Toward More Transparent Government

Federal CIO Council’s
Semantic Interoperability Community of Practice
(SICOP)
Topics

• Internet evolution to 2020
• Evolving transparency
• Medici effects
• SICOP
• SICOP partnering
Internet evolution to 2020

1. The Web connects information
   - File servers
   - Desktop
   - Email
   - Conference
   - Instant messaging

2. The Social Web connects people
   - Social networks
   - Social bookmarking
   - Social gaming

3. The Semantic Web connects knowledge
   - Artificial intelligence
   - Ontologies
   - Knowledge bases
   - Search engines

4. The Ubiquitous Web connects intelligence
   - Natural language
   - Autonomic intellectual property
   - Smart ecosystems

Increasing knowledge connectivity & reasoning

Increasing social connectivity

Source: Nova Spivack, Radar Networks; John Seabrook, Pei Li & Mike Paine, Projection
Evolving transparency — building DRM 3.0 and Web 3.0 for managing context across multiple documents and organizations

- Intelligence community R&D has produced tools to disambiguate word senses, state time relationships correctly, combine context and process specifications, empower agents to discover and share knowledge precisely, and build true semantic service oriented architectures, not just application programs repackaged as web services.

- **AQUAINT** (Advanced Question Answering for Intelligence) — advanced language understanding, reasoning about time, and question answering. Key results include: (a) evolution of Wordnet and Framenet as lexical ontologies that disambiguate word senses of both nouns and verbs, (b) development of TimeML for reasoning about time, and (c) advances in reasoning to answer complex questions.

- **NIMD** (Novel Intelligence for Massive Data) — Addressed complex reasoning, knowledge exchange, and scalability. Developed the IKRIS Knowledge Language (IKL) that extends Common Logic (CL) with some capabilities of second order and non-monotonic logics. The result is that formalisms for data, process, and logic in use today such as SQL, XML, RDF, OWL, SWRL, PSL, KIF, etc. become proper subsets and provably interoperable with each other.
Medici effects

• “The Medici were a banking family in Florence who funded creators from a wide range of disciplines. Thanks to this family and a few others like it, sculptors, scientists, poets, philosophers, financiers, painters, and architects converged on the city of Florence. There they found each other, learned from one another, and broke down barriers and cultures. Together they forged a new world based on new ideas – what became known as the Renaissance.”

• “When you step into an intersection of fields, disciplines, or cultures, you can combine existing concepts into a large number of extraordinary ideas.”

• “We have met teams and individuals who have searched for, and found, intersections between disciplines, cultures, concepts, and domains. Once there, they have the opportunity to innovate as never before, creating the Medici Effect.”
Community of Practice

• What's the purpose?
  – To develop members' capabilities; to build and exchange knowledge.

• Who belongs?
  – Members who select themselves.

• What holds it together?
  – Passion, commitment, and identification with the group's expertise.

• How long does it last?
  – As long as there is an interest in maintaining the group.

Semantic Interoperability Community of Practice (SICOP)

• SICoP is chartered to do:
  – White Papers (3):
    • Operationalizing the Semantic Web/Semantic Technologies:
      – A roadmap for agencies on how they can take advantage of semantic technologies and begin to develop Semantic Web implementations (recently released for public review).
  – Conferences: 10.
  – Special Recognitions: 35.
  – Pilots: More than 50.
SICOP supports communities of practice

- Nanomanufacturing informatics COP
- Federal Sitemaps
- Net-ready sensor networks COP
- SOA — service oriented architecture COP
- SWIM — semantic wikis for information management
- SOCOP — spatial ontology COP
- Agile financial data services COP
- Autism COP
- NCOIC — net-centric operations industry consortium
- DERI — digital enterprise research institute
## Summary

<table>
<thead>
<tr>
<th>HAVE</th>
<th>NEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandates and policy guidance</td>
<td>Fit with acquisition (buying categories)</td>
</tr>
<tr>
<td>Maturing standards and technology</td>
<td>More people with skills</td>
</tr>
<tr>
<td>Case examples and proof cases at both the pilot and deployment stage</td>
<td>Inter-government funding</td>
</tr>
<tr>
<td></td>
<td>Access to information for re-use</td>
</tr>
<tr>
<td></td>
<td>(cultural and technical issues)</td>
</tr>
</tbody>
</table>