WSMO

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Contents

- Mission of WSMO

- SDK-Cluster

- WSMO Working Groups

- WSMO - Deliverable 2v02

Mission of WSMO

- Providing a standard for describing semantic web services.
- Stands for the Web Service Modeling Ontology
- WSMO is derived from WSMF

SDK-Cluster

http://www.sdk-cluster.org/

SDK-Cluster

Mission:

- Strengthening European Research and Industry in Semantic Web and Semantic Web Services

- Working towards international standardization together with US-based DAML program

- Promoting research results to industry and academia through joint dissemination

- Strengthening world-wide research and standardization in Semantic Web and Semantic Web Services field

SDK-Cluster

- SEKT (Semantically-Enabled Knowledge Technologies)
  http://sekt.semanticweb.org/

- DIP (Data, Information and Process with Semantic Web Services)
  http://www.nextwebgeneration.org/projects/dip/

- Knowledge Web
  http://knowledgeweb.semanticweb.org/

- Aligned with SWWS and DERI

SDK-Cluster

- SDK aligns four IST projects with similar vision:
  Making Semantic Web and Semantic Web Service technology a reality!

- SDK aligns four IST project with a total budget of ***40 Million Euros!***

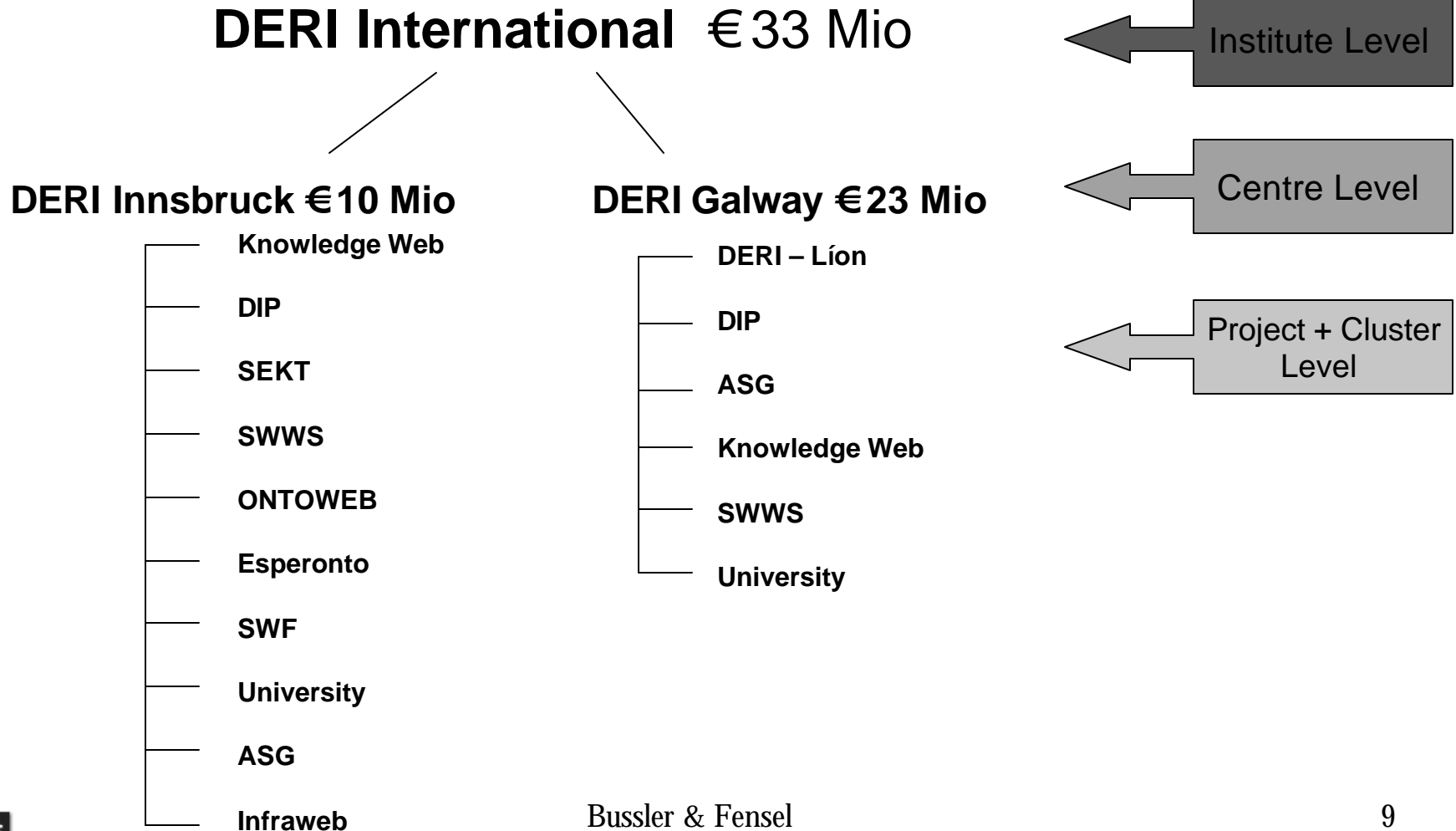- SDK is backed-up by ***DERI!***

SDK-Cluster

Mission of DERI

- "Developing Semantic Web Services as a new infrastructure for eWork and eCommerce."

- Being the world-leading institute in the Semantic Web Service area.

SDK-Cluster

DERI International € 33 Mio

Institute Level

DERI Innsbruck € 10 Mio

- Knowledge Web
- DIP
- SEKT
- SWWS
- ONTOWEB
- Esperonto
- SWF
- University
- ASG
- Infraweb

DERI Galway € 23 Mio

Centre Level

- DERI – Líon
- DIP
- ASG
- Knowledge Web
- SWWS
- University

Project + Cluster Level

Bussler & Fensel

9

WSMO Working Group

- We have set up a SDK-cluster working group on Semantic Web Services called WSMO Working Group

- Chairs are Christoph Bussler and Dieter Fensel

- It is open to all members of SEKT, DIP, Knowledge Web, SWWS, and DERI.

- We are also open to experts in the field from outside of these projects.

- Meanwhile we already have set up to sub working groups: WSML and WSMX.

- After having achieved significant results we may further cooperate with initiatives such as SWSI, W3C, and OASIS.

WSMO Working Group

- Mission: **Develop an Ontology for describing semantic web services**
- Web site at http://www.wsmo.org/
- Mailing list for group members: deri-wsmo@informatik.uibk.ac.at
- Mailing list for interested friends:
  deri-wsmo-discussion@informatik.uibk.ac.at
- Contact: dumitru.roman@deri.ie
- Activity sheet: http://www.wsmo.org/2004/d6/v1
  Around 20 deliverables with defined editors and deadlines
- Members: http://www.wsmo.org/people.html
  56 members at April 28, 2004.
- Presentations: http://www.wsmo.org/presentations.html
  Currently more than 40 presentations on related aspects
- Current working drafts: http://www.wsmo.org/2004/index.html

WSMO Working Group: WSML

- Mission: **Develop a formal language for describing semantic web services**
- Web site at http://www.wsmo.org/wsml/
- Mailing list for group members: deri-wsml@informatik.uibk.ac.at
- Mailing list for interested friends: deri-wsmo-discussion@informatik.uibk.ac.at
- Contact: dumitru.roman@deri.ie
- Activity sheet: http://www.wsmo.org/2004/d6/d6.2/v1/20040426/ Around 20 deliverables with defined editors and deadlines
- Members: http://www.wsmo.org/wsml/people.html 13 members at April 28, 2004.
- Presentations: http://www.wsmo.org/wsml/presentations.html 8 presentations on related aspects
- Current working drafts: http://www.wsmo.org/2004/index.html

WSMO Working Group: WSMX

- Mission: **Develop an architecture for working with semantic web services**
- Web site at http://www.wsmx.org/
- Mailing list for group members: deri-wsmx@informatik.uibk.ac.at
- Mailing list for interested friends: deri-wsmo-discussion@informatik.uibk.ac.at
- Contact: michal.zaremba@deri.ie
- Activity sheet: http://www.wsmo.org/2004/d6/v1
  Around 10 deliverables with defined editors and deadlines.
  Focus is on implementations.
- Members: http://www.wsmx.org/people.html
  18 members at April 28, 2004.
- Current working drafts: http://www.wsmo.org/2004/index.html

WSMO Working Group

Web Service Modeling Ontology Working Group

Final Drafts
- D2v0.1. Web Service Modeling Ontology (2004-02-14)
- D2v0.2. Web Service Modeling Ontology - Standard (2004-03-06)
- D4.1v0.1. Conceptual Comparison WSMO/OWL-S (2004-03-09)
- D7v1.Mission Statement - WSMO (2004-01-28)
- D11v0.1. Web Service Modeling Ontology - Lite (2004-03-05)

Latest Drafts:
- D1.1. Web Site
- D2v0.3. Web Service Modeling Ontology - Standard (2004-03-29)
- D3.1v0.1. WSMO Primer (2004-04-19)
- D3.2v0.1. WSMO Use Case Modeling and Testing (2004-04-19)
- D4.1v0.2. Conceptual Comparison WSMO/OWL-S (2004-03-09)
- D4.2v0.1. Formal Comparison WSMO/OWL-S(2004-03-15)
- D6.1v1. Activity Sheet (2004-04-26)
- D7.1v2. Mission Statement - WSMO(2004-01-28)
- D9v0.1. WSMO Editor (2004-04-19)
- D10v0.1 WSMO Registry (2004-04-26)
- D11v0.2. Web Service Modeling Ontology - Lite(2004-04-07)

Web Service Modeling Language Working Group

Final Drafts
- D7.2v1. Mission Statement - WSML (2004-04-01)
- D16.2v0.1. F-logic/XML - An XML Syntax for F-logic(2004-03-24)

Latest Drafts:
- D1.2. Web Site
- D5.1v0.1. Inferencing Support for Semantic Web Services: Proof Obligations (2004-04-19)
- D5.2v0.1. Inferencing Support for the Semantic Web Tools: for Semantic Support (2004-04-05)
- D6.2v1. Activity Sheet (2004-04-26)
- D7.2v1. Mission Statement - WSML (2004-04-01)
- D8v0.1. Language Evaluation and Comparison (2004-03-22)
- D16.0v0.2 Language syntaxes for WSMO Standard (2004-04-18)
- D16.1v0.2 BNF grammar for WSML block structured language (2004-04-18)
- D16.2v0.2. F-logic/XML - An XML Syntax for F-logic (2004-04-14)
- D16.3v0.1. WSML/XML - An XML Syntax for WSML (2004-03-22)
- D16.4v0.1. WSML F-Logic Syntax (2004-03-24)
- D18v0.1. A Language Neutral API for Ontology Interchange (2004-04-09)

WSMO Deliverable 2v02

WSMO Working Draft

D2v02. Web Service Modeling Ontology - Standard (WSMO - Standard)

WSMO Working Draft 06 March 2004

Final version:
http://www.wsmo.org/2004/d2/v02/20040306/
Latest version:
http://www.wsmo.org/2004/d2/v02/
Previous version:
http://www.wsmo.org/2004/d2/v02/20040305/
Editors:
Dumitru Roman
Holger Lausen
Uwe Keller

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WSMO Deliverable 2v02

- This document presents an ontology called Web Service Modeling Ontology (WSMO-Standard) for describing various aspects related to Semantic Web Service.

- Having the Web Service Modeling Framework (WSMF) as a starting point, it refines this framework and develops an ontology and a formal language (WSML).

- Two complementary principles:
  - Maximal decoupling

  complemented by
  - scalable mediation service

WSMO Deliverable 2v02
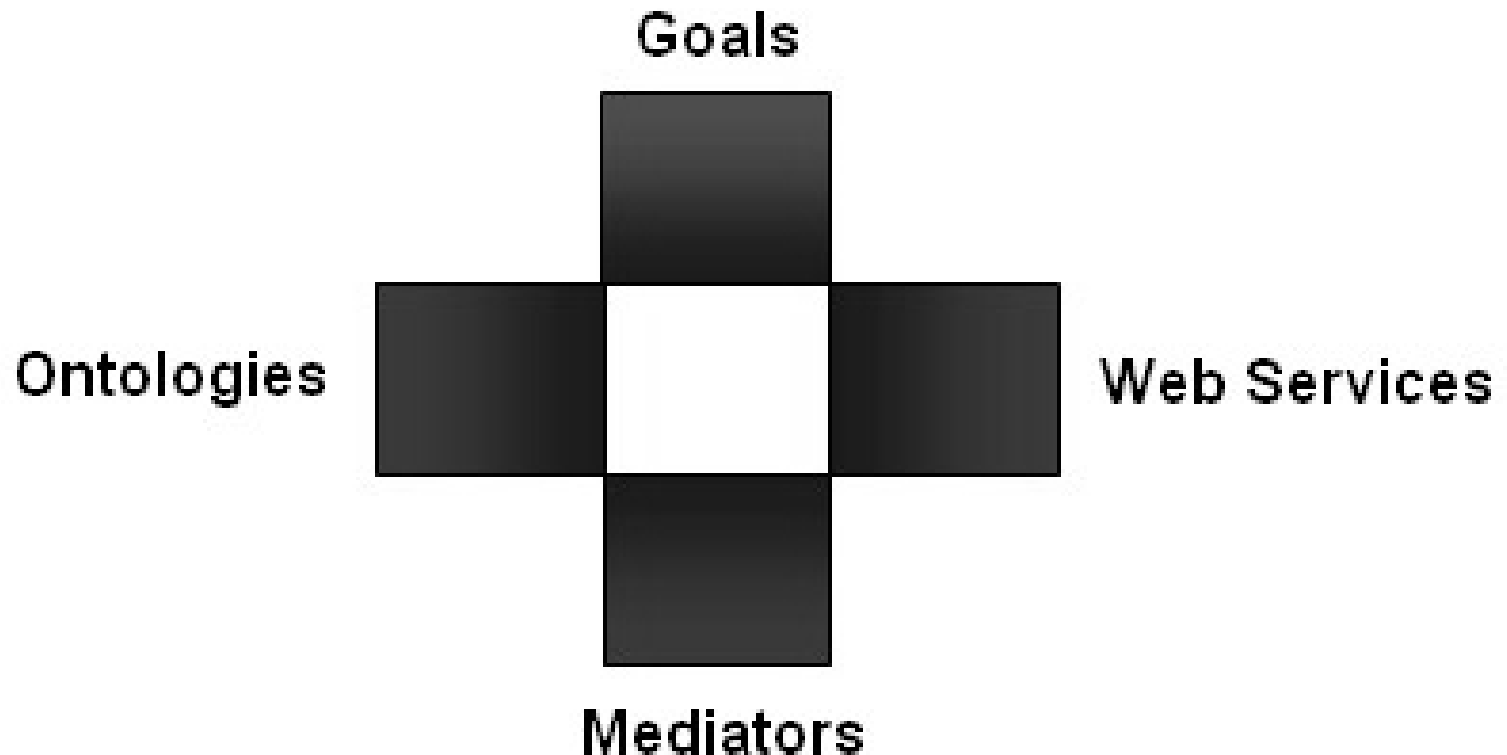
WSMO Del 2v02 - Ontologies

- **Non functional properties**
- **Used mediators**
    - Building an ontology for some particular problem domain can be a rather cumbersome and complex task. One standard way to deal with the complexity is modularization. Imported ontologies allow a modular approach for ontology design. By importing other ontologies, one can make use of concepts and relations defined elsewhere.
    - Nevertheless, when importing an arbitrary ontology, most likely some steps for aligning, merging and transforming imported ontologies have to be performed. For this reason and in line with the basic design principles underlying the WSMF, we use ontology mediators for importing ontologies.
- **Axioms**
  The set of axioms that belong to the represented ontology.
- **Concepts**
  The set of concepts that belong to the represented ontology.
- **Relations**
  The set of relations that belong to the represented ontology.
- **Instances**
  The set of instances that belong to the represented ontology.
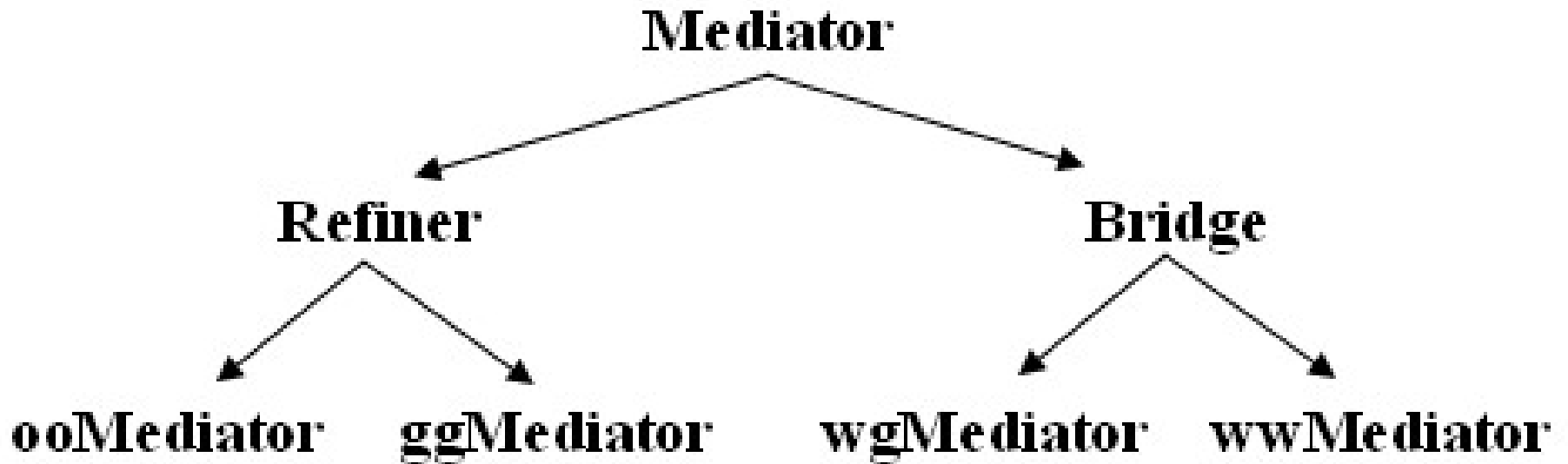
WSMO Del 2v02 - Goals

- **Non functional properties**
- **Used mediators**
  - A goal can import ontologies using ontology mediators.
  - A goal may be defined by reusing an already existing goal. This is achieved by using goal mediators.
- **Post-conditions**
  - Post-conditions in WSMO describe the state of the information space that is desired.
- **Effects**
  - Effects describe the state of the world that is desired.

WSMO Del 2v02 - Mediators

- WSMF strictly enforces safe sex between components.
- They are never allowed to touch each other without a mediator in-between.

WSMO Del 2v02 - Mediators

- **Non functional properties**
- **Source component**
  The source component defines one of the two logically connected entities.
- **Target component**
  The target component defines one of the two logically connected entities.
- **Mediation Service**
  The mediation service points to a goal that declarative describes the mapping or to a wwMediator that links to a web service that actually implements the mapping.
- **Reduction**
  A reduction describes in a logical formula the differences between the functionality described in the goal and the one of the web service (if any) or another goal.

WSMO Del 2v02 – Web Service

- **Non functional properties**
- **Used mediators**
  By importing ontologies, a web service can make use of concepts and relations defined elsewhere.
- **Capability**
- **Interfaces**

WSMO Del 2v02 – Capability

- **Non functional properties**
- **Used mediators**
  By importing ontologies, a capability can make use of concepts and relations defined elsewhere. A capability can import ontologies using ontology mediators (ooMediators). A capability can be linked to a goal using a wgMediator.
- **Pre-conditions**
  Pre-conditions in WSMO describe what a web service expects for enabling it to provide its service. They define conditions over the input.
- **Post-conditions**
- **Assumptions**
  Assumptions are similar to pre-conditions, however, also reference aspects of the state of the world beyond the actual input.
- **Effects**

WSMO Del 2v02 – Interfaces

- **Non functional properties**
- **Used mediators**
- **Choreography**
  A choreography provides the necessary information for the user to communicate with the web service. The choreography in WSMO is further defined in Deliverable 14: Choreography in WSMO.
- **Orchestration**
  An orchestration describes a service makes use of other web service or goals in order to achieve it's capability. The orchestration in WSMO is further defined in Deliverable 15: Orchestration in WSMO.

WSMO Del 2v02 – Interfaces

- An interface describes how the functionality of the service can be achieved (i.e. how the capability of a service can be fulfilled) by providing a twofold view on the operationalization of the competence of the service:
  - The ***choreography*** defines how to communicate with the web service in order to consume its functionality.
  - The ***orchestration*** defines how the overall functionality is achieved by the cooperation of more elementary service providers.
- With this distinction we provide different decompositions of process/capabilities to the top (service requester) and to the bottom (other service providers).
- This distinction reflects the difference between communication and cooperation.
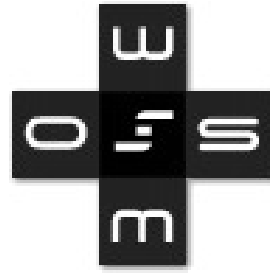
WSMO Del 2v02 – Interfaces
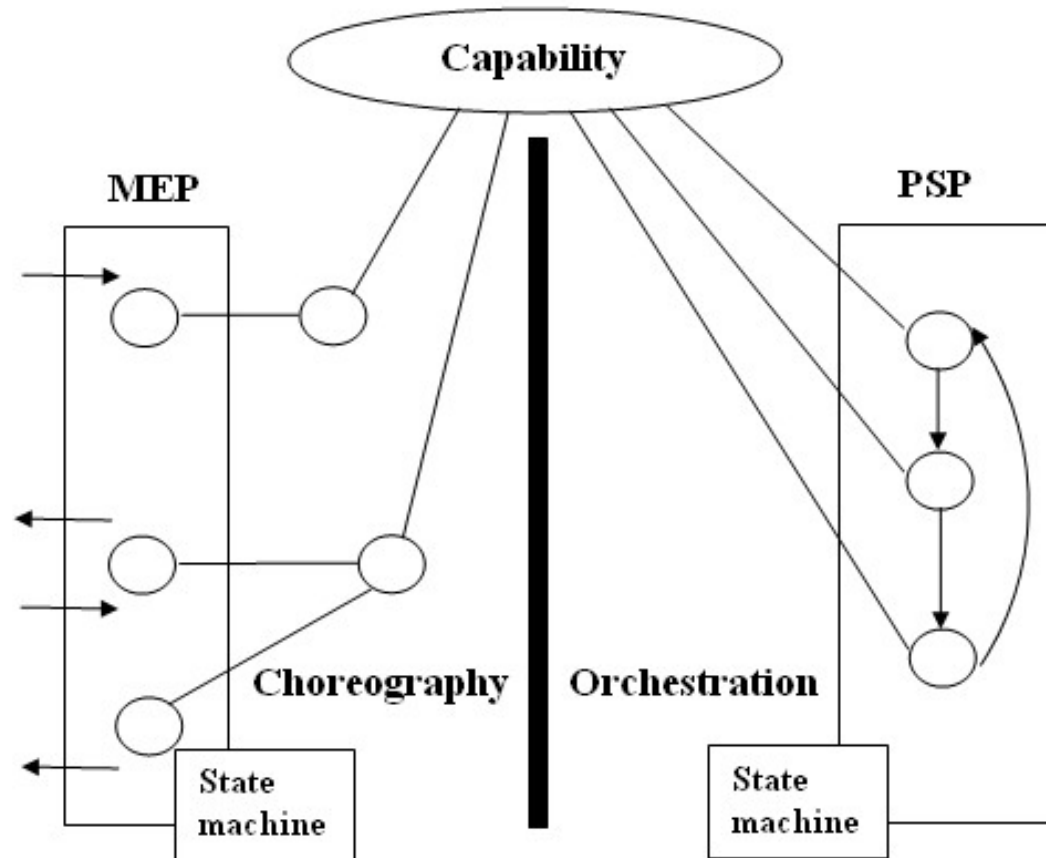
WSMO Del 2v02 – Language

F-Logic combines the advantages of conceptual high-level approaches typical for frame-based language and the expressiveness, the compact syntax, and the well defined semantics from logics.

- it provides a standard model theory
- it is a full first order logic language
- it provides second order syntax while staying in the first order logic semantics
- it has a minimal model semantics
- implemented inference engines are already available.

</ WSMO >

<Q&A>