



Lehrstuhl für  
Informatik3

**RWTHAACHEN**  
RHEINISCH-WESTFÄLISCHE HOCHSCHULE AACHEN

# Lab Course SS2007

## *Prozessmanagement und Dokumentenintegration*

### Introduction and Organisation

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Lehrstuhl für Informatik 3

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# Overview

- Introduction
- Learning Targets
- Industry Cooperation
- Process Management
- Document Integration
- Running Example
- Goals of the Lab Course
- Organisation




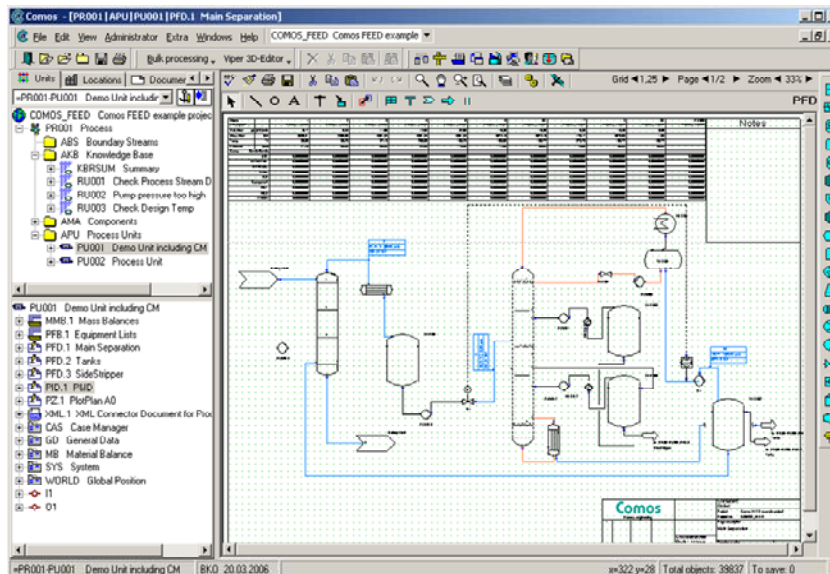
# Learning Targets

- Use theoretical knowledge
  - » in an industrial context
- Gain project experience
  - » Solve a complex task
  - » Autonomous execution of a software development project
    - From problem analysis to deployment
      - including design, implementation, test and documentation
    - Creation of a project plan, definition of milestones
    - Keep the schedule, react to unforeseen problems
- Soft skills
  - » Communication skills
  - » Presentation techniques
  - » Team work
- Technical skills
  - » Development environment 
  - » Plug-in programming based on 
  - » Programming language 
  - » Versioning system CVS



# Industry Cooperation

- Comos PT developed by  innotec  
innovation worldwide
- Integrated development environment for planning chemical plants
- Problem: support of process management and integration of plant models is missing





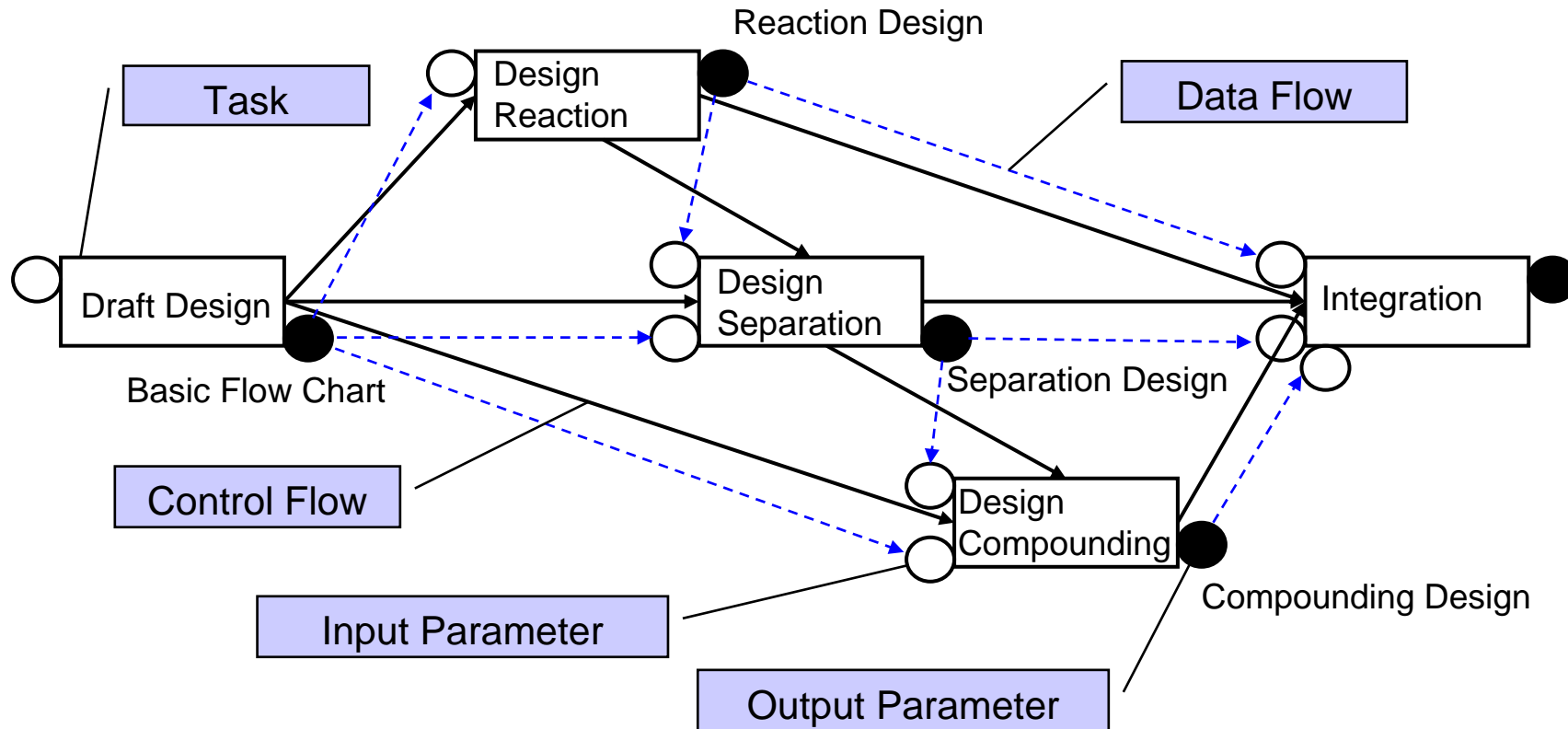
# Process Management

- Task Management
  - » A process contains a sequence of tasks
  - » A task has a resource, input and output documents, dates, planned dates
- Resource Management
  - » Employees, technical resources
  - » Roles, team structure
- Product Management
  - » Revisions, variants, configurations
- Process Monitoring, Progress Analysis
  - » Milestones, delays
- (Process Knowledge and Process Evolution)



# Dynamic Task Nets

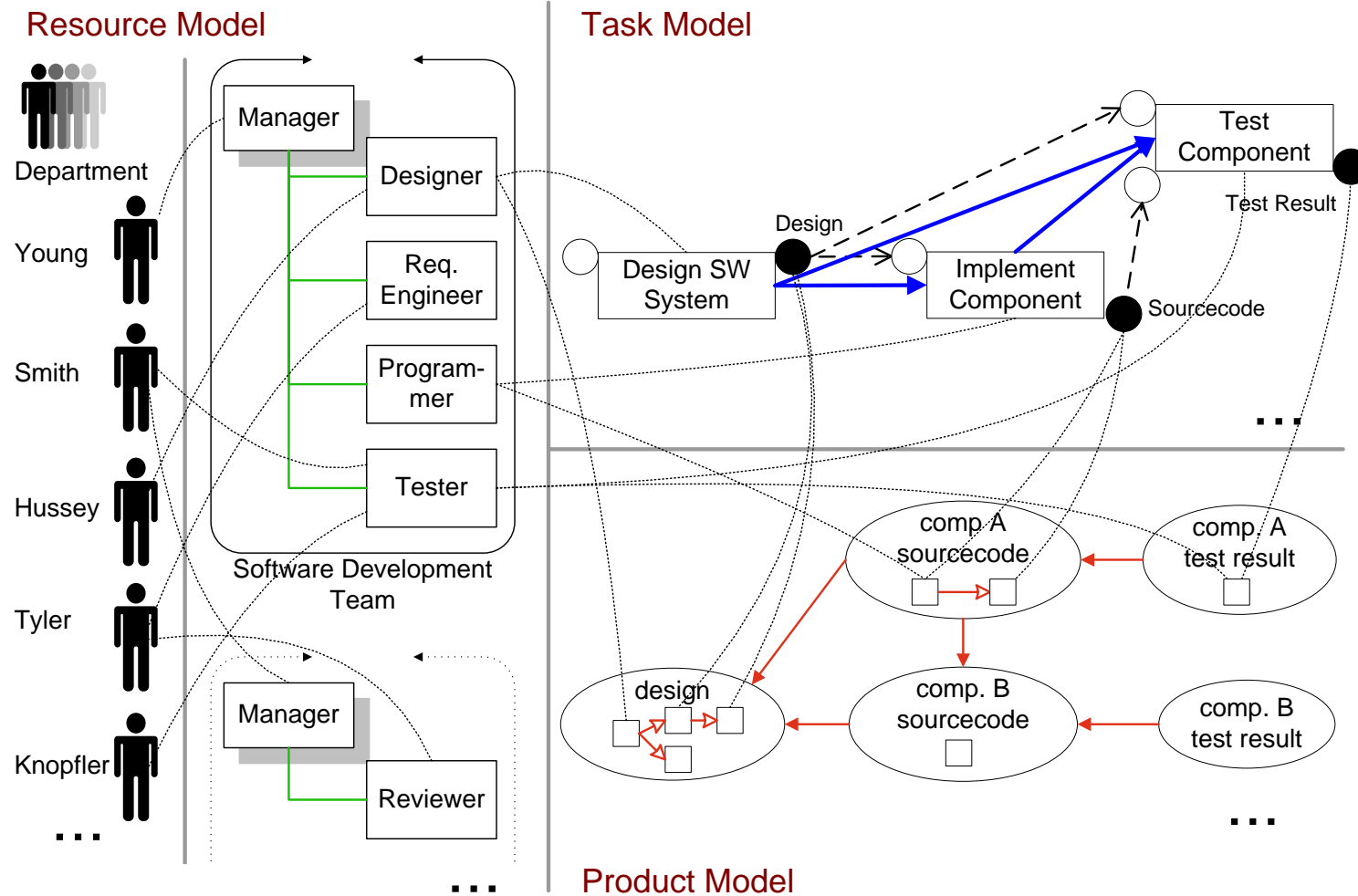
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- Planning during execution
- Fallbacks and feedback flows in the development process



# Integrated Management Model

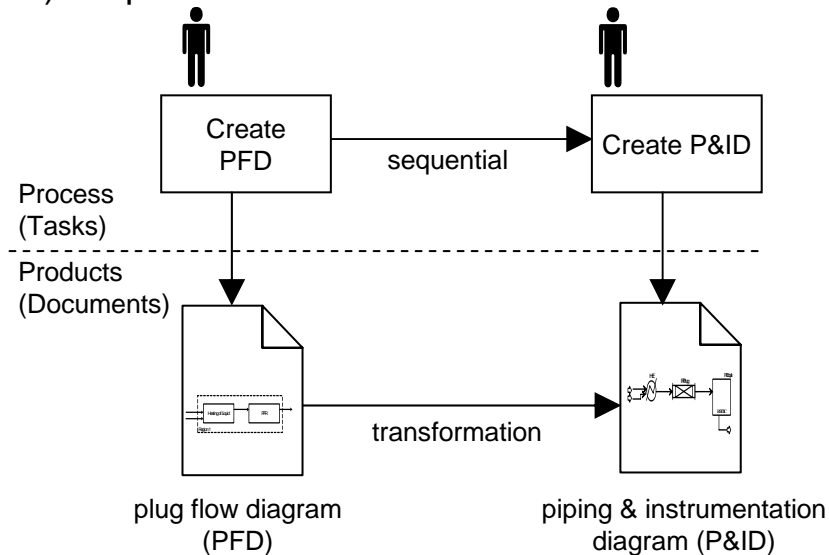




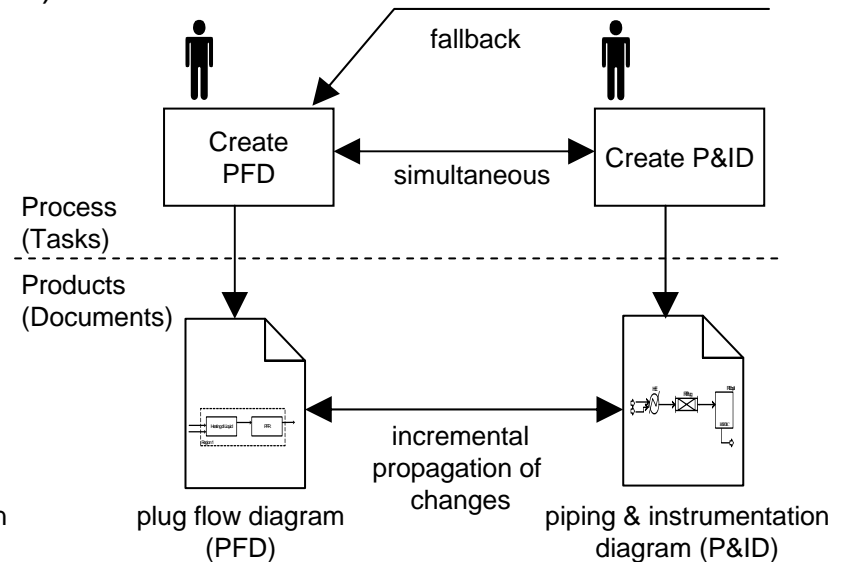
# Document Integration (1/2)

- Development processes
  - » complex tasks
  - » sub tasks often proceeded simultaneously
  - » complex relationships between products of sub tasks

a) Sequential control flow



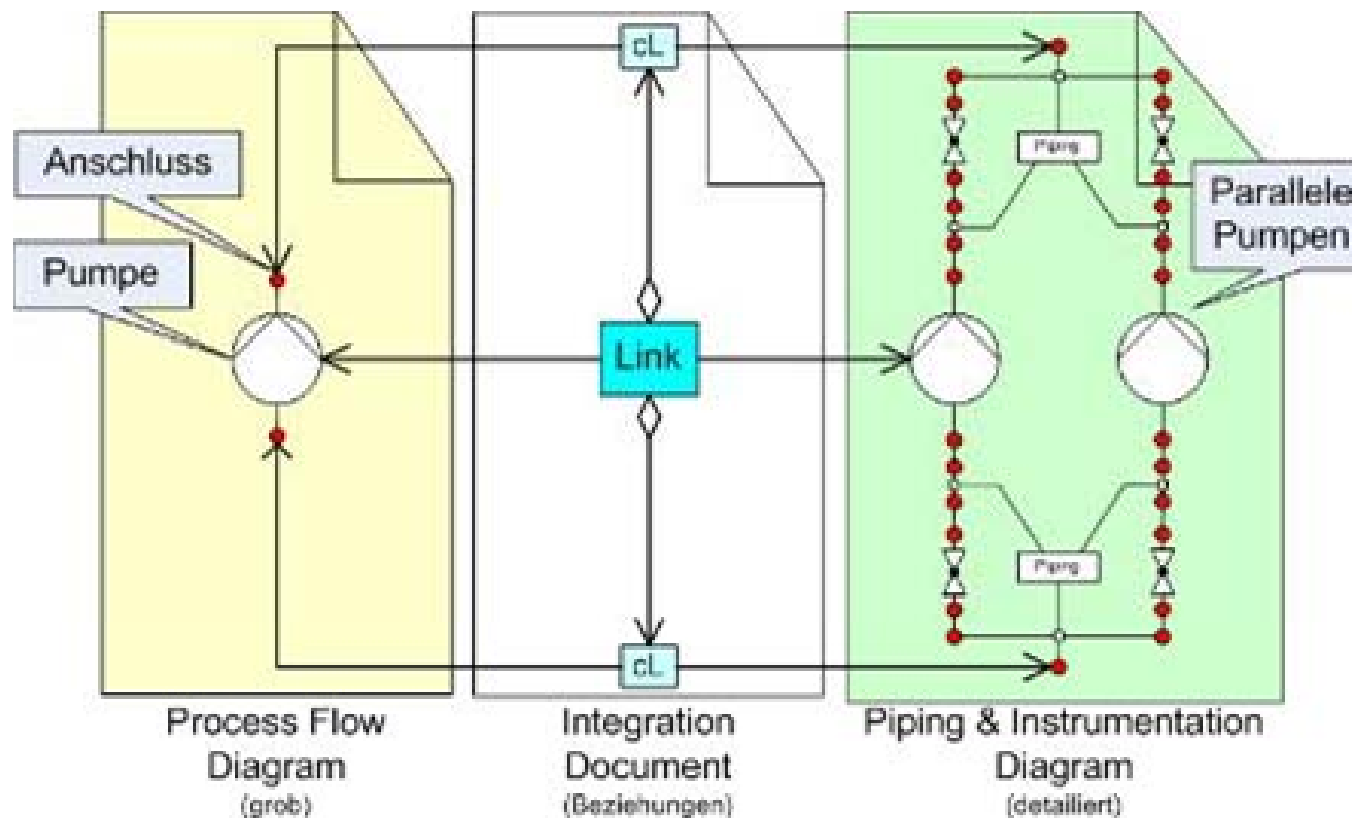
b) Simultaneous control flow





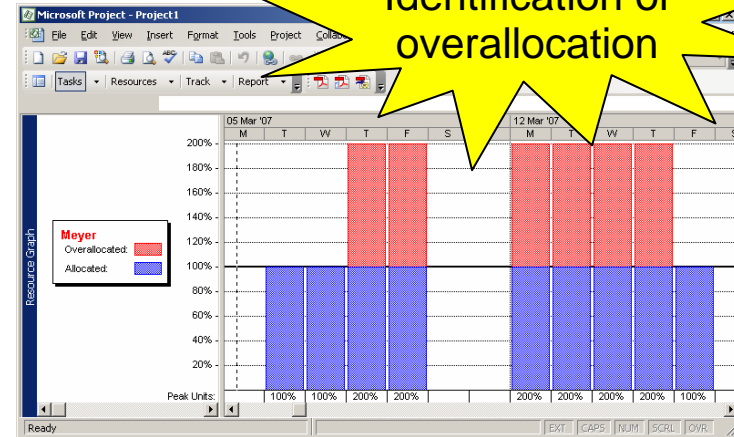
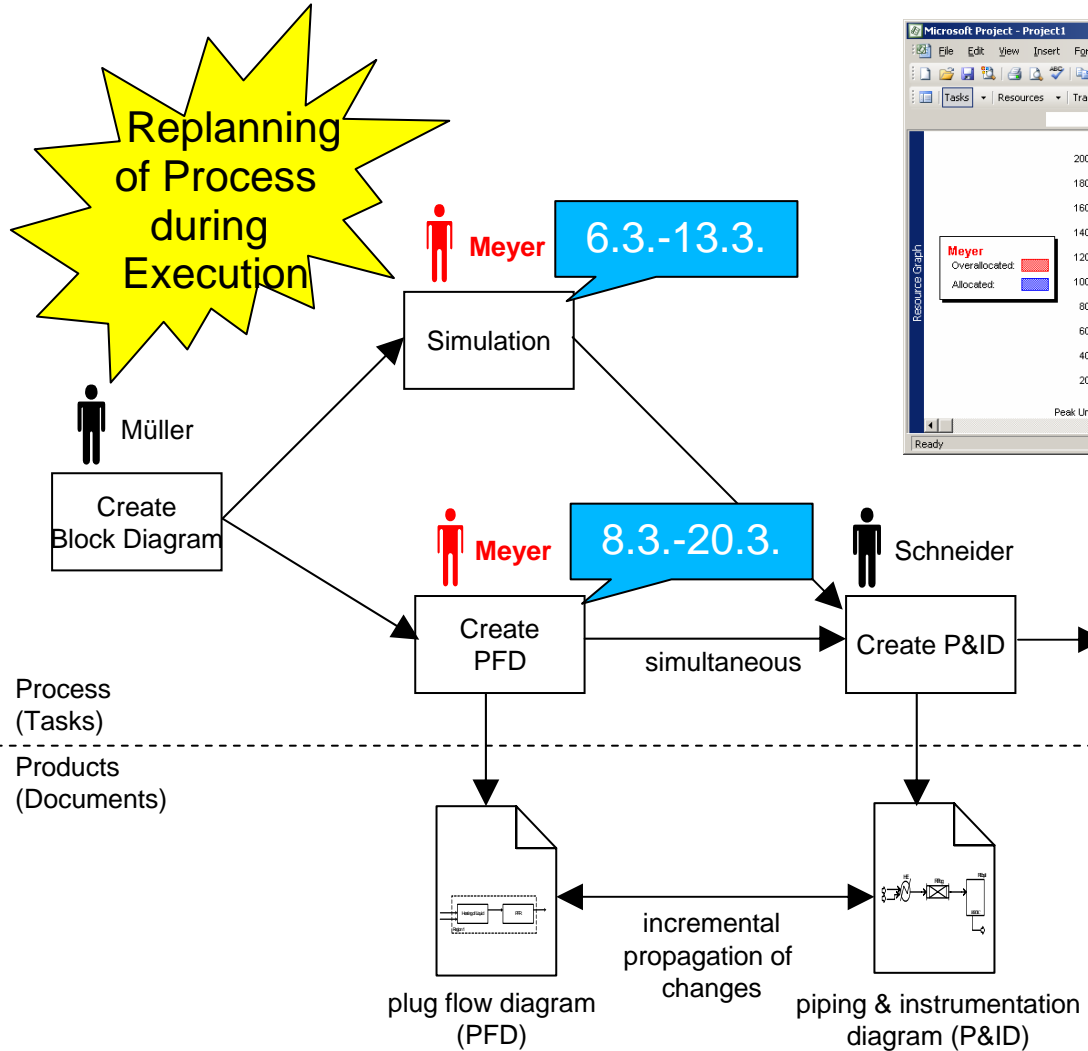
## Document Integration (2/2)

- Consistency Maintenance
  - » Store complex relationships
  - » Propagate changes (transformation)





# Running Example



MS Project Resource Allocation Graph





# Goals of the Lab Course

- Extension of the rudimentary process management functionality

**Resources** →

**Tasks** →

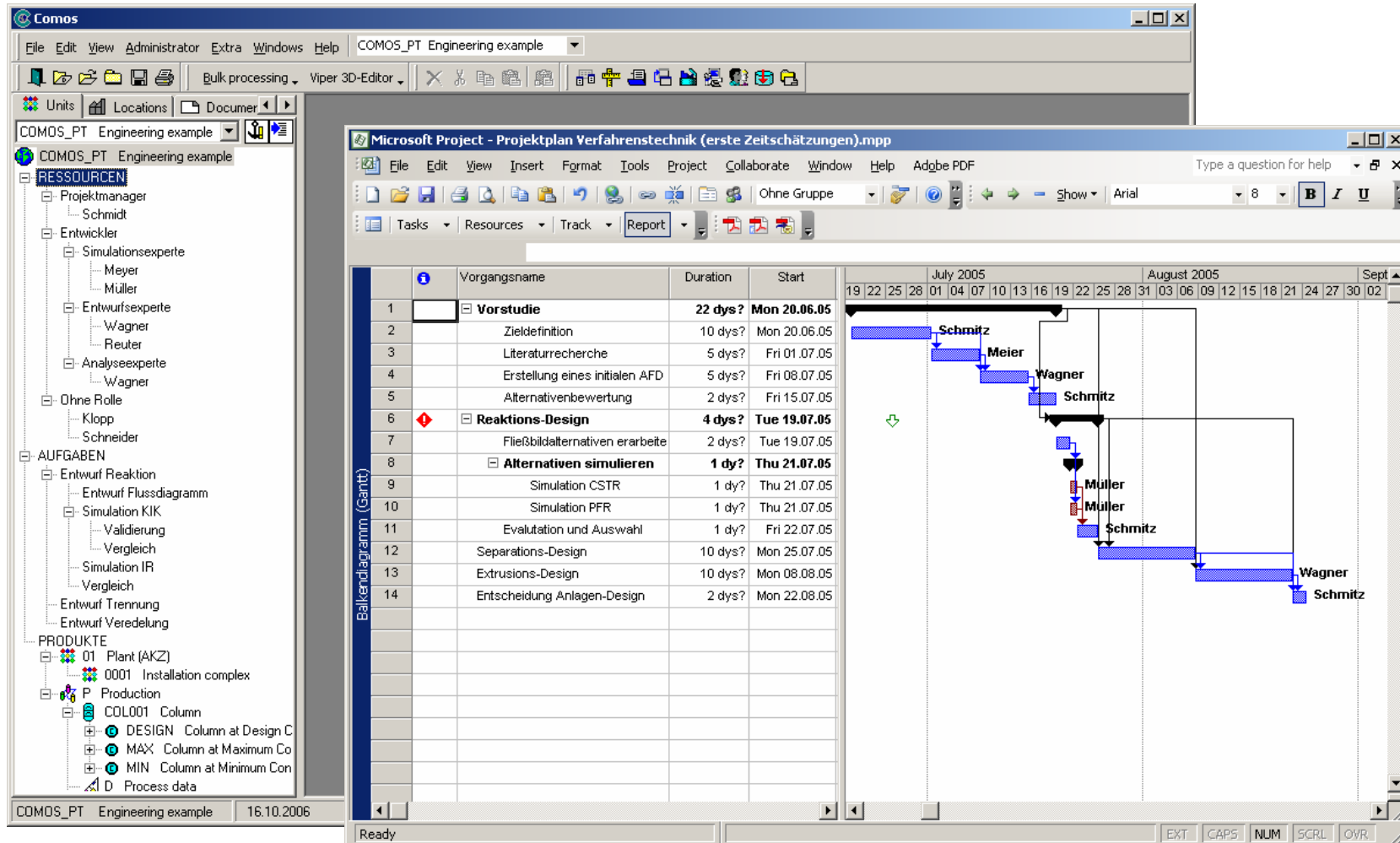
**Products** →

**Representation of Dynamic Task Nets**



# Goals of the Lab Course

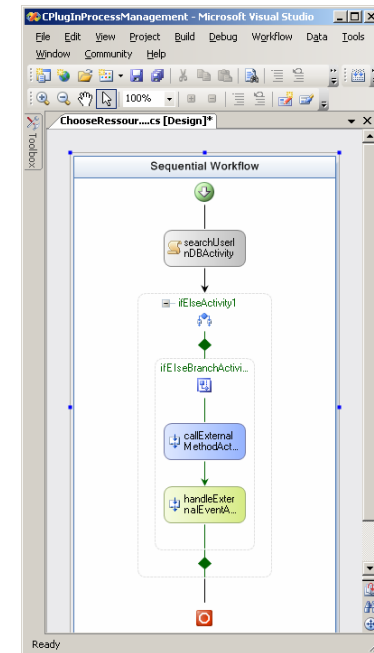
## ➤ Integration with MS Project





## Goals of the Lab Course

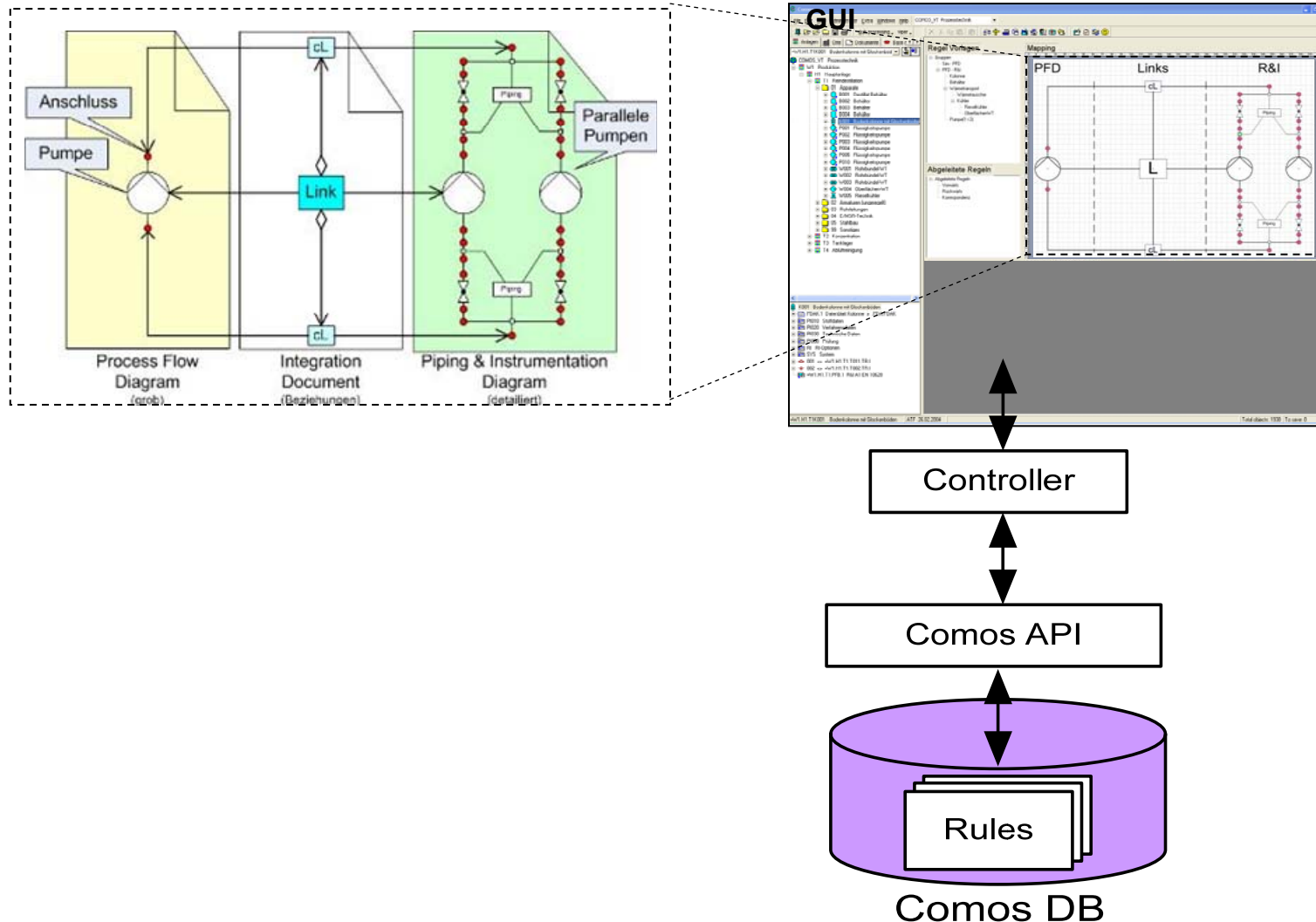
- Optional: Integration with an existing Workflow Engine based on the Windows Workflow Foundation
  - » Workflows are simple Tasks
  - » Workflows have a responsible resource and produce documents
  - » Workflows can be integrated with dynamic task nets
- Optional: Process Monitoring, Progress Analysis
  - » Determine degree of completion of tasks
    - e.g. number of completed subtasks, degree of completion of documents to be produced, progress of simple workflows
  - » Propagation and condensation of progress data





# Goals of the Lab Course

## Editor for the definition of relationships (rules)





# Organisation

- Before semester
  - » Make yourself familiar with C# and MS Visual Studio
  - » Training (Comos PT, C#, MS VS, CVS, ...)
    - 28.3. – 30.3.
    - 9:00 – 17:00
    - Seminar room and lab I3
- During semester
  - » Weekly meetings
    - Joint planning of following steps and definition of tasks
- End of semester
  - » Demonstration of results
  - » Closing report