Focus on Oil, Gas & Chemicals and W3C Business Group

June 29, 2012

World Wide Web Consortium

The international forum for the development of technology standards and for stewardship of the Web.

Vision:

“One Web, Open to All”

Mission:

“To lead the Web to its full potential”

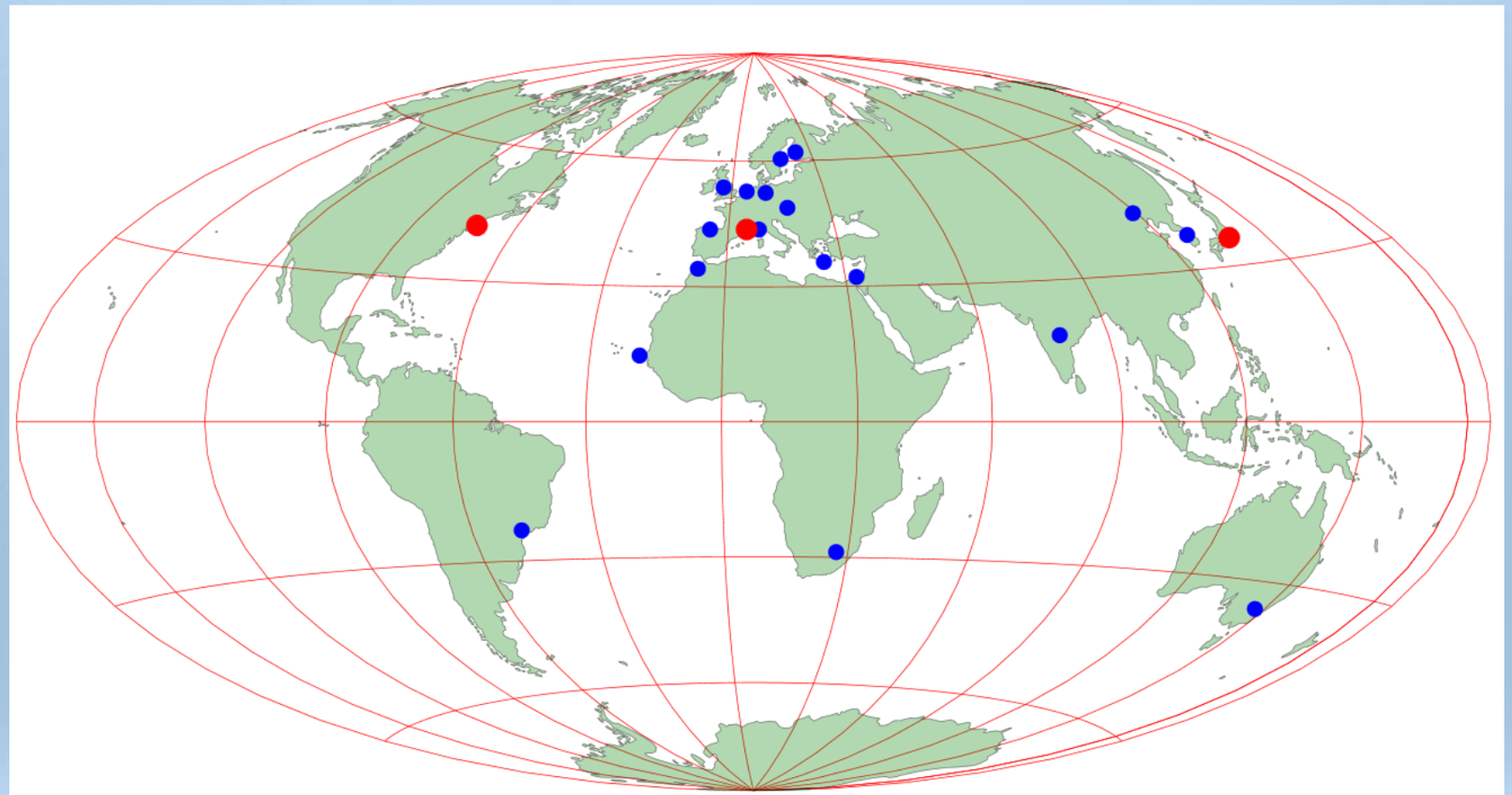
About W3C

- Since 1994 convenes the Web ecosystem
  - Vendors
  - Developers
  - Researchers
  - Governments
  - Liaisons with multi-stakeholders
- Membership organization

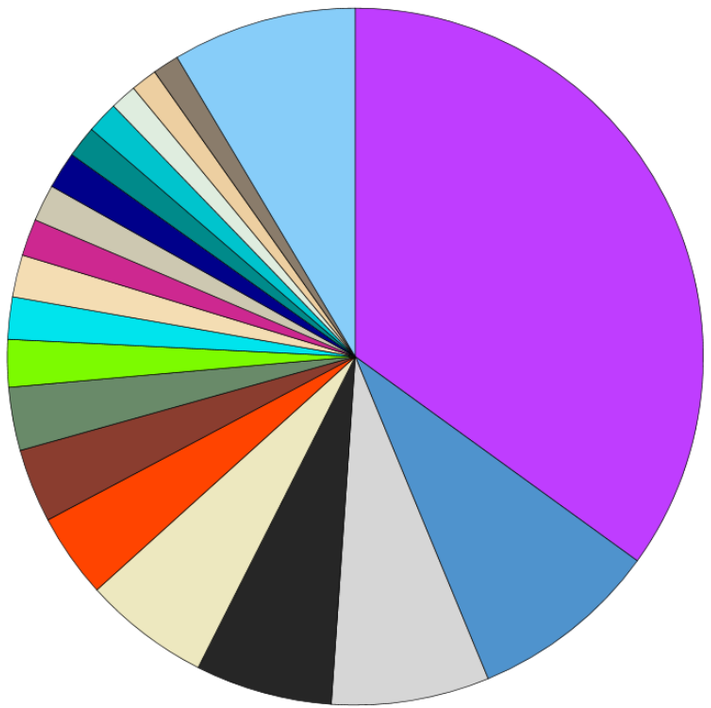
W3C Director and Web Inventor

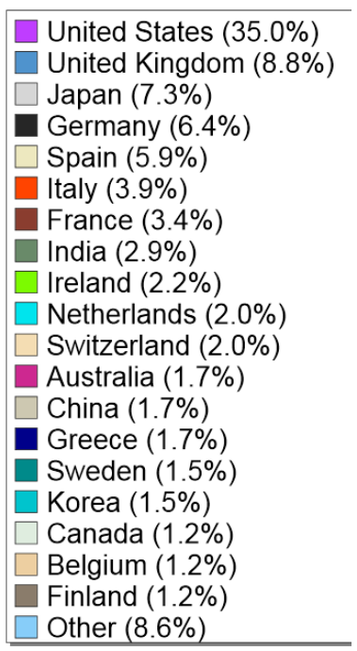
Global Participation

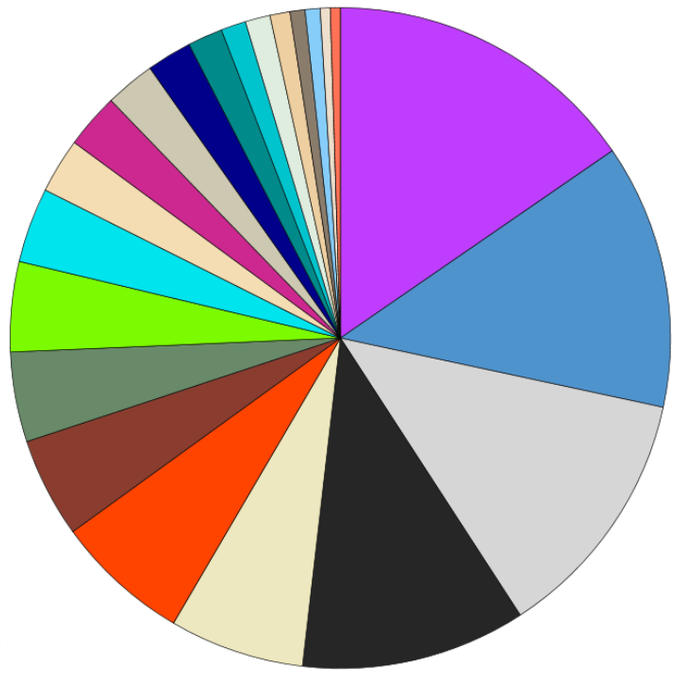
3 Host Locations, 20 Offices

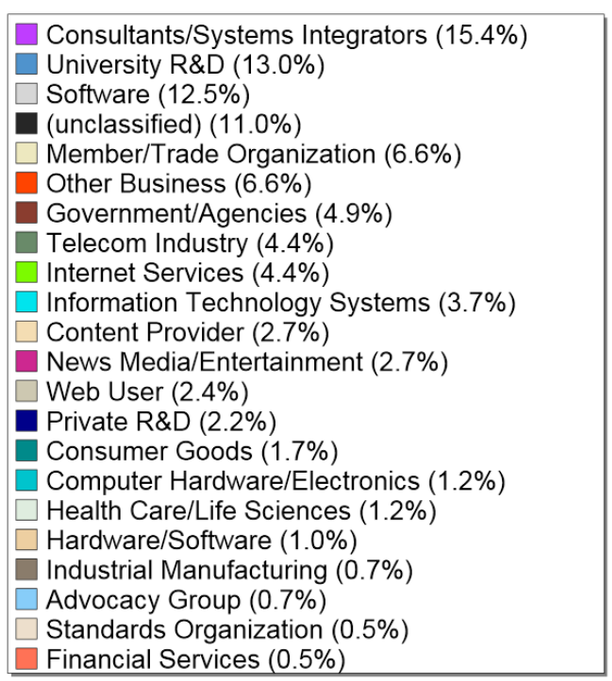


350 Members from 30 Countries; and Many Industries and many Governments, including BRIC countries









25 New Industry Members in Past 25 Months

AstraZeneca, Sweden/UK
Baidu, China
China Unicom, China
Comcast, USA
Cox Communications, USA
Facebook, USA
Gemalto, France
Huawei, China
Irdeto, The Netherlands
KDDI, Japan
LG, Korea
Motorola Mobility, USA
Mstar Semiconductor, Taiwan
NEC, Japan
Netflix, USA
Nielsen, USA
Qihoo 360, China
Panasonic, Japan
Rakuten, Japan
SanDisk, USA
Sony, Japan
Telenor, Norway
Tencent, China
Zynga, USA
Smart Communications, Philippines

W3C Offers Global Staff of Experts

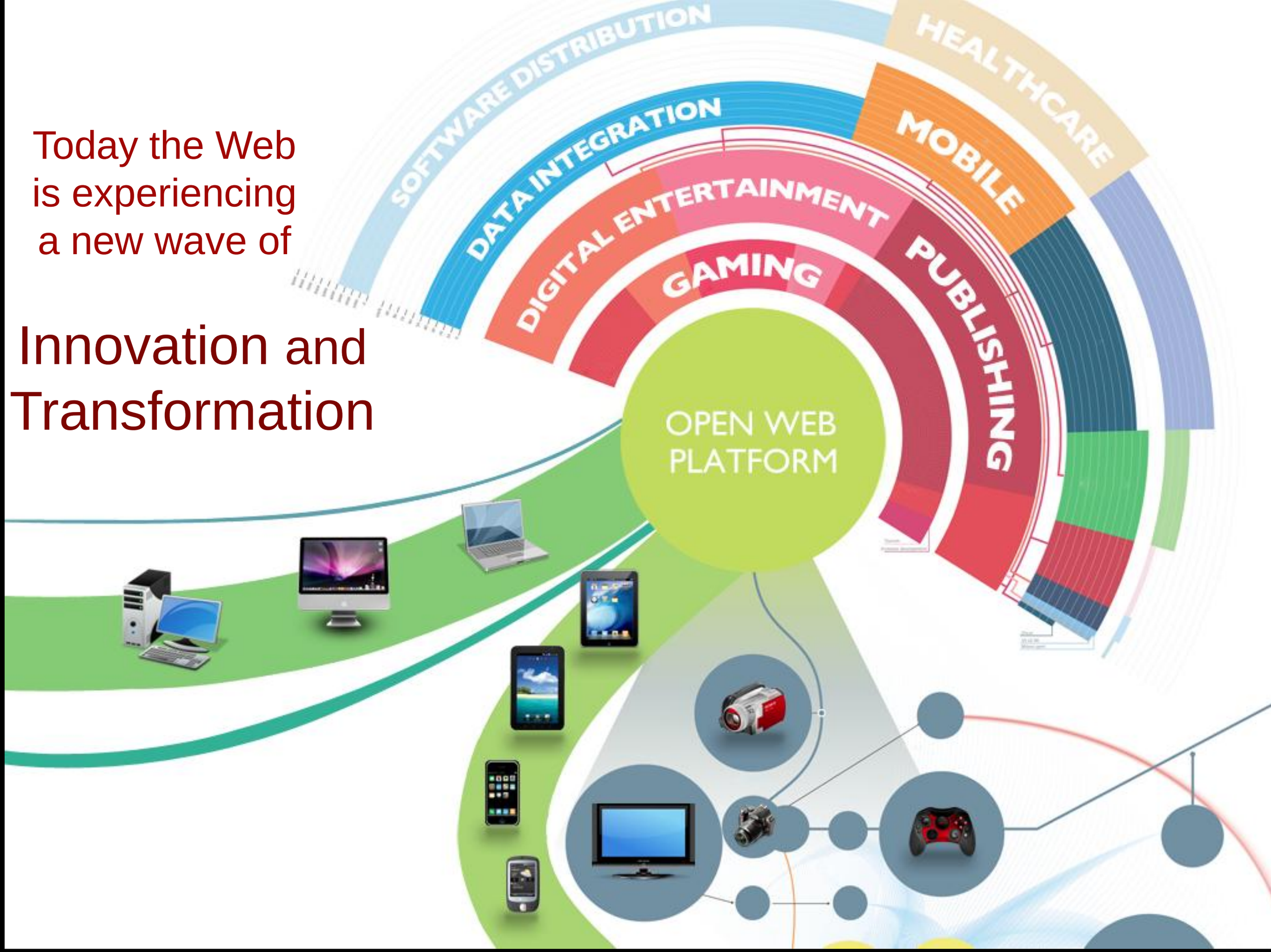
- More than 65 researchers and engineers
- International team whose role is to:
  - Provide direction to W3C
  - Coordinate activities of W3C
  - Facilitate active member participation
  - Communicate results of W3C work
  - Engage with the Worldwide Web Community

W3C Open Web Platform Standards are Royalty-Free

- Standard platform creates level playing field
- Level playing field allows innovation
- Participation allows organizations to shape platform, ensure needs met, standardize best practices

Today the Web
is experiencing
a new wave of

Innovation and Transformation



Open Web Platform Means…

- Web pages are more beautiful, interactive, intelligent
- HTML5 provides cross-browser interoperability and all major browser vendors plan to support it
- Video is a first-class citizen
- Data integration is simplified
- Devices interact and interoperate
- Social networking is mainstream
- Privacy, security, identity increase trust

The

OPEN WEB PLATFORM

Geeky but important

Widgets Javascript API's

DOM SVG CSS HTML5

Web fonts

OWL WE Mobile Applications

MAKE

WOFF WAI-ARIA

SMIL Geolocation API's

Semantic web

YOU GET

- Value creation
- Reliability
- Economic revolution
- Industry transformation
- A platform for innovation

How does the Open Web Platform Impact Industries and Governments?

- Television
- Mobile
- Gaming
- Publishing
- Advertising

- Digital Devices/Consumer Electronics
- Oil, Gas and Chemicals
- Open Government Data
- Enterprise Linked Data
- Social Networking

MOBILE

The Open Web Platform is the new mobile operating system.

Build the Future with HTML5

With animation, offline capabilities, audio and more, HTML5 yields a new class of web standards enabling developers to build amazing products. Learn More

Build

Learn the tricks of the trade to building the most compelling experiences.

Test

Utilize a wide array of tools to help ensure your experiences are consistent across browsers.

Distribute

Utilize Facebook and other channels to distribute your app to a large audience.

HTML5 Showcase

View examples and learn how to use web standards such as HTML5, CSS3, and Javascript to deliver rich experiences in your website.

Latest Updates

W3C and Ringmark Updates
May 1 by Matt Kelly

Ever since we launched the Coremob W3C Community Group and open sourced Ringmark, we've seen a flurry of activity from folks that want

Making a Speedy HTML5 Game
April 17 by Sean Soria

Back when we started Gamzee, a lot of people in the game industry were down on HTML5. The hopeful ones said that HTML5 was the

More

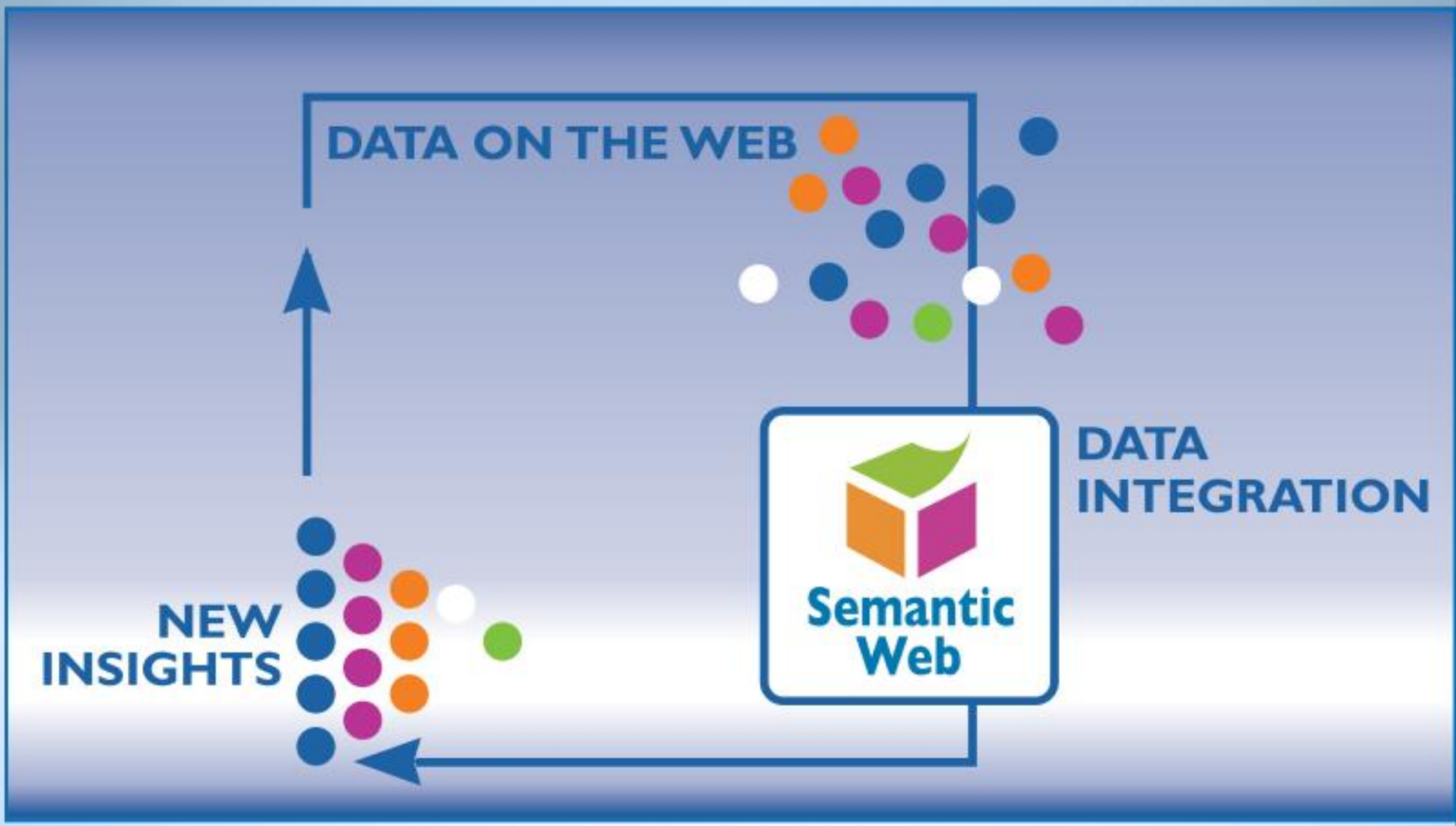
Oil & Gas and Mobile Phone Use

Asset Auditing
Calibrations
Construction
Crew Reporting
Environmental Assessment
Equipment Maintenance
Facilities Management
Inspections
IT Asset Management
Parts and Tools Management
Product Ordering and Invoicing
Rounds and Condition Assessment
Refinery Turnarounds
Vehicle Maintenance

EAM/CMMS
Scheduling
Materials/Purchasing
Project Management
GIS
Historian/Trending

Source: Syclo International Limited

Web of Data

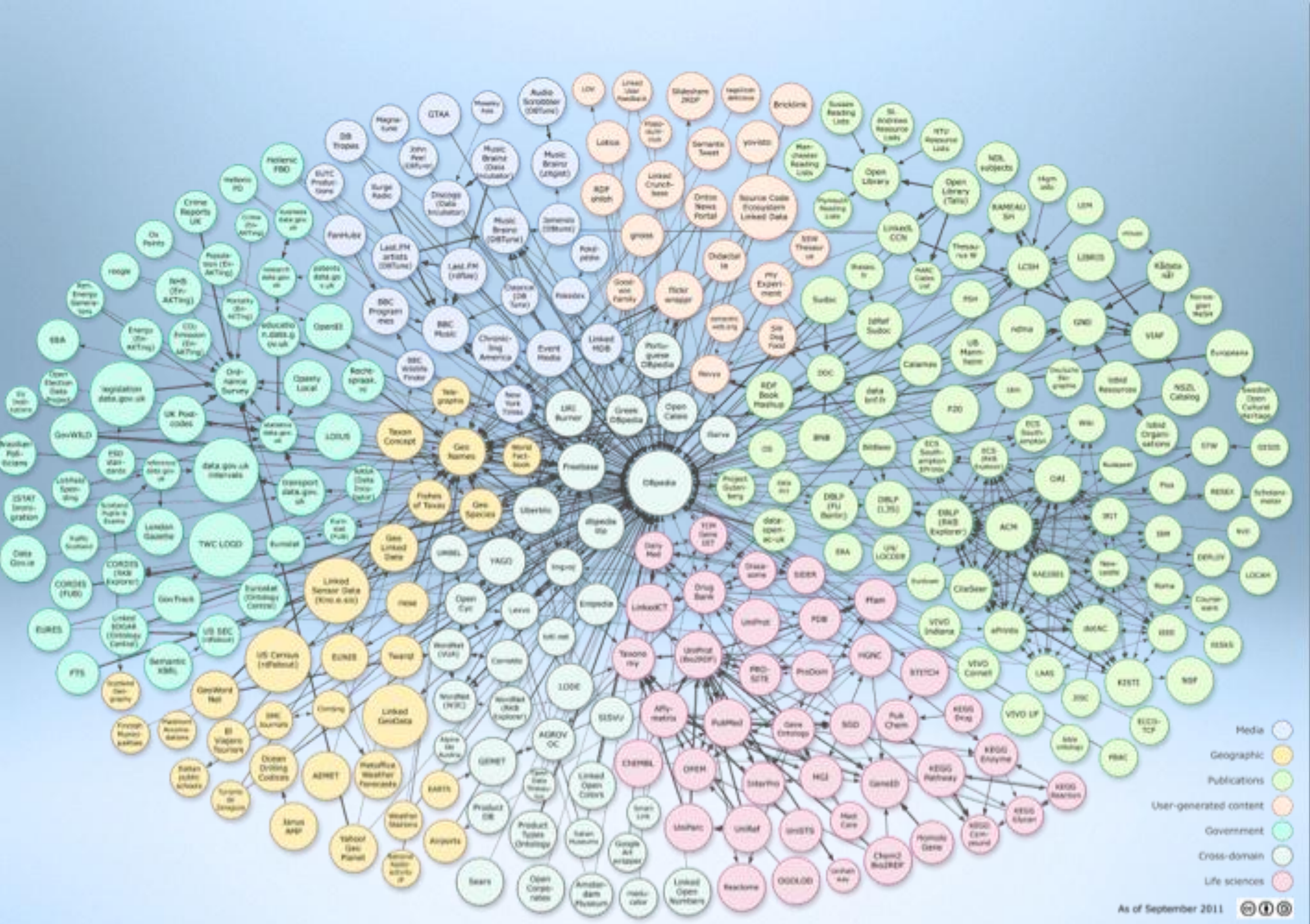


Semantic Web – Began as Research Program

"The Semantic Web is a web of data, in some ways like a global database."

"The Semantic Web approach develops languages for expressing information in a machine-processable form."

Tim Berners-Lee


Media
Geographic
Publications
User-generated content
Government
Cross-domain
Life sciences
As of September 2011

Challenge: Find the right experts at NASA

- NASA has nearly 70,000 civil servants over the whole of the United States

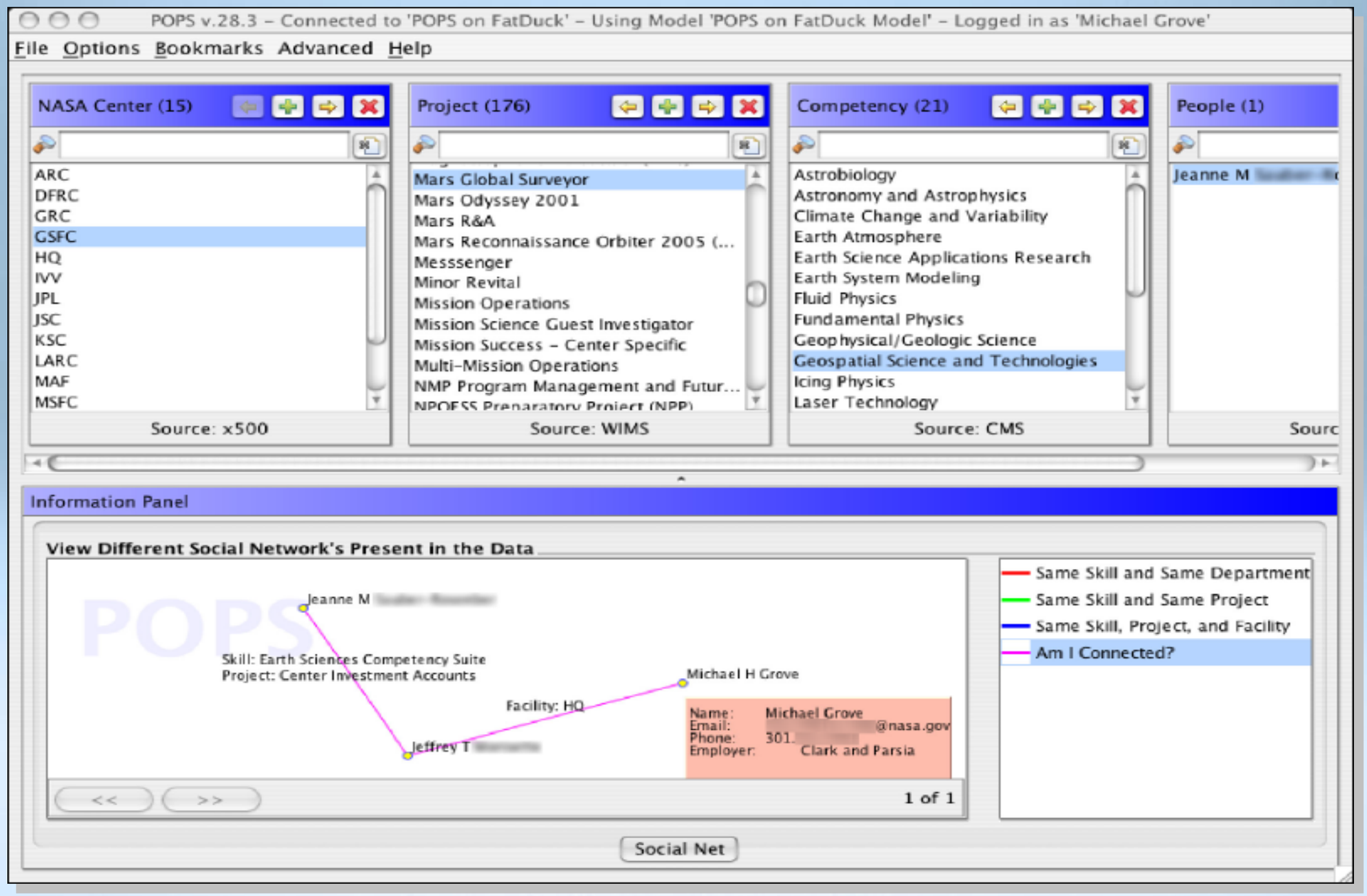
- Their expertise is described in 6-7 databases, geographically distributed, with different data formats, access types…

- Task: find the right expert for a specific task within NASA!

Michael Grove, Clark & Parsia, LLC, and Andrew Schain, NASA, (SWEO Case Study)

Find NASA Subject Experts

Integrate the data with Semantic Web standards:



Michael Grove, Clark & Parsia, LLC, and Andrew Schain, NASA, (SWEO Case Study)

Linked Data for Business Data Integration

- Maximizes the value of information
- Enables Information sharing with ultimate flexibility
- Data isn't trapped within individual applications
- Reduces costs because data is easily re-used across many applications

Oil, Gas & Chemical Challenges Statoil Perspective

- Lots of data! But little meta data, semantics are encoded in the applications.
- Utilizing and integrating what we know
- Ensuring the information is correct
- Ensuring the information is complete
- Mapping the data sources to a common system classification
- Equipment name standardization

Reused with permission from Statoil

W3C Semantic Web

Overview of Chevron Semantic Web Projects

Semantic Search

Well Production Data Exchange and Knowledge Mangement

Major Capital Project Information Mangement

Reservoir Modeling Information store

University of Auckland
Center for eResearch – Earth Science Ontology Engineering

CiSoft (USC) Collaborations

- Event Modeling and Analysis
- Data Provenance
- Ontology Segmentation

W3C Oil, Gas & Chemicals Business Group Face to Face

13 February, 2012, Houston, Texas

Organizational Face-To-Face Meeting Report

Executive Summary

Prioritizing Use Cases at the OGC-BG F2F

At this meeting to discuss formation of a W3C Oil, Gas and Chemicals Business Group, participants identified a number of potential use cases for this industry segment with clear business drivers that can potentially provide better, faster and cheaper strategic and operational business decisions or compliance with legal requirements. In each case there are potential linkages both to current activity in the W3C and also in our industry, providing opportunities for synergies: The W3C is uniquely positioned to provide the expertise required to use this technology effectively because – well, that's where the technology is coming from. Our industry can help the W3C by providing use cases that drive prioritization of how the technology is best implemented and extended and where the use of Semantic Web technology is most effective for our industry.

Introduction

An organizational face-to-face meeting was hosted by Chevron in Houston on February 13, 2012 to discuss forming a W3C Oil, Gas and Chemicals Business Group. Present at the meeting were representatives from the following companies and organizations:

http://www.w3.org/community/oilgaschem/wiki/OGCWG_F2F_-_February,_2012

Introduction

An organizational face-to-face meeting was hosted by Chevron in Houston on February 13, 2012 to discuss forming a W3C Oil, Gas and Chemicals Business Group. Present at the meeting were representatives from the following companies and organizations:

- Algebraix Data
- Apache Corp
- Bentley
- ConocoPhillips
- Chevron
- Energistics
- ExxonMobil
- Halliburton
- Statoil

as well as two unaffiliated individuals and a representative of the W3C. Other companies that were not able to attend, but have previously expressed interest in this effort (e.g by contributing to the draft charter of the group) include:

- Saudi Aramco
- Dupont
- IBM
- Oracle
- SAP

Oil & Gas Use Cases

1. Data Provenance

Business driver is to increase the reliability of decisions based on diverse information by understanding the sources of that information.

2. Linking Drilling and Exploration Data

Drilling information is kept in many diverse forms. The Semantic Web standards can quickly link related information from diverse sources for more effective analysis, leading to faster and higher quality decisions.

- TopQuadrant
- University of Southern California
- Wirespeak

The most substantive part of the meeting was a discussion of potential use cases that might be pursued by this group. The use cases that received the most interest are as follows:

Use Case: Data Provenance

The business driver is to increase the reliability of decisions based on diverse information by understanding the sources of that information.

The value chain in the Oil & Gas industry progresses from exploration, to production, transportation, refining, and finally, to distribution and marketing. Moving any given resource through this chain may require more than 10 years of investment, much of which occurs in the form of data acquisition, processing, and interpretation, in complex workflows that traverse functional and organizational boundaries. Importantly for the present use case, these workflows generally build on previous results, integrating new data and creating new, derived data products. As new information and knowledge accumulate, however, previous assumptions and work often require modification. At each step or node in this complex system of workflows, there is thus significant need to evaluate data provenance, either to verify the validity of source data for the next step in a workflow, or to identify how previous processing or interpretation should be modified. This need represents a key use case for data provenance.

Semantic technologies seem well suited for capturing the complex, anastomosing flow of data in the Oil & Gas industry. Capturing this opportunity is extremely difficult at this time, however, because very few of our

for connecting this to current industry activity could be to consider "semantifying" the University of Tulsa Bricks Taxonomy.

> The business driver is predicated on the fact that drilling information is kept in extremely diverse forms. The Semantic Web provides an opportunity to reconcile related information from diverse sources so that it can be more effectively analyzed, leading to quicker and higher quality decisions.

Use Case: Linked Enterprise Data -- Value Chain

The idea here is to create linked data models across the enterprise which model many parts of the value chain (e.g. drilling, exploration, production, maintenance, etc), replacing static enterprise information models in this area.

> The expected benefit to the business is to enable the optimization of operations and strategic decisions across the entire enterprise as opposed to one silo at a time.

Again the connection with the W3C would be with the Linked Enterprise Data activity, as described above. Statoil has been extremely active in collaboration with IBM in developing the foundations for work in this area, as reported in this presentation.

Use Case: Regulatory and Compliance Information

This use case is a bit speculative. We are aware that there is a tremendous amount of Semantic Web activity at the W3C in the general area of eGovernment, and in fact there are both a recently chartered Working

Oil & Gas Use Cases, cont.

3. Linked Enterprise Data -- Value Chain

Enable the optimization of operations and strategic decisions across the entire enterprise as opposed to one silo at a time.

4. Regulatory and Compliance Information

More effective processes to understand complex regulatory environments. Make compliance activities more effective and less expensive.

area, as reported in this presentation.

Use Case: Regulatory and Compliance Information

This use case is a bit speculative. We are aware that there is a tremendous amount of Semantic Web activity at the W3C in the general area of eGovernment, and in fact there are both a recently chartered Working Group and an Interest Group in this area. Again, a young working group is a great place to contribute use cases and requirements from our industry and to get back technical assistance.

> The business driver in the industry would be more effective processes for understanding our complex regulatory environment as well as making compliance activities more effective and less expensive.

The speculative part of this is that we do not know at this time whether there is substantial activity in the eGovernment Semantic Web area in regulations that would affect our industry. If there is there could be potential areas of cooperation.

Use Case: Big Data Analytics

Many big data analytics projects are working on unstructured or semi-structured data. Semantic Web information could provide a more sophisticated basis for analytics. The W3C is looking at big data issues in the cloud and linked data, so there is potential for interaction on this. The big technology companies (Oracle, IBM, Amazon, etc) are all quite interested and active in this area.

> A potential business driver might be to push analytics further down into our huge masses of real time data in order to provide more sophisticated generation of events that can be used to optimize operations, both

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Oil, Gas and Chemicals Business Group - Mozilla Firefox

File Edit View History Bookmarks Tools Help

www.w3.org/community/oilgaschem/

Bing

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Wiki

Chat

Issue Tracking

RSS

Contact Group

Community & Business Groups → Oil, Gas and Chemicals Business Group

Oil, Gas and Chemicals Business Group

The Oil, Gas and Chemicals Business Group is intended to study and possibly demonstrate applications of Semantic Web technology to business issues in those industries. An example of the topics the Business Group could focus on is information describing the equipment used in major capital projects, with an eye to integration of that information with other major parts of the value chain such as production, maintenance and facilities engineering information systems. Another possibility is open publishing of catalog or metadata records according to published ontologies so that the published records can be queried, aggregated and analyzed in order to improve

Get involved!

Anyone may join this Bus
Group. All participants in
have signed the W3C Co
Contributor License Agre
(CLA). Please also see i
about Business Group fe
non-W3C Members.

W3C Business Groups

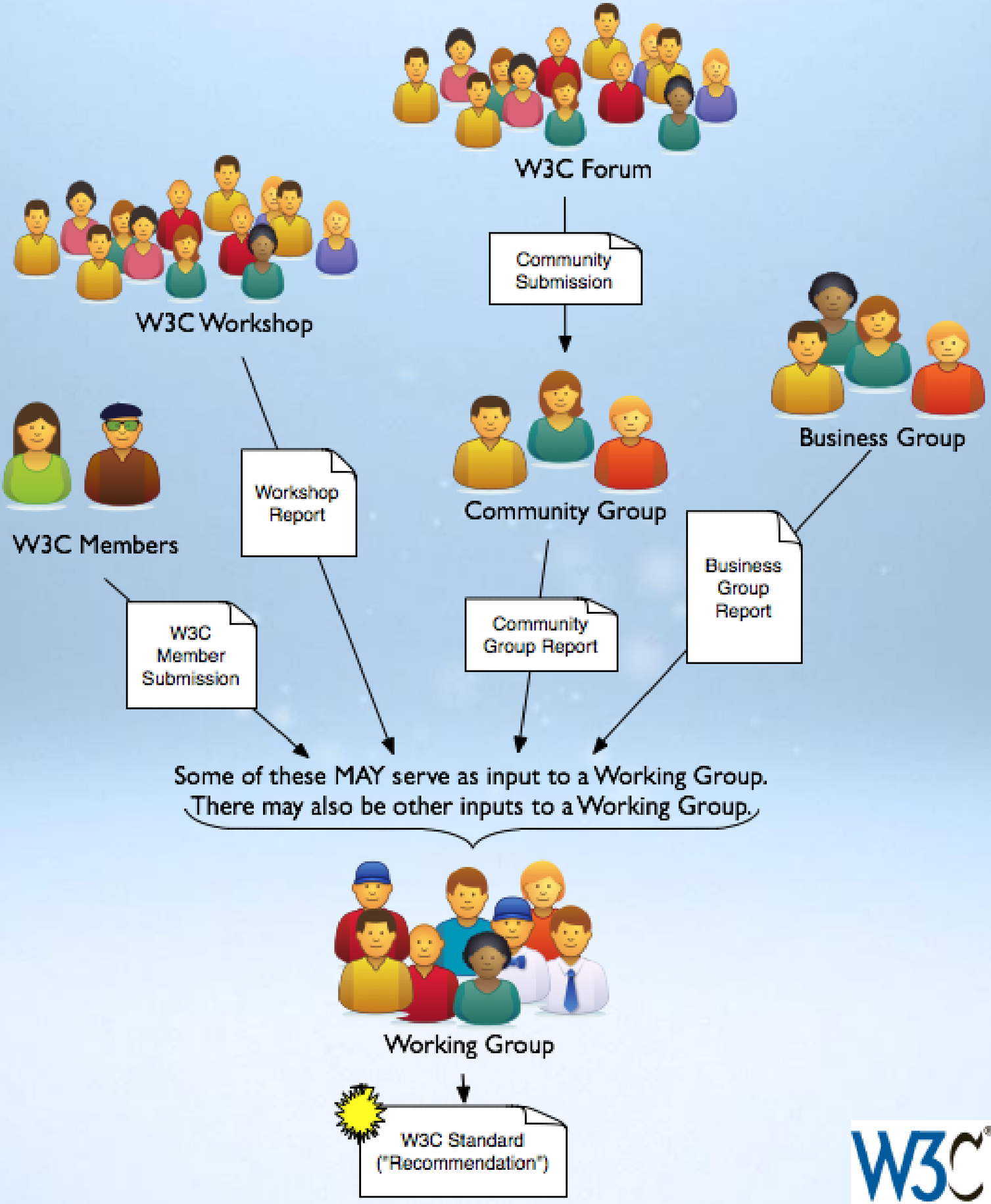
- Vendor-neutral forum for collaborating with industry leaders, on business challenges
- W3C experts help ensure that Business Groups reach other groups of interest and deploy high-quality Web technology in a timely fashion.
- Open to all, quick to start, self-determined, without time limit, IPR balanced, and allows transition to standards-track.

W3C Business Group Benefits

Staff connectivity: W3C staff provide expertise needed to deploy high-quality Web technology in a timely fashion.

Low-fee: W3C Members participate without fees, but non-Members and individuals pay an annual fee to participate. Fees support staff contact and services).

Public or non-public: Participants determine if they work in public or private. However, groups whose communications are primarily non-public are expected to provide periodic public updates.



W3C Semantic Web

W3C Technology and Society domain

Linked Data Platform (LDP) Working Group Charter

The **mission** of the Linked Data Platform (LDP) Working Group is to produce a W3C Recommendation for HTTP-based (RESTful) application integration patterns using read/write Linked Data. This work will benefit both small-scale in-browser applications (WebApps) and large-scale Enterprise Application Integration (EAI) efforts. It will complement SPARQL and will be compatible with standards for publishing Linked Data, bringing the data integration features of RDF to RESTful, data-oriented software development.

Join the Linked Data Platform (LDP) Working Group.

How can you participate?

Many ways to make an impact and contribute:

- Membership in W3C
- Sponsorship of W3C programs
- Public Workshops
- Business Groups
- Community Groups
- Online Training Programs
- Follow Public Mailing Lists

W3C Membership Brings…

Opportunity to advance your organization's strategic goals such as:

- Demonstrating technical leadership
- Accelerating adoption of open standards
- Increasing technical expertise for rapid deployment of Web-based technologies
- Access to community of key players on the Web

Value Proposition

- International organization
- Strong Web community
- Track record of success
- Royalty-free patent policy
- Neutral forum for collaboration across industries, ecosystems and communities
- Broad industry and academic participation (e.g. browser, mobile, internet and corporate)
- Active, expert staff participating in work

We Look Forward to Your Participation!

Build a Shared Future,
One Standard at a Time

Thank you!