UNIVERSITY OF INFORMATION TECHNOLOGY

Faculty of Information Systems

Chapter 2

Requirements Determination and Analysis

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LEARNING OBJECTIVES

1. Understand methods for Determining user requirements.
2. Have ability to use suitable method for specific situations.
3. Have ability to use Business Functional Diagram to model business functions.

CONTENT

1. Introduction
2. Methods for Determining User Requirements
3. Business Function Diagram (BFD)

INTRODUCTION

Introduction

- A requirement is simply a statement of what the system must do or what characteristics it needs to have:
  - the business needs (business requirements)
  - the users need to do (user requirements)
  - the software should do (functional requirements);
  - characteristics the system should have (nonfunctional requirements);
  - and how the system should be built (system requirements).

Introduction

- Functional requirements: how the system will support the user in completing a task.

1. Process-oriented: A process the system must/should perform.
   - The system must check incoming customer orders for inventory availability.
   - The system should allow students to view a course schedule while registering for classes
2. Information-oriented: Information the system must contain.
   - The system must retain customer order history for 3 years
   - The system must include real-time inventory levels at all warehouses.

Introduction

- Nonfunctional requirements: include important behavioral properties that the system must have.

1. Operational: The physical and technical environments in which the system will operate
   - The system can run on handheld devices.
   - The system should be able to work on any Web browser
2. Performance:
   - Any interaction between the user and the system should not exceed 2 seconds
   - The system should be available for use 24 hours per day, 365 days per year.
   - The system supports 300 simultaneous users from 9–11 A.M.; 150 simultaneous users at all other times

Introduction

- Nonfunctional requirements: include important behavioral properties that the system must have

3. Security:
   - Only direct managers can see personnel records of staff
   - The system includes all available safeguards from viruses, worms, Trojan horses, etc.
4. Cultural and Political:
   - Company policy is to buy computers only from Dell, send salary to staff just using Vietcombank.
   - Personal information is protected in compliance with the Data Protection Act.

Methods for Determining User Requirements

Methods for Determining User Requirements

1. Interview
2. Questionnaires
3. Analyse documents
4. Observation
5. Joint Application Design (JAD)
6. STROBE

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Interview

- Interview is an important method for collecting data on human and system information requirements
- Interviews reveal information about:
  - Interviewee opinions
  - Interviewee feelings
  - Goals
  - Key HCI concerns

Interview Preparation

- Reading background material
- Establishing interview objectives
- Deciding whom to interview
- Preparing the interviewee
- Deciding on question types and structure

Question Types

- Open-ended
- Closed

Open-Ended Questions

- Open-ended interview questions allow interviewees to respond how they think, wish…
- Useful when you want to understand a larger process or draw out the interviewee's opinions, attitudes, or suggestions
- Example:
  1. How is this task performed?
  2. Why do you perform the task that way?
  3. There are any ways to improve this task?
  4. What added features would you like to have in the new billing system?

Open-Ended Questions

- Advantages
- Disadvantages

Advantages of Open-Ended Questions

- Puts the interviewee at ease
- Makes phrasing easier for the interviewer
- Provides richness of detail
- Reveals avenues of further questioning that may have gone untapped
- Allows the interviewer to pick up on the interviewee's vocabulary
- 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

Closed Interview Questions

- Closed interview questions limit the number of possible responses
- useful when you want information that is more specific or when you need to verify facts.

Closed Interview Questions

- Example:
  1. How many personal computers do you have in this department?
  2. Do you review the reports before they are sent out?
  3. How many hours of training does a clerk receive?
  4. Is the calculation procedure described in the manual?
  5. How many customers ordered products from the Web site last month?

Closed Interview Questions

- Advantages
- Disadvantages

Benefits of Closed Interview Questions

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

Disadvantages of Closed Interview Questions

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

Bipolar Questions

- A special kind of closed question
- Bipolar questions are those that may be answered with a "yes" or "no" or "agree" or "disagree"
- Bipolar questions should be used sparingly

Probes

- May be either open-ended or closed
- 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

Probes

- Example:
  1. Why?
  2. You mentioned both an intranet and an extranet solution. Please give an example of how you think each differs.
  3. Give an example of how ecommerce has been integrated into your business processes.
  4. What makes you feel that way?
  5. Tell me step by step what happens after a customer clicks the “Submit” button on the Web registration form.

Closing the Interview

- Always ask “Is there anything else that you would like to add?”
- Summarize and provide feedback on your impressions
- Ask whom you should talk with next
- Set up any future appointments
- Thank them for their time.

After the interview: Interview Report

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

Review

1. Requirement: a statement of what the system must do or what characteristics it needs to have
    - Functional requirement
    - Nonfunctional requirement
2. Interview method
    - Open-ended question
    - Closed question

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Questionnaires

Questionnaires are useful in gathering information from key organization members about:

- Attributes: what people in the organization say they want
- Beliefs—what people think is actually true.
- Behavior—what organizational members do.
- Characteristics—properties of people or things.

Tips

- Simple, Short, Specific
- Technically accurate
- Addressed to those who are knowledgeable
- Appropriate for the reading level of the respondent
- Place most important questions first
- Introduce less controversial questions first
- Cluster items of similar content together
- Easy to analyse data (measurement scales)
- Electronic version / Paper version

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Analyse various documents

- Internal documents
- Website
- Current Information systems

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Observation

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

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Joint Application Design (JAD)

- Joint Application Design (JAD) can replace a series of interviews with the user community
- JAD is a technique that allows the analyst to accomplish requirements analysis and design the user interface with the users in a group setting

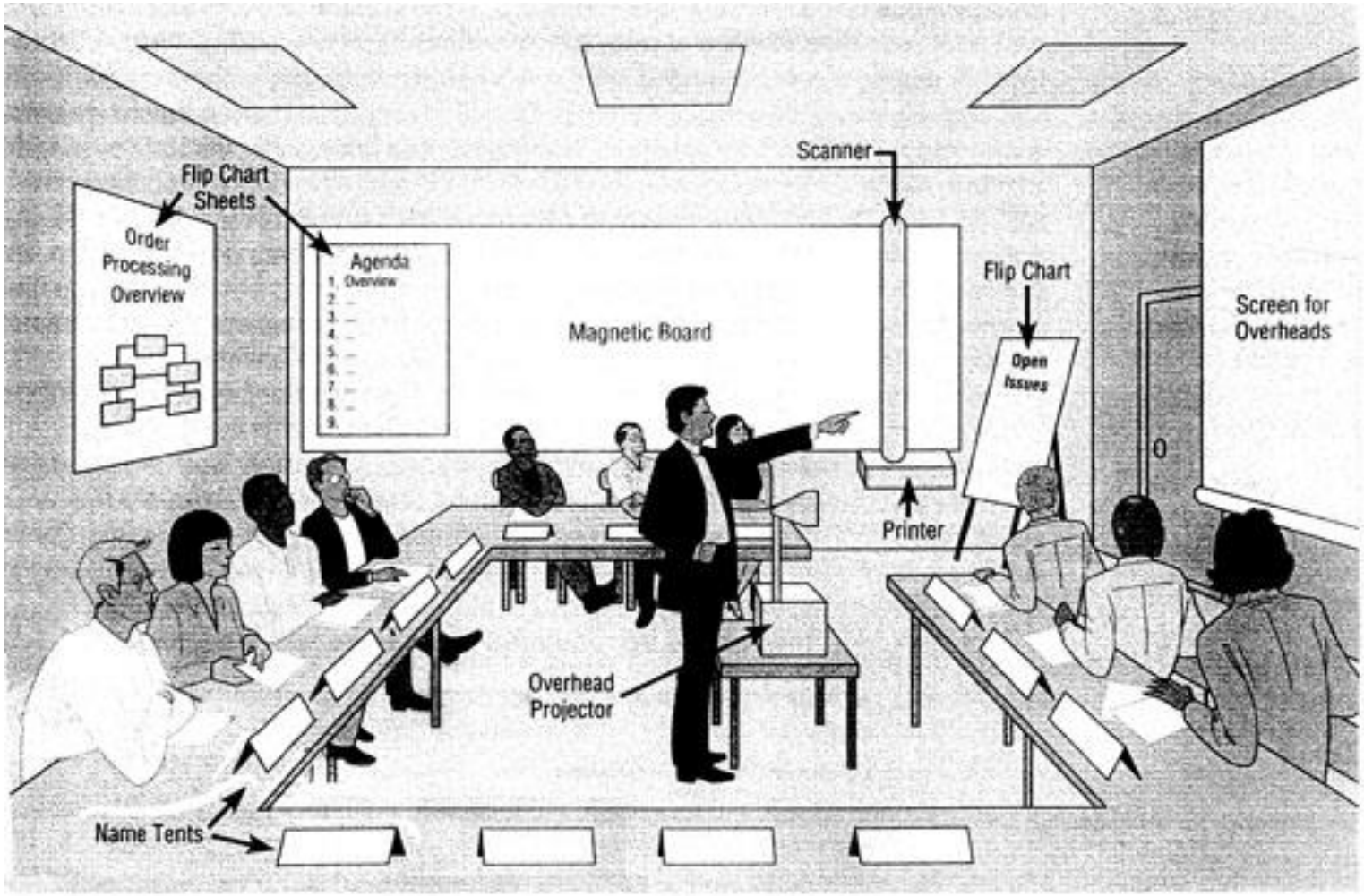
Conditions That Support the Use of JAD

- Users want something new
- The organizational culture supports joint problem-solving behaviors
- Analysts forecast an increase in the number of ideas using JAD

Who Is Involved

- Executive sponsor
- IS analyst
- Users (Customers)
- Session leader
- Observers
- Scribe (secretary)

Who Is Involved



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STROBE

STRuctured **OB**servation of the **E**nvironment — a technique for observing the decision-maker's physical environment

STROBE Elements

- Office location
- Desk placement
- Stationary equipment
- External information sources
- Office lighting and color
- Clothing worn by decision makers

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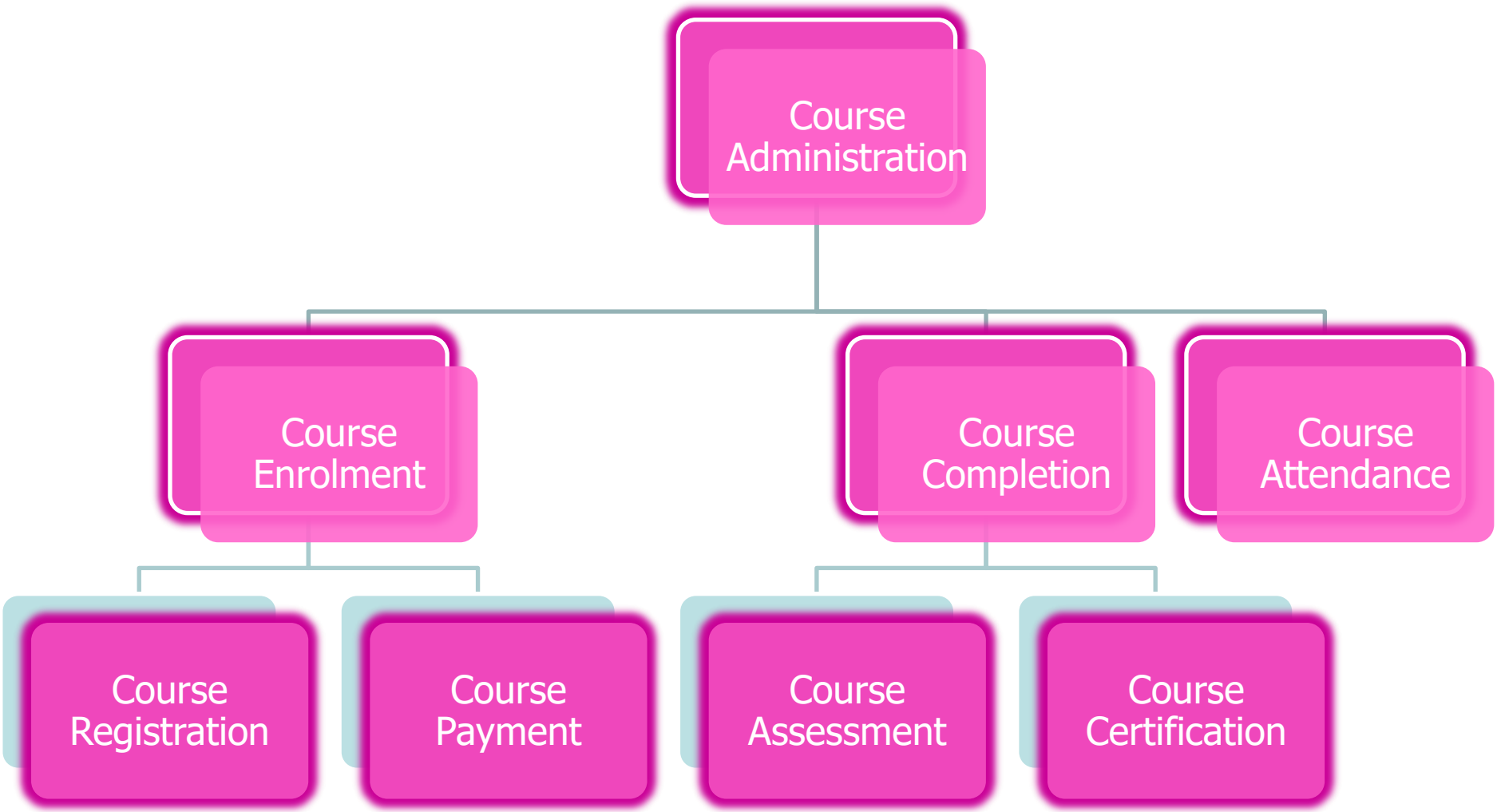
Business Function Diagram (BFD)

Business Function Diagram

- Functional Decomposition Diagrams (FDD)
- A top-down representation of a function or process.
- Using an FDD, an analyst can show business functions and break them down into lower-level functions and processes
- During requirements modeling, analysts use FDDs to model business functions and show how they are organized into lower-level processes

Business Function Diagram



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QUESTIONS
ANSWERS