Business Case for Semantic Web Technologies

W3C Semantic Web Education and Outreach Interest Group Presentation

Why Care About the Semantic Web

- It will empower, directly and indirectly, new business capabilities

- It will help to throttle back IT expenditures within medium and large businesses

- …by transforming the very foundation of business software, and in particular, the way data is shared and analyzed

- AKA: "Web 3.0" and "Data Web"

- The Semantic Web is a fundamentally unique way of specifying data and data relationships

- It is more declarative, more expressive, and more consistently repeatable than Java/C++, Relational DBs, and XML documents

  - It builds upon and preserves the conventional data model's respective strengths.

> **Your Call to Action**

- Invest in training and skills development now

- Prototype a solution for a small project and explore the new tools now

- Probe you software vendors and key partners about their semantic technology roadmap now

- Compel your enterprise architects to formulate a multi-year metadata strategy now

- Semantic Web is a Low Risk Option

- Semantic Web can be a Tactical Fit (Incremental)

- Semantic Web is supported by your Partners

- Status quo is risky
  - Data and Sensor (Instrument) Proliferation
  - Complexity Explosion
  - Executive Mandates & Pressures
- Discounted Cash Flow trap
  - Conventional risk assessments falsely favor do-nothing strategy (by assuming status quo inputs into future)
- Semantic Web offers safety and protection
  - By correctly investing in technology that can accommodate extreme levels of data proliferation and complexity
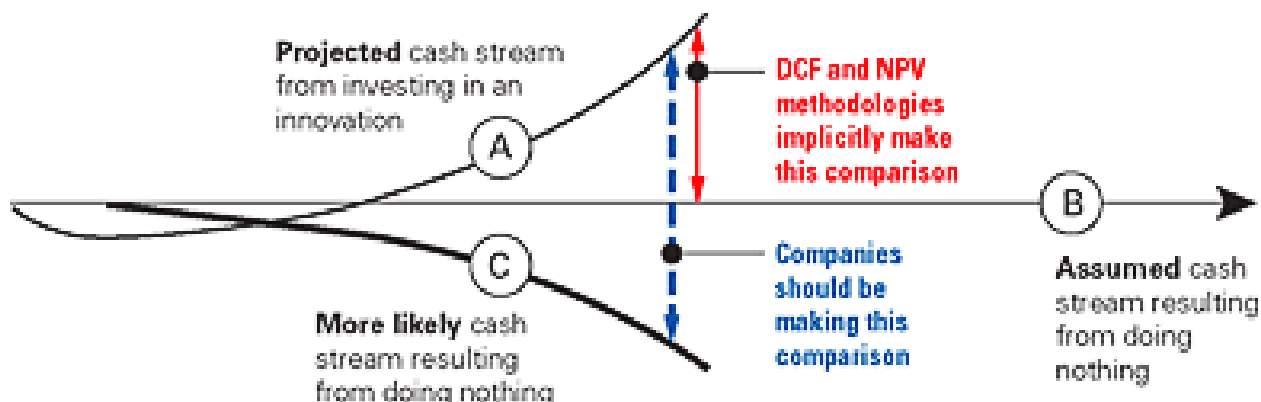
"Most executives compare the cash flows from innovation against the default scenario of doing nothing, assuming—incorrectly—that the present health of the company will persist indefinitely if the investment is not made. For a better assessment of the innovation's value, the comparison should be between its projected discounted cash flow and the more likely scenario of a decline in performance in the absence of innovation investment."

Christensen, C. M., Kaufman, S. P., & Shih, W. C. (2008, 01). Innovation Killers. Harvard Business Review .

> It Can Be A Tactical Fit

- Information-centric requirements
  - capabilities for analytics and data management
  - measures of data flexibility, audit-ability, and savings

- Tactical IT projects benefit from semantics (incrementally, without a big-bang adoption path)
  - Data Warehousing and Business Intelligence
  - Service-Oriented Architecture (SOA) data services
  - Portal applications and data mashups
  - Data Integration, Replication, and Migration
- "a little semantics goes a long way…"

> Your Partners Support It

- Ask your partners about their plans to adopt Semantic Web standards for metadata and data.

- Large vendors supporting semantic technology

  - Hewlet Packard

  - IBM

  - Microsoft

  - Oracle

  - SAP

> Technical Superiority

- Semantic Web standards are the first data standards that were purpose-built for supplying flexible metadata (no other languages have that historic purpose)

- Areas where RDBMS, UML, and XML technologies are misused, and where Semantic Web technologies excel, include the following:

  - Specification of computationally sound business information models

  - Specification of linking and relationship (meta)data across physical data locations

  - Specification of dynamic structural logic and rules that are part of the data realm

  - Specification of a federation approach for geographically separate data records

> Widespread Acceptance

- **Object Management Group** – controls UML and CWM specifications, is adopting RDF and OWL as the centerpiece specification for their core Definitional Metamodels

- **International Standards Organization** – controls various EDI and Metadata specifications, is adopting RDF and OWL within several ISO specification families

- **World Wide Web Consortium** – controls XML and SOA specifications, is adopting RDF and OWL as extensions to existing XML and Web Service specifications

- **OASIS** – controls many vertically-oriented business data specifications, is adopting RDF and OWL as a core feature in standards for Documents, Data Centers, Security, and Business Process Management

- The Semantic Web can be tactically applied to the following projects:
    - Data Integration, at the XML, RDBMS, and Object software tiers
    - Data Warehousing and Business Intelligence
    - Service-Oriented Architecture (SOA) data services
    - IT maintenance and IT infrastructure management
    - Portal applications and data mashups
    - Data Replication, Migration and Transformation

- It can also be strategically applied to the following business initiatives:
    - Enterprise Information Management
    - Decision Support Systems
    - Enterprise Governance and risk (including policy compliance)

- Maximize the value of information

- Information sharing with ultimate flexibility

- Greater level of future-proofing and re-use

- Data isn't trapped within individual applications
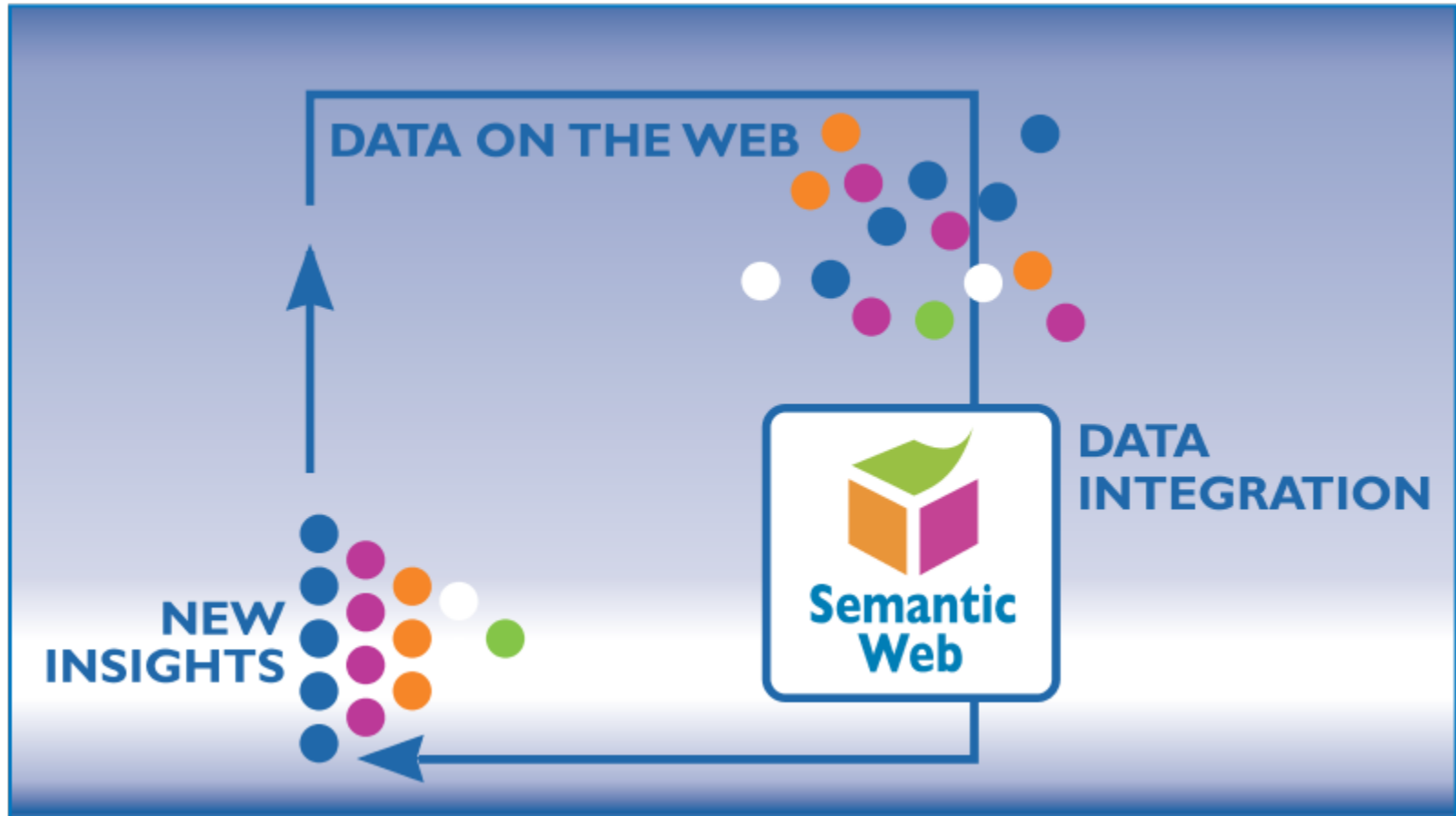
> The Semantic Web Will

- Empower, directly/indirectly, new business capabilities because they enable stronger and more consistent metadata linking, automatic inference for dynamic data structures, and a more declarative foundation model for shared business information

- Throttle back IT expenditures within medium and large businesses with reduced head-count requirements for the management of enterprise information assets, decrease the long-term costs of integration, and simplify decentralized data architectures

- Transform the foundation of enterprise software as all major software vendors adopt Semantic Web specifications within the context of their own mainstream tools

- Invest in training and skills development now

- Prototype a solution for a small project and explore the new tools now

- Probe you software vendors and key partners about their semantic technology roadmap now

- Compel your enterprise architects to formulate a multi-year metadata strategy now

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