Semantic Event-driven Process Chains

Oliver Thomas, Michael Fellmann

Institute for Information Systems (IWi)
at the German Research Center for Artificial Intelligence (DFKI)

[oliver.thomas | michael.fellmann]@iwi.dfki.de

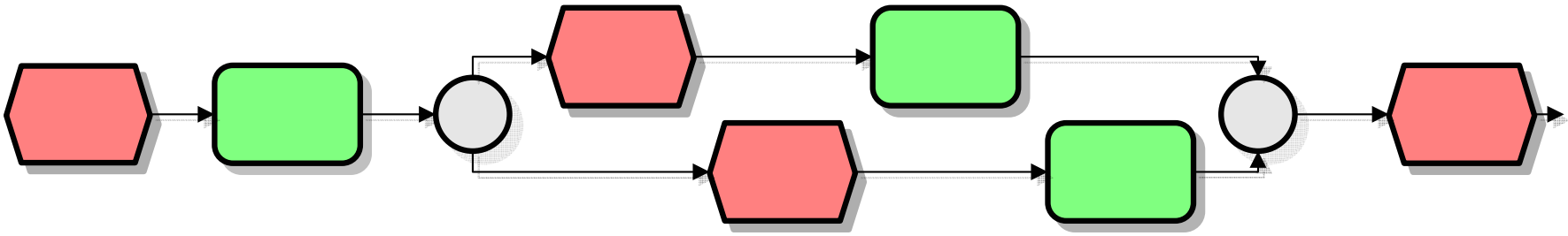
Agenda

1. Short introduction into EPCs
2. Semantic extension of EPC models
3. IT-support of semantic business process modeling
4. Benefits of the proposed approach
5. Related research projects and applications
6. Conclusion

Short Introduction into Event-driven Process Chains (EPC)

Elements and their Usage

- EPC models essentially consist of
  - **functions**
  - **events** and
  - **control flow**.



Modeling with EPCs

Shortcomings

- **Ambiguity**
  - Integration and translation of models
  - Querying of models
- **Non-machine processable semantics**
  - Semantic validation of models is not possible
  - Usage of models for the configuration of information systems is difficult

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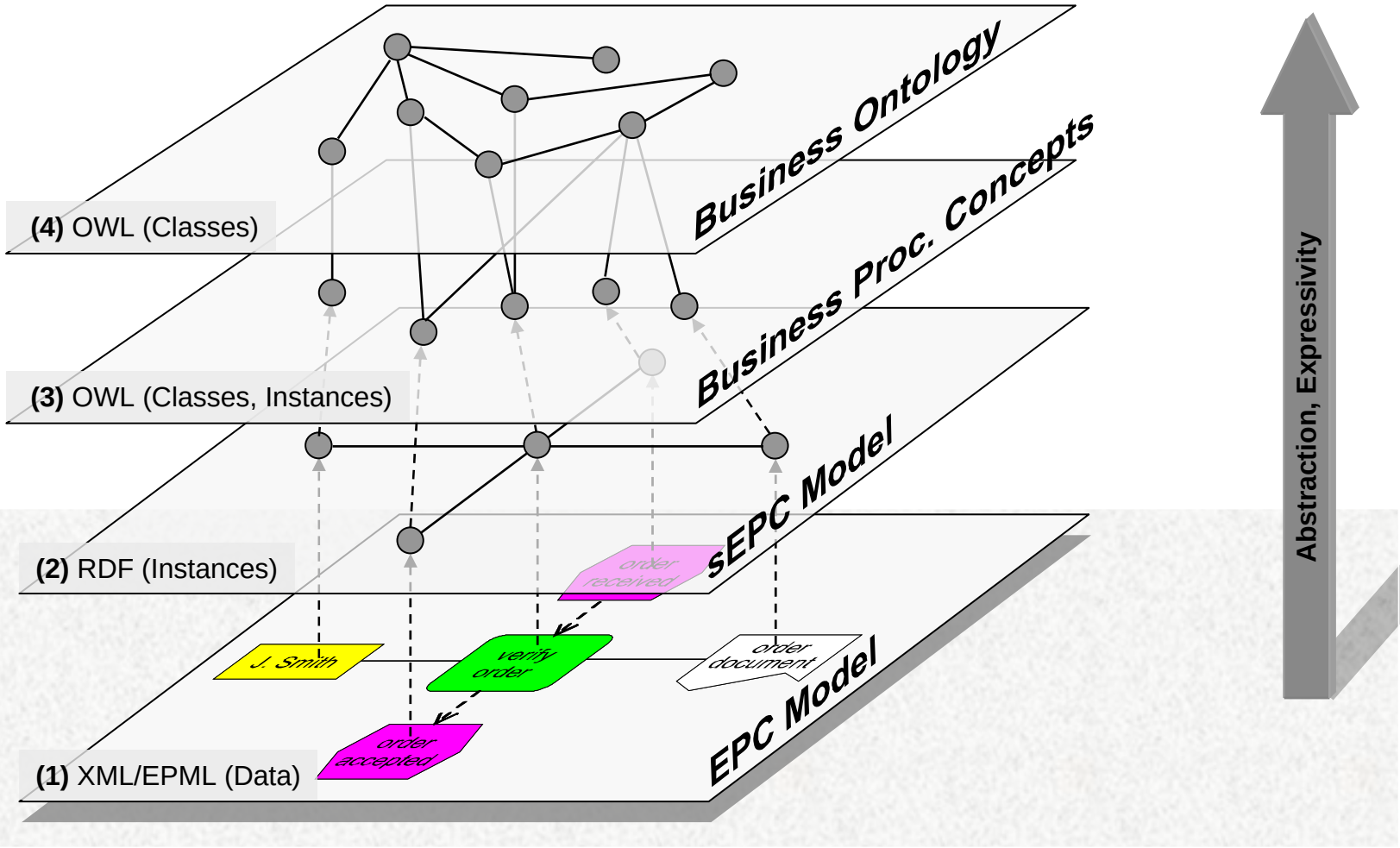
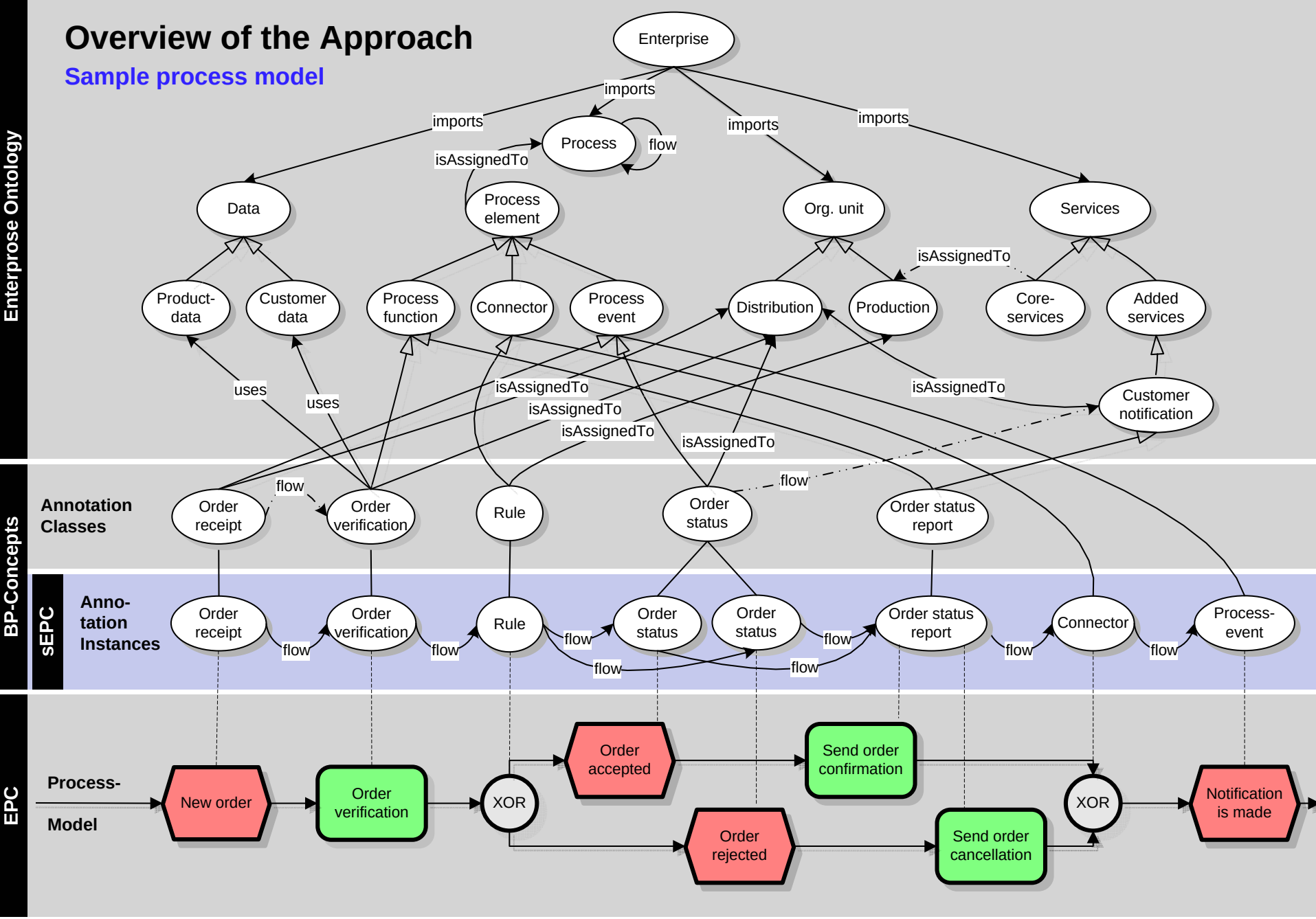
Semantic Extension of EPC Models

Layered Approach



Overview of the Approach

Sample process model



Arcs:

Annotation

Instance

Inheritance

EPC control flow

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IT-Support of Semantic Business Process Modeling

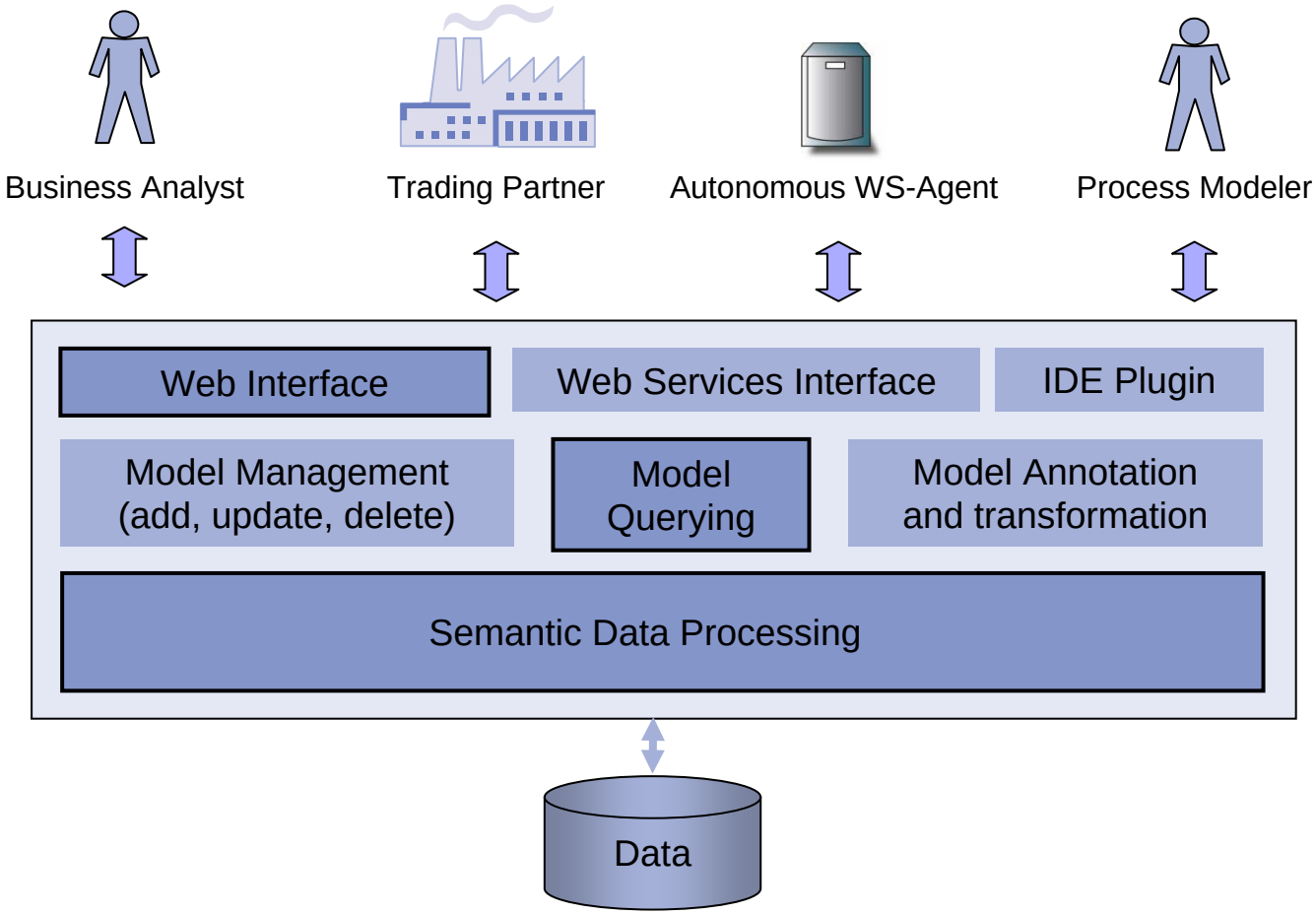
Annotation support

- **Proposal of suitable annotation instances according to**
  - the **local context** in the model,
    e.g. XOR after a verification function,
  - **rules and restrictions** of the enterprise ontology,
    e.g. an event “order status” must have a flow to “customer notification”,
  - the **types (and derivations) of annotation classes available**,
    e.g. if a modeler creates a function “status report”
    and then assigns annotation instances “process function” and “customer notification”,
    the system can suggest to assign the annotation instance “order status report”.
  - other previously stored models.

→ IT-support will influence the acceptance of increased modeling efforts.

IT-Support of Semantic Business Process Modeling

Architecture for a sBPM-Repository



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Benefits of the proposed approach

Business perspective

- **Quality of models**
  - Advanced semantic validation:
    Policies, constraints and rules can be added or referenced in the ontology in a uniform way without redundancy.
  - Easier model integration
  - Easier model translation

- **Querying on a semantic level**
  - Querying of schema and instances is possible.
  - New facts that are not contained in the original model can be inferred.

→ **Improved understanding and documentation of the business processes**

Benefits of the proposed approach

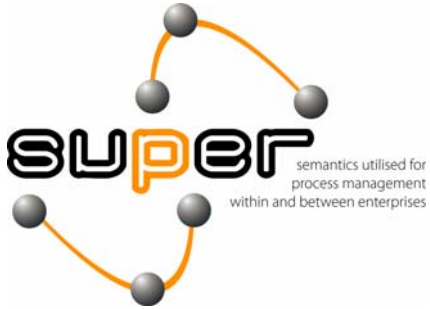
Technical perspective

- **Further technical information** can be added to business process concepts layer

→ **Improved alignment of business process models and IT process models**

Related Projects

- **Projects**
  - super.semanticweb.org
  - sembiz.org
  - sbpm.org



- **Applications**
  - SemTalk
  - FBPML modeling tool
  - Metis

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Overall Benefits of Semantic Event-driven Process Chains

- **Benefits:**
  - Quality of models
  - Querying on a semantic level
  - Support of the generation of executable processes
- **Problems / obstacles:**
  - Increased modeling effort
- **Need for further research:**
  - Ontologies for process annotation
  - IT-support, esp. tools for annotation
  - Methodologies and evaluation

Thank you for your attention!

- Questions?