Business-Driven Software Engineering

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Agenda

- Lecture & Lab Organization
- Motivation for Business-Driven Software Engineering
- Summary
Lectures

- Approx. 14 Lectures (February 19 to May 28)
  - Tue, 08:10—09:45, BIN-2.A.10
  - In case of changes, they will be announced on the homepage
    http://researcher.watson.ibm.com/researcher/view_project.php?id=4435

- Material:
  - Slides from the lecture.

- Presence highly recommended, not required
Passing “Business-Driven Software Engineering”

- **Lecture**
  - By participating in the lecture
  - Written exam after the last lecture (oral if less than 5 participants)
  - If written on June 11, 2013 in BIN-2.A.10
    (if oral by appointment)

- **Lab**
  - Solve some exercises
  - Model a simple business process
  - Implementation of the business process
  - More details will be announced during the lectures
  - Demo of your final example
Lecture Organization

Lecture 1:
- Enterprise Java Beans I

Lecture 2:
- Enterprise Java Beans II

Lecture 3:
- Process Modeling Foundations

Lecture 4:
- Process Orchestrations

Lecture 5:
- Business Process Model and Notation
Lecture Organization

Lecture 6:
- Semantics of Process Models

Lecture 7:
- Enterprise JavaBeans III
- Security
- Transaction Management

Lecture 8:
- Web Services
- Implementation
- Security
Lecture Organization

Lecture 9:
- Business Objects and Object Life Cycles

Lecture 10:
- Business Process Modeling with Tools

Lecture 11:
- Enterprise Java Beans IV
- EJB 1.x and EJB 2.x

Lecture 12:
- Enterprise Java Beans V

Lecture 13:
- Business Process Simulation and Exercise Discussion
Lecture Organization

Lecture 14:
- Lab Submission

Lecture 15:
- Exam
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A Common Challenge in IT …

Business Consultants

What have they meant?

I just do it my way

Software Engineers

Business Model

Technology
BPEL, Web Services, EJBs

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Vision: Integration of Business and IT

- Business model captures business goals and provides overview of the enterprise
- IT level comprises components organized in a component-based or service-oriented architecture
- Business processes provide the bridge between business and technology
Goals of the Lecture

- Understand different layers of business-driven development
- Understand concepts of business model, business process model and technology level
- Understand business process modeling concepts
- Hands-on experience with Service-Oriented Architectures
- Be able to work with today’s component technologies
- Acquire the ability to work both at the business as well as the IT level to provide a bridge
- Acquire the ability to handle technology at different levels
Business Process Definition and Elements

- “A process is[..] a specific ordering of work activities across time and place, with a beginning, an end, and clearly identified inputs and outputs.” (Davenport 1993)
- “We define a business process as a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer.” (Hammer and Champy, 1993)

Important elements of business processes:
- activities
- ordering of activities (flow of activities)
- start and end
- goal/value of a process
Typical examples of business processes

- Claim handling processes in an insurance company
- Payment processes when buying a book at Amazon
- Credit handling processes when applying for a loan in a bank
- Software development process in a software company
- Processes in car manufacturing
- Processes in chemical engineering
Service-Oriented Architecture

Services are the core of SOA

- Group of components carrying out a business task
- Provide higher level of abstraction from functional point of view
- Autonomous and loosely coupled services
- Interact with each other independent of implementation technology of platform
Component Architectures

- What is a Component Architecture?
- Agreement on interfaces
  - Application server
  - Components

⇒ Components may be used on multiple application servers

- Complements Service-Oriented Architecture
Credit Approval Process – IBM WebSphere Business Modeler
Example – Some Questions

What kind of language are we using for process modeling?

How does my process relate to the business model we have adopted?

Is the process correct? Does it represent our situation in the enterprise?

How to implement this process in a process server?
Example – Some Answers

What kind of language are we using for process modeling?

- currently we are using BPMN

Is it really that easy?

- no, we need some services first implementing the individual task

How does my process relate to the business model we have adopted?

- well, we have systematically derived it from the business model they provided

Is the process correct? Does it represent our situation in the enterprise?

- we have simulated it and analyzed the correctness

How to implement this process in a process server?

- let us quickly deploy it and ….
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Summary

- Today, there is a gap between the business and IT worlds
  - People with different background work on the system
  - For different layers different technologies and tools are used

- Business-Driven Software Engineering bridges the gap
  - Provides integration of skills
  - Provides a direct connection between artifacts on different layers
  - Allows to understand technologies used in different layers