

*Slideset 1 of*  
*“E-Commerce Applications of*  
*Semantic Web Services”*

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# *Content Outline of Tutorial*

1. Intro
  - a. Overview and get acquainted
  - b. XML & B2B
2. Semantic Web Services: concepts, technologies, standards
  - a. Semantic Web, Web Services, and their convergence
  - b. Rules and RuleML
  - c. Combining Rules with Ontologies
3. Application Scenarios in depth:
  - a. E-Contracting including business policies
  - b. Financial Knowledge Integration including ontology translations
  - c. Authorization and Trust including privacy, multi-agent delegation
4. Windup and Discussion
  - a. Prospective Early Adopter areas for SWS in EC

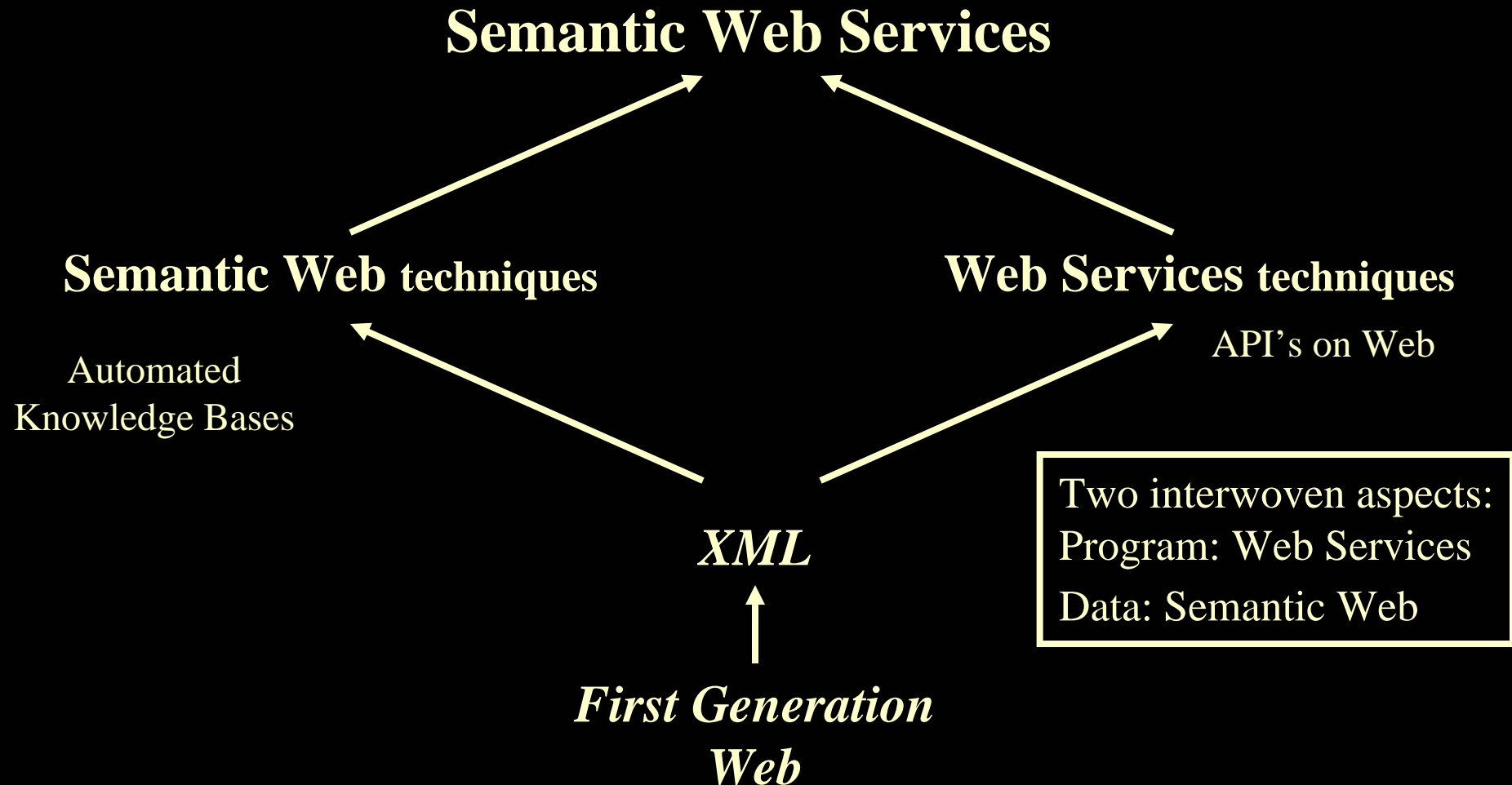
# *Sequence Outline of Tutorial*

- Introduction & get acquainted
- Overview of Core Technologies of the New Generation Web
  - XML; Web Services; Semantic Web; Semantic Web Services
- Business Process Automation; B2B; EAI; Agents; Standards Role
- Overview of **Research Agenda**; incl. SWS application scenarios
- End-to-end **E-Contracting** as business application of SWS
  - SweetDeal rule-based approach, manufacturing SCM example
- (BREAK midway: about here.)
- More depth on Rules and KR for SWS, incl. RuleML
  - Requirements; uses; maturity; rule-based SWS
  - New **Fundamental KR Theory**, incl. Description LP
- **Financial Info & Reporting**: ECOIN ontologies/contexts integration
- **Trust Management Policies**: rules & delegation in authorization
- SWS **Research Directions**
- **SWS E-C Adoption Roadmap; Market Evolution**

# *Quickie Bio of Presenter*

- MIT Sloan professor since 2000
- 12 years at IBM T.J. Watson Research; 2 years at startups
- PhD Comp Sci, Stanford; BA Applied Math Econ/Mgmt, Harvard
- Semantic web services is main research area:
  - Rules as core technology
  - Business Applications, Implications, Strategy:
    - e-contracting/supply-chain; finance; trust; ...
  - Overall knowledge representation, e-commerce, intelligent agents
- Co-Founder, Rule Markup Language Initiative – the leading emerging standards body in semantic web rules (<http://www.ruleml.org>)
- Core participant in Semantic Web Services Initiative – which coordinates world-wide SWS research and early standards (<http://www.swsi.org>)
  - Area Editor for Contracts & Negotiation, Language Committee
  - Co-Chair, Industrial Partners program (SWSIP)

# *Next Generation Web*



# Some relevant websites

- <http://ccs.mit.edu/ph> MIT Process Handbook, Open Process Handbook Initiative
- <http://www.w3.org/2002/ws> World Wide Web Consortium, e.g., its Web Services and Semantic Web standards
- <http://www.oasis-open.org> Oasis, e.g., its web services standards
- [http://www.amazon.com/gp/browse.html/ref=smm\\_sn\\_aws/002-8992958-7364050?node=3435361](http://www.amazon.com/gp/browse.html/ref=smm_sn_aws/002-8992958-7364050?node=3435361) Amazon's web services – 1000's of developers
- <http://www.swsi.org> Semantic Web Services Initiative standards – 40 partners
- <http://zdnet.com.com/2100-1106-975870.html> Fidelity's web services for EAI
- <http://www.ruleml.org> Rule Markup Language Initiative standards, - 30+ partners
- <http://iswc2003.semanticweb.org> Intl. Semantic Web Conference – 400 researchers

# *Big Questions*

## *about the New Generation Web*

- What are the critical features/aspects of the new technology?
- What business problems does it help solve?
- What are the likely innovation evolution paths, and associated entrepreneurial opportunities?

# *More Research Aspects/Questions about the New Generation Web*

- Core technologies: Requirements, concepts, theory, algorithms, standards?
  - Rules in combination with ontologies;  
probabilistic, decision-/game-theoretic
- Business applications and implications: concepts, requirements analysis, techniques, scenarios, prototypes; strategies, business models, market-level evolution?
  - End-to-end e-contracting, finance, trust; ...