INFORMATION MANAGEMENT

ENTOLOGY

FH JOANNEUM

S-BPM in Research and Education

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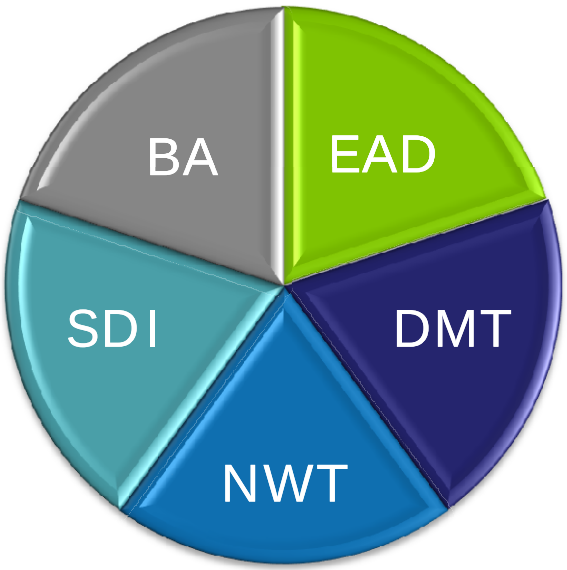
Agenda

- Degree Program Information Management
- Development of Business Process Management
- Link of S-BPM to various hot topics
- Recent S-BPM application in research, projects, and teaching
- Future plans and open questions

Degree Program Information Management

- Competence Fields
  - Enterprise Architecture Design (EAD)
  - Digital Media Technologies (DMT)
  - Network Technologies (NWT)
  - Software Engineering,
    DBs & Information Systems (SDI)
  - Business Administration (BA)

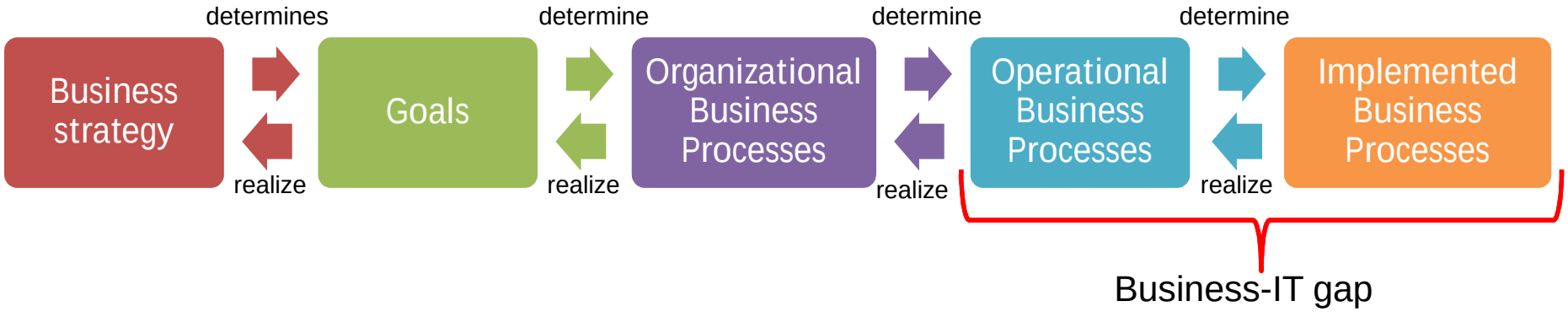


- Bachelor Course (6 semesters)
  - education-oriented
- Master Course (4 semesters)
  - research-oriented

Perspectives on Business Process Management (BPM)

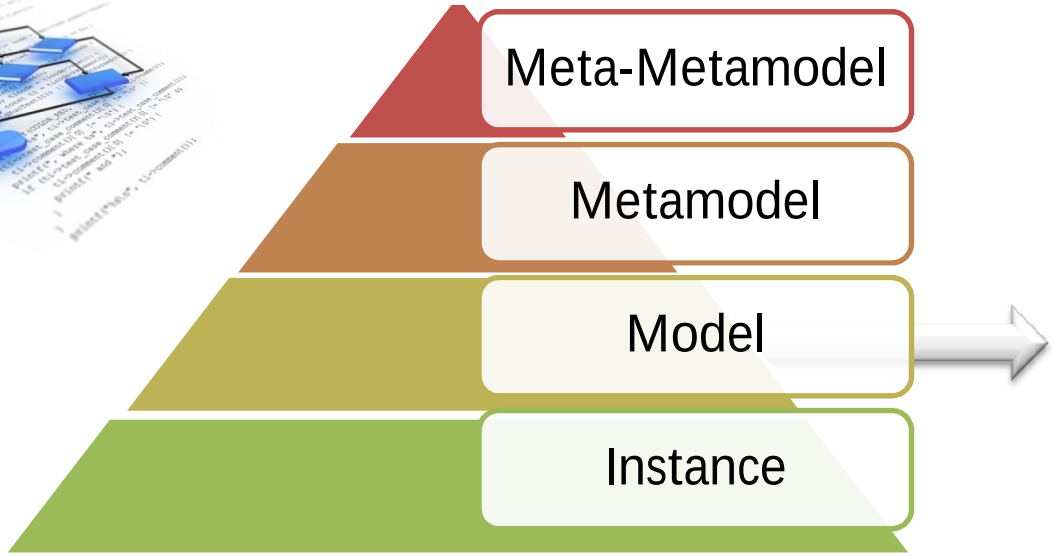
Business Administration	R & D	Software Development
		
• Improve operations • Increase customer satisfaction • Reduce cost of doing business • Establish new products/services	• Investigate structural properties of processes • Strong abstraction • Process activities reduced to letters	• Robust and scalable software systems • Technical realization of business processes • Standardized interfaces

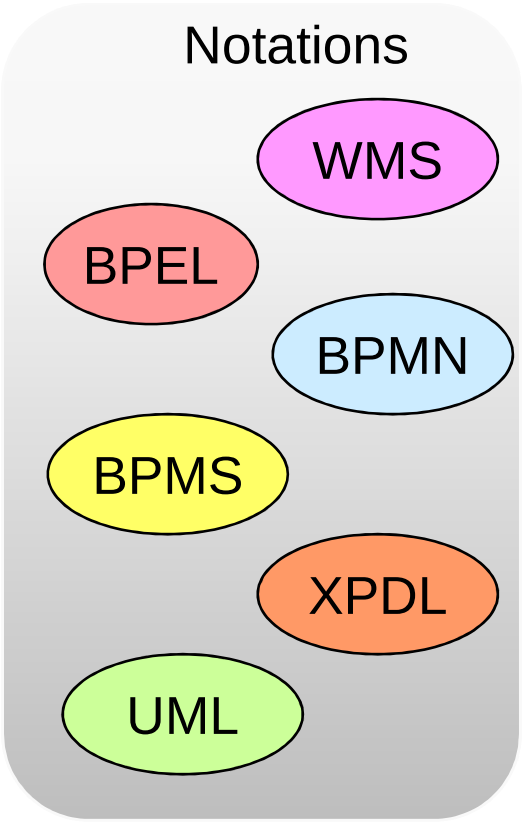
Levels of business processes:
From business strategy to implemented business processes



- Connection between business strategy and implemented business processes
- Problem: Integration of processes into IT systems à Business-IT gap
  - Process description on business-side
  - Implementation on IT-side

Business Process Modeling: Levels of Abstraction

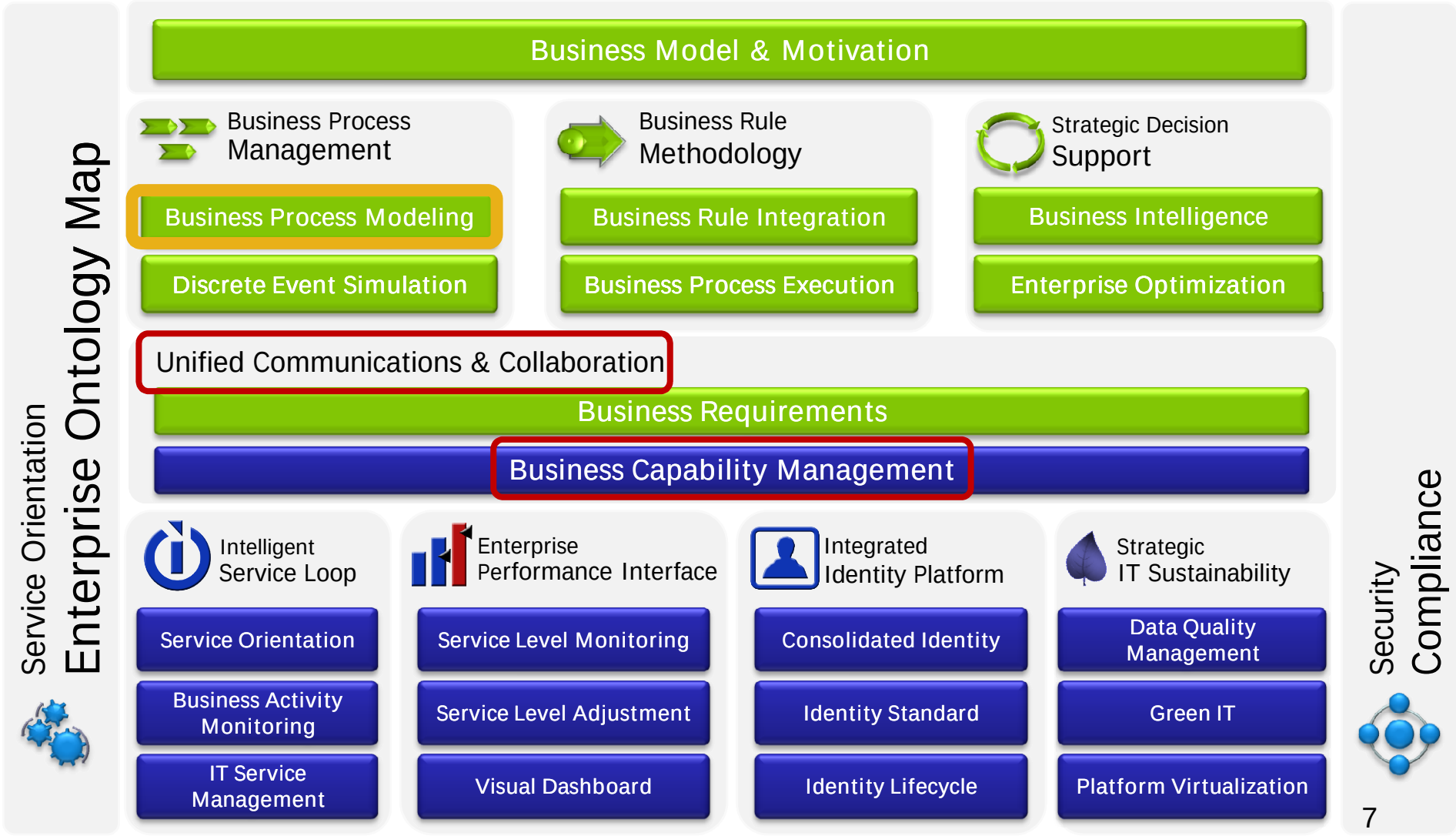




- Breakdown from Meta-Metamodel to Instances
- Various notations used to define models
- S-BPM as new modeling paradigma

S-BPM

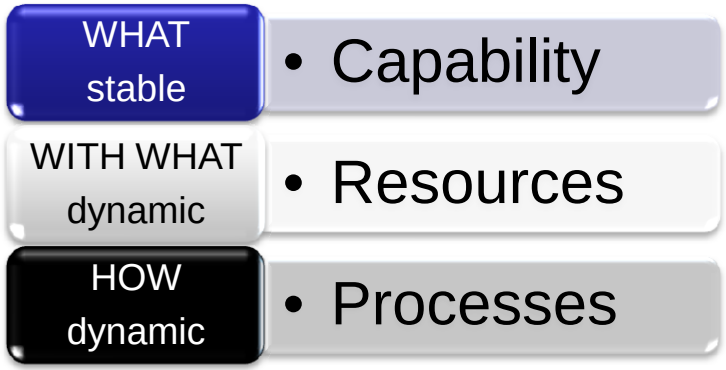
BPM in connection with other research topics



Business Capability Management and S-BPM | 1

- Hypothesis: The transformation of business capabilities into business processes by means of the subject-oriented design paradigm is a valid as well as efficient path within the context of BPM

- BCM is a management approach dealing with stable components of an enterprise



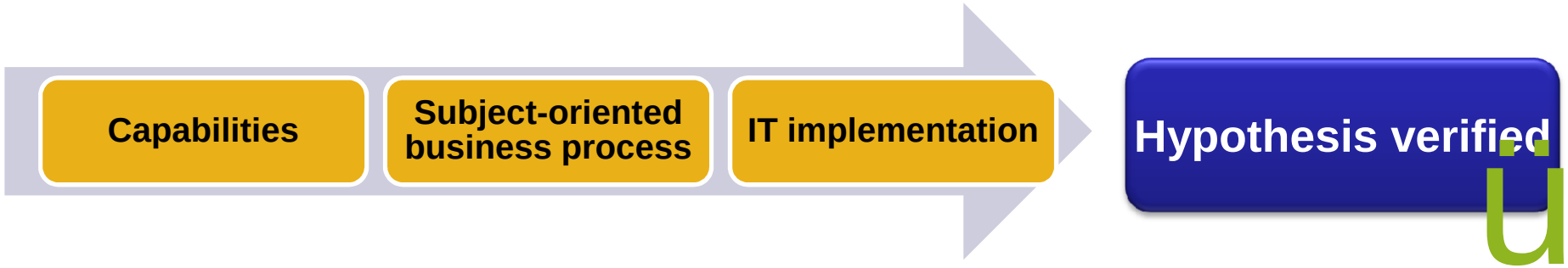
"A business capability is a particular ability or capacity that a business may possess or exchange to achieve a specific purpose or outcome. A capability describes what the business does (outcomes and service levels) that creates value for customers; […]. A business capability abstracts and encapsulates the people, process/procedures, technology, and information into the essential building blocks needed to facilitate performance improvement and redesign analysis. " (Homann, 2006)

Business Capability Management and S-BPM | 2

- Procedure Model
  - Establish Business Capability Map
    - derived from Business Strategy
    - derived from Management Reference Models
    - derived from existing Business Processes
  - Define BC Granularity as required
  - Transform BCs into Process Definition using the jCOM1 BPM Suite
    - Orchestrate BCs to generate BC Chains
    - Assign BCs to appropriate Subjects and corresponding Resources
    - Perform Simulation and Optimization and roll out Business Process onto suitable Runtime Environment

Business Capability Management and S-BPM | 3

- Proof of Concept: Real-world Business Process at Audi (delivered by jCOM1)
  - Conventionally designed business process decomposed into business capabilities
  - Business capability chains established
  - Transformation into subject-oriented business process
  - Mapping of appropriate resources
  - Successful roll-out into IT infrastructure



Unified Communications and S-BPM | 1

- Hypothesis: Because S-BPM is highly message-oriented, it turns out to be a powerful approach to support human interaction business processes supported by underpinning UC technology

S-BPM

"Unified Communications is a new communication architecture, in which various forms of real-time communications and collaboration applications are integrated so individuals can manage all their communications together rather than separately, in both desktop and mobile environments." (Lazar, 2007)

Unified Communications and S-BPM | 2

- Process Selection
  - Pre-Sales Process of Datentechnik Austria GmbH & Co KG
  - Highly driven by Human Interaction and ad-hoc Patterns
- Process Design and Validation
  - jCOM1 BPM Suite
- Process roll out
  - MS Office Communications Server 2007 R2
    - Unified Communications (Audio and Video Conferencing, Application Sharing, Instant Messaging, Telephony)
    - Presence Status (*via* Active Directory DS)
  - MS Dynamics CRM 4.0
    - CRM Functionality
    - Workflow Engine
    - Presence Status (*via* Active Directory DS)
  - MS Exchange Server 2007
    - Unified Messaging (Email, Fax, Subscriber Access)
    - Presence Status (*via* Active Directory DS)

Datentechnik INNOVATING TECHNOLOGY

Microsoft Office Communications Server 2007

Microsoft Dynamics CRM

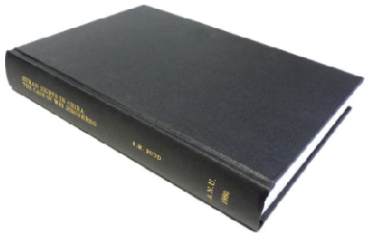
Microsoft Exchange Server 2007

Unified Communications and S-BPM | 3

- Results
  - intuitive modeling of human interaction business processes is well supported by S-BPM
  - due to the message-oriented design principle of the jCOM1 BPM suite, process definitions can easily be deployed to various infrastructure assets because of strict parallelism regarding message-oriented behavior of both systems
  - human interaction behavior is highly reflected by the jCOM1 BPM suite thus providing high acceptance among employees
  - underpinning UC-technology creates substantial value within the environment of human interaction based business processes

Hypothesis verified

S-BPM – completed research



Diploma Thesis results

- Business Capability Management and S-BPM
  - Christoph Pachler, 2007, Development of business processes based on the business capability management approach using the subject-oriented business process description
- Unified Communications and S-BPM
  - Mathias Loder-Taucher, 2008, Unified Communication and Human Interaction Management as enabler for business processes
- Enterprise Engineering
  - Jakob Brüder, 2009, Enterprise Engineering – Merging Enterprise Architecture, Enterprise Ontology and Business rules

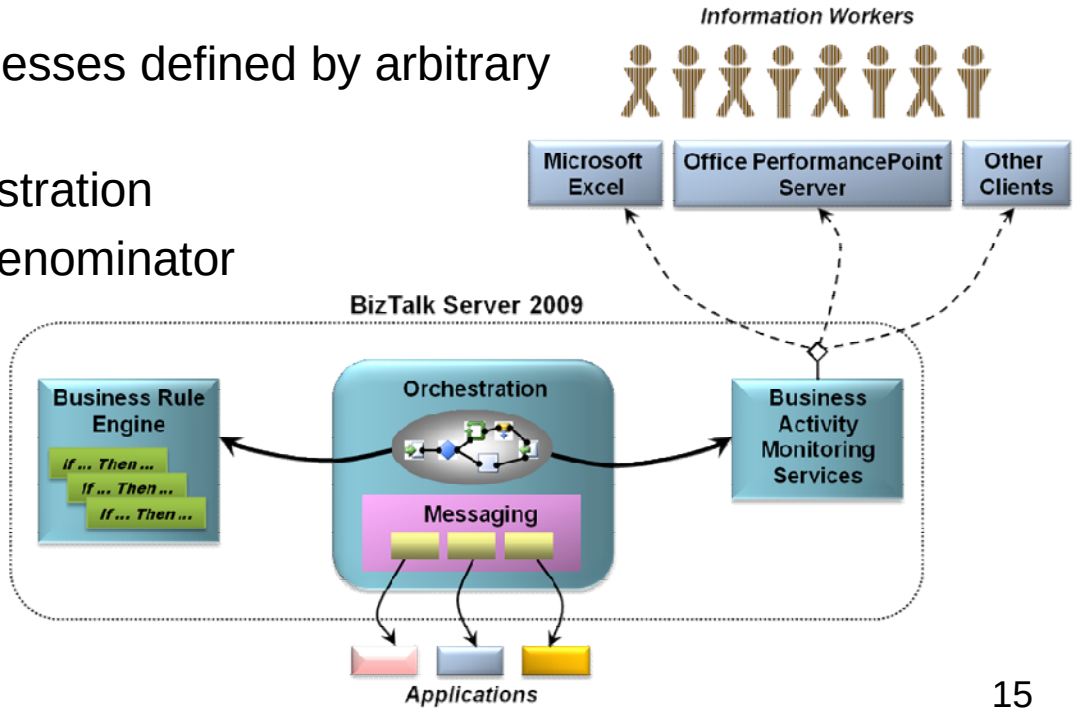
"Enterprise Engineering: Discipline applied in carrying out any efforts to establish, modify or reorganize any enterprise" (ISO 15704:2000)

Student Projects – WS-BPEL Import into MS BizTalk Server

- Task: Development of an XML-interface in order to successfully import validated process definitions from the jCOM 1 BPM suite to MS BizTalk Server

- BizTalk Server
  - automate business processes defined by arbitrary BPM tools
  - High-performance orchestration
  - WS-BPEL as common denominator

Task accomplished

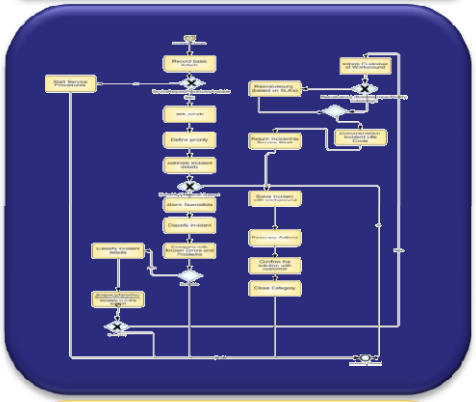


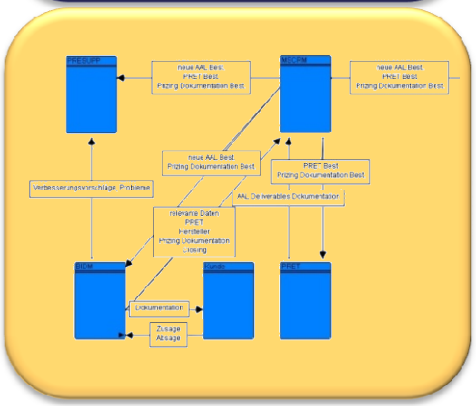
Lectures – Messaging and Workflow Systems | 1

- Course Objectives
  - Set up and administer a representative unified messaging as well as workflow management system
  - Design and functional implementation of simple business processes
  - Compile knowledge with respect to prominent BPMN standards (BPMN, WS-BPEL, XPDL, S-BPM)
- Tools
  - MS BizTalk Server
  - MS Exchange Server
  - inubit Business Integration Server
  - Process Modeler for MS Visio
  - jCOM1 BPM Suite

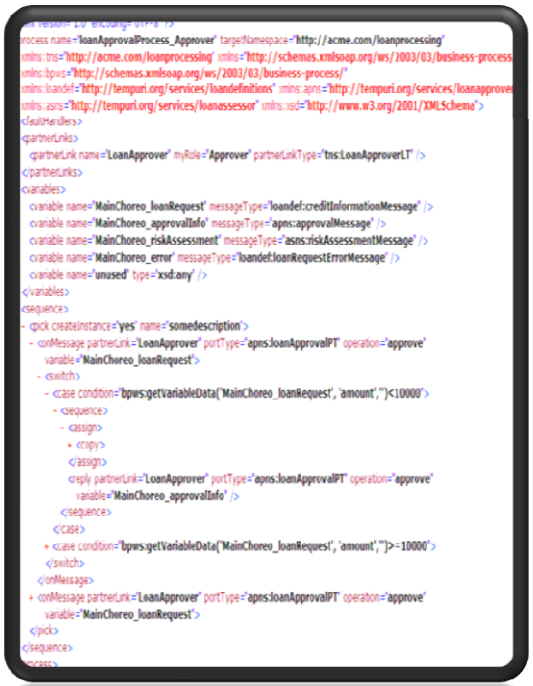
Lectures – Messaging and Workflow Systems | 2

BPMN/S-BPM Modeling





Conversion into BPEL



Runtime execution

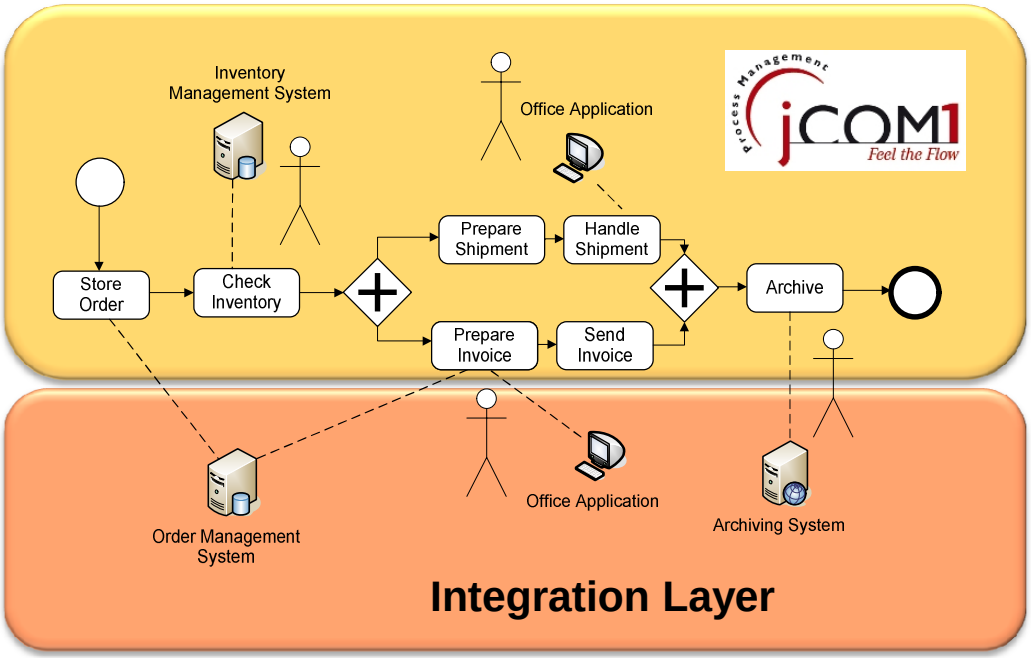
S-BPM – further research activities

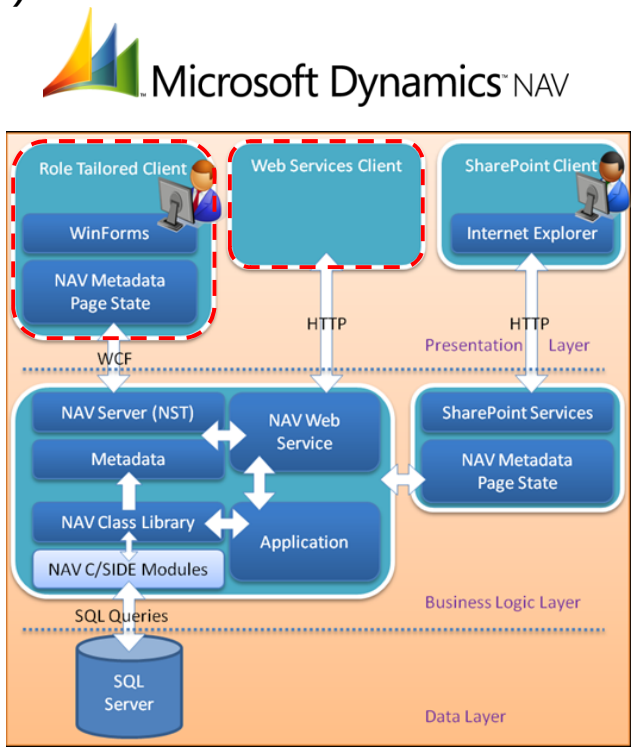
- Interdisciplinary Projects
  - jCOM1 + Microsoft Dynamics NAV
    develop a prototype and define use cases including economic valuation
    team of 3 students
  - jCOM1 + Business Rules
    develop a prototype and define use cases including economic valuation
    team of 2 students

- Two accepted submissions for MS Dynamics NAV Convergence 2009

jCOM1 – Seamless Integration with NAV 09

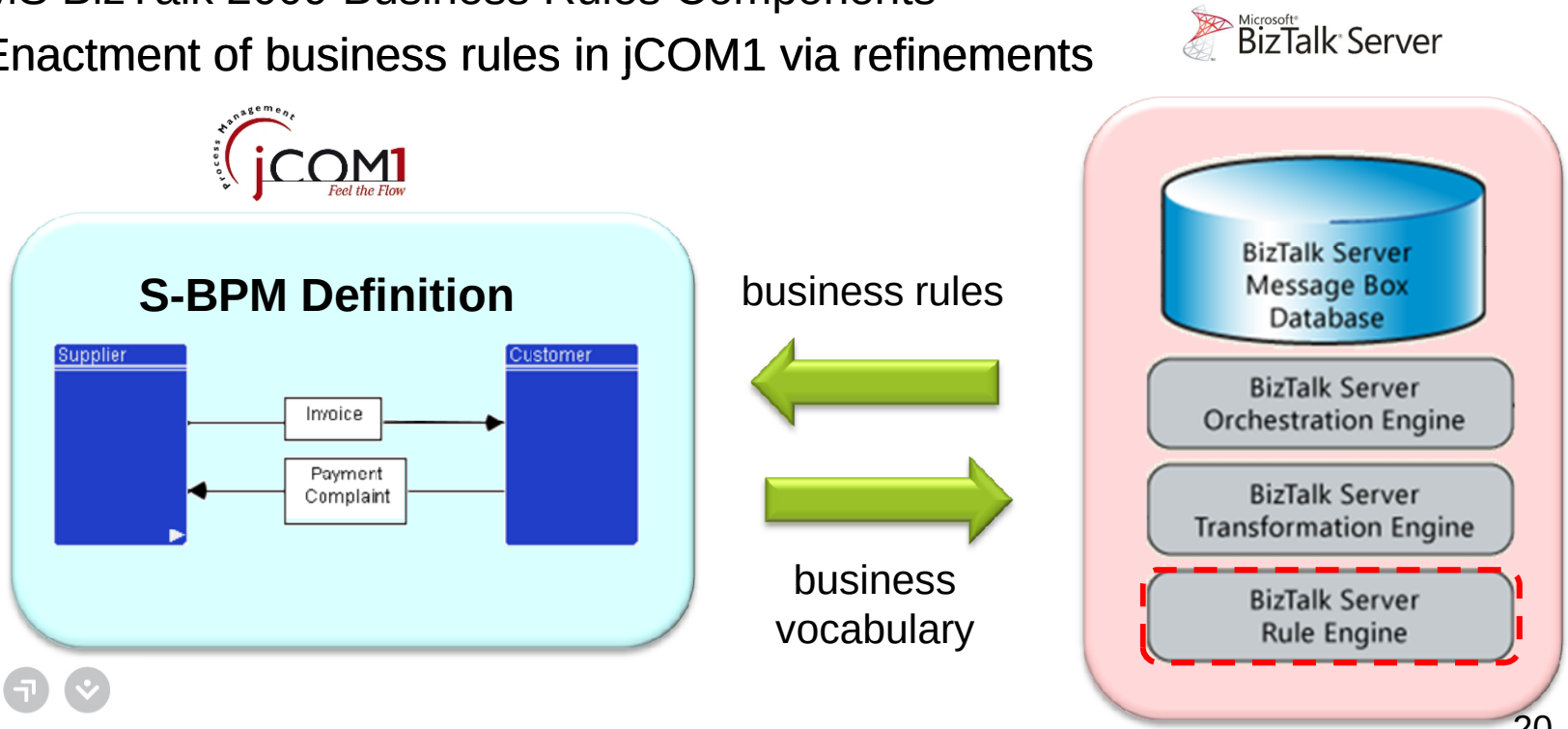
- Two integration approaches
  - via Windows Communication Foundation (WCF)
  - via Web Services



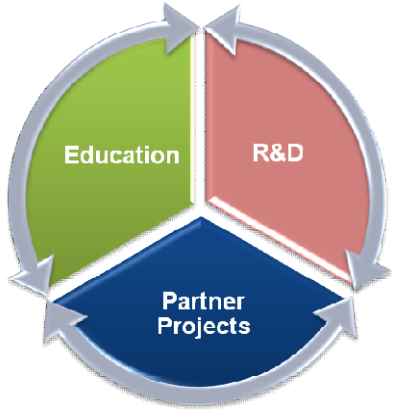


jCOM1 – Business Process & Rules Repository

- jCOM1 Suite as Business process repository
  - Source for business vocabulary used for building up business dictionary
- Definition of Business Rules repository
  - MS BizTalk 2009 Business Rules Components
  - Enactment of business rules in jCOM1 via refinements



S-BPM - future application in education



- Lectures
  - Bachelor
    3rd Semester: **Business Process Management – Basics**
    - Use of jCOM1 Suite as a modeling tool

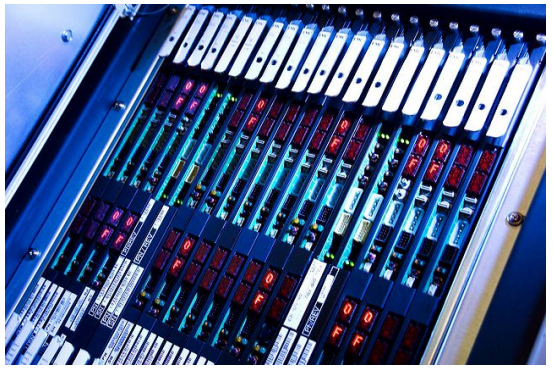
    4th Semester: **Business Process Management – Applications**
    - Development of a case study including the detailed definition of business processes
    - Practical exercises with BPM tools such as the jCOM1 suite (replacing ARIS and ADONIS).
  - Master
    1st Semester: **Business Process Management**
    - scientific background of different concepts, architectures and languages
    - stochastic processes and discrete event simulation
  - 2nd Semester: **Enterprise Architecture Design 2**
    - Modeling of IT service management processes
    - functional roll-out to WFMS

S-BPM – open questions

- Formal categorization
  - S-BPM in the relation to π-calculus (or any other „theory“)
- Adoption of S-BPM in jCOM1 Suite
  - Research regarding feasibility of S-BPM concept
  - Further support for open standards (BPMN 2.x, etc.)
  - Usability enhancements
- Methodology
  - How to define business requirements?
  - How to integrate semantics and logic?
  - How to consider collaboration and communication?
  - Framework for agile business process management
- Economic aspects
  - Value Benefit Analysis, etc.

What do we offer?

- A highly motivated EEI-team
  - Christopher Schwarz
  - Christina Schweiger
  - Alexander Sellner
  - Robert Singer
  - Erwin Zinser
- A future-oriented high-performance infrastructure
  - HVL (high-end server and storage hardware)
  - Entology Lab (UC-enabled)
  - Standard Labs
- Well-established network



Thank you for your attention!