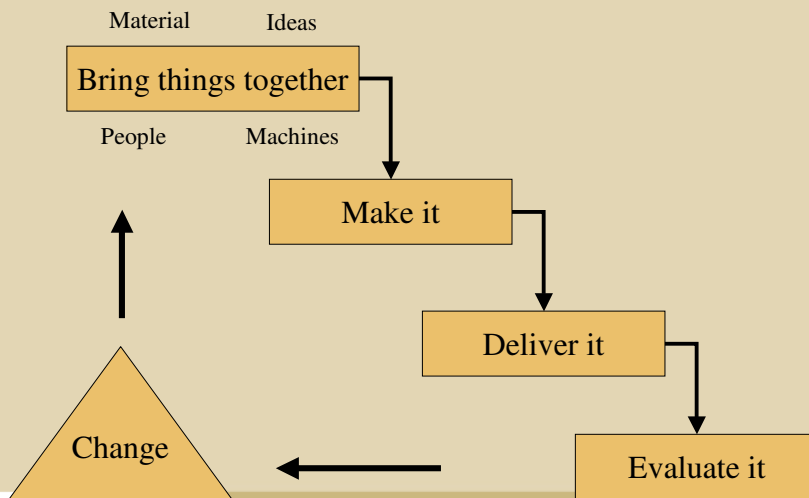
Some systems *prevent* Evil

- Environmental management tries to prevent harm to the planet.
- Safety management tries to prevent harm to people.
- Security management tries to keep bad guys away.
- Financial management tries to protect assets

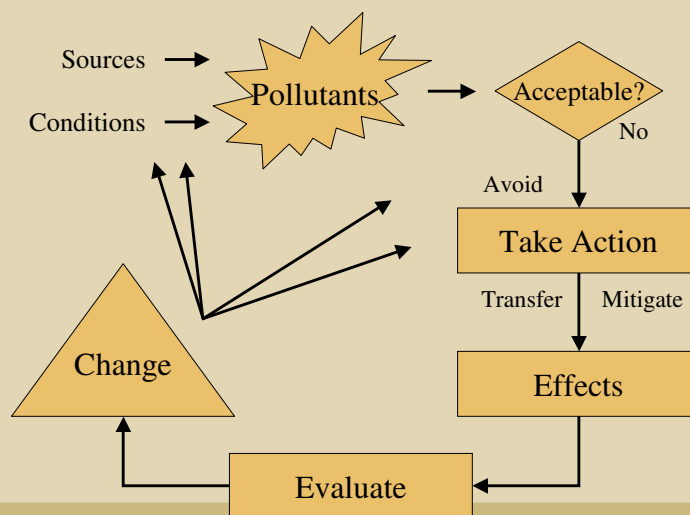
Note: These can also *save* resources if done right.



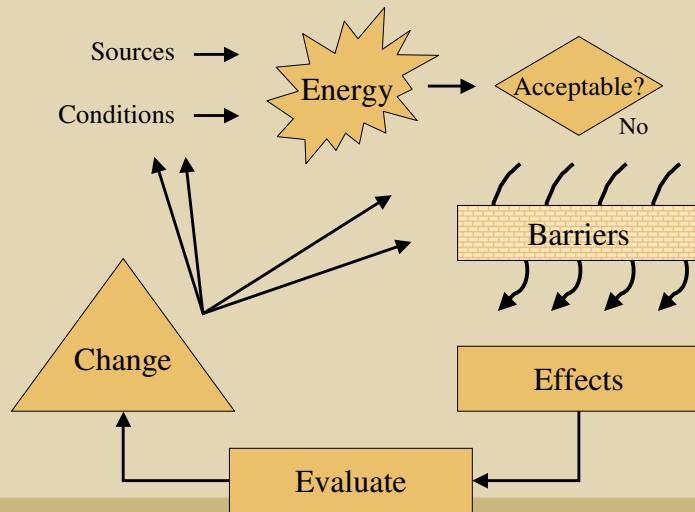
## Quality management model



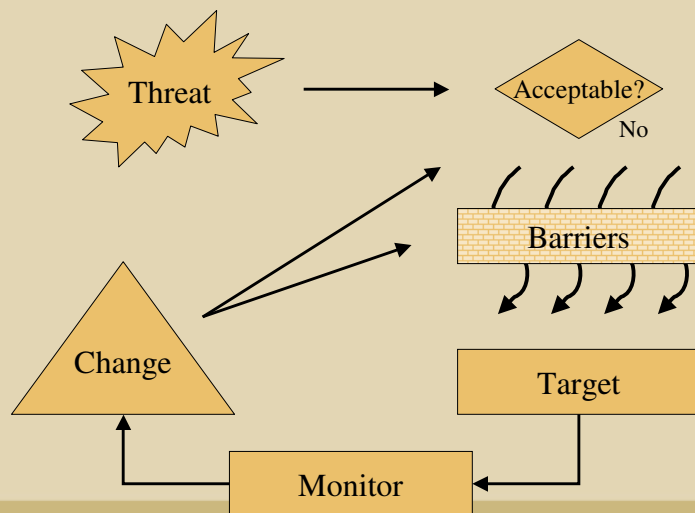
## Environmental Management model



## Safety management model

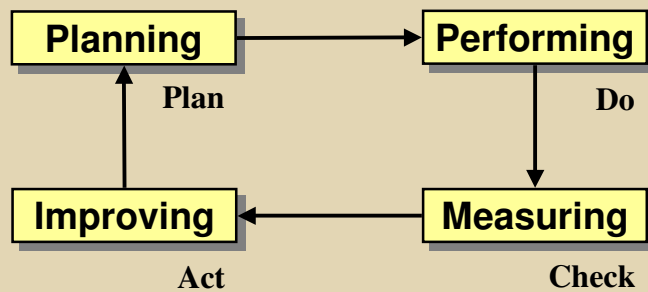


## Security management model



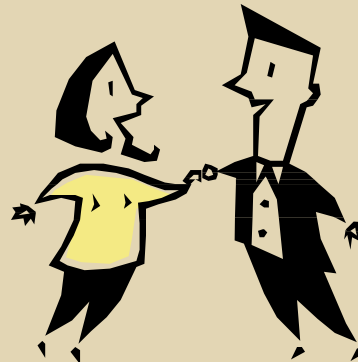
## Similarities

- We could do the same analysis for *Business Continuity*
- We could do the same analysis for *Financial Controls*
- We could do the same analysis for *Sustainability*



## Introductions

- Who are you and what does your company make?



## Workshop on Principles (1)

1. Form teams of 3-4 (Teams will change throughout the day)
2. Complete your team grid of QESS and PDCA (15 min.)

- You are explaining QESS to your barber or hair dresser
- No more than two sentences in a box
- Must have verb + object

	Qual	Env	Safe	Sec
P				
D				
C				
A				



## Example: Quality Management

- Plan
  - Identify item or service characteristics (form, fit, function)
  - Define methods, material, and machines to make or deliver that product
  - Define the systems in which the product is made or delivered
- Do
  - Provide people, equipment, material and infrastructure to make or deliver the product
  - Follow the defined methods
- Check
  - Measure progress in achieving defined products, processes, and systems
- Act
  - Reduce differences between desired and actual states
  - Make things better



## Workshop on Principles (2)

1. Circulate team sheets, taking notes. (10 min.)
2. Revise your grid, using chart paper (15 min.)
3. Post on chart paper on the wall
4. Walk the wall and summarize
  - Any *amazing similarities*?
  - Any *fundamental differences*?

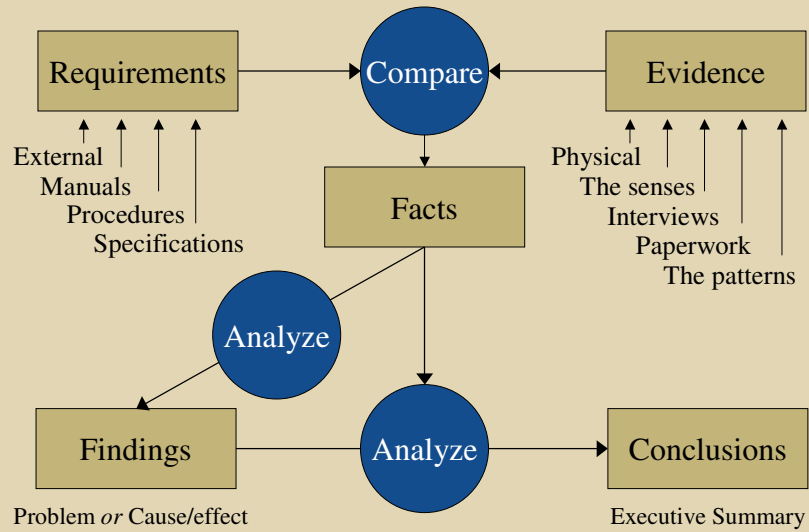
	Qual	Env	Safe	Sec
P				
D				
C				
A				



## Break!



## General Model for Auditing

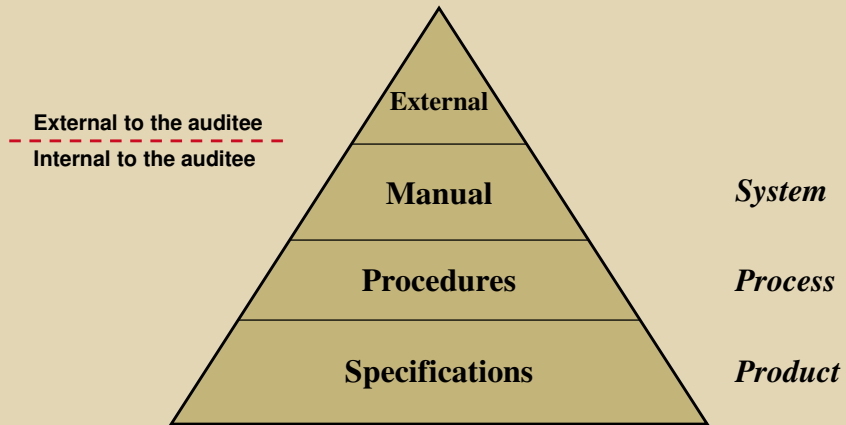


## Rules for the Audit

1. Audits provide information
2. Auditors must be qualified
3. *Audits measure to agreed criteria*
4. Conclusions are based on facts



## Requirements are Documents



## Rules for the Audit

1. Audits provide information
2. Auditors must be qualified
3. Audits measure to agreed criteria
4. *Conclusions are based on facts*



## Objective Evidence

- Physical
- Senses
- Paperwork
- Interviews
- Patterns

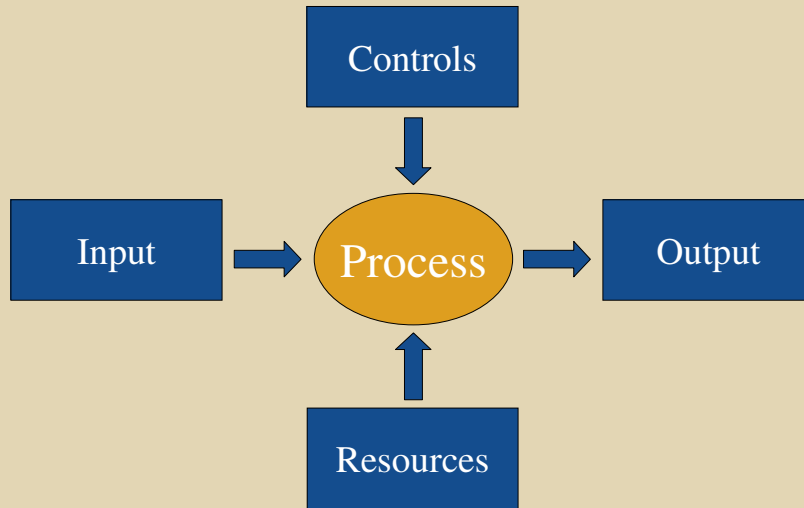
*Right side of the audit model*



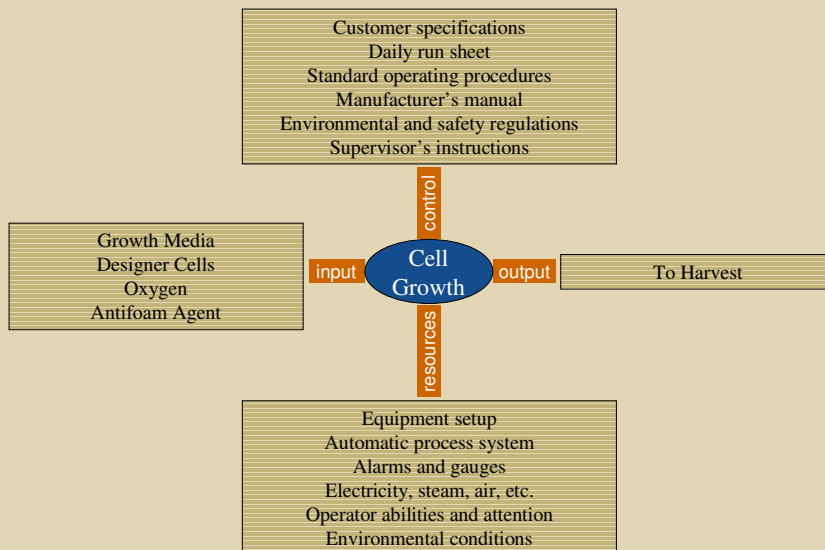
## Understand Processes to Get Facts



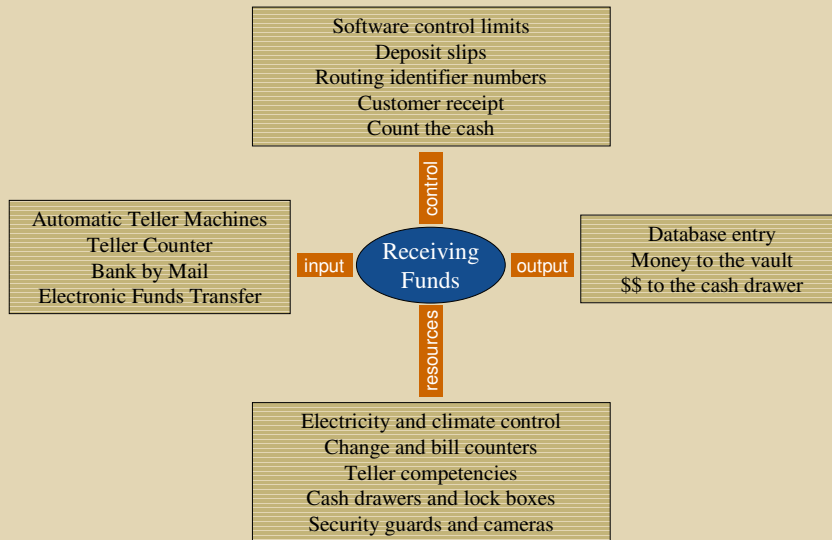
## Universal Process Model



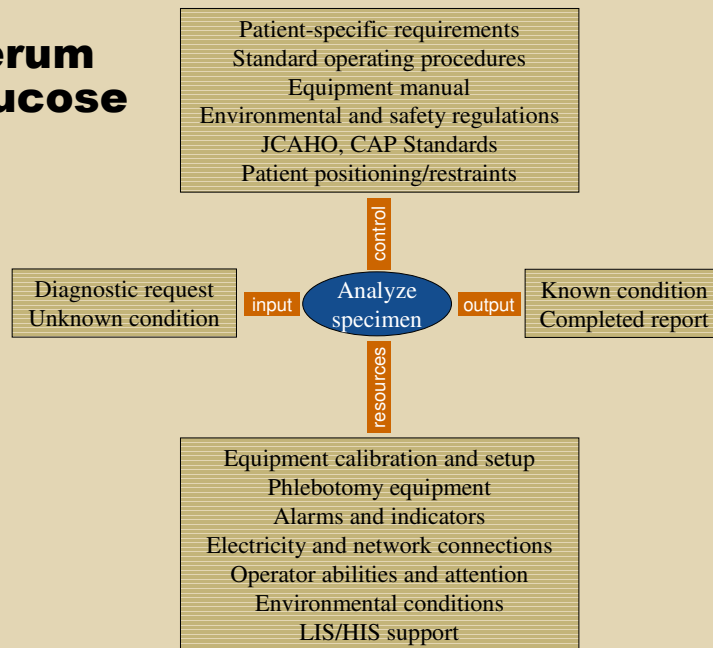
## Flu Vaccine



## Receiving Funds at a Bank

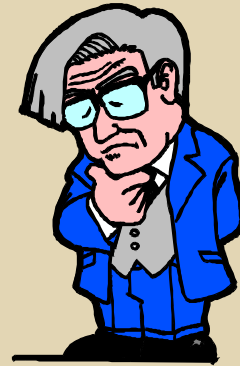


## Serum glucose

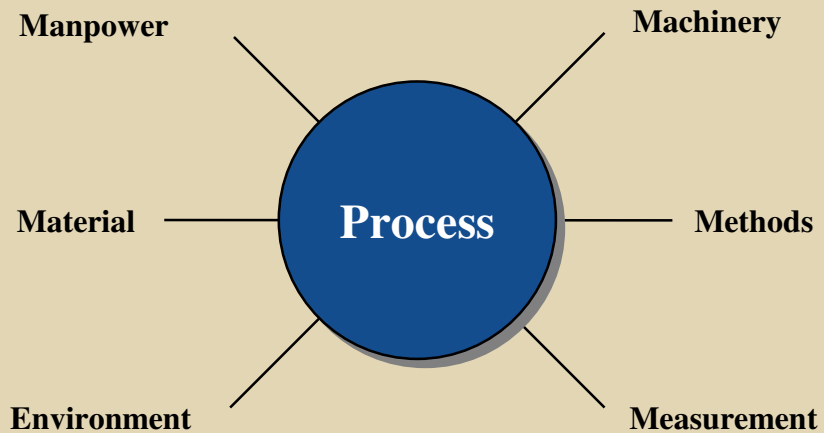


## Is There a Better Way?

- Simple four-box approach requires significant concentration
- What about tapping previous work on how processes behave? (Such as Ishikawa)



## Universal Process Affecters



## Universal Process Affecters

- **Methods:** These are the instructions we provide for the task. Often called *documents*.
- **Material:** These are the things used by the process.
- **Manpower:** (and womanpower!) These are the human competencies needed.
- **Measurement:** These are the data taken of the process and their use.
- **Machinery:** This is the equipment used to perform the action.
- **Environment:** These are the outside influences on the process.

*MMMMME!*

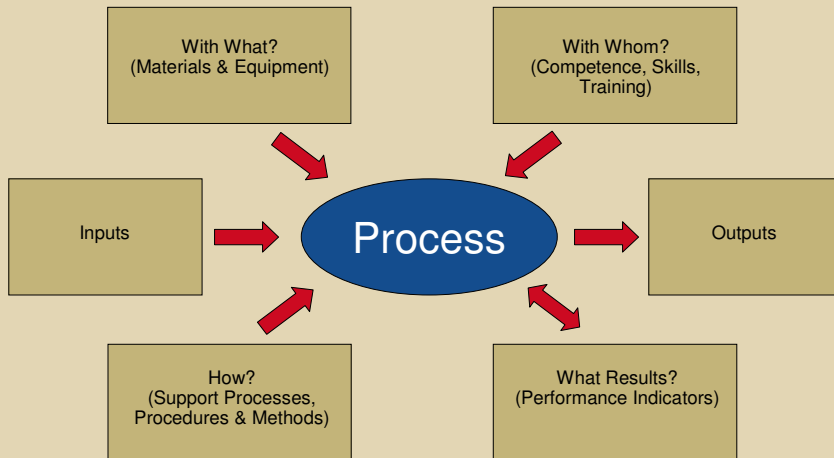


## Whoa! Now It's Too Much!

How about something combining all – yet friendly?



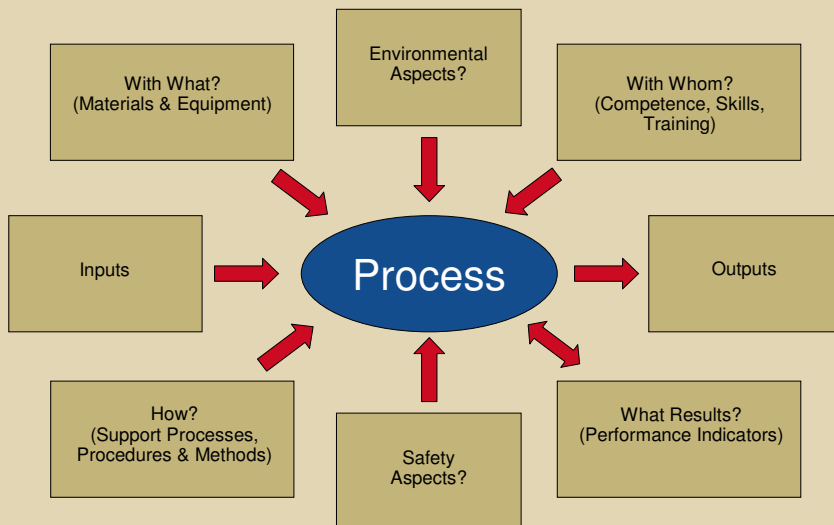
# Turtle Diagram



Source: AIAG 2003



# Mod Turtle diagram



## Workshop: Do the Turtle

- Please move into different teams
- Each person in the group pick a different process from the provided flowchart
- Do a turtle for your process
- Share with the team to make turtles fuller
- 20 minutes for this part

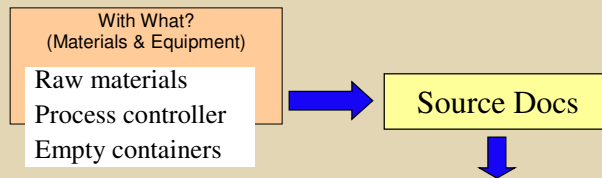


## Turtles to Checklists

- Checklists define the data you need in order to write a report. They are shopping lists of specific facts you want to get.
- Interviews are one of the five ways you use to get those nuggets. They are open-ended and include *who, what, where, when, why, how, and please show me.*



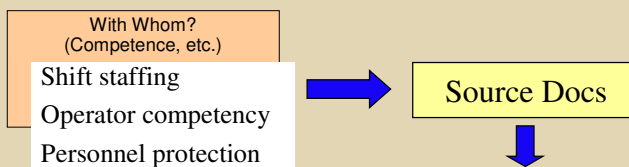
## Define information needs



- Do all raw materials have a QC Accept (green) Tag? (Purchasing Procedure 05)
- Is Reaction Temp set to 160 °F/180 °F alarm? (Op Sheet 2157-17, step 14)
- Are all control panel alarms cleared? (Safety directive 29)
- Are all empty plasticizer bags in the marked and covered temp storage bin? (MSDS 98-729-06)



## Define information needs



- Are 2 QC Inspectors on duty during production runs? (Quality Support Methods #9)
- Do all Inside Operators possess current qualification certificates, unless under instruction? (Prod. Procedure 2)
- Is the Lab Tech performing melt point testing qualified within the past year? (Lab Policy 3)
- Are all personnel within the production area wearing hard hats and safety glasses? (Safety Directive 01)



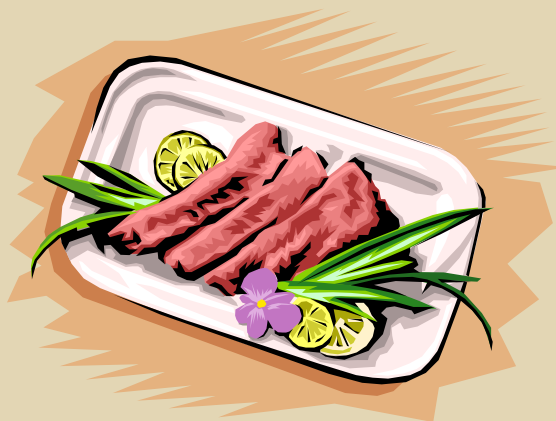
## Workshop: source documents

1. Review the handout of Source Docs
2. Place at least 4 doc ID numbers by each of your turtle boxes
3. Choose 3 source docs that apply to more than one turtle box. Pretend you just read them.
4. Make up two (or more) control conditions from each of the 3 docs. Write them on the checklist handout form.
5. Develop two checklist questions for each (made up) requirement.
6. Then share your questions with your group. Challenge and help each other.

60 minutes total



## Lunch



## Progress So Far

- Developed a general model for managing quality, environment, safety, and security
- Applied the Turtle Diagram to obtain a deep understanding of the QESS controls at the process level
- Developed customized checklist questions from the identified source documents

Integrated and process-focused!



## Go from Boring to Brilliant!

- You've done the data gathering by tracing, interviews, observations, and record reviews.
- You've recorded all the conforming and nonconforming data in your field notes.



## **Gather Data, for example:**

- Computer network was down for a total of 25 minutes during the month of July.
- Tellers backed up data for the seven shift changes examined.
- Hill Street branch experienced 3 cash machine paper receipt jams in June.
- Generic deposit slips were available at all teller stations.
- Vault lights are left on all night.
- Floors are wet-mopped only when customers are not present.

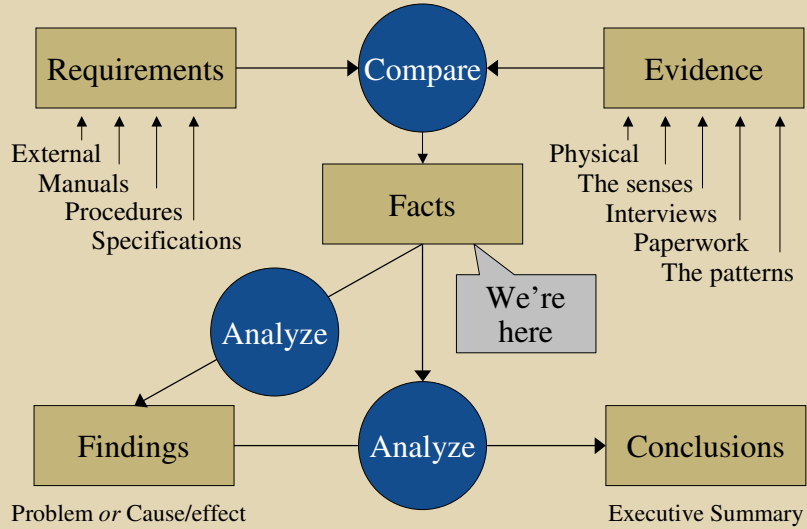


## **Gather Data, for example:**

- 6 of 48 overhead lamps were non-functional at the Charles Circle branch on Friday.
- All tellers are examined for math and communication skills prior to hire.
- Backup server was loaded with out-of-date data files on July 12.
- Cars using drive-in stations back up into the street.
- Bill sorting machine malfunctioned on July 3 and again on July 9.
- Paper and plastic recycle bins are in all branch lobbies.
- ATM software runs on Win2000 and has never been patched.



# General Model for Auditing



# Data Dump

## GOOD

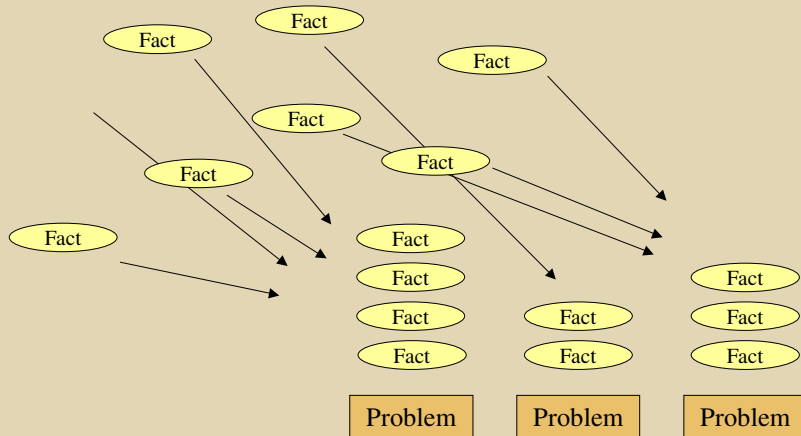
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## EVIL

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## Data Chunk



## Sorting Our Bank Data

### Equipment maintenance

- Network down
- Backup server data
- Bill sorting machine
- Overhead lamps
- Doors, locks, and keys
- Cash machine jams
- False security alarm
- Software updates

### Teller competencies

- Confusing debit and credit
- Cash drawer daily audit

### No pattern

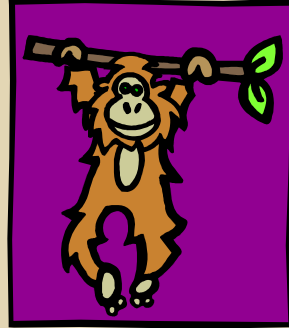
- Key-in entry mistake
- Coins falling out of rabbit
- Cars backed out in street



## This Becomes a *Finding*

Turn the piles upside down:

- Statement of the system control problem
  - Bad fact
  - Bad fact
  - Bad fact
  - Bad fact



## Finding

### **Equipment is not routinely kept in proper working condition.**

- Computer network was down for a total of 25 minutes during the month of July.
- Backup server was loaded with out of date data files on July 12.
- Hill Street branch experienced 3 cash machine paper receipt jams in June.
- Bill sorting machine malfunctioned on July 3 and again on July 9.
- Three branches experienced entry door lock jamming this year. One resulted in a key breaking.
- Oak Lawn branch experienced a false security alarm on July 20. Police responded.
- ATM software has never been patched.

This is called a *finding sheet*



## Workshop: Write a Finding

- New teams please.
- Transcribe all the bad (nonconforming) facts from the *Field Notes* handout to a clean data sheet.
- Sort your data sheet by problem area.



- Identify the most important problem.  
(Hint: It has nothing to do with training!)
- Write the finding on a new sheet of paper.
  - Important problem
  - Supporting objective evidence
- 30 minutes for this part.



## Break!



# Future of Everything

*Place holder for presentation*



## Break!



## **World Café**

1. *Thought Leader* presents an idea or challenge.
2. Small groups discuss a specific question. They draw pictures and slap down sticky-notes as they talk. Anchor person takes team notes.
3. Rotate! Anchor person remains and rest move.
4. Summarize and enrich at the (new) table.
5. Rotate and Repeat. This time capture the table summary and pictures on chart paper. Post on wall.
6. Walk the wall as individuals, absorbing ideas.
7. Summarize important points and *ah-ha* moments.



## **Workshop: World Café (new team)**

*How is AI currently used in an audit?*

*How will it be used in the next five years?*

Round 1: 10 minutes

Round 2: 10 minutes

Round 3: 10 minutes

Walk the Wall: 5 minutes

Summary: 10 minutes

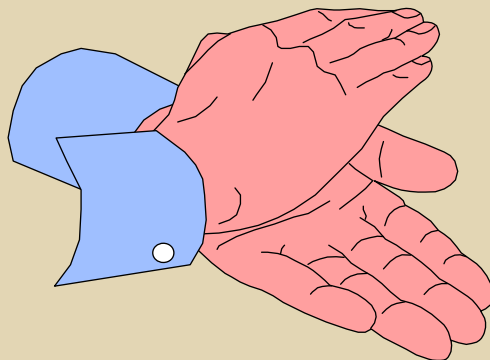


## Conclusion

- Quality, environment, safety, and security are basically the same and are moving towards risk management.
- We can use process-analyzing tools to audit management systems in an integrated fashion.
- We must present conclusions in a way that shows system strengths and weaknesses.
- The future is closer than we thought.



**Thank you for your kind attention!**



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