Seven Fact-Finding Methods

- Sampling of existing documentation, forms, and databases.
- Research and site visits.
- Observation of the work environment.
- Questionnaires.
- Interviews.
- Prototyping.
- Joint requirements planning (JRP).

Documenting and Analyzing Requirements

A requirements definition document should consist of the following.

- The functions and services the system should provide.
- Nonfunctional requirements including the system's features, characteristics, and attributes.
- The constraints that restrict the development of the system or under which the system must operate.
- Information about other systems the system must interface with.

Sample Requirements Definition Outline

Requirements Definition Report

1. Introduction
- **1.1 Purpose**
- **1.2 Background**
- **1.3 Scope**
- **1.4 Definitions, Acronyms, and Abbreviations**
- **1.5 References**

2. General Project Description
- **2.1 System Objectives**

3. Requirements and Constraints
- **3.1 Functional Requirements**
- **3.2 Nonfunctional Requirements**

4. Conclusion
- **4.1 Outstanding Issues**

Appendix (optional)

Sampling

- Sampling is the process of collecting a representative sample of documents, forms, and records.
  - Determining the sample size:
    - Sample Size = 0.25 x (Certainty factor/Acceptable error)2
  - For a 90% certainty:
    - Sample Size = 0.25(1.645/0.10)2 = 68

Sampling Techniques

Randomization is a sampling technique characterized as having no predetermined pattern or plan for selecting sample data.

Stratification is a systematic sampling technique that attempts to reduce the variance of the estimates by spreading out the sampling—for example, choosing documents or records by formula—and by avoiding very high or low estimates.

Observation

Observation is a fact-finding technique wherein the systems analyst either participates in or watches a person perform activities to learn about the system.

Advantages?

Disadvantages?

Work sampling is a fact-finding technique that involves a large number of observations taken at random intervals.

Observation Guidelines

- Determine the who, what, where, when, why, and how of the observation.
- Obtain permission from appropriate supervisors or managers.
- Inform those who will be observed of the purpose of the observation.
- Keep a low profile.
- Take notes during or immediately following the observation.
- Review observation notes with appropriate individuals.
- Don't interrupt the individuals at work.
- Don't focus heavily on trivial activities.
- Don't make assumptions.

Questionnaires

Questionnaires are special-purpose documents that allow the analyst to collect information and opinions from respondents.

- Advantages?
- Disadvantages?

Types of Questionnaires

Free-format questionnaires offer the respondent greater latitude in the answer. A question is asked, and the respondent records the answer in the space provided after the question.

Fixed-format questionnaires contain questions that require selection of predefined responses from individuals.

Types of Fixed-Format Questions

- Multiple-choice questions
- Rating questions
- Ranking questions

Questionnaire Procedure

1. Determine what facts and opinions must be collected and from whom you should get them.
2. Based on the needed facts and opinions, determine whether free- or fixed-format questions will produce the best answers.
3. Write the questions.
4. Test the questions on a small sample of respondents.
5. Duplicate and distribute the questionnaire.

Interviews

Interviews are a fact-finding technique whereby the systems analysts collect information from individuals through face-to-face interaction.

- Advantages?
- Disadvantages?

Types of Interviews

Unstructured interviews are conducted with only a general goal or subject in mind and with few, if any, specific questions. The interviewer counts on the interviewee to provide a framework and direct the conversation.

In structured interviews the interviewer has a specific set of questions to ask of the interviewee.

Types of Interview Questions

Open-ended questions allow the interviewee to respond in any way that seems appropriate.

Closed-ended questions restrict answers to either specific choices or short, direct responses.

Procedure to Conduct an Interview

1. Select Interviewees
2. Prepare for the Interview
    1. An interview guide is a checklist of specific questions the interviewer will ask the interviewee.
3. Conduct the Interview
4. Follow Up on the Interview

Interview Questions

- Types of Questions to Avoid
  - Loaded questions
  - Leading questions
  - Biased questions
- Interview Question Guidelines
  - Use clear and concise language.
  - Don’t include your opinion as part of the question.
  - Avoid long or complex questions.
  - Avoid threatening questions.
  - Don’t use “you” when you mean a group of people.

Sample Interview Guide

Interviewee: Jeff Bentley, Accounts Receivable Manager Date: Tuesday, March, 23, 2000 Time: 1:30 P.M. Place: Room 223, Admin. Bldg. Subject: Current Credit-Checking Policy		
Time Allocated	Interviewer Question of Objective	Interviewee Response
1 to 2 min.	Objective Open the interview: • Introduce Ourselves • Thank Mr. Bentley for his valuable time • State the purpose of the interview--to obtain an understanding of the existing credit-checking policies	
5 min.	Question 1 What conditions determine whether a customer's order is approvedfor credit? Follow-up	
5 min.	Question 2 What are the possible decisions or actions that might be taken once these conditions have been evaluated? Follow-up	
3 min.	Question 3 How are customers notified when credit is not approved for their order? Follow-up	

(continued)

Sample Interview Guide (concluded)

1 min.	Question 4 After a new order is approved for credit and placed in the file containing orders that can be filled, a customer might request that a modification be made to the order. Would the order have to go through credit approval again if the new total order cost exceeds the original cost? Follow-up	
1 min.	Question 5 Who are the individuals that perform the credit checks? Follow-up	
1 to 3 mins.	Question 6 May I have permission to talk to those individuals to learn specifically how they carry out the credit-checking process? Follow-up	
1 min.	Objective Conclude the interview: • Thank Mr. Bentley for his cooperation and assure him that he will be receiving a copy of what transpired during the interview	
21 minutes	Time allotted for base questions and objectives.	
9 minutes	Time allotted for follow-up questions and redirection	
30 minutes	Total time allotted for interview (1:30 p.m. to 2:00 p.m.)	

General Comments and Notes:

Interviewing Do's and Don'ts

Do	**Avoid**
• Be courteous • Listen carefully • Maintain control • Probe • Observe mannerisms and nonverbal communication • Be patient • Keep interviewee at ease • Maintain self-control	• Continuing an interview unnecessarily. • Assuming an answer is finished or leading nowhere. • Revealing verbal and nonverbal clues. • Using jargon • Revealing your personal biases. • Talking instead of listening. • Assuming anything about the topic and the interviewee. • Tape recording -- a sign of poor listening skills.

Body Language and Proxemics

Body language is all of the nonverbal information being communicated by an individual. Body language is a form of nonverbal communications that we all use and are usually unaware of.

Proxemics is the relationship between people and the space around them. Proxemics is a factor in communications that can be controlled by the knowledgeable analyst.

Spatial Zones

- Intimate zone—closer than 1.5 feet
- Personal zone—from 1.5 feet to 4 feet
- Social zone—from 4 feet to 12 feet
- Public zone—beyond 12 feet

Discovery Prototyping

Discovery prototyping is the act of building a small-scale, representative or working model of the users' requirements in order to discover or verify those requirements.

– Advantages?

– Disadvantages?

Joint Requirements Planning

Joint requirements planning (JRP) is a process whereby highly structured group meetings are conducted for the purpose of analyzing problems and defining requirements. JRP is a subset of a more comprehensive joint application development or JAD technique that encompasses the entire systems development process.

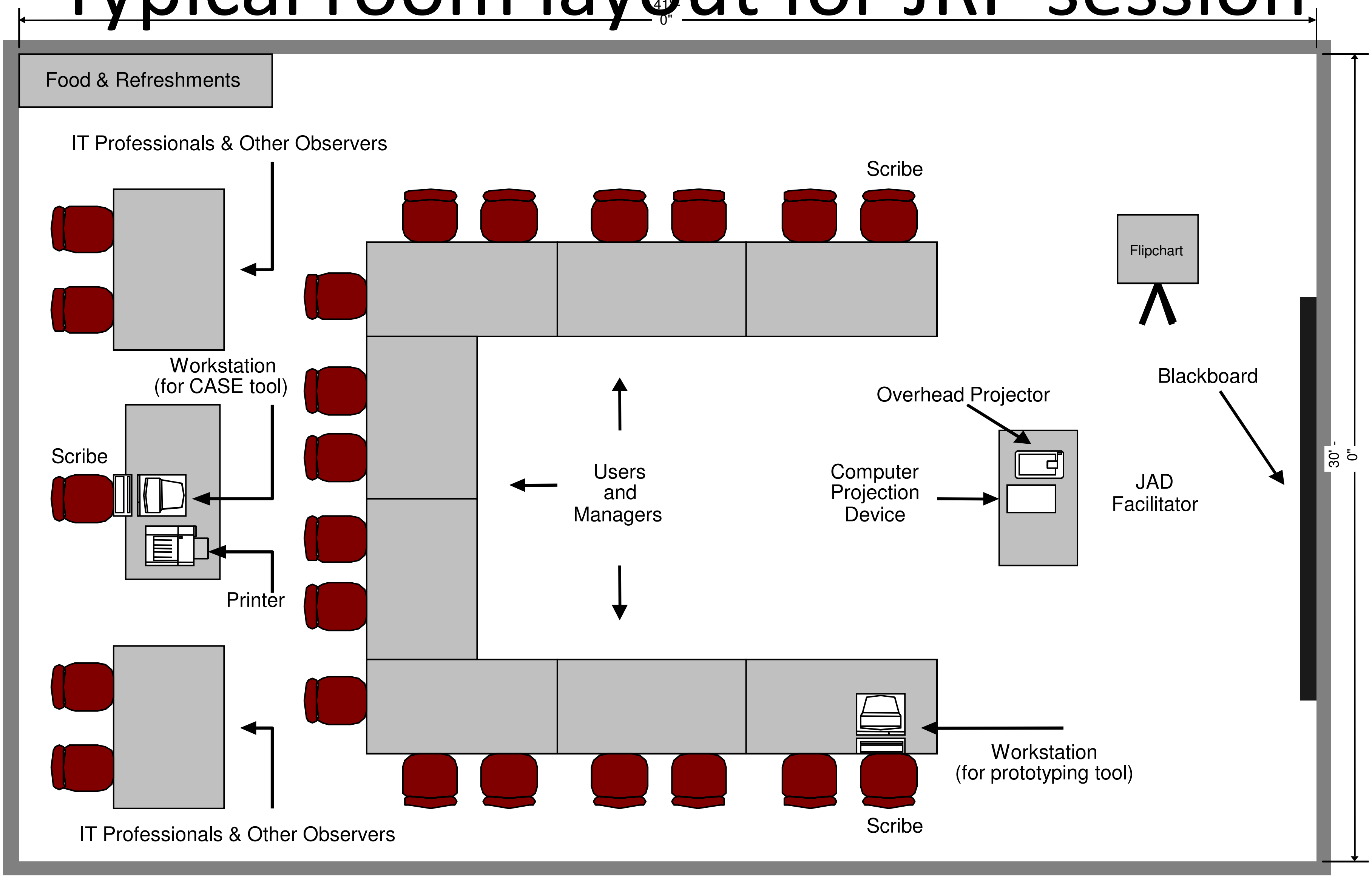
JRP Participants

- Sponsor
- Facilitator
- Users and Managers
- Scribes
- I.T. Staff

Steps to Plan a JRP Session

1. Selecting a location
2. Selecting the participants
3. Preparing the agenda

Typical room layout for JRP session



Guidelines for Conducting a JRP Session

- Do not unreasonably deviate from the agenda
- Stay on schedule
- Ensure that the scribe is able to take notes
- Avoid the use of technical jargon
- Apply conflict resolution skills
- Allow for ample breaks
- Encourage group consensus
- Encourage user and management participation without allowing individuals to dominate the session
- Make sure that attendees abide by the established ground rules for the session

Brainstorming

Brainstorming is a technique for generating ideas during group meetings. Participants are encouraged to generate as many ideas as possible in a short period of time without any analysis until all the ideas have been exhausted.

Benefits of JRP

- JRP actively involves users and management in the development project (encouraging them to take “ownership” in the project)
- JRP reduces the amount of time required to develop systems
- When JRP incorporates prototyping as a means for confirming requirements and obtaining design approvals, the benefits of prototyping are realized