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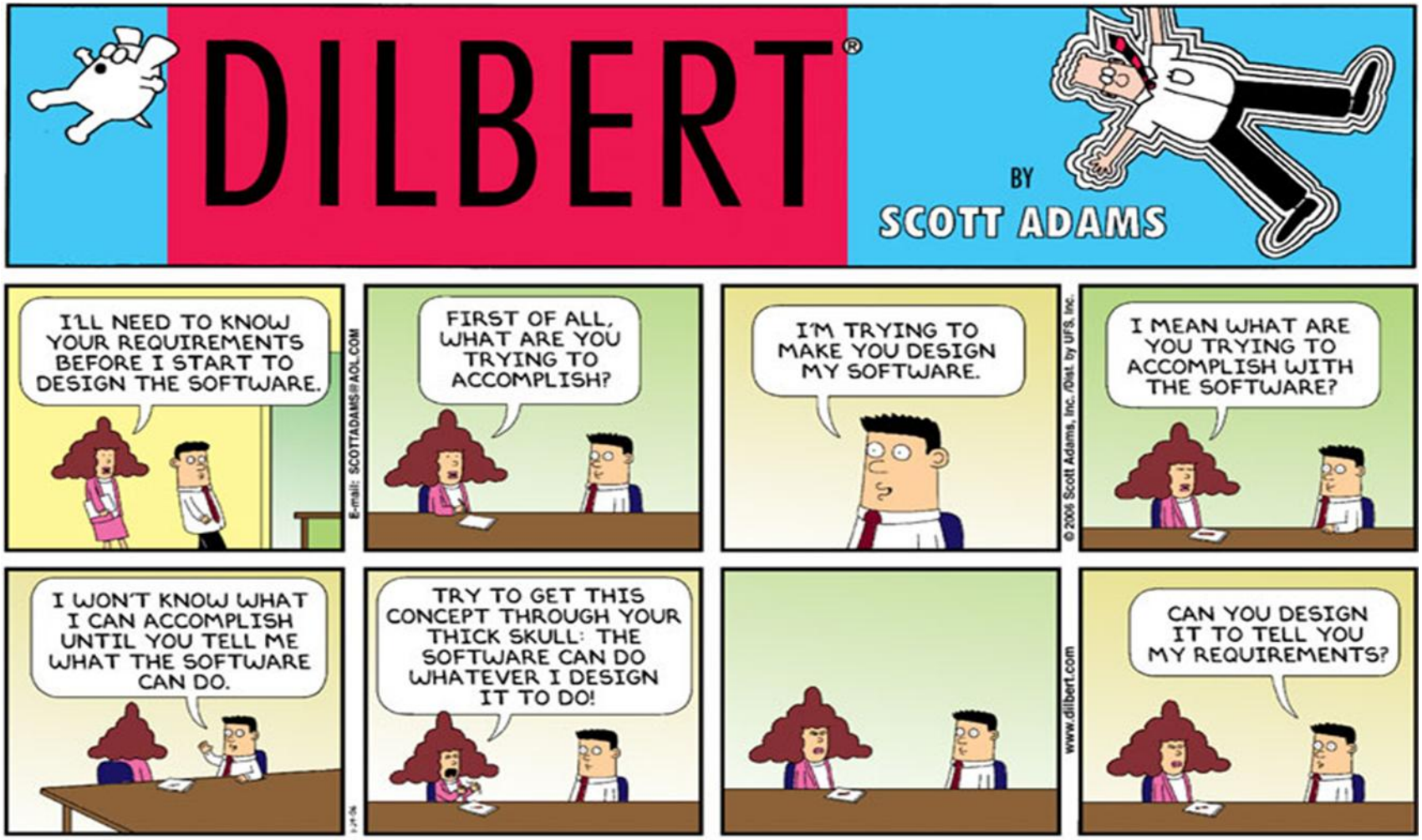


Nội dung

1. Tổng quan về yêu cầu hệ thống
2. Các kỹ thuật thu thập yêu cầu của hệ thống

TỔNG QUAN VỀ YÊU CẦU HỆ THỐNG

What is a requirement?

- It may range from a high-level abstract statement of a service or of a system constraint to a detailed mathematical functional specification.
- This is inevitable as requirements may serve a dual function
  - May be the basis for a bid for a contract - therefore must be open to interpretation;
  - May be the basis for the contract itself - therefore must be defined in detail;
  - Both these statements may be called requirements.

Requirements abstraction (Davis)

"If a company wishes to let a contract for a large software development project, it must define its needs in a sufficiently abstract way that a solution is not pre-defined. The requirements must be written so that several contractors can bid for the contract, offering, perhaps, different ways of meeting the client organisation's needs. Once a contract has been awarded, the contractor must write a system definition for the client in more detail so that the client understands and can validate what the software will do. Both of these documents may be called the *requirements document* for the system."

Types of requirement

- User requirements
  - Statements in natural language plus diagrams of the services the system provides and its operational constraints. Written for customers.
- System requirements
  - A structured document setting out detailed descriptions of the system's functions, services and operational constraints. Defines what should be implemented so may be part of a contract between client and contractor.

Definitions and specifications

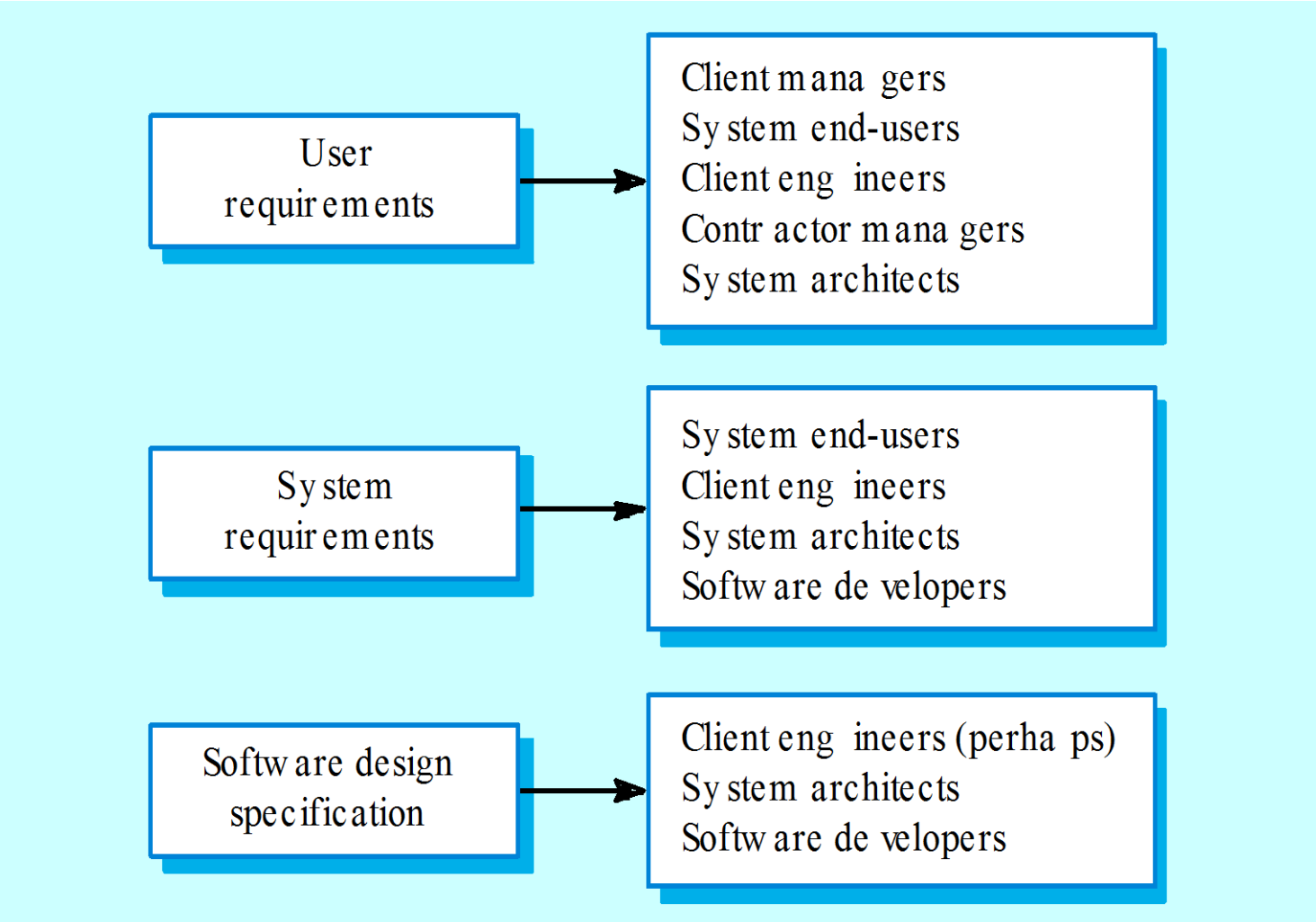
User requirement definition

1. The software must provide a means of representing and accessing external files created by other tools.

System requirements specification

1.1 The user should be provided with facilities to define the type of external files.
1.2 Each external file type may have an associated tool which may be applied to the file.
1.3 Each external file type may be represented as a specific icon on the user's display.
1.4 Facilities should be provided for the icon representing an external file type to be defined by the user.
1.5 When a user selects an icon representing an external file, the effect of that selection is to apply the tool associated with the type of the external file to the file represented by the selected icon.

Requirements readers



Functional and non-functional requirements

- Functional requirements
  - Statements of services the system should provide, how the system should react to particular inputs and how the system should behave in particular situations.
- Non-functional requirements
  - constraints on the services or functions offered by the system such as timing constraints, constraints on the development process, standards, etc.
- Domain requirements
  - Requirements that come from the application domain of the system and that reflect characteristics of that domain.

Functional requirements

- Describe functionality or system services.
- Depend on the type of software, expected users and the type of system where the software is used.
- Functional user requirements may be high-level statements of what the system should do but functional system requirements should describe the system services in detail.

Examples of functional requirements

- The user shall be able to search either all of the initial set of databases or select a subset from it.
- The system shall provide appropriate viewers for the user to read documents in the document store.
- Every order shall be allocated a unique identifier (ORDER_ID) which the user shall be able to copy to the account's permanent storage area.

Requirements imprecision

- Problems arise when requirements are not precisely stated.
- Ambiguous requirements may be interpreted in different ways by developers and users.
- Consider the term ‘appropriate viewers’
  - User intention - special purpose viewer for each different document type;
  - Developer interpretation - Provide a text viewer that shows the contents of the document.

Requirements completeness and consistency

- In principle, requirements should be both complete and consistent.
- Complete
  - They should include descriptions of all facilities required.
- Consistent
  - There should be no conflicts or contradictions in the descriptions of the system facilities.
- In practice, it is impossible to produce a complete and consistent requirements document.

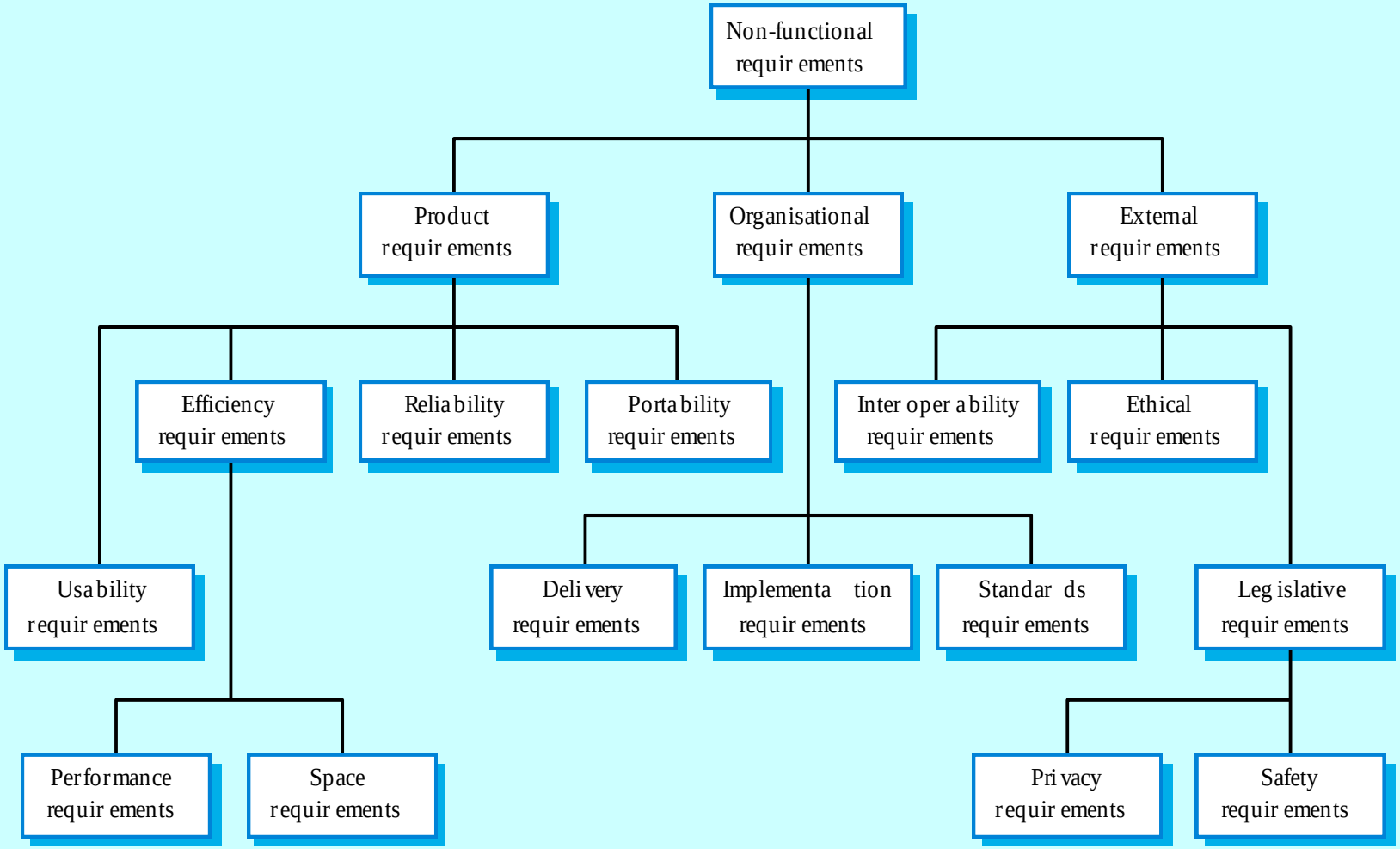
Non-functional requirements

- These define system properties and constraints e.g. reliability, response time and storage requirements. Constraints are I/O device capability, system representations, etc.
- Process requirements may also be specified mandating a particular CASE system, programming language or development method.
- Non-functional requirements may be more critical than functional requirements. If these are not met, the system is useless.

Non-functional classifications

- Product requirements
  - Requirements which specify that the delivered product must behave in a particular way e.g. execution speed, reliability, etc.
- Organisational requirements
  - Requirements which are a consequence of organisational policies and procedures e.g. process standards used, implementation requirements, etc.
- External requirements
  - Requirements which arise from factors which are external to the system and its development process e.g. interoperability requirements, legislative requirements, etc.

Non-functional requirement types



Non-functional requirements examples

- Product requirement

  8.1 The user interface for LIBSYS shall be implemented as simple HTML without frames or Java applets.

- Organisational requirement

  9.3.2 The system development process and deliverable documents shall conform to the process and deliverables defined in XYZCo-SP-STAN-95.

- External requirement

  7.6.5 The system shall not disclose any personal information about customers apart from their name and reference number to the operators of the system.

Goals and requirements

- Non-functional requirements may be very difficult to state precisely and imprecise requirements may be difficult to verify.
- Goal
  - A general intention of the user such as ease of use.
- Verifiable non-functional requirement
  - A statement using some measure that can be objectively tested.
- Goals are helpful to developers as they convey the intentions of the system users.

Goals and requirements

- **A system goal**
  - The system should be easy to use by experienced controllers and should be organised in such a way that user errors are minimised.
- **A verifiable non-functional requirement**
  - Experienced controllers shall be able to use all the system functions after a total of two hours training. After this training, the average number of errors made by experienced users shall not exceed two per day.

Requirements measures

Property	Measure
Speed	Processed transactions/second User/Event response time Screen refresh time
Size	M Bytes Number of ROM chips
Ease of use	Training time Number of help frames
Reliability	Mean time to failure Probability of unavailability Rate of failure occurrence Availability
Robustness	Time to restart after failure Percentage of events causing failure Probability of data corruption on failure
Portability	Percentage of target dependent statements Number of target systems

IEEE requirements standard

- Defines a generic structure for a requirements document that must be instantiated for each specific system.
  - Introduction.
  - General description.
  - Specific requirements.
  - Appendices.
  - Index.

Requirements document structure

- Preface
- Introduction
- Glossary
- User requirements definition
- System architecture
- System requirements specification
- System models
- System evolution
- Appendices
- Index

Figure 6.17
The structure of a requirements document

Chapter	Description
Preface	This should define the expected readership of the document and describe its version history, including a rationale for the creation of a new version and a summary of the changes made in each version.
Introduction	This should describe the need for the system. It should briefly describe its functions and explain how it will work with other systems. It should describe how the system fits into the overall business or strategic objectives of the organisation commissioning the software.
Glossary	This should define the technical terms used in the document. You should not make assumptions about the experience or expertise of the reader.
User requirements definition	The services provided for the user and the non-functional system requirements should be described in this section. This description may use natural language, diagrams or other notations that are understandable by customers. Product and process standards which must be followed should be specified.
System architecture	This chapter should present a high-level overview of the anticipated system architecture showing the distribution of functions across system modules. Architectural components that are reused should be highlighted.

System requirements specification	This should describe the functional and non-functional requirements in more detail. If necessary, further detail may also be added to the non-functional requirements, e.g. interfaces to other systems may be defined.
System models	This should set out one or more system models showing the relationships between the system components and the system and its environment. These might be object models, data-flow models and semantic data models.
System evolution	This should describe the fundamental assumptions on which the system is based and anticipated changes due to hardware evolution, changing user needs, etc.
Appendices	These should provide detailed, specific information which is related to the application which is being developed. Examples of appendices that may be included are hardware and database descriptions. Hardware requirements define the minimal and optimal configurations for the system. Database requirements define the logical organisation of the data used by the system and the relationships between data.
Index	Several indexes to the document may be included. As well as a normal alphabetic index, there may be an index of diagrams, an index of functions, etc.

CÁC KỸ THUẬT THU THẬP YÊU CẦU

DOCUMENT REVIEW

Document review

- Document review can help you understand how the current system is supposed to work.
- Remember that system documentation sometimes is out of date.

OBSERVER

Observation

- The observation of current operating procedures is another fact-finding technique. Seeing the system in action gives you additional perspective and a better understanding of system procedures.

Planning observation

- Ask sufficient questions to ensure that you have a complete understanding of the present system operation. A primary goal is to identify the methods of handling situations that are not covered by standard operating procedures.
- Observe all the steps in a transaction and note the documents, inputs, outputs, and processes involved
- Examine each form, record, and report. Determine the purpose each item of information serves.

Planning observation

- Consider each user who works with the system

and the following questions:

  - What information does that person receive from other people?
  - What information does this person generate?
  - How is the information communicated?
  - How often do interruptions occur?
  - How much down-time occurs?
  - How much support does the user require, and who provides it?

Planning observation

- Talk to the people who receive current reports to see whether the reports are complete, timely, accurate, and in a useful form. Ask whether information can be eliminated or improved and whether people would like to receive additional information.

SAMPLE

Sample

- When studying an information system, you should collect examples of actual documents using a process called sampling.
- The samples might include records, reports, operational logs, data entry documents, complaint summaries, work requests, and various types of forms.
- Sampling techniques include systematic sampling, stratified sampling, and random sampling.

RESEARCH

Research

- Internet
- IT magazines
- books to obtain background information
- technical material
- news about industry trends and developments
- Meeting with expert

INTERVIEWING

Interviewing

- Important method for collecting data on information system requirements
- Directed conversation with a specific purpose that uses Q&A format
- Reveals information about
  - Interviewee opinions
  - Feelings about the current state of the system
  - Organizational and personal goals
  - Informal procedures

INTERVIEW

PLANNING INTERVIEW

Planning the Interview

1. Determine the people to interview.
2. Establish objectives for the interview.
3. Develop interview questions.
4. Prepare for the interview.
5. Conduct the interview.
6. Document the interview.
7. Evaluate the interview.

1. Determine the people to interview

- Your knowledge of the company's formal and informal structures helps you determine the people to interview during the systems analysis phase.
- Group interviews can save time and provide an opportunity to observe interaction among the participants.

2. Establish objectives for the interview

- Determine the general areas to be discussed, and then list the facts you want to gather(solicit ideas, suggestions, and opinions)
- The objectives of an interview depend on the role of the person being interviewed (upper-level managers -> big picture, people who actually work -> Specific details)

3. Develop interview questions

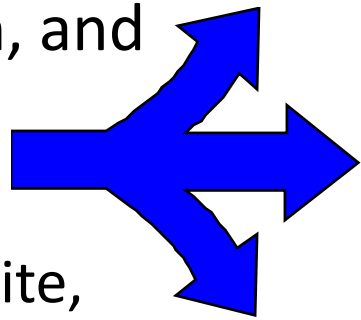
- Creating a standard list of interview questions helps to keep you on track and avoid unnecessary tangents.
- A list of specific questions, you might decide to depart from it because an answer to one question leads to another topic that you want to pursue.
- The interview should consist of several different kinds of questions that are ranged in logical sequence.

Question Types

Types of Questions	Examples
Closed-Ended Questions	• How many telephone orders are received per day? • How do customers place orders? • What information is missing from the monthly sales report?
Open-Ended Questions	• What do you think about the current system? • What are some of the problems you face on a daily basis? • What are some of the improvements you would like to see in a new system?
Probing Questions	• Why? • Can you give me an example? • Can you explain that in a bit more detail?

Open-Ended Questions

- Allow interviewees to respond how they wish, and to what length they wish
  - E.g.: Once the data is submitted via the Web site, how is it processed?



- Appropriate when the analyst is interested in breadth and depth of reply

Advantages of Open-Ended Questions

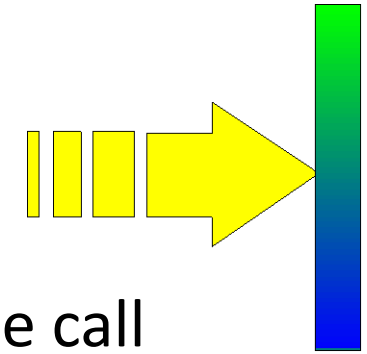
- Putting the interviewee at ease
- Allowing the interviewer to pick up on the interviewee's vocabulary
- Providing richness of detail
- Revealing avenues of further questioning that may have gone untapped
- Allows more spontaneity
- Useful if the interviewer is unprepared

Disadvantages of Open-Ended Questions

- May result in too much irrelevant detail
- Possibly losing control of the interview
- May take too much time for the amount of useful information gained
- Potentially seeming that the interviewer is unprepared
- Possibly giving the impression that the interviewer is on a "fishing expedition”

Closed Interview Questions

- Limit the number of possible responses
  - E.g.: On average, how many calls does the call center receive monthly?



- Appropriate for generating precise, reliable data which is easy to analyze

Advantages of Closed Interview Questions

- Saving interview time
- Easily comparing interviews
- Getting to the point
- Keeping control of the interview
- Covering a large area quickly
- Getting to relevant data

Disadvantages of Closed Interview Questions

- Boring for the interviewee
- Failure to obtain rich detail
- Missing main ideas
- Failing to build rapport between interviewer and interviewee

Bipolar Questions

- Questions that may be answered with a ‘yes’ or ‘no’ or ‘agree’ or ‘disagree’
  - E.g.: Do you want to receive a printout of your account status every month?
  - E.g.: Do you agree or disagree that ecommerce on the Web lacks security?

Probing Questions

- Elicit more detail about previous questions
- The purpose of probing questions is
  - To get more meaning
  - To clarify
  - To draw out and expand on the interviewee's point
- E.g.: Please give an illustration of the security problems you're experiencing with your online systems?

Tradeoffs: Open-ended and Closed Questions

- Reliability of data
- Efficient use of time
- Precision of data
- Breadth and depth
- Interviewer skill required
- Ease of analysis

Question Pitfalls

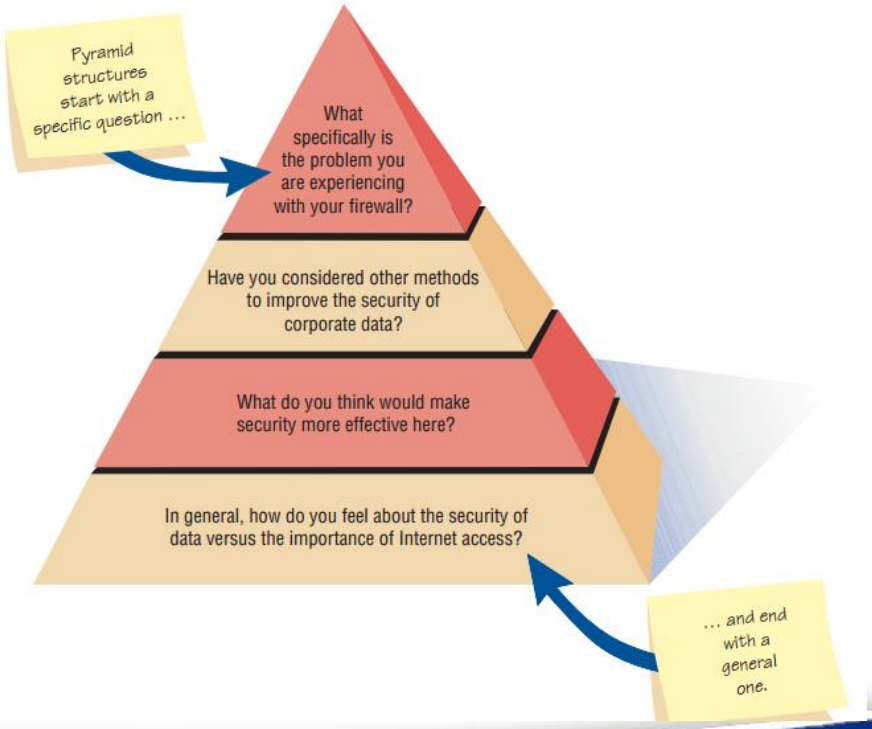
- Leading questions: imply an answer
  - Tend to guide interviewees into responses apparently desired by the interviewer
  - Should be avoided to reduce bias and improve reliability and validity
  - E.g.: You agree with other managers that inventory control should be computerized, don't you?
- Double-barreled questions: two questions in one
  - Interviewees may answer only one question, leading to difficulties in interpretation
  - E.g.: What decisions are made during a typical day and how do you make them?

Question Sequencing

- There are three basic ways of structuring interviews:
  - Pyramid
  - Funnel
  - Diamond

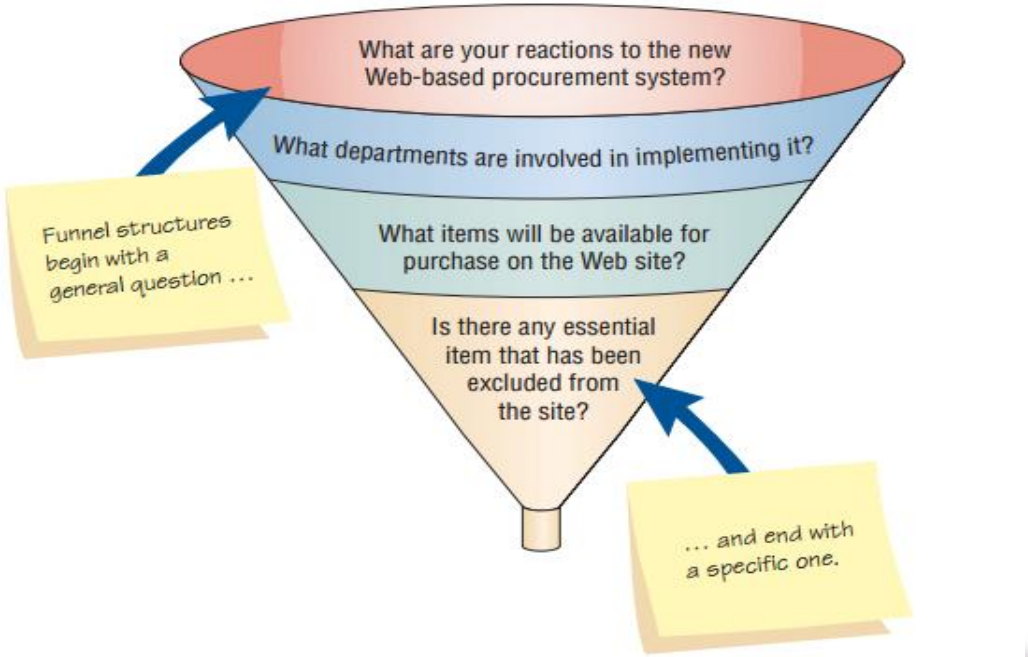
Pyramid Structure

- Begins with very detailed, often closed questions
- Expands by allowing open-ended questions and more generalized responses
- Is useful if interviewees need to be warmed up to the topic or seem reluctant to address the topi



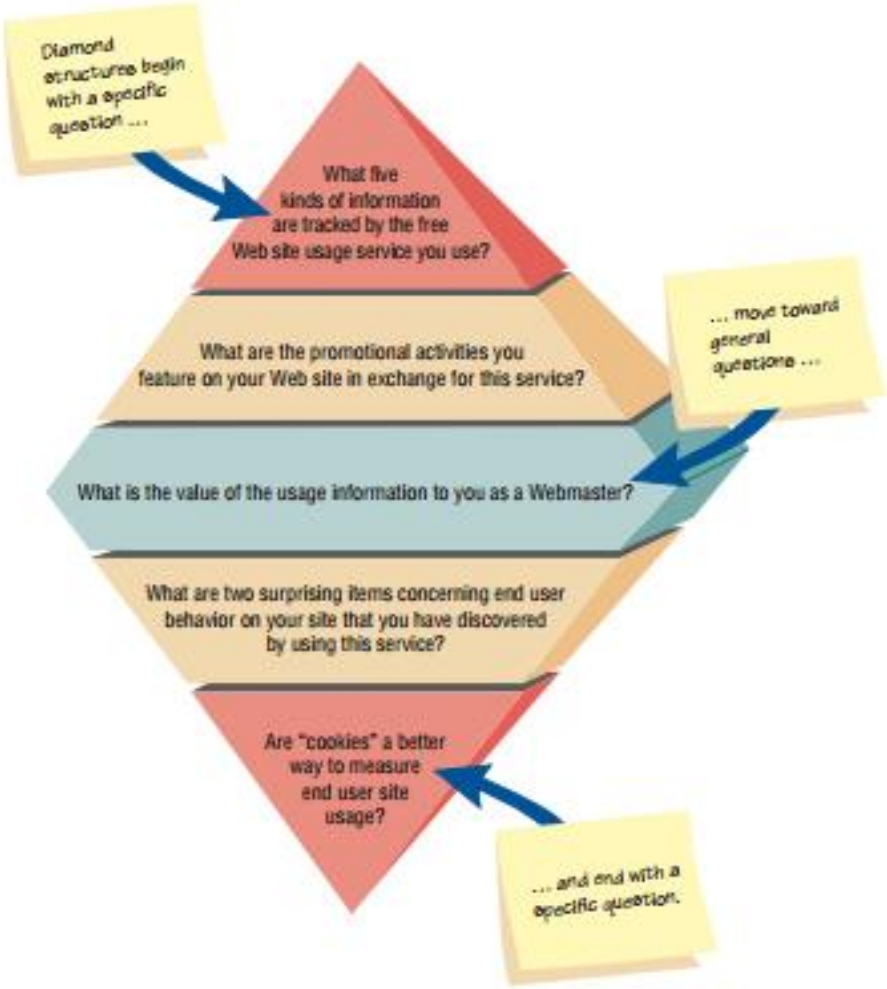
Funnel Structure

- Begins with generalized, open-ended questions
- Concludes by narrowing the possible responses using closed questions
- Provides an easy, non-threatening way to begin an interview
- Is useful when the interviewee feels emotionally about the topic



Diamond Structure

- A diamond-shaped structure begins in a very specific way
- Then more general issues are examined
- Concludes with specific question
- Is useful in keeping the interviewee's interest and attention through a variety of questions



4. Prepare for the interview

- Planned appointment
- Send a list of topics to an interviewee several days before the meeting, especially when detailed information is needed, so the person can prepare for the inter-view and minimize the need for a follow-up meeting

5. Conduct the interview

- Introducing yourself, describing the project, and explaining your interview objectives.
- Ask questions in the order in which you prepared them, and give the interviewee sufficient time to provide thoughtful answers.
- Allow the person enough time to think about the question and arrive at an answer
- Finish asking your questions, summarize the main points covered in the interview and explain the next course of action

6. Document the interview

- Taking notes during an interview has both advantages and disadvantages, the accepted view is that note taking should be kept to a minimum.
- record the information quickly. You should set aside time right after the meeting to record the facts and evaluate the information.

7. Evaluate the interview

- try to identify any possible biases

INTERVIEW

PROCESS INTERVIEW

Before the Interview

- Contact the interviewee and confirm the interview
- Dress appropriately
- Arrive a little early
- Affirm that you are present and ready to begin the interview

Recording the Interview

- Interviews can be recorded with tape recorders or notes
- Audio recording should be done with permission and understanding

Advantages of Audio Recording the Interview

- Providing a completely accurate record of what each person said
- Freeing the interviewer to listen and respond more rapidly
- Allowing better eye contact and better rapport
- Allowing replay of the interview for other team members

Disadvantages of Audio Recording the Interview

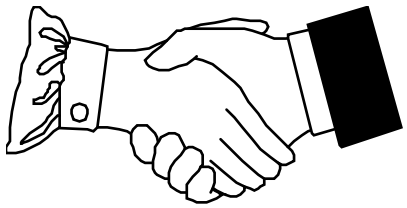
- Possibly making the interviewee nervous and less apt to respond freely
- Difficulty in locating important passages on a long tape

Note Taking During Interviews: Pros and Cons

- Pros
  - Keeping the interviewer alert
  - Aiding recall of important interview trends
  - Showing interviewer interest in the interview
- Cons
  - Losing vital eye contact
  - Losing the train of conversation
  - Causing excessive attention to facts and less attention to feelings

Beginning the Interview

- Shake hands
- Remind them of your name and why you are there
- Take out note pad or tape recorder
- Make sure tape recorder is working correctly

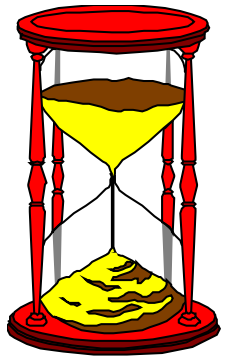


Opening Questions

- Start with pleasant conversation
- Listen closely to early responses
  - Pick up on vocabulary
- Look for metaphors
  - “The accounting department is a zoo”
  - “We’re one big family here”

During the Interview

- The interview should not exceed 45 minutes to one hour
- Make sure that you are understanding what the interviewee is telling you
- Ask for definitions if needed



Closing the Interview

- Always ask “Is there anything else that you would like to add?”
- Ask whom you should talk with next
- Set up any future appointments
- Thank them for their time and shake hands

Interview Report

- Write as soon as possible after the interview
- Provide an initial summary, then more detail
- Review the report with the respondent

Interview Notes Approved By: Linda Estey

Person Interviewed: Linda Estey,

Director, Human Resources

Interviewer: Barbara Wixom

Purpose of Interview:

- Understand reports produced for Human Resources by the current system
- Determine information requirements for future system

Summary of Interview:

- Sample reports of all current HR reports are attached to this report. The information that is not used and missing information are noted on the reports.
- Two biggest problems with the current system are:
  1. The data is too old (the HR Department needs information within two days of month end; currently information is provided to them after a three-week delay)
  2. The data is of poor quality (often reports must be reconciled with departmental HR database)
- The most common data errors found in the current system include incorrect job level information and missing salary information.

Open Items:

- Get current employee roster report from Mary Skudrna (extension 4355).
- Verify calculations used to determine vacation time with Mary Skudrna.
- Schedule interview with Jim Wack (extension 2337) regarding the reasons for data quality problems.

Detailed Notes: See attached transcript.

JOINT APPLICATION DESIGN (JAD)

JAD

- is an information gathering technique that allows the project team, users, and management to work together to identify requirements for the system.
- IBM developed the JAD technique in the late 1970s, and it is often the most useful method for collecting information from users.
- The JAD group meets for several hours, several days, or several weeks until all of the issues have been discussed and the needed information is collecte

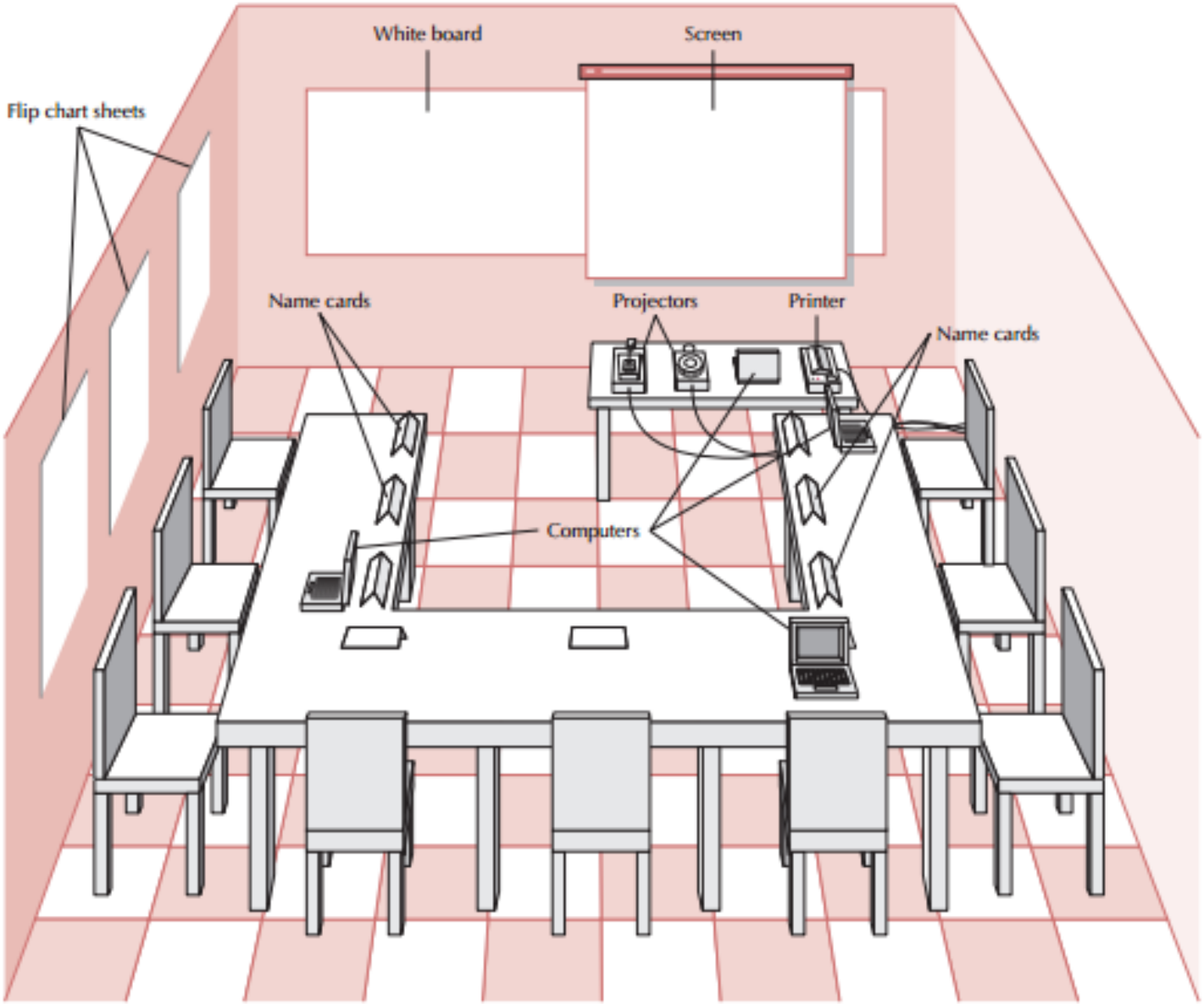


FIGURE 5-9 Joint Application Design Meeting Room

Planning JAD

1. Selecting Participants
2. Designing the JAD Session
3. Preparing for the JAD Session
4. Conducting the JAD Session
5. Post JAD Follow-up

Preparing a JAD Session

- Two-to-four-day sessions offsite
- If possible, away from the organization, in comfortable surroundings
  - Minimize the daily distractions and responsibilities of the participants' regular work
  - Use of group decision support facilities (e.g., networked computers, projection system, …)
- Make use everybody will be able to attend
- Orientation meeting (1/2 day) a week before the workshop

When to Use JAD

- Users are restless and want something new
- The organizational culture supports joint problem-solving behaviors
- Analysts forecast an increase in the number of ideas using JAD
- Personnel may be absent from their jobs for the length of time required

Benefits of JAD

- Time is saved, compared with traditional interviewing (15%)
- Rapid development of systems
- Improved user ownership of the system
- Creative idea production is improved

Drawbacks of Using JAD

- Requires a large block of time be available for all session participants
- If preparation is incomplete, the session may not go very well
- If the follow-up report is incomplete, the session may not be successful
- The organizational skills and culture may not be conducive to a JAD session

PRACTICAL TIP

5-2 Managing Problems in JAD Sessions

I have run more than a hundred JAD sessions and have learned several standard "facilitator tricks." Here are some common problems and some ways to deal with them.

- **Reducing domination.** The facilitator should ensure that no one person dominates the group discussion. The only way to deal with someone who dominates is head on. During a break, approach the person, thank him or her for their insightful comments, and ask them to help you make sure that others also participate.
- **Encouraging noncontributors.** Drawing out people who have participated very little is challenging because you want to bring them into the conversation so that they will contribute again. The best approach is to ask a direct factual question that you are *certain* they can answer. And it helps to ask the question using some repetition to give them time to think. For example "Pat, I know you've worked shipping orders a long time. You've probably been in the Shipping Department longer than anyone else. Could you help us understand exactly what happens when an order is received in Shipping?"
- **Side discussions.** Sometimes participants engage in side conversations and fail to pay attention to the group. The easiest solution is simply to walk close to the people and continue to facilitate right in front of them. Few people will continue a side conversion when you are two feet from them and the entire group's attention is on you and them.
- **Agenda merry-go-round.** The merry-go-round occurs when a group member keeps returning to the same issue every few minutes and won't let go. One solution is to let the person have five minutes to ramble on about the issue while you carefully write down every point on a flip chart or computer file. This flip chart or file is then posted conspicuously on the wall. When the person brings up the issue again, you interrupt them, walk to the paper and ask them what to add. If they mention something already on the list, you quickly interrupt, point out that it is there, and ask what other information to add. Don't let them repeat the same point, but write any new information.
- **Violent agreement.** Some of the worst disagreements occur when participants really agree on the issues but don't realize that they agree because they are using different terms. An example is arguing whether a glass is half empty or half full; they agree on the facts, but can't agree on the words. In this case, the facilitator has to translate the terms into different words and find common ground so the parties recognize that they really agree.
- **Unresolved conflict.** In some cases, participants don't agree and can't understand how to determine what alternatives are better. You can help by structuring the issue. Ask for criteria by which the group will identify a good alternative (e.g., "Suppose this idea really did improve customer service. How would I recognize the improved customer service?"). Then once you have a list of criteria, ask the group to assess the alternatives using them.
- **True conflict.** Sometimes, despite every attempt, participants just can't agree on an issue. The solution is to postpone the discussion and move on. Document the issue as an "open issue" and list it prominently on a flip chart. Have the group return to the issue hours later. Often the issue will resolve itself by then and you haven't wasted time on it. If the issue cannot be resolved later, move it to the list of issues to be decided by the project sponsor or some other more senior member of management.
- **Use humor.** Humor is one of the most power tools a facilitator has and thus must be used judiciously. The best JAD humor is always in context; never tell jokes but take the opportunity to find the humor in the situation.

—Alan Dennis

QUESTIONNAIRES-SURVEY

Questionnaires

- Also called Surveys
- Respondent: person answering a questionnaire (or survey)
- Useful in gathering information from key organization members about
  - Attitudes: what people say they want (in the new system)
  - Beliefs: what people think is actually true
  - Behaviors: what organizational members do
  - Characteristics: properties of people or things

When to Use Questionnaires

- Organization members are widely dispersed
- Many members are involved with the project
- Exploratory work is needed: quantify what was found in interviews
  - How widespread or limited an opinion expressed in an interview really is
- Problem solving prior to interviews is necessary
  - Raise important issues before interviews are scheduled
- May be used in conjunction with interviews
  - Follow-up unclear questionnaire responses with interviews
  - Design questionnaires based on what was discovered in interviews

Planning Questionaire

1. Selecting Participants
2. Designing the Questionnaire
3. Administering the questionnaire

Questionnaire Language

- Simple: use the language of respondents whenever possible
- Specific and short questions
- Free of bias
- Not patronizing: avoid low-level language choices
- Technically accurate
- Right question to the right person: addressed to those who are knowledgeable
- Appropriate for the reading level of the respondent

Using Scales in Questionnaires

- Assigning numbers or other symbols to an attribute/characteristic for the sake of measuring that attribute/characteristic

- Devised to have respondents act as judges for the subject of the questionnaire

Measurement Scales

- There are four different forms of measurement scales:
  - Nominal
  - Ordinal
  - Interval
  - Ratio

Nominal Scales

- Nominal scales are used to classify things into categories

What type of software do you use the most?

1 = Word Processor

2 = Spreadsheet

3 = Database

4 = An Email Program

Ordinal Scales

- Allow classification
- Ordinal scales also imply rank ordering

The support staff of the Technical Support Group is:

1. Extremely Helpful
2. Very Helpful
3. Moderately Helpful
4. Not Very Helpful
5. Not Helpful At All

Interval Scales

- An interval scale is used when the intervals are equal
- There is no absolute zero

How useful is the support given by the Technical Support Group?

NOT USEFUL AT ALL				EXTREMELY USEFUL
1	2	3	4	5

Ratio Scales

- The intervals between numbers are equal
- Ratio scales have an absolute zero

Approximately how many hours do you spend on the Internet daily?

0 2 4 6 8

Guidelines for Using Scales

- Use a ratio scale when intervals are equal and there is an absolute zero
- Use an interval scale when intervals are equal but there is no absolute zero
- Use an ordinal scale when the intervals are not equal but classes can be ranked
- Use a nominal scale when classifying but not ranking

Validity and Reliability

- Reliability: Consistency in response
  - Getting the same results if the same questionnaire was administered again under the same conditions
- Validity: Degree to which the question measures what the analyst intends to measure

Problems Associated With Poorly Constructed Scales

- Leniency: caused by easy raters
- Central tendency: respondents rate everything as average
- Halo effect: impression formed in one question carries into the next question

Questionnaire Format

- Allow ample white space
- Allow enough space for responses to be typed for open-ended questions
- Ask respondents to clearly mark their answers
- Be consistent in style

Order of Questions

- Most important questions go first
- Similar topics should be clustered together
- Controversial questions should be positioned after less controversial questions

Methods of Administering Questionnaires

- Convening All concerned respondents together at one time
- Personally administering the questionnaire
- Allowing respondents to self-administer the questionnaire
- Mailing questionnaires: supply deadlines, instructions, and return postage
- Administering over the Web or via email

Good Questionaire

- Begin with nonthreatening and interesting questions.
- Group items into logically coherent sections.
- Do not put important items at the very end of the questionnaire.
- Do not crowd a page with too many items.
- Avoid abbreviations.
- Avoid biased or suggestive items or terms.
- Number questions to avoid confusion.
- Pretest the questionnaire to identify confusing questions.
- Provide anonymity to respondents.

PURCHASE REQUISITION QUESTIONNAIRE

Pat Kline, Vice President, Finance, has asked us to investigate the purchase requisition process to see if it can be improved. Your input concerning this requisition process will be very valuable. We would greatly appreciate it if you could complete the following questionnaire and return it by March 10 to Dana Juarez in Information Technology. If you have any questions, please call Dana at x2561.

A. YOUR OBSERVATIONS
Please answer each question by checking one box.

1. How many purchase requisitions did you process in the past five working days? _____

2. What percentage of your time is spent processing requisitions?
   [ ] under 20% [ ] 60—79%
   [ ] 21—39% [ ] 80% or more
   [ ] 40—59%

3. Do you believe too many errors exist on requisitions?
   [ ] yes
   [ ] no

4. Out of every 100 requisitions you process, how many contain errors?
   [ ] fewer than 5 [ ] 20 to 29
   [ ] 5 to 9 [ ] 30 to 39
   [ ] 10 to 14 [ ] 40 to 49
   [ ] 15 to 19 [ ] 50 or more

5. What errors do you see most often on requisitions? (Place a 1 next to the most common error, place a 2 next to the second, etc.)
   [ ] incorrect charge number [ ] missing authorization
   [ ] missing charge information [ ] other (please explain) _____
   [ ] arithmetic errors
   [ ] incorrect discount percent used

B. YOUR SUGGESTIONS
Please be specific, and give examples if possible.

1. If the currently used purchase requisition form were to be redesigned, what changes to the form would you recommend?

   _____
   _____
   _____
   _____
   _____
   _____

   (If necessary, please attach another sheet)

2. Would you be interested in meeting with an information technology representative to discuss your ideas further? If so, please complete the following information:

Name _____ Department _____

Telephone _____ E-mail address _____

FIGURE 4-22 Sample questionnaire. Does it follow the suggested guidelines?

Excercise

- Một công ty VietStyleFashion có nguồn vốn lớn, muốn xây dựng một trang web về thời trang cho phép người dùng có thể tiếp cận được mặt hàng trực quan, thân thiện.
- Công ty là một trung tâm chuyên kinh doanh các mặt hàng thời trang cho các hãng thời trang trong nước.
- Mục tiêu đưa người tiêu dùng Việt đến gần với các thương hiệu Việt.
- Công ty mong muốn xây dựng một web site nổi bật, độc đáo đi đầu trong lĩnh vực kinh doanh thời trang.

Requirement Of Exercise

1. Nghiên cứu và phân tích dự án:
   a) Đánh giá các trang nổi tiếng cùng lãnh vực (H&M, Zara… hay các trang mua bán tổng hợp như Alibaba, Sendo, Lazada) đưa ra nhận xét về ưu và nhược điểm của các trang, các công nghệ, bố cục trang => đưa ra định hướng cho dự án phát triển thương hiệu Việt trong ngành hàng thời trang.
   b) Nghiên cứu các công nghệ được ứng dụng trong lãnh vực thời trang. Xem xét hướng tích hợp phát triển trang web cho dự án.
2. Bảng điều tra: (Phân tích thị hiếu, định hướng kinh doanh)
   - Nghiên cứu thị hiếu mua các mặt hàng thời trang của khách hàng.
   - Khách hàng có yêu cầu về sản phẩm thời trang
   - Khách hàng đánh giá như thế nào về sản phẩm thời trang.
   - Trang nào khách hàng thường mua hàng thời trang, vì sao?
   - Khách hàng có thích hàng Việt không? Tại sao?...
3. Kết luận:
   ❖ Dựa trên phân tích 1 +2, đưa ra cách giải quyết bài toán.

References

- Systems Analysis and Design, Ninth Edition

Gary B. Shelly, Harry J. Rosenblatt, 2012.

- Software Engineer 8th Edition, Ian Sommerville
- System Analysis and Design with UML Version 2.0, An Object-Oriented Approach, Second Edition, Alan Dennis, 2005


ThankYou
Merci
Salamat
Kop
Tack
Hvala
Xie
Gra
kun
Diolch
Kiitos
Sheun
umesc
Kasih
Mamnoon
Todah
Shnorhakalutiun
Shokriya
Spaas
Mul
Ačі
Gamsahapnida
Ngiyabonga
Dziękuję
Shokrun
Dank
Takk
Cam
or
Dhanyavaad
Dakujem
Waad
Daw
Dhanyavadaalu
Dankie
Go
Grazie
Falemiderit
Dhanyavad
Khopjai
Kruthagnathalu
krap
Arigatou
Or
Dhonnobaad
ederim
Asante
Hain
Dhan
daa
Grazzi
raibh
Gracias
Nandree
Blagodariya
Gomapsupnida
Fyrir
Terima
Enkosi
Danke
dank
Euxaristo
Kun
Shukriya