TDT4252 / DT8802 Enterprise Modelling and Enterprise Architecture

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Learning Goals (from Study Plan)

- Theoretical insights into different modeling perspectives, languages and techniques for creating models of :
  - Information systems
  - Enterprises
- Practical skills in
  - Analysing situations for modelling
  - Creating good models
- The course will introduce the ideas of Enterprise Modelling and Enterprise Architecture and provide a holistic view of modelling.

Background

- Lecturers:
  - Sobah Abbas Petersen (IDI/Sintef)
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  - John Krogstie (IDI)
    krogstie@idi.ntnu.no

- Teaching Assistant:
  - Merethe Heggset
    merethhe@gmail.com

This week

- Information about the course
- Motivation
  - Why take this course ?
  - Clarification of the scope of the course
  - Why model?

- NB. The lectures will be conducted in English.
- Please feel free to ask questions in Norwegian or English.

Course Outline

- The course will consist of the following:
  - Perspectives of modelling and different modelling approaches and languages.
  - Active Knowledge Modelling (AKM)
  - Enterprise Modelling
  - Enterprise Architectures
- Assignments
  - There will be one mandatory modelling assignment (Term Paper)
- Evaluation
  - A written exam – 65%
  - Assignment – 35%

Practical Information

- Course times:
  - Lectures
    - Mondays 14:15 - 16:00hrs room R93
    - Fridays 14:15 - 15:00hrs room R93
  - Note: Lecture times may change, but students will be informed ahead of time.
  - Exercises
    - Thursdays 16:15 – 18:00hrs room R92
- Course material (articles and lecture presentations) available from:
  - Canvas LMS (links to the material)
  - ITS Learning (adittional restricted material)

Practical Information: Canvas LMS

Open LMS since the course is made available as an Open Online Course

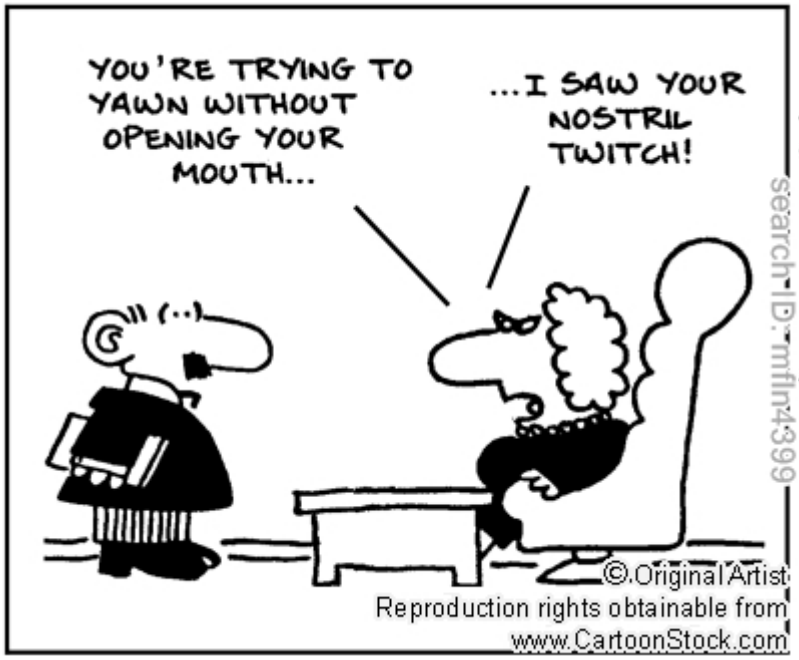
Course available at

https://canvas.bibsys.no/courses/23

- Signup using

  https://canvas.bibsys.no/enroll/JHNWAW (Everyone listed in ITS learning will be registered).

- Messages through announcements in Canvas.



Curriculum

- The course curriculum is based on a collection of book-chapters and articles.
- Lectures and lecture notes are a part of the curriculum.
- Articles are available through Canvas.
- The modelling exercises should be done using the software applications Metis, version 5.2.2 and/or Archi.

Assignment

- The mandatory assignment (worth 35% of the final grade) is built up of several modules.
- The assignment should include several sub-models that are linked:
  - This requires several modelling exercises that can eventually be put together as one model.
  - This requires thinking holistic and information as multi-dimensional.
  - Important: this work is done throughout the semester, after each modelling approach is presented in the lectures.
  - The assigment includes models and a report.
- Deadline to be announced.

Terminology

- Information systems:
  - “An information system is made of all the pieces of data and information used/stored/processed for the needs of the users and applications of enterprises” (Vernadat 1996).
- Model:
  - A model is anything used in any way to represent anything else. It can be a physical object, a mathematical or logical representation, a conceptualisation of something.
  - It is more abstract, usually less comprehensive, and normally cheaper to create than what it models.
  - It is important to select which parts to represent as a model.
- Conceptual Model:
  - A conceptual model represents 'concepts' (entities) and relationships between them.

Terminology, contd.

- Modelling Approach:
  - A modelling approach consists of a non-empty set of semi-formal or formal languages and a number of rules for using these languages to construct models.
- Enterprise Model:
  - A consistent set of special purpose and complementary models describing the various facets of an enterprise to satisfy some purpose of some business users.
- Holistic Model:
  - A model that takes into account the different aspects or views of the situation or system modelled and how they may affect one another. e.g. the functional aspects, performance aspects, user interface aspects, etc.
- Model View
  - A specific aspect of a system or situation that is modelled, e.g. the functional view of the system.
  - The contents of the model viewed a from a particular perspective, e.g. the contents that a particular user is interested in.

Motivation (1)

- A model represents how people perceive an area or a domain.
- Enterprises and IS development are ready for modelling tasks.
- It is important to understand the mechanisms that are in play when modelling (alone or in a large group of people).
- Modelling is important for analysis and requirements specification:
  - Poor analysis and requirements specification work is frequently the reason for the problems with software development.

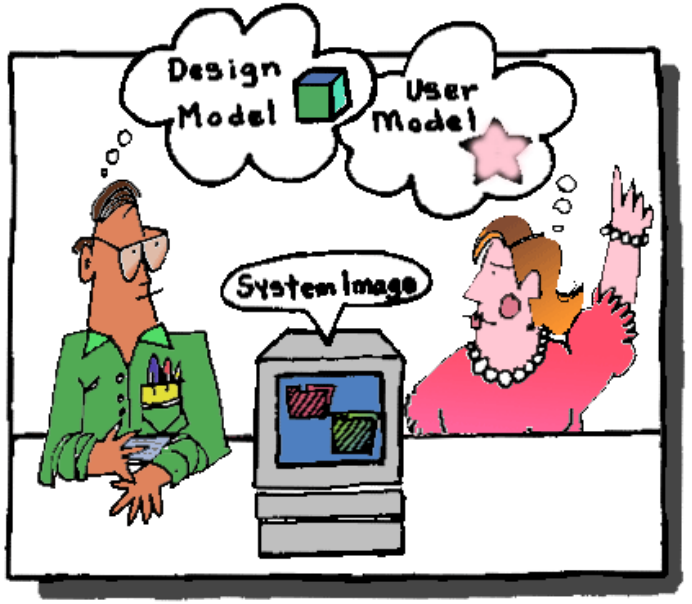
Motivation (2)

Who can benefit from this course?

- Everyone involved with enterprise and information system development, especially those involved in what is traditionally termed the ‘early’ phases of IS development.
- People working with choices and adaptations of development methodology, modelling language or modeling tool in an organization.
- People working with the development of modelling environments.
- People who want to do research on information systems modeling at an international level (e.g. in projects and master theses in the IS group, in the university or in the research sector).

Why Model?

- Modelling may be conducted for several reasons in a variety of situations by a variety of people.
  - The model created depends on the reason for modelling.
- Two main perspectives for creating models are:
  - IS perspective.
  - Business or enterprise perspective.



Why model? – IS Perspective

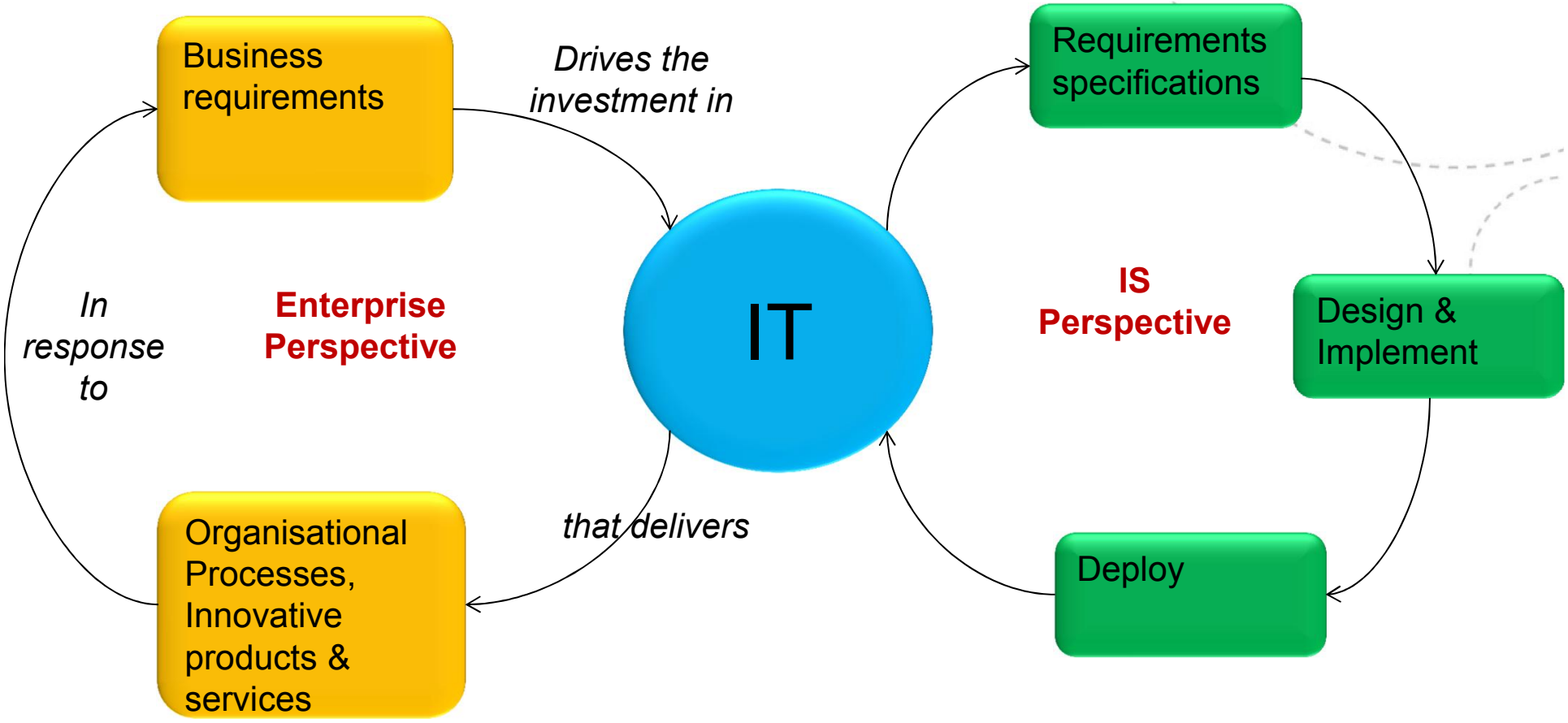
- To design and develop IT applications.
  - Analyse scenarios and user needs for requirements specifications.
- A model is more abstract and often cheaper than a program.
- A model provides input to the programming process:
  - Requirements
  - Conceptual overview of the application.
  - Identify modules that can be bought or developed – decision making.
  - Division of the work according to the capabilities of the application to be developed.
  - Automation of the development process – Model-driven development.

Why model? –
Business or Enterprise Perspective

- Analyse and understand a situation:
  - How is a situation perceived by the organisation?
  - Obtain an overview of the organisation:
    - Organisational structure.
    - Functions and responsibilities.
- Links IT to organisation:
  - IT support for the various organisational functions.
  - Design IT to serve organisations.
- Link Business Strategy to IT Strategy.
- Develop IT strategy for the organisation.
- Identify problems and loopholes.
- Design new business processes.

Business Strategy and IS

Business objectives sets IT priorities!



Purpose of the Model

- Before creating a model, it is important to understand the purpose of modelling and the purpose that would be served by the model that is created. This determines:
  - The design and focus of the model.
  - The perspectives of the model.
  - The modelling language and approach selected.
  - The modelling application.
  - The presentation of the model to the users.

Learning Goals revisited

- Different modelling perspectives, analyses of situations, Enterprise Modelling.
- This course aims to build on IS modelling from an IT perspective and examine the use of IT from an enterprise perspective.
- Thus, we will examine other kinds of models, whose primary purpose is not to design or specify IT systems; rather identify the need for IT systems and the types of systems.
- We will look at different types of models that can be created.

Scope of the course

- Different perspectives of modelling.
- Different kinds of modelling
  - IS modelling: requirements, goals, actors
  - Functional and Process Modelling
  - Active Knowledge Modelling
  - Enterprise Modelling
  - Enterprise Architectures
- We will use practical examples of models.
- We will look at how the different types of models relate to one another to create Enterprise Models and Enterprise Architectures.

Next Lecture

- Monday, 13 January 2014. 14:15-16:00hrs, room R93.
- We will discuss:
  - Why model? The Barings Bank case.
  - Historical perspective of modelling
- Please sign on to Canvas and do the preliminary survey of background knowledge before we meet again.