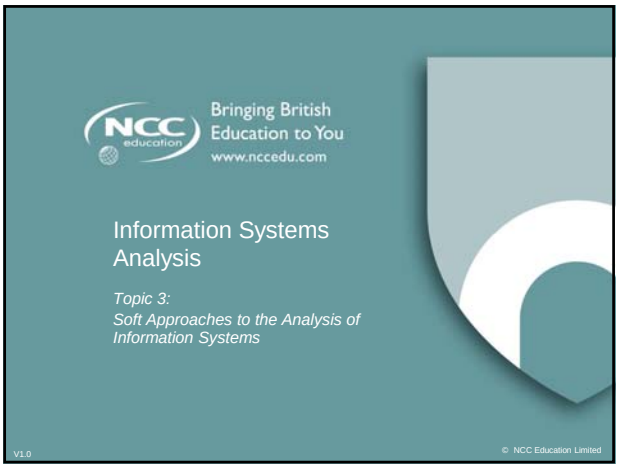
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Information Systems
Analysis
Topic 3:
Soft Approaches to the Analysis of
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Soft Approaches to the Analysis of Information Systems Topic 3 - 3.2
Scope and Coverage
This topic will cover:
• Types of soft approach analysis methodologies
• Advantages and disadvantages of soft approach analysis methodologies
• How soft approach methodologies can provide solutions to business problems
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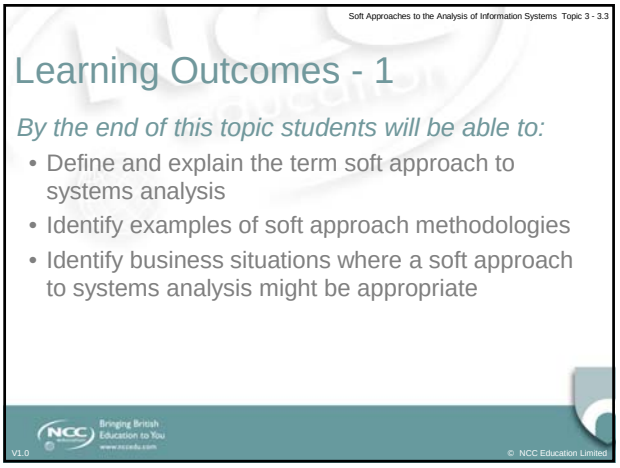
Soft Approaches to the Analysis of Information Systems Topic 3 - 3.3
Learning Outcomes - 1
By the end of this topic students will be able to:
• Define and explain the term soft approach to systems analysis
• Identify examples of soft approach methodologies
• Identify business situations where a soft approach to systems analysis might be appropriate
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Learning Outcomes - 2

By the end of this topic students will be able to:

- Define and explain the abbreviation SSM
- Identify and discuss the advantages of SSM
- Identify and discuss the disadvantages of SSM
- Provide solutions to business problems using SSM

Terminology

- Terminology will be explained in the lecture, seminar and tutorial and you should take notes
- Ask questions if there is anything that you don't understand

Soft Approach to Information Systems Analysis (SSM)

- SSM refers to ***Soft Systems Methodology.***
- This approach to analysing Information Systems is a more people-focused analysis than is used when taking a hard approach.
- It recognises that user interaction is as important as technical considerations.
- Human activity is modelled as opposed to system activity in hard approaches.

When a Soft Approach might be Appropriate - 1

- Systems now tend to be described as 'hard' or 'soft'. For example: a physical system such as an industrial plant can be described as a 'hard' system, whereas an organisational system or ***'human activity' system*** is described as a 'soft' system.
- Soft approaches are useful for:
  - Dealing with problems in complex, human situations
  - When user, social, political and cultural issues need to be taken into account
  - When greater interaction with users is required

When a Soft Approach might be Appropriate - 2

- Generally used for:
  - information management
  - information strategy
  - business analysis

Steps when Undertaking SSM

- A number of stages can be followed when undertaking SSM:
  1. Analyse the existing information system and produce ***rich pictures***
  2. Define a ***root definition*** of significant parts of the information system
  3. Produce ***conceptual models*** of the system
  4. Compare the concept of the system with the actual system
  5. Define and select feasible options for development
  6. Implement the new system

Techniques used when Undertaking SSM

- Unlike SSADM, the steps when undertaking SSM are not always followed in sequence and stages are often re-visited.
- A number of techniques can be followed when undertaking SSM:
  - rich pictures (Step 1)
  - root definitions (Step 2)
  - conceptual models (Step 3)

Analyse the Existing Information System - 1

- A Systems Analyst consults with staff to create a ***rich picture*** of the existing information system.
- This picture represents a view of the whole system and can enable better planning and understanding of a system.
- Rich pictures are usually drawn by hand and include structures, processes, issues or developments.
- There are no rules or guidelines.

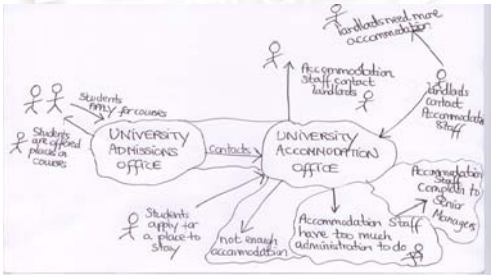
Analyse the Existing Information System - 2

- Elements of a rich picture include:
  - customers, suppliers, competitors
  - staff and their interactions
  - departments
  - processes
  - products
  - hardware and software resources
  - boundaries
  - interfaces

Analyse the Existing Information System - 3

- In addition to the main elements, the following aspects are also captured:
  - social and cultural roles
  - norms (expected behaviours), values and attitudes
  - goals
  - political and power roles and how they are obtained, used and transmitted
  - problems, concerns

Rich Picture Example



Analyse the Existing Information System - 4

- There is no such thing as a right or wrong rich picture. There is a key difference between a rich picture and a formal diagram, such as a DFD – a rich picture does not attempt to model the system in any precise way.
- It should, however, represent the structure, processes and issues which are relevant to the day-to-day work at an organisation.
- There are usually several versions until the analyst decides upon the final one.

Analyse the Existing Information System - 5

- The analyst documents any issues that are currently causing problems or may do so in the future and that they think should be looked at in further detail. For example:
  - conflicts between departments
  - lack of communication between departments
  - lack of communication with suppliers

Analyse the Existing Information System - 6

- At this stage, the analyst's role is to indicate problems rather than provide possible solutions.
- The analyst uses the rich picture to communicate the problem/s with the management of the organisation.
- The rich picture helps to move from thinking about the problem to thinking about what can be done about the problem.

Analyse the Existing Information System - 7

- During this stage, the analyst can also use techniques to gather information, such as:
  - checklists
  - questions
  - PEST analysis
  - SWOT analysis

Analyse the Existing Information System - 8

- After analysis staff at an organisation should be able to:
  - view and understand their organisation more fully
  - understand and evaluate their role more fully
  - identify and discuss any problems
  - discuss any changes needed

Define a Root Definition - 1

- After analysis, the analyst needs to provide ***root definitions.***
- Root definitions help to clarify the system processes and any problems.
- They are short textual statements which describe the aims and functions of the potential system to be developed.
- There are two types of root definitions:
  - ***Primary task root definitions*** that focus on system processes
  - ***Issue-based root definitions*** that focus on system problems

Define a Root Definition - 2

- When defining root definitions, the analyst needs to ask the following questions:
  - What does the system do? (aim of the system)
  - How does the system do it? (means of achieving the aim)
  - Why is it being done? (longer term aim)

CATWOE - 1

- CATWOE analysis helps when defining a root definition.
- It helps identify and categorise all the people, processes and external factors involved in the Information system that is being analysed. It stands for:
  - **C** = Customers/Clients
  - **A** = Actors/Agents
  - **T** = Transformations
  - **W** = World view
  - **O** = Owners
  - **E** = Environment
- We will study this in depth in Topic 5.

CATWOE - 2

- Questions relating to CATWOE analysis can include:
  - Who are the customers of the system?
  - Who are the users of the system?
  - What is transformed (changed) by the system?
  - Who owns, controls and pays for the system?
  - What is the overall view of the system?
  - What are the economic and/or social, political, technical and environmental constraints to the system?

Produce Conceptual Models -1

- The analyst uses the rich picture and root definition to construct a conceptual 'ideal' system that defines:
  - the must have aspects of the system
  - the desirable aspects of the system
- This conceptual model can be used to describe how the system should function and what activities are necessary for the processes to take place.
- It is not intended to be a design of a new system, it depicts a potential system (unlike a DFD).

Produce Conceptual Models - 2

- The system's performance can be measured by applying the Three E's:
  - ***Efficacy:*** will the system work and will the transformation be achieved?
  - ***Efficiency:*** - will it work with minimum resources?
  - ***Effectiveness:*** - will the system achieve its longer term goals?

Compare the Concept of the System with the Actual System - 1

- The analyst compares the conceptual model with the actual/real system as illustrated in the rich picture.
- Various questions can be asked, such as:
  - Does a particular activity in the conceptual model occur in the actual system?
  - If yes, how?
  - If no, why?
  - Does it cause any problems in the actual system?

Compare the Concept of the System with the Actual System - 2

- Differences between the actual system and the model are noted and discussed with management.
- Required developments of the existing system are discussed.
- Necessary and feasible solutions are agreed.
- A new system is implemented.

Advantages of SSM

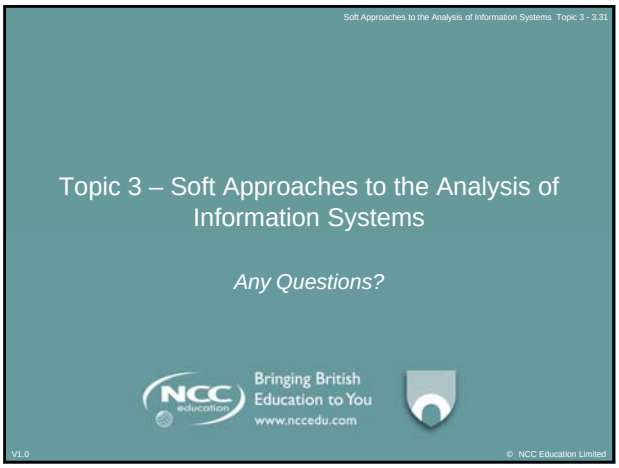
- SSM provides opportunity for the following:
  - Open discussion of problems, perceptions and needs
  - Different perspectives
  - Joint problem solving
  - User participation and commitment
  - Bringing sectors of an organisation together

Disadvantages of SSM

- May not be appropriate for complex systems in large organisations due to economic and time constraints
- Can take a long time to reach agreement
- It can be difficult to manage
- It may not be taken seriously

References

- Avison D. and Fitzgerald G. (2002). *Information Systems Development: Methodologies, Techniques and Tools,* 3rd Edition. McGraw-Hill Education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