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Collaborative Business Process Modeling with CoMoMod
- A Toolkit for Model Integration in Distributed Cooperation Environments

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Agenda

1. Introduction and Conceptual Foundations
2. Goals and Research Approach
3. The CoMoMod-Tool – Procedure Model and Implementation
4. Discussion
5. Summary and Future Work
1. Introduction and Conceptual Foundations

Current development

- Inter-organizational cooperation
- Cross-organizational information exchange
- Cross-organizational business processes and value chains

→ Collaborative Business Process Management

Value Chain Networks

based on: Houy, Fettke, Loos, van der Aalst, Krogstie 2010
1. Introduction and Conceptual Foundations

Business Process Management (BPM)

- Business Process: *sequence of executions for creating goods and services* (Scheer 1999)
- BPM: *techniques and tools for design, enactment, control and analysis of business processes* (van der Aalst et al. 2003)
- Purpose: effectiveness and efficiency of value creation, competitive advantage
- BPM tools and techniques widely applied in practice (Fettke 2009)
1. Introduction and Conceptual Foundations

Business Process Management Life Cycle

based on: Houy, Fettke, Loos 2010
1. Introduction and Conceptual Foundations

Collaborative Business Process Modeling

– Cooperative creation of models
– Integration of different perspectives on a process
– Shared understanding of models
– Management of complexity in inter-corporate value chain networks
– Management of manifold changes during life cycle
2. Goals and Research Approach

Goals of this presentation:

– Introduction of a concept (procedure model) and

– its implementation for collaborative modeling

Research approach:

– conceptual consideration

– design science approach (Hevner et al. 2004)
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3. The CoMoMod-Tool

3.1 Requirements for the tool design

1. Support of simultaneous work (one process model diagram instance)
2. Integration of a communication component
3. Support of different modeling languages → mapping
4. Support of defined vocabularies for labeling model elements
5. Support of a semi-automated consolidation of model parts
3.2 Procedure model for collaborative modeling

**Preparation**
1. Exchange of semantic basis (technical terms / language mapping)
2. Exchange of reference models
3. Semantic enrichment of models

**Conversion**
4. Exchange of process models
5. Transformation of models into the intermediate representation (IR)
6. Transformation of the IR into the user-specific language

**Modeling**
7. Filling transformation gaps
8. Collaborative modelling

**Integration**
9. Linking of model fragments by use of existing reference models
3. The CoMoMod-Tool

3.3 The CoMoMod-Tool and its utilization for collaborative modeling

- CoMoMod supports the procedure model
- CoMoMod instances run on each modeler's computer
- Data is exchanged via peer-to-peer connections and saved on each CoMoMod instance
- Proof of concept supports EPC and Petri Nets
3. The CoMoMod-Tool

The CoMoMod-Tool is a software tool designed for process modeling. It allows users to create and edit process designs. The image shows a process design developed by Modeler 1 and another process design edited by Modeler 2. The chat window indicates ongoing communication between the modelers.

Key features of the CoMoMod-Tool include:
- Identification of defects in process designs.
- Immediate repair of defects when possible.
- Identification of defects that cannot be repaired immediately.
- Steps for handling defects, such as reclamation concept check, and deciding whether Step A or Step B is necessary.
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4. Discussion

- CoMoMod supports a cooperative design of processes and a shared understanding

- Semi-automated model transformation

- Peer-to-peer-based system architecture improves the security of sensitive process information

- Limitations:
  - Research prototype
  - So far only EPCs and Petri Nets
  - Further investigation of practical usage needed (effects, side-effects etc.)
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- CoMoMod implements the procedure model for collaborative modeling
- Possibility of using different modeling languages → transformation
- Support of a “standardized” vocabulary
- Future work:
  - Extension of modeling language support (BPMN, UML activity diagrams etc.)
  - Investigation of potential of implementing CoMoMod as a BPM web service (*BPM-as-a-Service*)
  - Extension of the tool support for further phases of the BPM life cycle, like inter-organizational process controlling
  - Investigation of potential for the modeling of more sustainable inter-organizational business processes (*Green BPM*)
Thank you for your attention!

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