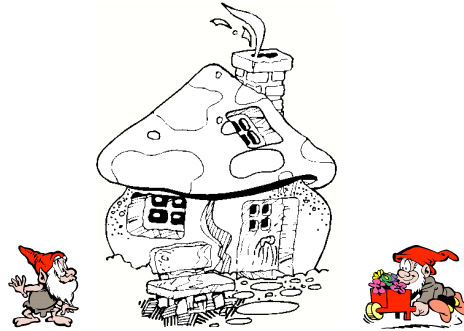


Advanced Design of Information Systems

Lecture 1.1



Prof.Dr.ir. Jan L.G. Dietz

IN3510 (and IN4154) in 2005/2006

General learning goals

After having taken the course, the student will have thorough knowledge of the *Design of Information Systems*.

He or she has knowledge of the current approaches to *Requirements Engineering*, and is able to apply them to practical cases.

He or she understands the important difference between the phases *Determining Requirements* (function-oriented) and *Devising Specifications* (construction-oriented).

He or she understands what *Information System Ontology* is as well as its role in the design process. He or she is able to produce the ontological model of an information system.

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Course material

- Articles [on Blackboard]
- Book "Information System Ontology" (ISO) [on Blackboard]
- Case descriptions for the assignments [on Blackboard]
- Assignments [will be clarified in the lectures]
- Lecture presentations [will be put on Blackboard right after the lecture]
- Tool EBM [to be downloaded from Blackboard]

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The tool EBM (Essential Business Modeler)

The tool EBM offers modeling support for a variety of methods and techniques.

In order to get a temporary license, the next procedure holds:

1. Register on the web site www.essmod.com. You will be assigned a registration number.
2. Send an e-mail with the registration number to Mrs. Rina Abbriata (secr@isa.ewi.tudelft.nl), at the latest on Thursday, 16 February.
3. As soon as all students have sent this e-mail, the licenses will be activated. You are able then to use the tool until the end of the course.

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Assignments

1. Produce the Requirements Document for the case IES, according to the guidelines that will be provided (*group assignment*).
2. Produce the ontological model of the case ECS and of a system of your own choice, according to the guidelines that will be provided (*group assignment*).
3. Write an essay of 15 to 20 pages in which you critically discuss the current state-of-the-art in Information System Design as well as the possible benefits that could be gained from applying the Generic System Development Process, as far as covered in this course (*individual assignment*).
4. Produce the full specification of the case ECS in UML 2.0. Analyse and discuss the differences with the ontological model, produced in assignment 2 (*group assignment; only for IN4154 students*).

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Submission of assignments

The submission deadlines for the assignments are :

- Assignment 1: March 6, 2006
- Assignment 2: March 27, 2006
- Assignment 3: April 10, 2006
- Assignment 4: April 10, 2006

Only hard copies of reports are accepted. They must be delivered at the secretariat of Software Technology (09.090), before 16 hrs.

The next data should be provided on the cover page: course number and name, course year (2005-2006), assignment number, student name(s) and student number(s), group number (if applicable)

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Grading

The final grade is built up of:

1. Mark for assignment 1 (25%)
2. Mark for assignment 2 (25%)
3. Mark for assignment 3 (50%)

Note for IN4154 students: the additional assignment 4 must have got the mark 6 or higher.

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Course program - week 1

1.1 (Thursday 5+6)

Overview
Forming groups

The GSDP

Announcement of assignment 1

1.2 (Friday 3+4)

The data-oriented approach, in particular the Object Role Model (ORM)

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Course program - week 2

2.1 (Thursday 5+6)

The flow-oriented approach, in particular Structured Analysis / Structured Design (SA/SD)

2.2 (Friday 3+4)

The activity-oriented approach, in particular Integrated Definition Methods (IDEF0)

Distribution of assignment 1

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Course program - week 3

3.1 (Thursday 5+6)

Answering questions about applying ORM

3.2 (Friday 3+4)

Answering questions about applying IDEF0

Answering questions about applying SA/SD

Answering questions about applying RUP

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Course program - week 4

4.1 (Thursday 5+6)

Information System Ontology - Foundations

4.2 (Friday 3+4)

< no class >

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Course program - week 5

5.1 (Thursday 5+6)

Information System Ontology - the SMART model

5.2 (Friday 3+4)

Information System Ontology - the Smartienet

Distribution of assignment 2

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Course program - week 6

6.1 (Thursday 5+6)

Answering questions about applying the SMART model

Evaluation

distribution of assignment 3
distribution of assignment 4

6.2 (Friday 3+4)

< no class >

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Course program - week 7

7.1 (Thursday 5+6)

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7.2 (Friday 3+4)

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TU Delft

Forming groups

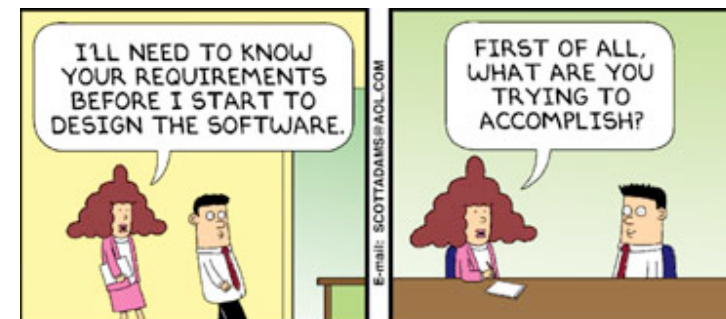
- There are 8 groups. In principle, every group consists of 4 students.
- You can freely form a group. In order to constitute a group, send me an e-mail in which you mention the group members (names and student numbers).
- I will assign a group number and send an e-mail to each member stating that the group has been constituted.
- You must be member of a group at the latest on Thursday, 16 February 2006.

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TU Delft

State-of-the-Art (?)

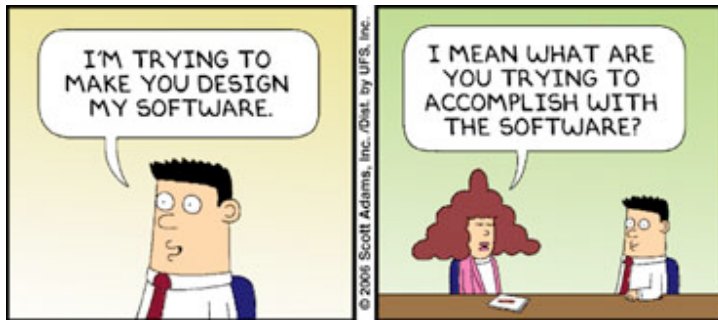


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TU Delft

State-of-the-Art (?)



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State-of-the-Art (?)



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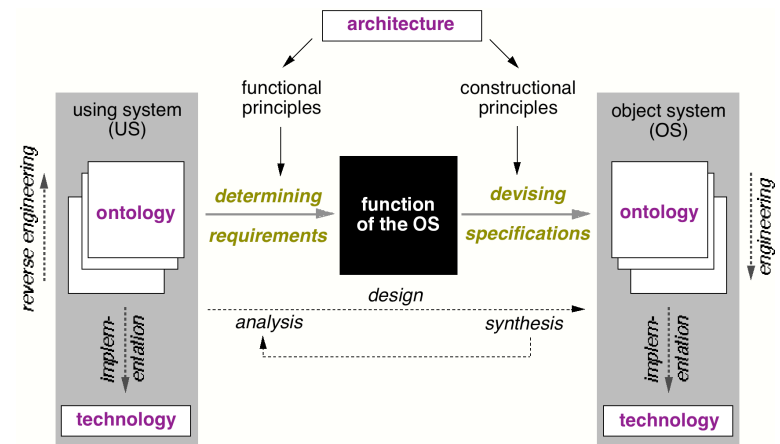
State-of-the-Art (?)



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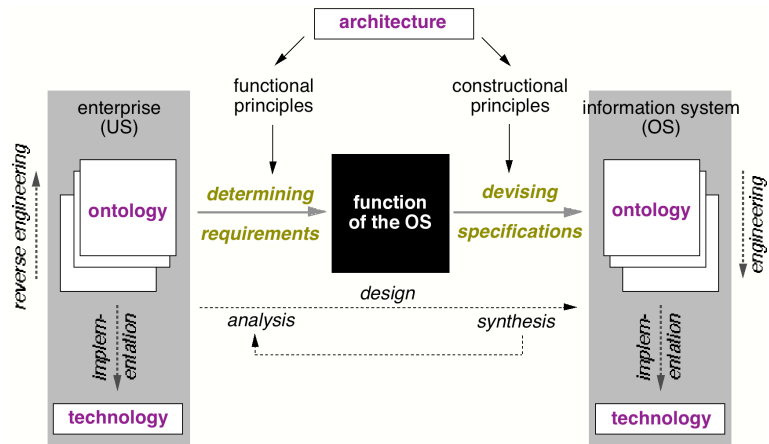
Generic System Development Process



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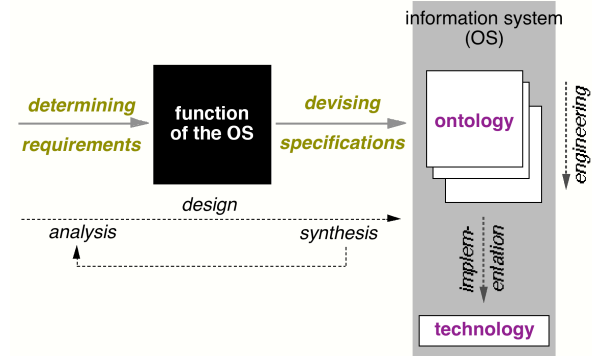
Information System Development Process



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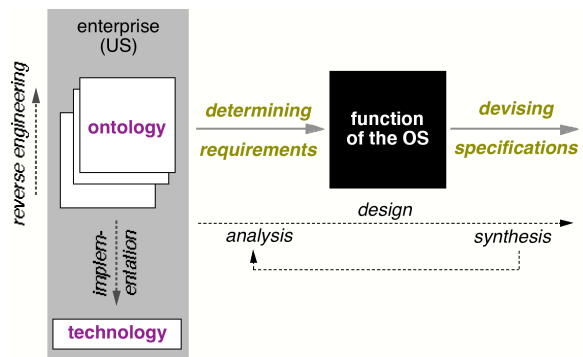
IN3510 (Advanced Design of Information Systems)



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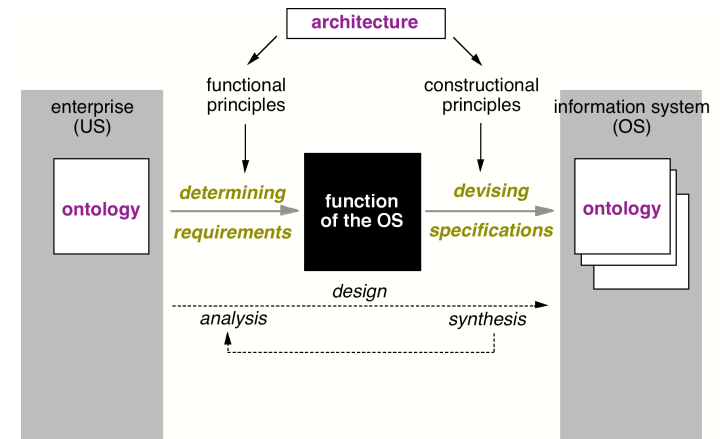
IN4148 (Enterprise Ontology and Business Components)



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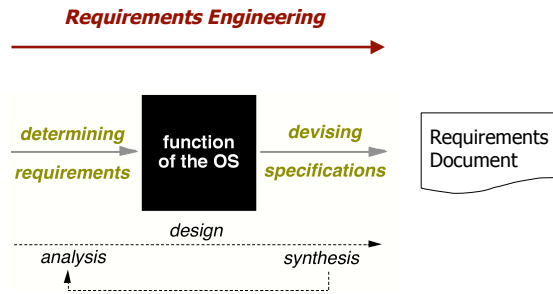
IN4153 (Enterprise Architecture and Web Services)



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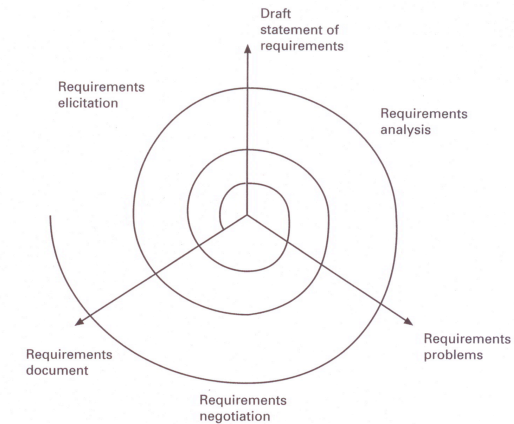
Requirements Engineering : state-of-the-art



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Requirements Engineering : the process



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Requirements Engineering : approaches

- Flow-oriented
 - Gane and Sarson (1979)
 - DeMarco (1979), Yourdon (1990)
- Activity-oriented
 - Ross (1977)
 - Department of Defense USA (1990)
- Data-oriented
 - Chen (1976)
 - Nijssen (1976), Halpin (1998)
- Object-oriented
 - Shlaer & Mellor (1988)
 - Rumbaugh e.a. (1991)

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Assignment 1 : a scientific experiment

The purpose of assignment 1 is to conduct a scientific experiment. It consists of having requirements engineering performed of the same example case by 4 different approaches. Each approach is applied by 2 groups:

- Flow-oriented (2 groups)
- Activity-oriented (2 groups)
- Data-oriented (2 groups)
- Object-oriented (2 groups)

The results will become part of the doctoral dissertation of Mr. Tychon Galatonov. Further explanations follow in due time.

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