# DAML-S: Semantic Markup for Web Services

- Authors (in alphabetical order)

<table>
<thead>
<tr>
<th>Then</th>
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<td>Anupriya Ankolekar</td>
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<td>Mark Burstein</td>
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<td>Jerry Hobbs</td>
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<td>Ora Lassila</td>
<td>Nokia</td>
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<td>David Martin</td>
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<td>Sheila McIlraith</td>
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- DARPA Agent Markup Language (DAML) program managers
  - Jim Hendler
  - Murray Burke
  - Mark Greaves
Summary / Contributions

- Semantic Web services vision
- Use cases
  - Service discovery, composition, monitoring, …
- Upper ontology for service description
  - Evolved into OWL-S
  - Profile / Process Model / Grounding
  - Functional and non-functional properties
- One of the first substantial / collaborative / widely shared ontologies in DAML+OIL
  - Provided a “language” for people to start building SWS apps
- Identified many expressiveness requirements
  - Provided inputs to (OWL) language definition team
  - Also influenced the development of rule languages
A Few Points of Context

- 2000/8: DAML program officially kicked off
- 2001/1: 1st release of DAML+OIL
- 2001/3: WSDL 1.1 published as W3C Note
- 2001/4: Scientific American article on Semantic Web
- 2001/5: 1st public version of DAML-S
- 2001/7: SWWS @ Stanford
- 2002/7: 1st draft of OWL published
- 2003/5: OWL-S first version (0.9, with 1.0 in 2004/1)
- 2004/1: Initial FP6 Semantic Web projects underway
- 2004/11: OWL-S submission to W3C
- 2005/6: WSMO submission to W3C
- 2005/9: SWSL submission to W3C
- 2005/11: WSDL-S submission to W3C
- 2007/8: SAWSDL becomes W3C Recommendation
SWS: A Flourishing Research Area

• Several major research initiatives
• Several industry standards
• Dozen or so very significant sub-areas
  – Description, process/interaction representation, discovery, enactment, composition, monitoring, architecture, tools and environments, methodology, security, mobile/ubiquitous usage, evaluation, social aspects, …
• Dozens of workshops
• Dozens of open-source components
• Many excellent theses/dissertations
• Thousands of publications
• Thousands of cool innovative ideas
Why the Impact?

• Convergence
  – Semantic Web
  – Web services & larger e-commerce objectives
  – Distributed Web-based computing, service lifecycle / ecosystem / scalable use
  – Agent technology
  – Mobile computing

• Compelling vision
  – Agent-oriented Web
    ▪ Reasoning-based automation of activities
    ▪ A web with “behavioral intelligence” to complement “information intelligence”
  – Global infrastructure for transactions, activities & virtual organizations
    ▪ Adaptive, composable workflows
  – Real needs & challenges
    ▪ Recognized by industry as well as researchers

• Standards activities

• Looking forward, the significance will continue
  – Cloud computing, Web of Things, new areas of interest in process R&R…
SWS Research Challenge

• Funding for research related to Semantic Web services
• Proposer must be a student
  – Collaborators/team members can be non-students
• One recipient will be selected based on short research proposals

• Award
  – $1000
  – Recognition at ISWC 2012
  – Poster presentation spot at ISWC 2012

• Complete information will be available soon at

http://swsprise.semanticweb.org/