# SWE62-232
# Requirements Engineering Fundamentals

## Session 4.1-4.2

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# Outline

- Stakeholder-driven elicitation techniques
  - Interview
  - Observation and ethnographic studies
  - Group sessions: e.g., joint meeting, workshop
- Requirements elicitation practice
  - Mini project
  - Experience gained & lessons learnt

# Learning objectives

- Upon successful completion students will be able to:
  - Discuss strengths and weaknesses of various techniques in the group of stakeholder-driven techniques
  - Plan interview sessions
    - Design interview questions
  - Apply selected elicitation techniques to a case study properly and successfully
    - Discuss lesson learnt and experience gained from requirements elicitation

# Interview

# Interview

- **A time-consuming technique.**
- An effective technique, particularly when adopted by an experience requirements engineer.
- Interviewers must be open-minded and should not approach the interviewees with pre-conceived notions about what is required

# Interview

- During an interview, the requirements engineer asks predetermined (open-ended) questions to stakeholders and documents the answers.
- Questions that arise during the conversation can be discussed immediately
  - Subconscious requirements can be uncovered through clever questions.

# Interview

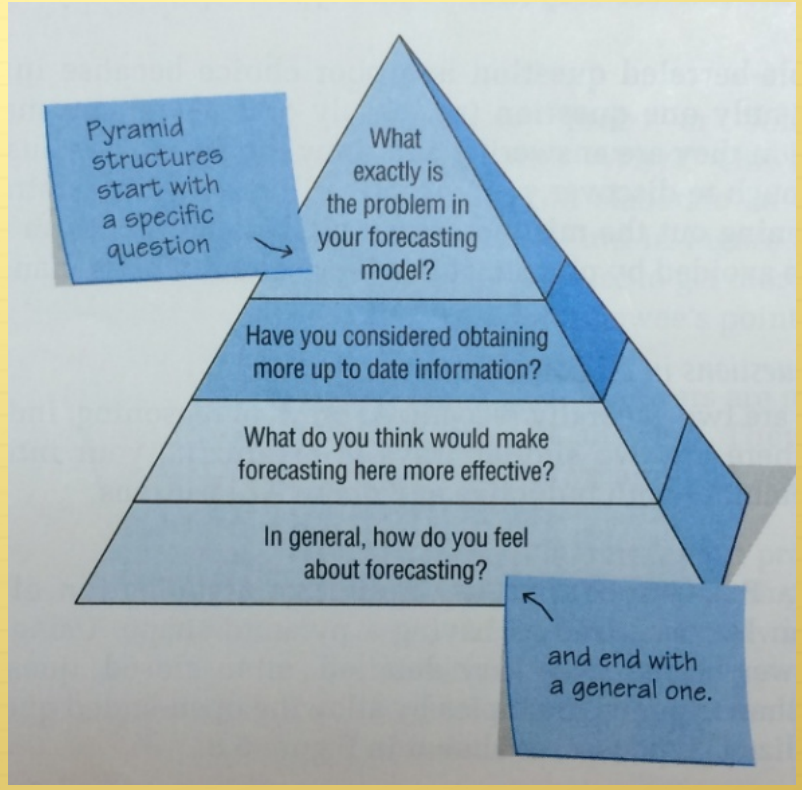
- Can be:
  - Structured
  - Unstructured : no pre-determined questions/agenda
  - Semi-structured : structured + unstructured

# 3 Structures of interviewing

1. Pyramid structure
2. Funnel structure
3. Diamond structures

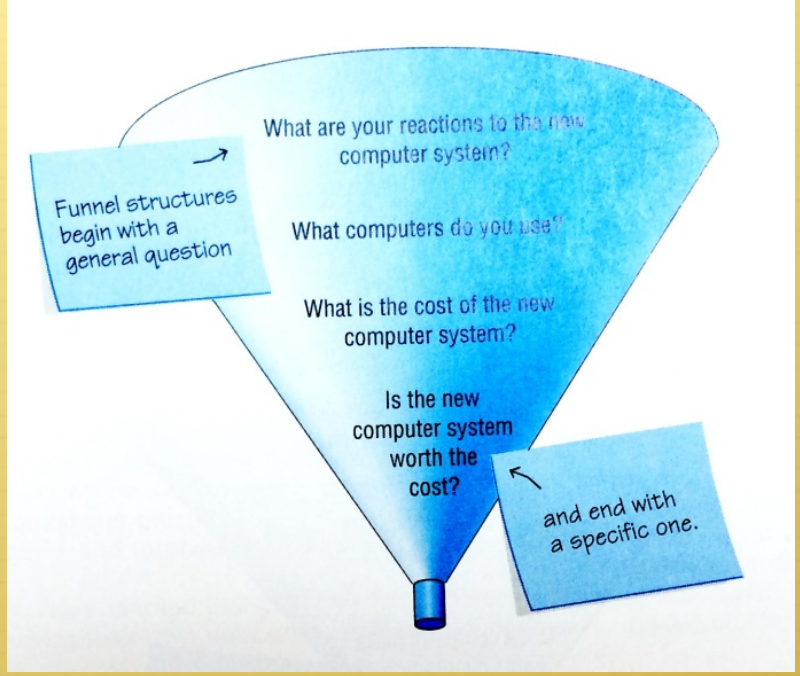
# Pyramid structure

Begin with detailed, closed questions and broaden to more general questions.



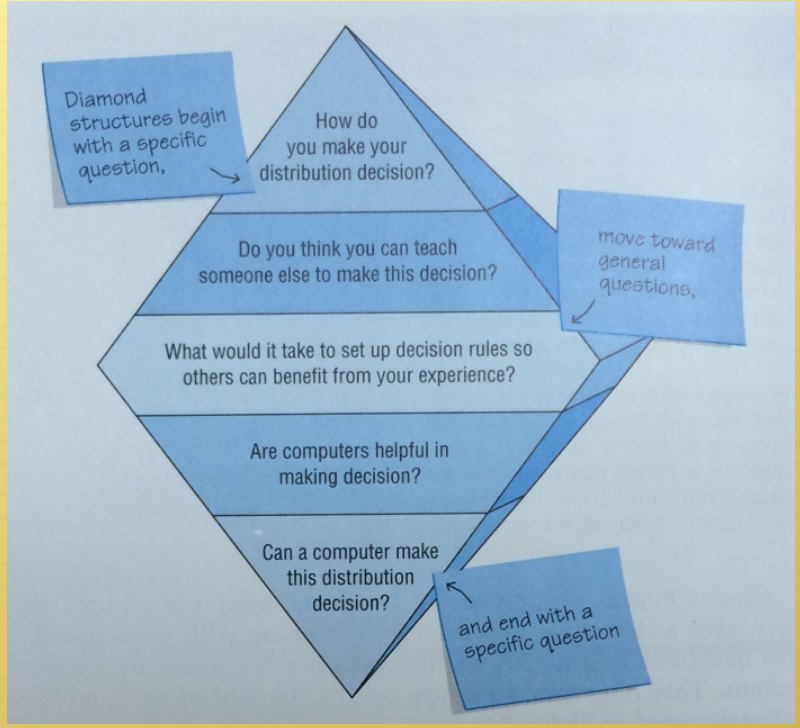
# Funnel structure

Begin with open-ended, general questions and funnel down to more specific, closed questions.



# Diamond structure

Combine the strengths of the other two structures, but take longer to conduct.



# Structures vs Unstructured interview

| Unstructured | Characteristics | Structured |
|---|---|---|
| High | Time required | Low |
| High | Training required | Low |
| Much opportunity | Provide interviewee insight | Very little |
| Much | Allow spontaneity | Little |
| Great | Flexibility | Little |
| Low | Interviewer control | High |
| Low | Reliability and precision | High |
| High | Breadth and Depth | Low |
| Hard | Evaluation | Easy |

**Risks of unstructured interview**

Missing some topics

Too much details—focus in some areas, neglect some others

# Interview

- Success depends on
  - Good preparation
  - Knowing questions to ask
  - When to ask
  - Who to ask

# Planning the Interview

- Read background material
- Establish interviewing objectives
  - Interviewing time should not be long (about 30-45 m. to 1 h)
- Decide on question types and structure
- Decide who to interview
- Prepare the interviewee
  - Make an appointment, arrive 10-15 minutes before the appointed time

# Questions for Eliciting User Requirements

- What goals might you have in mind that the system could help you accomplish?
- What words would you used to describe the system?
- What problems do you expect this system to solve for you?
- What are some reasons why you/your colleagues would use the system?
- How would you judge whether the system is a success?
- What is most important to you about the system?

# Questions for Eliciting User Requirements

- How is the system you envision similar to the way you do business now? How should it be different?
- Which aspects of the system are most critical to creating business value?
- What aspects of the current system/business process do you want to retain? To replace?
- What aspects of the system most excites you?
- What aspects of the system will be most valuable to you? Least valuable?
- What external events are associated with the product?

# Questions for Eliciting User Requirements

- Are specific parts of the system more critical than others for performance, reliability, security, safety, availability, or other characteristics?
- Are there any constraints/rules to which the system must conform?
- Can you describe the environment in which the product will be used?

- Asking "Why?" is an excellent trick.

# Observation and ethnographic studies

# Ethnography

- The study of people in their natural setting involves the analyst actively or passively participating in the normal activities of the users over an extended period of time whilst collecting information on the operations being performed.
- In practice, ethnography is particularly effective when the need for a new system is a result of existing problems with processes and procedures, and in identifying social patterns and complex relationships between human stakeholders.
- These techniques are especially useful when addressing contextual factors such as usability, and when investigating collaborative work settings where the understanding of interactions between different users with the system is paramount.
- **Observation** is one of the more widely used ethnographic techniques.

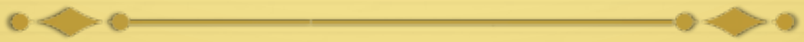
# Observation

- The analyst observes the actual execution of existing processes by the users without direct interference.
- Often used in conjunction with others such as interviews and task analysis.
- As a general rule ethnographic techniques such as observation are very expensive to perform and require significant skill and effort on the part of the analyst to interpret and understand the actions being performed.
- The effectiveness of observation and other ethnographic techniques can vary as users have a tendency to adjust the way they perform tasks when knowingly being watched.

# Apprenticing

- Apprenticing involves the analyst actually learning and performing the current tasks under the instruction and supervision of an experienced user.
- The analyst is taught the operations and business processes by observing, asking questions, and physically doing, rather than being informed of them.
- Apprenticing is very useful where the analyst is inexperience with the domain, and when the users have difficulty in explaining their actions.

# Requirements Workshops



# Requirements Workshops

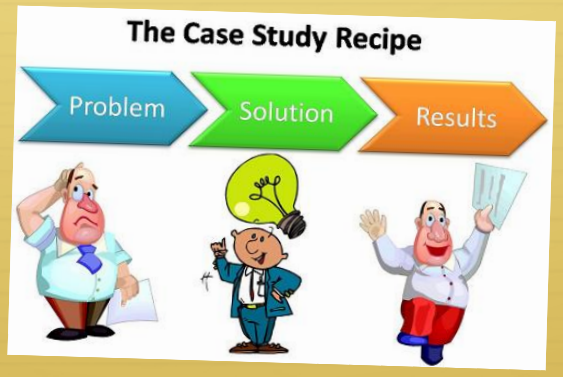
- Requirements workshop is a generic term given to a number of different types of group meetings
  - e.g. group work, collaborative meeting, focus group, JAD, etc.
  - The emphasis is on developing and discovering requirements for a software system.
- Many different forms of requirements workshops including cross functional which involves different types of stakeholders from various areas of the business.

# Requirements Workshops

- Key success factors are the structure of participants and the cohesion within the group.
- Stakeholders must feel comfortable and confident in speaking openly and honestly, and it is for this reason that group work is less effective in highly political situations.

# Now Make a Plan for Your Case Study!!

Requirements Elicitation


# Session Summary

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