

# Building the Semantic Web

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MITRE Sponsored Research

The logo for the MITRE Technology Program, featuring a stylized graphic of stacked blocks in yellow, orange, and blue on the left, and the text "MITRE Technology Program" in yellow and white on the right.

MITRE  
Technology  
Program

# Problem

- **The World Wide Web was originally aimed at providing information to people, not other software.**
- **Web resources don't describe or represent their meanings or capabilities in a way that programs can understand.**
- **Software can't perform useful services, e.g.:**
  - **Integrating data from multiple sources**
  - **Retrieval based on user intents/needs**
  - **Smart information routing**

# Background

Example scenario:  
Will Jim find Jane?

I need an expert  
in XML to give  
a seminar!



```
<HTML>
<TITLE>Jane Doe's
      Web Page</TITLE>
<BODY>
<P>I teach the Extensible Markup
      Language at State U</P>
<P>My email is jd@state.edu</P>
</HTML>
```



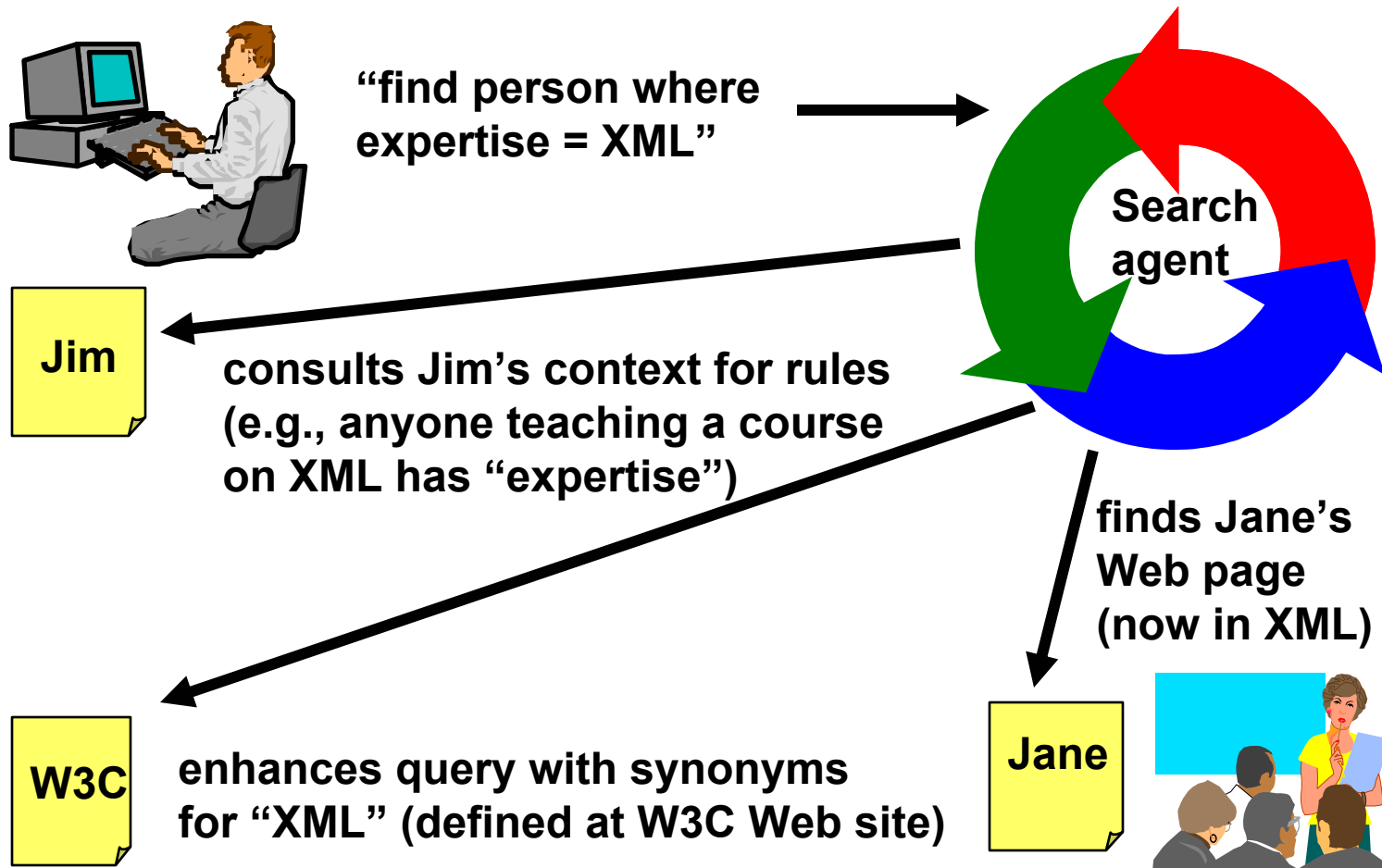
# Objective

- Provide technical foundations for a Semantic Web, in which Web resources can be more directly understood by software
  - supports matching resources to requests, integrating data, in spite of different vocabularies or contextual assumptions
- A key area of current Web technology development, affecting numerous DoD and MITRE programs, eBusiness and other communities

# Activities

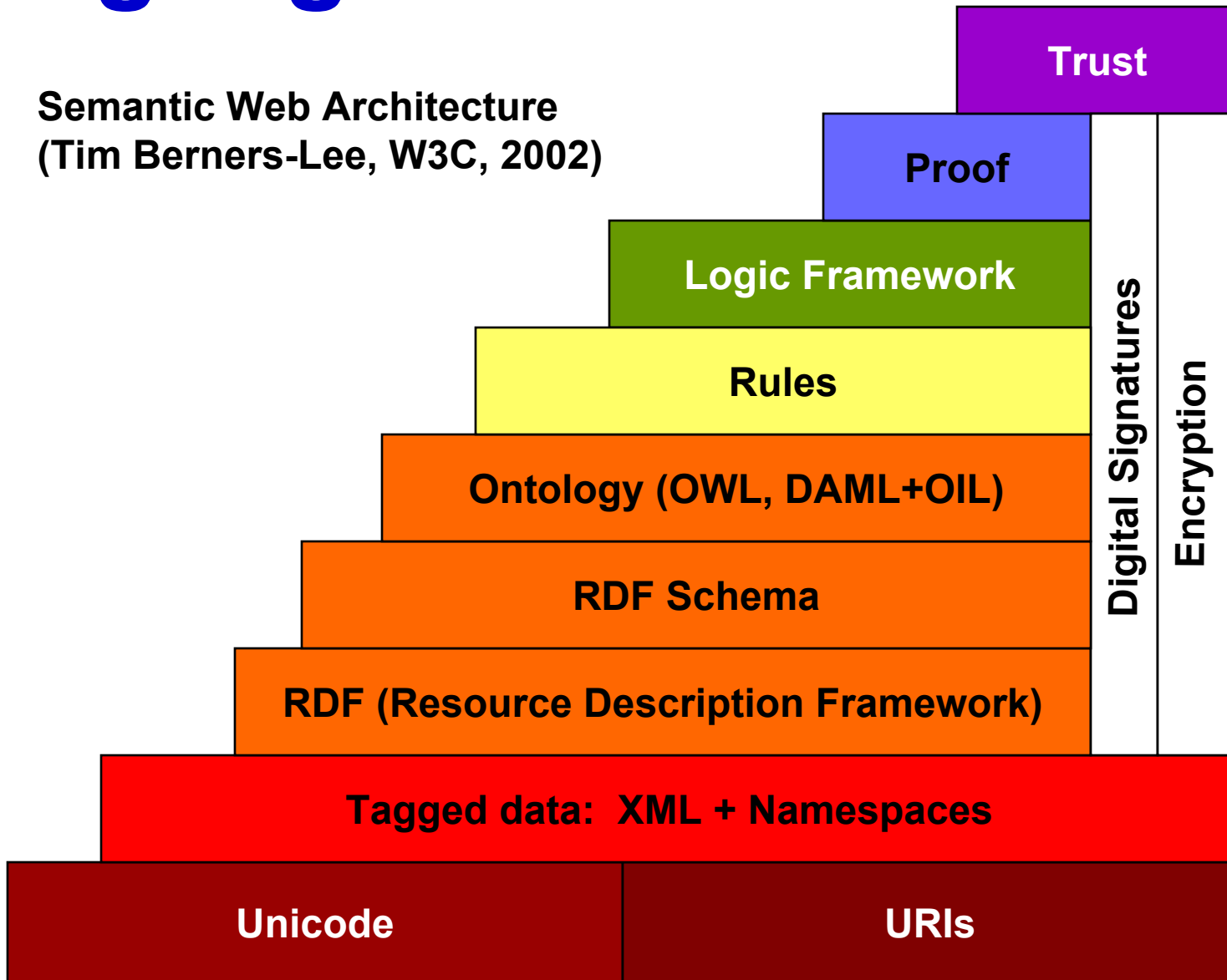
- **World Wide Web Consortium Semantic Web Activity, RDF Core Working Group (and Editor of RDF Primer)**
- **Working with MIT researchers on context and rule concepts, context mediation prototype, disaster relief scenario**
- **Working with DARPA Agent Markup Language (DAML) program researchers on model, language, and processing concepts**
- **Consulting on several MITRE projects employing Semantic Web technologies**

# Highlight



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**Semantic Web Architecture**  
(Tim Berners-Lee, W3C, 2002)



# Impacts

- **Developing foundations of Semantic Web technology in W3C working groups with influence on vendor / customer communities**
  - **Operational use well established in some domains; increasing interest in others**
- **Several MITRE activities now employing Semantic Web technologies**
- **Influence on academic research directions via MIT collaboration**
- **RDF Primer helping introduce people to a key base Semantic Web technology**

# Future Plans

