PART 2:
UNOBSRTUSIVE METHOD

OBJECTIVES

- Recognize the value of unobtrusive methods for information gathering.
- Understand the concept of sampling for human information requirements analysis.
- Construct useful samples of people, documents, and events for determining human information requirements.
- Create an analyst's playscript to observe decision-maker activities.
- Apply the STROBE technique to observe and interpret the decision-maker's environment.

WHAT IS UNOBTRUSIVE METHOD?

- Less disruptive
- Insufficient when used alone
- Multiple methods approach
- Used in conjunction with interactive methods

Fact-finding – the process of collecting information about system problems, opportunities, solution requirements, and priorities

Requirements discovery – the process, used by systems analysts of identifying or extracting system problems and solution requirements from the user community

UNOBTRUSIVE METHOD

SAMPLING	• Types of Sampling
INVESTIGATION	• Quantitative • Qualitative
OBSERVATION	• STROBE

UNOBSTRUSIVE METHOD

SAMPLING

- Types of Sampling

SAMPLING

- A process to select population
- Two key decision: WHAT TO EXAMINE and WHICH PEOPLE TO CONSIDER

WHAT?

WHY?

- Contain cost
- Speed up data collection
- Reducing bias
- Reducing the time to collect data

1. Determine the data
2. Determine the population
3. Choose sampling types
   - Convenience
   - Purposive
   - Simple Random
   - Complex Random
4. Decide sample size

HOW?

SAMPLING – sample size decision

1. Determine type of errors (percentage), *p*
2. Determine acceptable interval estimate, *i*
3. Choose confidence level and look up the confidence coefficient (*z* value) in table
4. Calculate σ^2 the standard error of the proportion

$$\sigma_p = \frac{i}{z}$$

5. Determine sample size

$$n = \frac{p(1-p)}{\sigma_p^2} + 1$$

SAMPLING – sample size decision

EXAMPLE:

Suppose the Toys company, a large manufacturer company for producing toys ask you to determine an estimate size of toys that may have been broken during packaging process.

Assume that, the estimation of broken (error) toys is 5% with interval estimate will be 0.02 and confidence level is 95%.

SAMPLING – sample size decision

1. Determine type of errors (percentage), *p* – *5% or 0.05*
2. Determine acceptable interval estimate, *i* – *0.02*
3. Choose confidence level and look up the confidence coefficient (*z* value) in table – 95%
4. Or 0.95 and *z = 1.96 (lookup table)*
5. Calculate σ_p the standard error of the proportion

$$\sigma_p = \frac{0.02}{1.96} = 0.0102$$

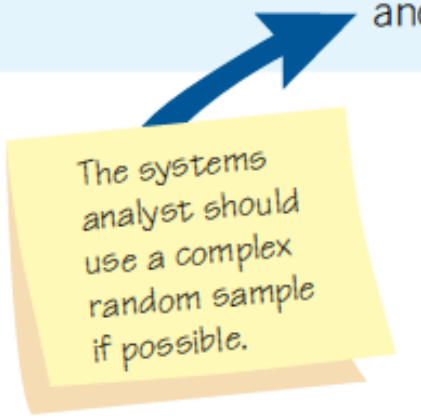
6. Determine sample size

$$n = \frac{p(1-p)}{\sigma_p^2} + 1 = \frac{0.05(1-0.05)}{(0.0102)(0.0102)} + 1 = 458$$

SAMPLING TYPES

Four Main Types of Samples the Analyst Has Available

	Not Based on Probability	Based on Probability
Sample elements are selected directly without restrictions	Convenience	Simple random
Sample elements are selected according to specific criteria	Purposive	Complex random (systematic, stratified, and cluster)



SAMPLING TYPES

SAMPLE TYPES

CONVENIENCE

- This sample is easy to arrange
- The most unreliable

SIMPLE RANDOM

- Need to obtain a numbered list of population to ensure that each document or people in the population has equal chance of being selected.
- However this is not practical for sampling document or reports.

PURPOSIVE

- A purposive sample is based on judgment
- Choose a group of individuals who appear knowledgeable and are interested in the new information system
- Only moderately reliable

COMPLEX RANDOM

The complex random samples that are most appropriate for a systems analyst are:

Systematic sampling
Stratified sampling
Cluster sampling

UNOBSTRUSIVE METHOD

INVESTIGATION

- Quantitative
- Qualitative

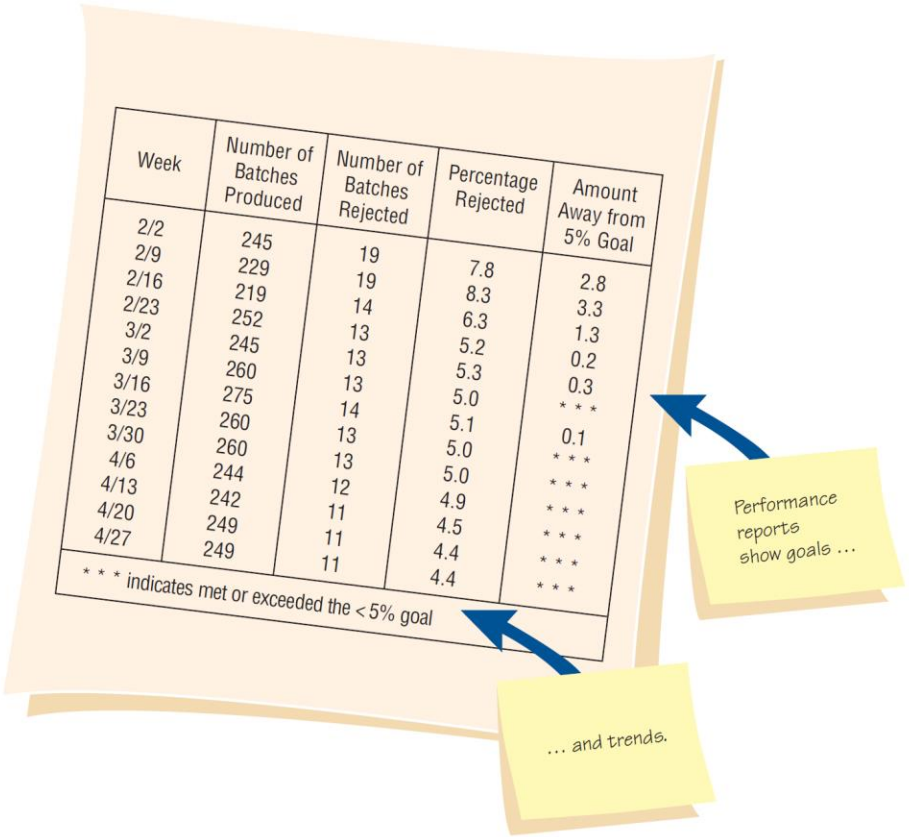
INVESTIGATION

- The act of discovery and analysis of data
- As IS analysts works to understand users, organizations and information requirements, it will become important to examine different type of hard data
- Hard data
  - Quantitative
  - Qualitative

QUANTITATIVE DOCUMENTS

- Analyzing quantitative documents (example):
  1. Reports used for decision making
  2. Performance reports
  3. Records
  4. Data capture forms
  5. Ecommerce and other transactions

QUANTITATIVE DOCUMENTS



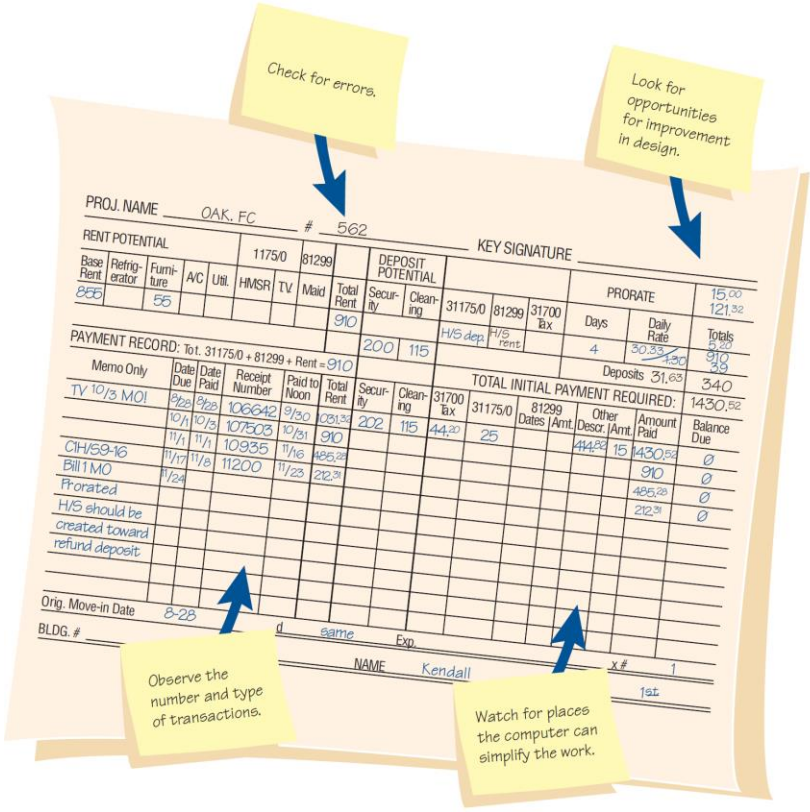
Week	Number of Batches Produced	Number of Batches Rejected	Percentage Rejected	Amount Away from 5% Goal
2/2	245	19	7.8	2.8
2/9	229	19	8.3	3.3
2/16	219	14	6.3	1.3
2/23	252	13	5.2	0.2
3/2	245	13	5.3	0.3
3/9	260	13	5.0	* * *
3/16	275	14	5.1	0.1
3/23	260	13	5.0	* * *
3/30	260	13	5.0	* * *
4/6	244	12	4.9	* * *
4/13	242	11	4.5	* * *
4/20	249	11	4.4	* * *
4/27	249	11	4.4	* * *

* * * indicates met or exceeded the < 5% goal

Performance reports show goals ...

... and trends.

A Performance Report Showing Improvement



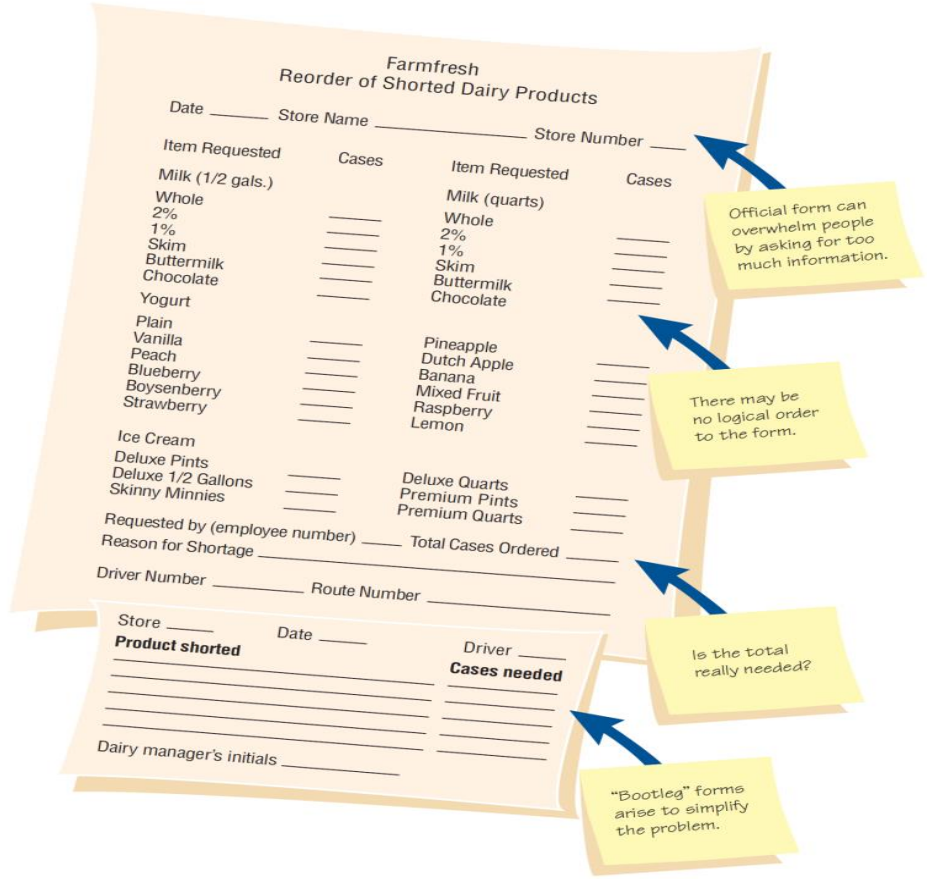
A Manually Completed Payment Record

QUANTITATIVE DOCUMENTS - Record

- Records provide periodic updates of what is occurring in the business
- There are several ways to inspect a record:
  - Checking for errors in amounts and totals
  - Looking for opportunities for improving the recording form design
  - Observing the number and type of transactions
  - Watching for instances in which the computer can simplify the work (calculations and other data manipulation)

QUANTITATIVE DOCUMENTS – Data Capture Form

- Collect examples of all the forms in use
- Note the type of form
- Document the intended distribution pattern
- Compare the intended distribution pattern with who actually receives the form



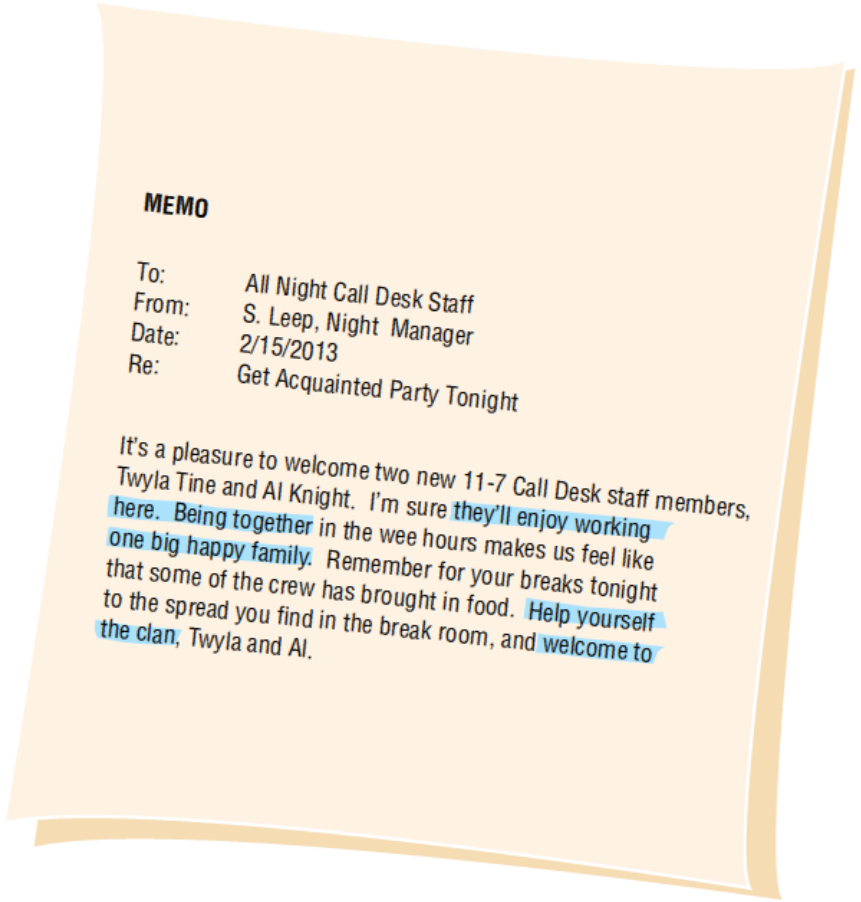
Questions to Ask about Official and Bootleg Forms that Are Already Filled out

QUANTITATIVE DOCUMENTS – Questions to ask?

- Is the form filled out in its entirety?
- Are there forms that are never used?
- Are all copies of forms circulated to the proper people or filed appropriately?
- Can people who must access online forms do so?
- If there is a paper form that is offered as an alternative to a Web-based form, compare the completion rates for both
- Are “unofficial” forms being used on a regular basis?

QUALITATIVE DOCUMENTS

- Key or guiding metaphors
- Insiders vs. outsiders mentality
- What is considered good vs. evil
- Graphics, logos, and icons in common areas or web pages
- A sense of humor
- Example:
  - Email messages and memos
  - Signs or posters on bulletin boards
  - Corporate websites
  - Manuals
  - Policy handbooks



MEMO

To: All Night Call Desk Staff
From: S. Leep, Night Manager
Date: 2/15/2013
Re: Get Acquainted Party Tonight

It's a pleasure to welcome two new 11-7 Call Desk staff members, Twyla Tine and Al Knight. I'm sure they'll enjoy working here. Being together in the wee hours makes us feel like one big happy family. Remember for your breaks tonight that some of the crew has brought in food. Help yourself to the spread you find in the break room, and welcome to the clan, Twyla and Al.

Analysis of Memos Provides Insight into the Metaphors that Guide the Organization's Thinking

UNOBSTRUSIVE METHOD

OBSERVATION	•STROBE

OBSERVATION

- Observation provides insight on what organizational members actually do
- See firsthand the relationships that exist between decision makers and other organizational members
- Can also reveal important clues regarding HCI concerns

OBSERVATION – Analyst's Playscript

- Involves observing the decision-makers behavior and recording their actions using a series of action verbs
- Examples:
  - Talking
  - Sampling
  - Corresponding
  - Deciding

Playscript Analysis Company: Solid Steel Shelving Scenario: Quality Assurance
Analyst: L. Bracket Date: 1/3/2013

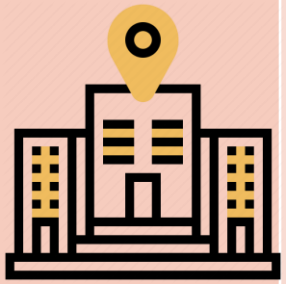
Decision Maker (Actor)	Information-Related Activity (Script)
Quality Assurance Manager	Asks shop floor supervisor for the day's production report
Shop Floor Supervisor	Prints out daily computerized production report
	Discusses recurring problems in production runs with quality assurance (QA) manager
Quality Assurance Manager	Reads production report
	Compares current report with other reports from the same week
	Inputs data from daily production run into QA model on computer
	Observes onscreen results of QA model
	Calls steel suppliers to discuss deviations from quality standards
Shop Floor Supervisor	Attends meeting on new quality specifications with quality assurance manager and vice president of production
Quality Assurance Manager	Drafts letter to inform suppliers on new quality specifications agreed on in meeting
	Sends draft to vice president via email
Vice President of Production	Reads drafted letter
	Returns corrections and comments via email
Quality Assurance Manager	Reads corrected letter on email
	Rewrites letter to reflect changes

Sample of Analyst's Playscript

OBSERVATION – STROBE

- **STR**uctured **OB**servation of the **E**nvironment—a technique for observing the decision-maker's physical environment
- Often it is possible to observe the particulars of the surroundings that will confirm or negate the organizational narrative
  - Also called stories or dialogue
  - Information that is found through interviews or questionnaires

STROBE ELEMENTS – what to observe?



OFFICE LOCATION

- Who has the corner office?
- Are the key decision makers dispersed over separate floors?

DESK PLACEMENT

- Does the placement of the desk encourage communication?
- Does the placement demonstrate power?

STATIONARY EQUIPMENT

- Does the decision maker prefer to gather and store information personally?
- Is the storage area large or small?

PROPS

- Is there evidence that the decision maker uses a PC, smart phone, or tablet computer in the office?

EXTERNAL INFORMATION SOURCES

- Does the decision maker get much information from external sources such as trade journals or the Web?

OFFICE LIGHTING AND COLOR

- Is the lighting set up to do detailed work or more appropriate for casual communication?
- Are the colors warm and inviting?

CLOTHING WORN BY DECISION MAKERS

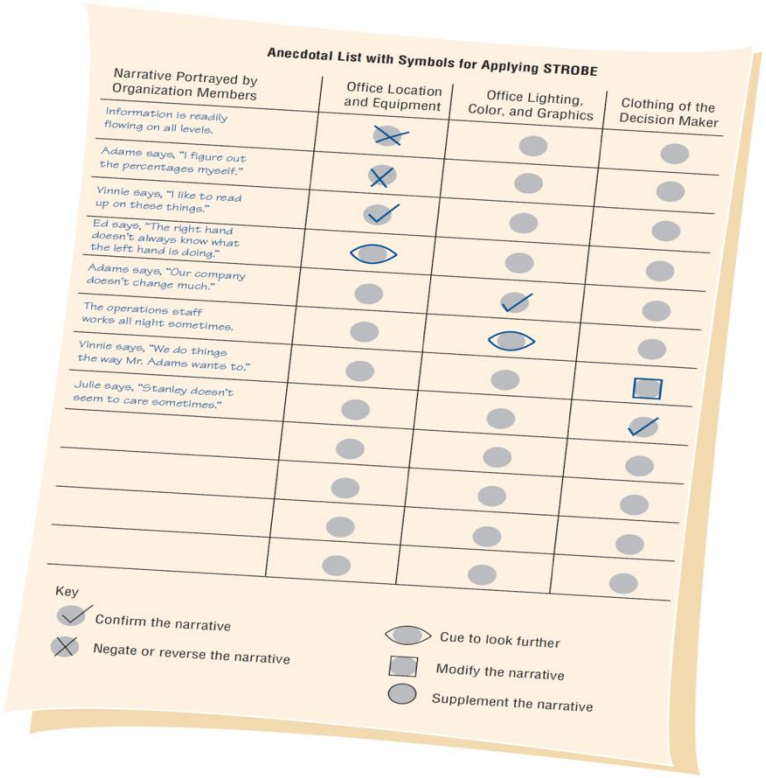
- Does the decision maker show authority by wearing conservative suits?
- Are employees required to wear uniforms?

STROBE & DECISION-MAKER CHARACTERISTICS

Characteristics of Decision Makers	Corresponding Elements in the Physical Environment
Gathers information informally	Warm, incandescent lighting and colors
Seeks extraorganizational information	Trade journals present in office
Processes data personally	PCs, or tablet computers present in office
Stores information personally	Equipment/files present in office
Exercises power in decision making	Desk placed for power
Exhibits credibility in decision making	Wears authoritative clothing
Shares information with others	Office easily accessible

APPLYING STROBE

- The five symbols used to evaluate how observation of the elements of STROBE compared with interview results are:
  - A checkmark means the narrative is confirmed
  - An “X” means the narrative is reversed
  - An oval or eye-shaped symbol serves as a cue to look further
  - A square means observation modifies the narrative
  - A circle means narrative is supplemented by observation



An Anecdotal List with Symbols

CONCLUSION

Aspect	Interactive Methods (PART 1)	Obstructive Methods (PART 2)
How It Works	Facilitates two-way communication where users provide feedback and insights.	Relies on pre-existing data, system records, or indirect methods to gather information.
When to Use	- When detailed, qualitative insights are needed. - When user input is crucial for system requirements. - When validating initial findings from passive sources.	- When historical or factual data is needed. - When direct interaction is difficult (e.g., lack of access to stakeholders). - When minimizing respondent bias is important.
Advantages	- Rich and detailed data. - Allows clarification and probing questions. - Helps understand user needs directly.	- Less intrusive for users. - More objective (not influenced by respondent's opinions). - Cost-effective for large-scale analysis.
Disadvantages	- Time-consuming. - Can be biased due to interviewer influence. - Requires effort to arrange and conduct sessions.	- May lack depth in user perspectives. - Data may be outdated or incomplete. - Difficult to interpret without additional context.

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

univteknologimalaysia utm_my utmofficial

Thank You

update: August 2019 (sharinhh)

www.utm.my

innovative • entrepreneurial • global