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**
- Improve operations
- Increase customer satisfaction
- Reduce cost of doing business
- Establish new products/services

**R & D**
- Investigate structural properties of processes
- Strong abstraction
- Process activities reduced to letters

**Software Development**
- 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 Æ 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 paradigm

Notations:
- WMS
- BPEL
- BPMN
- BPMS
- XPDL
- UML
BPM in connection with other research topics

Business Model & Motivation
- Business Process Management
- Business Process Modeling
- Discrete Event Simulation
- Business Rule Methodology
- Business Rule Integration
- Business Process Execution
- Business Intelligence
- Enterprise Optimization
- Strategic Decision Support

Business Requirements
- Unified Communications & Collaboration
- Business Capability Management

Business Activity Monitoring
- Service Orientation
- Intelligent Service Loop

IT Service Management
- Service Level Monitoring
- Service Level Adjustment
- Visual Dashboard

Identity Management
- Integrated Identity Platform
- Consolidated Identity
- Identity Standard
- Identity Lifecycle

Data Management
- Strategic IT Sustainability
- Data Quality Management
- Green IT
- Platform Virtualization

Service Level Adjustment
- Strategic Compliance

Unified Communications & Collaboration

Service Orientation
- Enterprise Performance Interface
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

Hypothesis verified
Unified Communications and S-BPM

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.

“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)
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
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 \( \pi \)-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!