Analysis Phase: Key Ideas

- The goal of the \textit{analysis} phase is to truly \textit{understand} the requirements of the new system and develop a system that addresses them.
- The first challenge is finding the right people to participate.
- The second challenge is collecting and integrating the information.

Requirements Gathering Methods

1. Interviews
2. JAD Sessions
3. Questionnaires
4. Document Analysis
5. Observation
1. INTERVIEWS

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Interviews -- Five Basic Steps
1. Selecting interviewees
2. Designing interview questions
3. Preparing for the interview
4. Conducting the interview
5. Post-interview follow-up

Selecting Interviewees
- Based on information needed
- Often good to get different perspectives
  - Managers
  - Users
  - Ideally, all key stakeholders

Types of Questions

<table>
<thead>
<tr>
<th>Types of Questions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed-Ended Questions</td>
<td>* How many telephone orders are received per day?</td>
</tr>
<tr>
<td></td>
<td>* How do customers place orders?</td>
</tr>
<tr>
<td></td>
<td>* What additional information would you like the new system to provide?</td>
</tr>
<tr>
<td>Open-Ended Questions</td>
<td>* What do you think about the current system?</td>
</tr>
<tr>
<td></td>
<td>* What are some of the problems you face on a daily basis?</td>
</tr>
<tr>
<td></td>
<td>* How do you decide what types of marketing campaign to run?</td>
</tr>
<tr>
<td>Probing Questions</td>
<td>* Why?</td>
</tr>
<tr>
<td></td>
<td>* Can you give me an example?</td>
</tr>
<tr>
<td></td>
<td>* Can you explain that in a bit more detail?</td>
</tr>
</tbody>
</table>

Designing Interview Questions
- Unstructured interview
  - Broad, roughly defined information
- Structured interview
  - More specific information

Questioning Strategies

High Level
- Very General
- Top Down

Medium Level
- Moderately Specific

Low Level
- Very Specific
- Bottom Up

Examples?
**Interview Preparation Steps**
- Prepare general interview plan
- List of questions
- Anticipated answers and follow-ups
- Confirm areas of knowledge
- Set priorities in case of time shortage
- Prepare the interviewee
  - Inform them of the schedule
  - Tell interviewees reason for interview
  - Inform them of areas of discussion

**Conducting the Interview**
- Appear professional and unbiased
- Record all information
- Check on organizational policy regarding tape recording
- Be sure you understand all issues and terms
- Separate facts from opinions
- Give interviewee time to ask questions
- Be sure to thank the interviewee
- End on time

**Conducting the Interview Practical Tips**
- Don’t worry, be friendly
- Pay attention
- Summarize key points
- Be succinct (concise)
- Be honest
- Watch body language

**Post-Interview Follow-Up**
- Prepare interview notes
- Prepare interview report
- Look for gaps and new questions

**Interview Report**

<table>
<thead>
<tr>
<th>INTERVIEW REPORT</th>
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</thead>
<tbody>
<tr>
<td>Interview notes approved by:____________</td>
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<tr>
<td>Person interviewed:____________</td>
</tr>
<tr>
<td>Interviewer:____________</td>
</tr>
<tr>
<td>Date:____________</td>
</tr>
<tr>
<td>Primary Purpose:____________</td>
</tr>
<tr>
<td>Summary of Interview:</td>
</tr>
<tr>
<td>Open Items:</td>
</tr>
<tr>
<td>Detailed Notes:</td>
</tr>
</tbody>
</table>

**2. JOINT APPLICATION DESIGN (JAD) SESSIONS**
**JAD Key Ideas**
- Allows project managers, users, and developers to work together
- May reduce scope creep by 50%
- Avoids requirements being too specific or too vague

**Joint Application Design (JAD) Important Roles**
- **Facilitator**
  - Ensures sticking to agenda
  - Helps understanding of technical terms and jargon
  - Records group input on clearly-viewable display area
- **Scribe (or scribes)**
  - Takes minutes and notes
  - Makes copies where necessary

**Joint Application Design (JAD) Setting**
- **U-Shaped seating**
- Away from distractions
- Whiteboard/flip chart
- Prototyping tools
- e-JAD

**JAD Meeting Room**

**The JAD Session**
- Tend to last 5 to 10 days over a three week period
- Prepare questions as with interviews
- Formal agenda and groundrules
- Facilitator activities
  - Keep session on track
  - Help with technical terms and jargon
  - Record group input
  - Help resolve issues
  - Post-session follow-up

**JAD Sessions -- Five Basic Steps**
1. Selecting participants
2. Designing the JAD Session
3. Preparing for the JAD Session
4. Conducting the JAD Session
5. Post-JAD follow-up
Managing Problems in JAD Sessions
- Reducing domination
- Encouraging non-contributors
- Side discussions
- Agenda merry-go-round
- Violent agreement
- Unresolved conflict
- True conflict
- Use humour

3. QUESTIONNAIRES

Questionnaire Steps
- Selecting participants
  - Using samples of the population
- Designing the questionnaire
  - Careful question selection
- Administering the questionnaire
  - Working to get good response rate
- Questionnaire follow-up
  - Send results to participants

Good Questionnaire Design
- Begin with non-threatening 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

4. DOCUMENT ANALYSIS

Document Analysis
- Provides clues about existing “as-is” system
- Typical documents
  - Forms
  - Reports
  - Policy manuals
- Look for user additions to forms
- Look for unused form elements
5. OBSERVATION

Observation
- Checks validity of information gathered other ways
- Users/managers often don't remember everything they do!
- Behaviours change when people are watched!
- Careful not to ignore periodic activities
  - Weekly ... Monthly ... Annual!

Selecting the Appropriate Techniques

<table>
<thead>
<tr>
<th></th>
<th>Interviews</th>
<th>JAD</th>
<th>Questionnaires</th>
<th>Document Analysis</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Information</td>
<td>As-Is, Improve.</td>
<td>As-Is, Improve.</td>
<td>As-Is</td>
<td>As-Is</td>
<td>As-Is</td>
</tr>
<tr>
<td>Depth of Information</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Breadth of Information</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Integration of Info.</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>User Involvement</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
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<tr>
<td>Cost</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Summary
- There are five major information gathering techniques that all systems analysts must be able to use: Interviews, JAD, Questionnaires, Document Analysis, and Observation.
- Systems analysts must also know how and when to use each as well as how to combine methods.