Process-based Auditing

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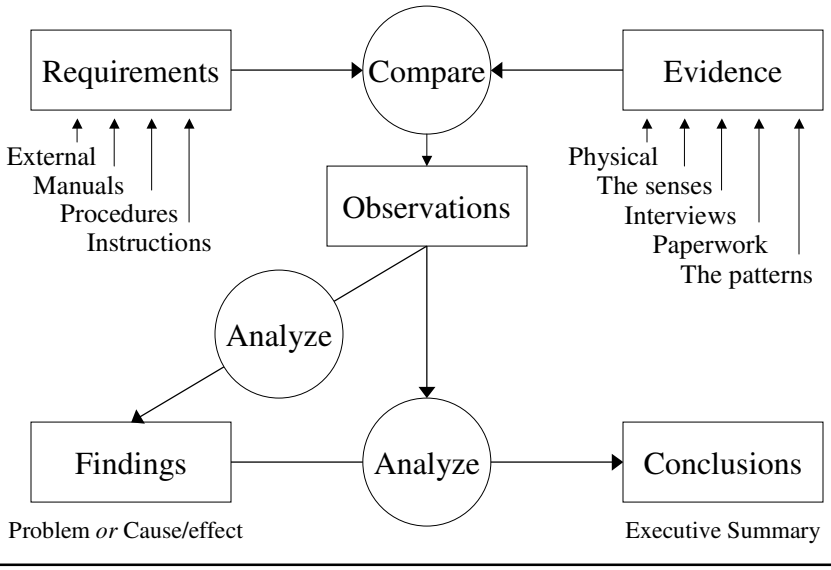
What is an Audit?



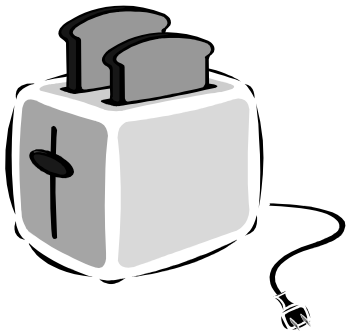
We will use a case study

- Small city bank (Security First Bank)
- Head Office and 3 Branches in suburbs
  - Customer Service Department (includes tellers)
  - Credit Department
  - Regulations and Compliance Department
  - IT Department
  - Business Development and Marketing Dept.

Step 1: What do they make?

ISO 9000:2000 defines “product”

1. Tangible manufactured goods (widgets, cars)



ISO 9000:2000 defines “product”

2. Tangible processed items (foods, chemicals)

ISO 9000:2000 defines “product”

3. Software (instructions to computers)

ISO 9000:2000 defines “product”

4. Service activities

These are the four kinds of product:

1. Tangible manufactured goods
2. Tangible processed items
3. Software instructions
4. Service activities

ISO 9000:2000 defines *product* as the result of a *process*!

What does a bank do?

- Manage money
  - Receive assets
  - Disburse assets
  - Provide statements
- Make loans
  - Personal loans
  - Automobile loans
  - Small business loans

Step 2: How do they make it?

Processes make everything!

A change occurs

3 kinds of business processes:

- Factory processes
  (also called *product realization* processes)
- Business support processes
  (also called *administrative* processes)
- External interface processes
  (also called *customer* and *supplier* processes)

Products are the result of processes

Product realization processes

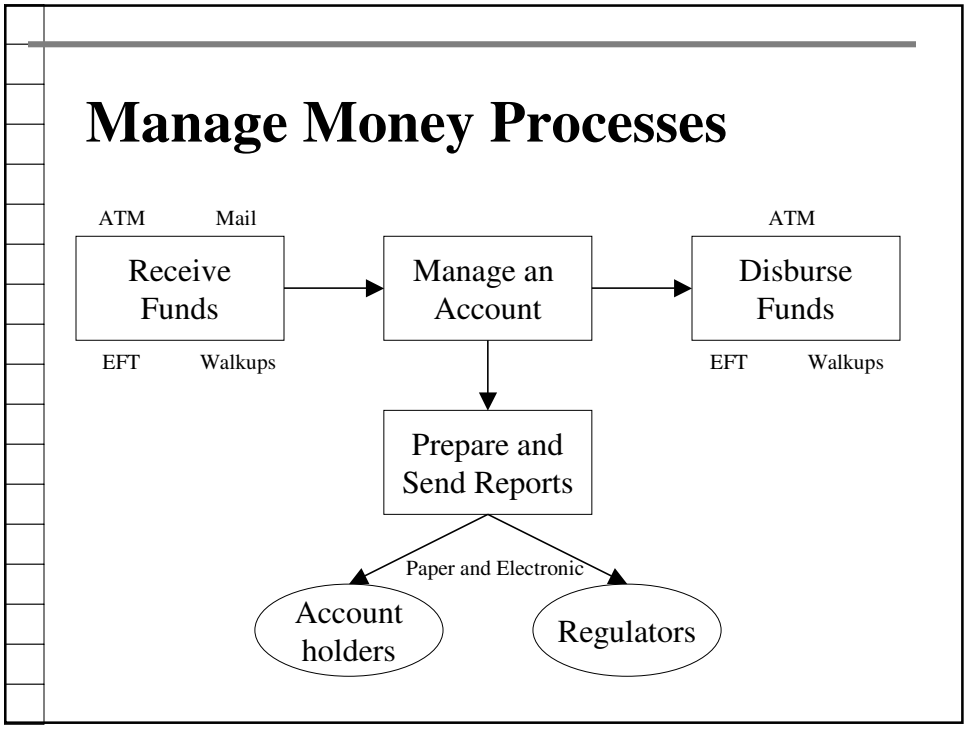
- Assembling
- Coating
- Cooking
- Deicing
- Fastening
- Growing
- Inspecting
- Moving
- Operating
- Quilting
- Riding
- Sequencing
- Serving
- Teaching
- Testing
- Washing

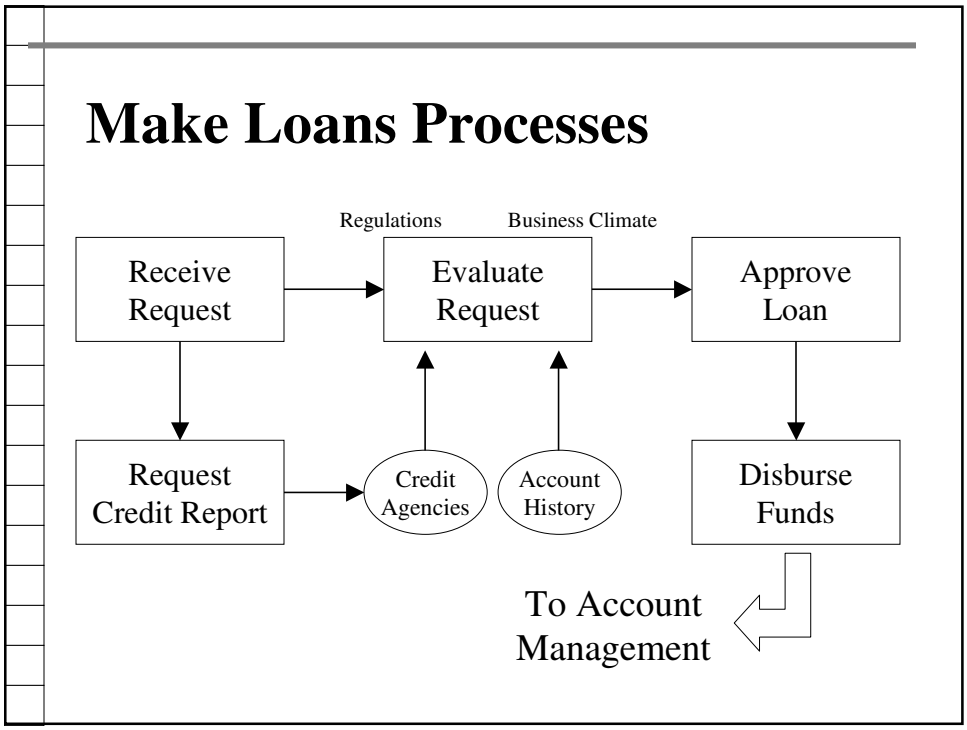
Business support processes

- They all support production
- Typical functional departments:
  - Maintenance
  - Quality, Environment, Safety, Security
  - Accounting, Information Technology
  - Purchasing, Human Resources, Training
  - Production Planning
  - Design, Development, Engineering

External interface processes

- Also called customer oriented processes (cops) and supplier oriented processes (sops)
- Typical departments:
  - Marketing
  - Sales
  - Customer support
  - Shipping
  - Design requirements
  - Purchasing

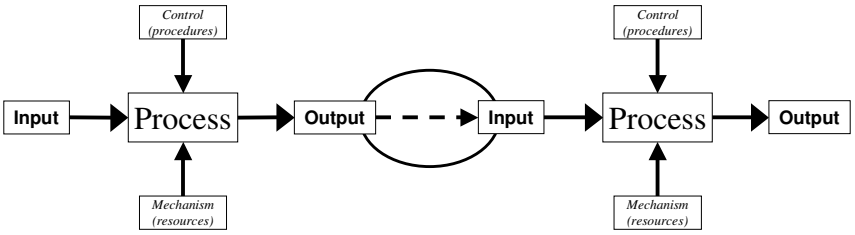

Manage Money Processes
ATM
Mail
Receive Funds
EFT
Walkups
Manage an Account
ATM
Disburse Funds
EFT
Walkups
Prepare and Send Reports
Paper and Electronic
Account holders
Regulators


Make Loans Processes
Regulations
Business Climate
Receive Request
Evaluate Request
Approve Loan
Request Credit Report
Credit Agencies
Account History
Disburse Funds
To Account Management

We're still doing a *system* audit!

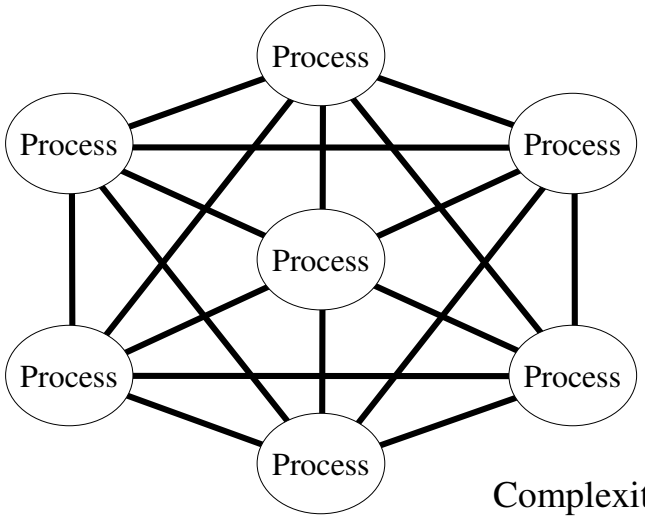
- System: Several processes, linked together, to achieve a common objective.
- Money management system = receiving funds + managing an account + disbursing funds + preparing reports + sorting financial data + interacting with customers + entering a PIN into an ATM + updating software + …
- *Process audit* examines **only one** process at a time.

Systems are linked processes



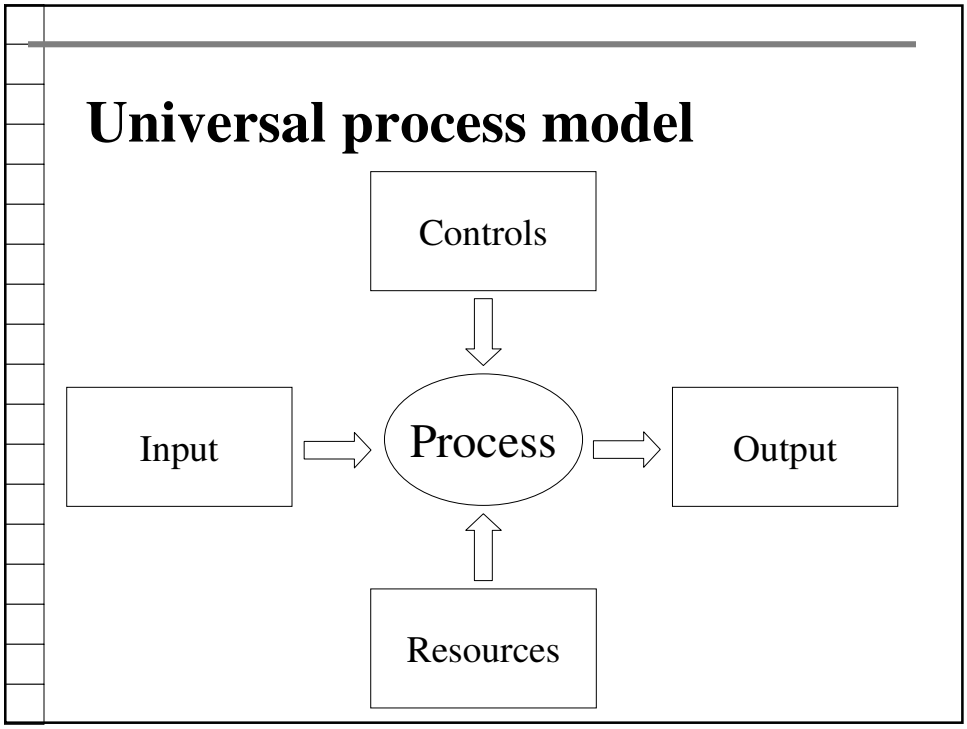
System: Processes working together to achieve a common goal.

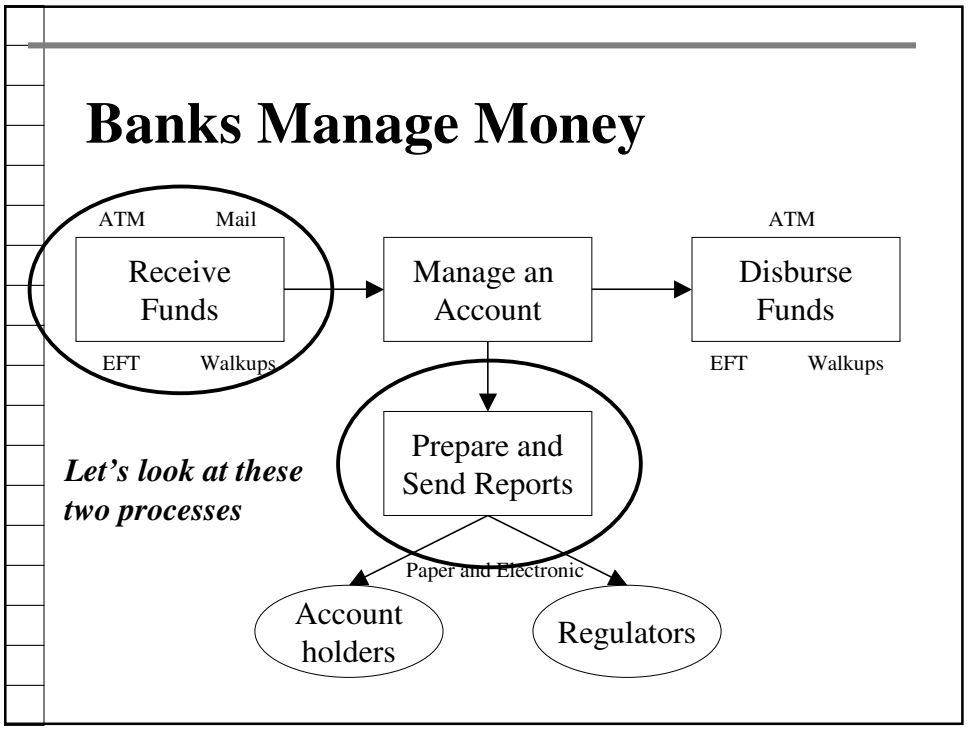
Systems are linked processes

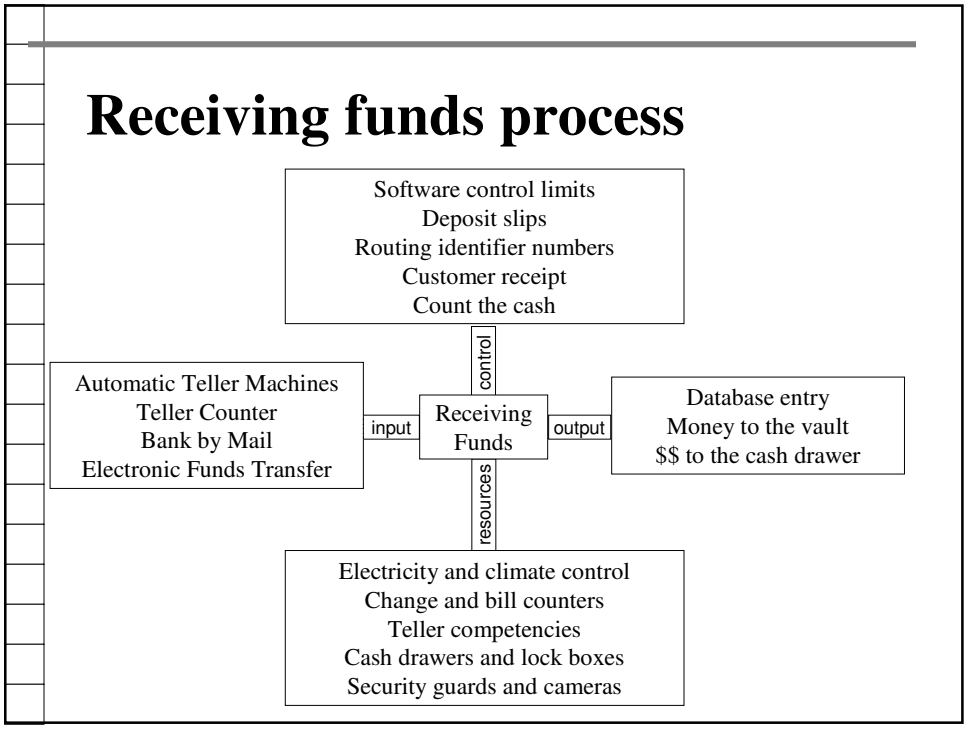


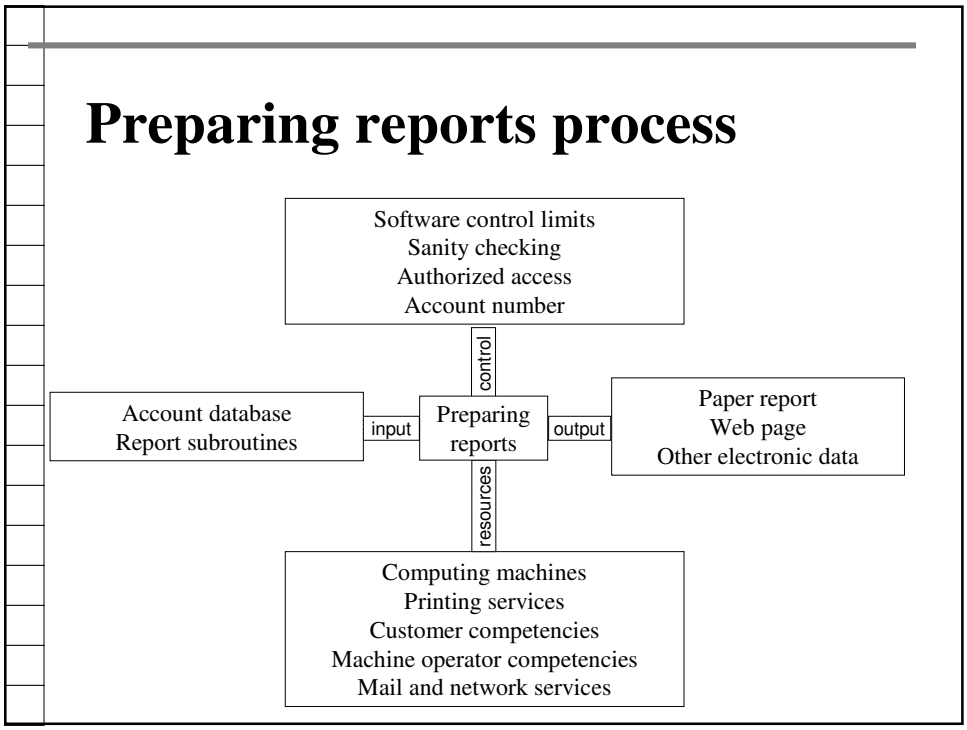
Complexity rules!

Step 3: Understand processes


Universal process model
Controls
Input
Process
Output
Resources


Banks Manage Money
ATM
Mail
Receive Funds
EFT
Walkups
Manage an Account
ATM
Disburse Funds
EFT
Walkups
Prepare and Send Reports
Let's look at these two processes
Paper and Electronic
Account holders
Regulators

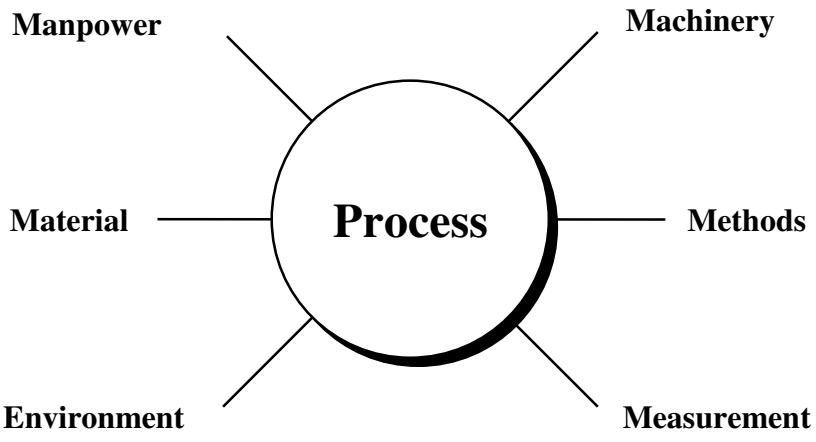

Receiving funds process
Software control limits
Deposit slips
Routing identifier numbers
Customer receipt
Count the cash
control
Automatic Teller Machines
Teller Counter
Bank by Mail
Electronic Funds Transfer
input
Receiving
Funds
output
Database entry
Money to the vault
$$ to the cash drawer
resources
Electricity and climate control
Change and bill counters
Teller competencies
Cash drawers and lock boxes
Security guards and cameras


Preparing reports process
Software control limits
Sanity checking
Authorized access
Account number
control
Account database
Report subroutines
input
Preparing
reports
output
Paper report
Web page
Other electronic data
resources
Computing machines
Printing services
Customer competencies
Machine operator competencies
Mail and network services

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.

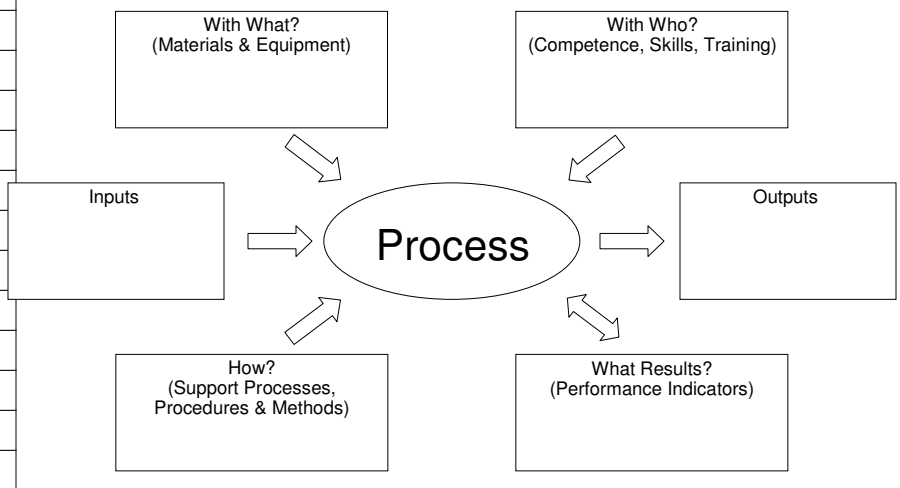
Receiving funds process

- Methods
  - SOP for tellers
- Material
  - Deposit slips
- Manpower
  - Ability to count
- Measurement
  - Count the cash
- Machinery
  - ATM maintenance
- Environment
  - Glare on terminal screen

Whoa! Now it's too much!

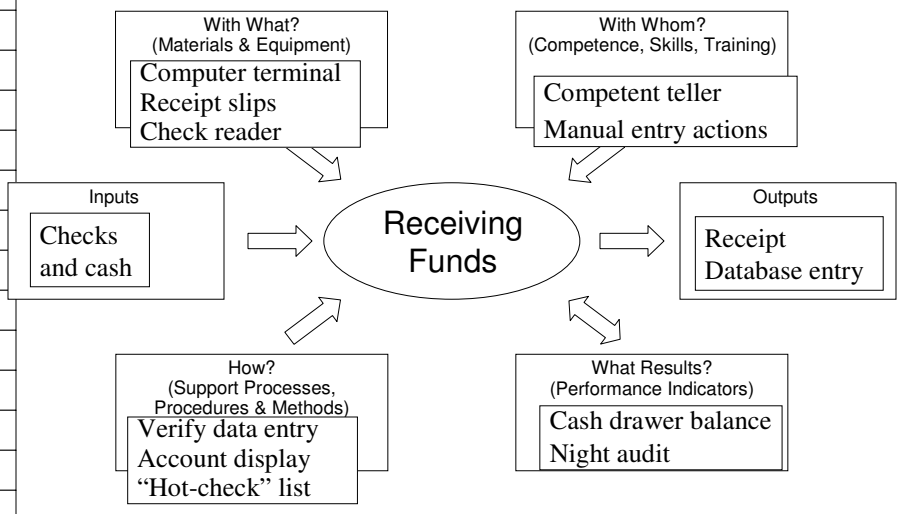
- How about something halfway?

Turtle diagram

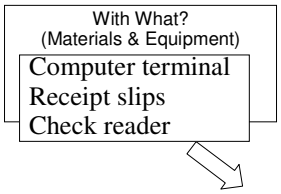


Source: AIAG 2003

Do the Turtle for our example

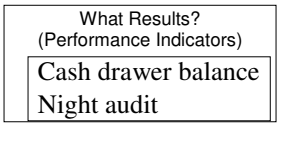


Step 4: Define information needs



- Is software release 20.56 in use? (Approved vendor release)
- Are passwords changed weekly? (Security Inst. 25)
- Are 250 receipt slips available at all times? (Customer Service Std. 12)
- Were the last 20 checks run through the verification machine? (Teller SOP 2)

Step 4: Define information needs



- Are cash drawer balance checks performed four times daily? (SOP 6)
- Are night audits performed after each business day? (Corp. Policy 17)
- Are system checks evaluated by supervisors? (Corp. Policy 18)
- Have quality performance goals been established and communicated to staff? (HR Method 034, part 6)

Checklist vs. Interview

- Checklists define the nuggets 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*.

Progress so far

- Step 1: Define the products
- Step 2: Define the processes by flowcharting
- Step 3: Study the processes through turtle diagrams
- Step 4: Define information needs (objective evidence)

Step 5: Gather objective evidence

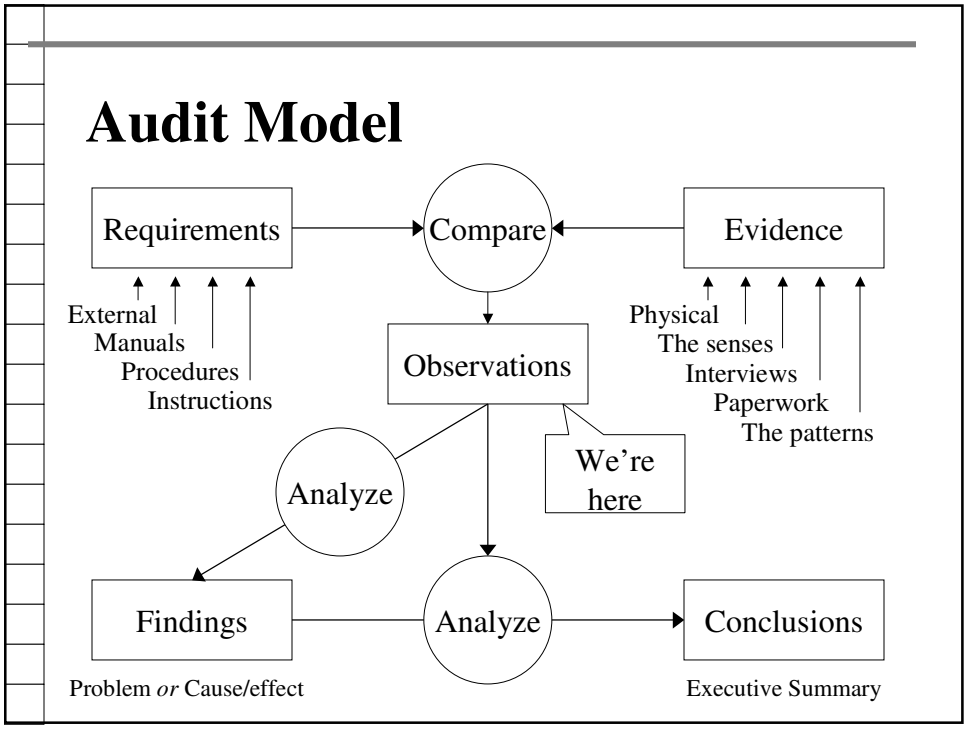
- This is the fieldwork and starts after the opening meeting.
- You need to walk the processes (*tracing*) and interview the people performing the tasks. (You go to them.)

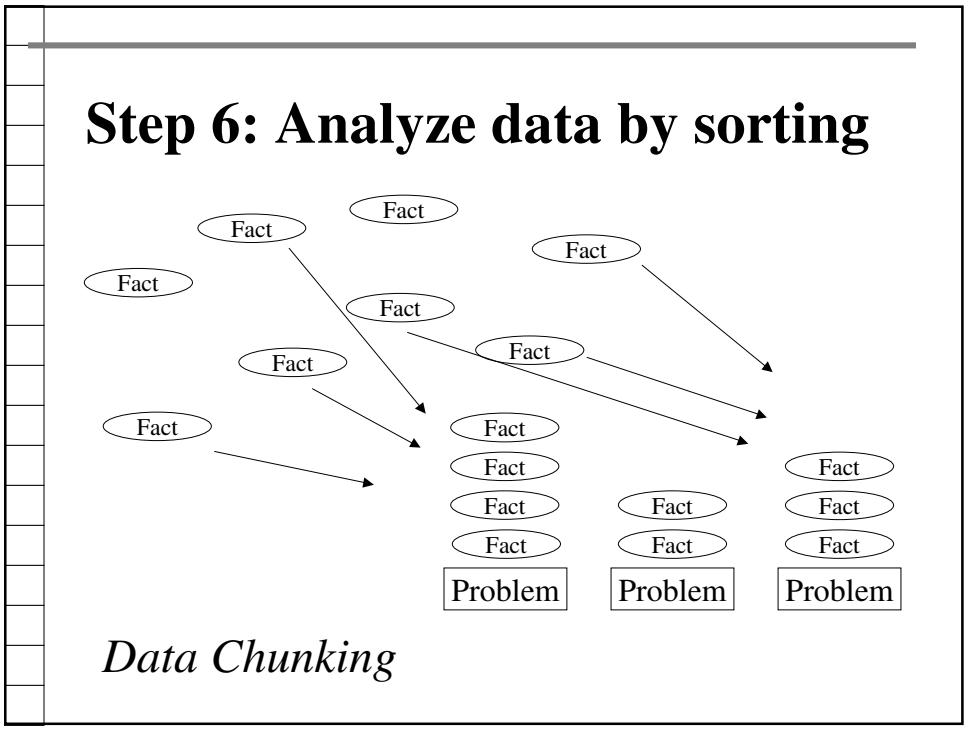
Gather data, for example:

- 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.

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.
- Bill sorting machine malfunctioned on July 3 and again on July 9.


Audit Model
Requirements
Compare
Evidence
External
Manuals
Procedures
Instructions
Observations
Physical
The senses
Interviews
Paperwork
The patterns
We're here
Analyze
Findings
Analyze
Conclusions
Problem *or* Cause/effect
Executive Summary


Step 6: Analyze data by sorting
Fact
Problem
Data Chunking

Sorting our bank data

Equipment maintenance

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

Teller competencies

- Confusing debit and credit
- Cash drawer daily audit

No pattern

- Key-in entry mistake
- Coins falling out of rabbit

This becomes a *Finding*

Turn the piles upside down:

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

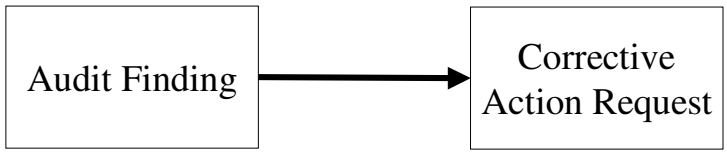
Step 7: Present conclusions

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.

This is called a *finding sheet*

What next?



Output of audit becomes input to corrective action!

- Finding requires *corrective action*
- Bullets require *remedial action*

The Process approach to audits

- Step 1: Define the products
- Step 2: Define the processes by flowcharting
- Step 3: Study the processes through turtle diagrams
- Step 4: Develop objective evidence needs
- Step 5: Gather objective evidence (fieldwork)
- Step 6: Analyze data to form finding sheets
- Step 7: Report your conclusions
- Step 8: Address problems through remedial and corrective actions

Conclusion

- We must first understand the (business) processes to be audited and how they relate to the objectives of the enterprise.
- We then gather field data on how those processes are being controlled.
- We present conclusions in a way that shows the way strengths and weaknesses affect the business.

Thank you for your kind attention!

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