



**Daffodil**  
*International*  
**University**

## Lecture 2

# System Development Life Cycles (SDLC)

## Part 2

Course Code: CIS 111

Course Title: Information Systems  
Engineering

Course Teacher: Md. Minhaj Hosen

# What is a *Methodology*?

A *methodology* is a formalized process or set of practices for creating software

- ▶ A set of rules you have to follow
- ▶ A set of conventions the organization decides to follow
- ▶ A systematic, engineering approach for organizing software projects

# Why it is important to follow a **Methodology**?

- ▶ Provides a consistent approach to manage all kind of software projects (small, medium and large)
- ▶ Provides a predictable roadmap for organizing and storing information on projects i.e. designing project documentation

# Different Methodologies

There are several methodologies available for the analysis and development of information systems, which one used depends on:

- ▶ the level of complexity of the existing/proposed information system
- ▶ technical considerations
- ▶ organisational considerations
- ▶ user considerations

# Two different Methodologies

We will focus on **2** types of methodologies primarily:

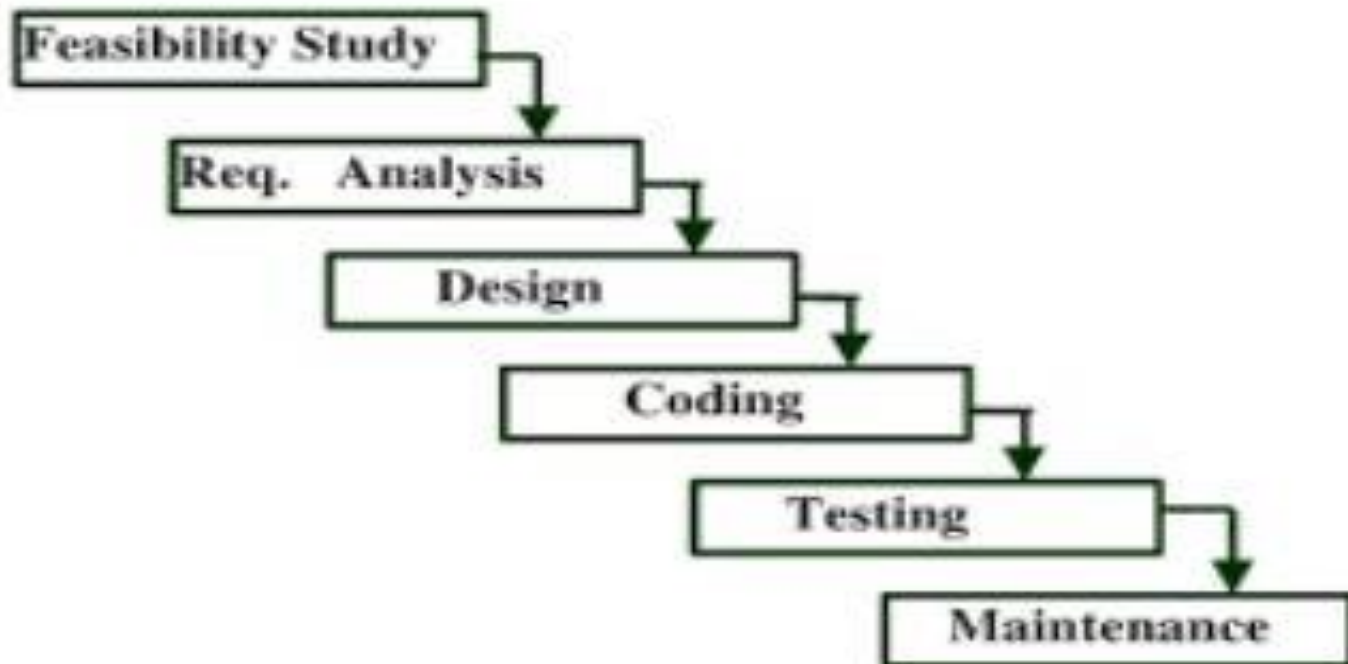
- ❑ **Hard Systems Methodology**- focuses on the technical requirements of a system
- ❑ **Soft Systems Methodology**- focuses on user requirements

# Hard Systems Methodology

- ▶ A *Hard Systems Methodology* refers to taking a highly structured approach for the development of Information Systems.
- ▶ This approach follows a logical sequence of steps and adheres to rules, guidelines and standards.
- ▶ It is particularly appropriate to use when working on large, complex information systems, such as industrial or manufacturing systems.
- ▶ It can also be used for smaller-scale business information systems projects.

# Hard Systems Methodology- SSADM

Structured System Analysis and Design Method(SSADM) is also referred to as **Waterfall Model** or **Traditional Model** used for the development of the software project.



# Benefits of SSADM

- ▶ Each step of the Waterfall method needs to be completed before progression onto the next one. This aims to ensure that all procedures associated with each step are undertaken.
- ▶ It is easy to measure progress by referring to the objectives defined for each step.
- ▶ It ensures thorough planning and scheduling.

# Drawbacks of SSADM

- ▶ There is a lack of flexibility, e.g. if the requirements are not specified correctly or change later in the project, it can be expensive to repeat the requirements stage or it may not be possible to return to this stage.
- ▶ There is often limited user involvement as this method tends to concentrate on the technical requirements.
- ▶ A project can often take longer to deliver than other methods that allow stages in a project to be repeated.

# Soft Systems Methodology

- ▶ 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.

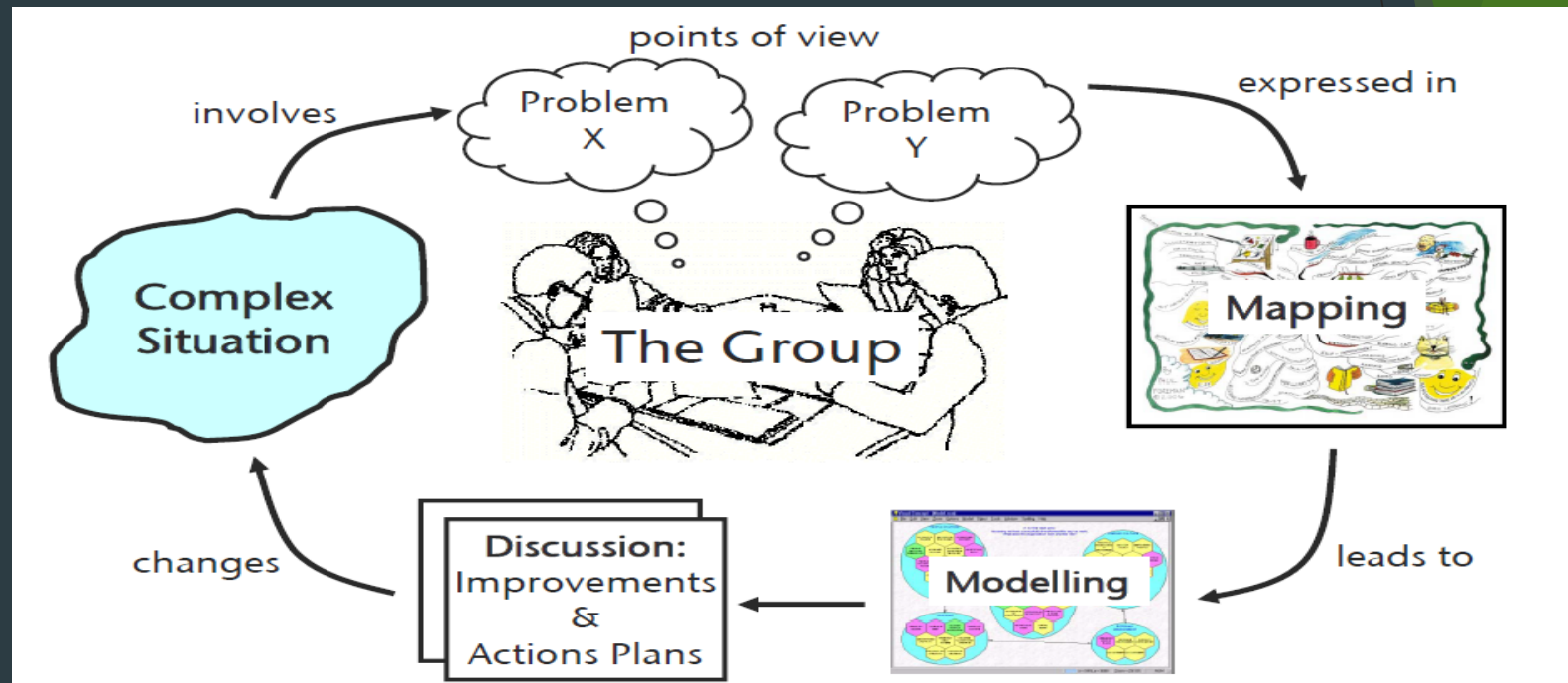
# Soft Systems Methodology

Soft approaches are particularly 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

# Soft Systems Methodology

SSM adopts a participative approach to problem solving and uses systems modeling to structure discussion between stakeholders.



# Benefits of Soft Systems

## Methodology

- ▶ Open discussion of problems, perceptions and needs
- ▶ Different perspectives
- ▶ Joint problem solving
- ▶ User participation and commitment
- ▶ Bringing sectors of an organisation together

# Drawbacks of Soft Systems

## Methodology

- ▶ 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