The Semantic Web: How to bring technology to the market

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Overview

- Semantic Web Market
- Types of innovation
- What is a high-tech market
- What markets are we facing with Semantic Web technologies?
- How to select the right market, and attack?
- Two example systems
  - Semantic Search Engine
  - Intelligent FAQ
A Market for Semantic Web?

Source: Norman Poire, Merrill Lynch, based on Joseph Schumpeter
But When?

- Time to $billion markets

Time until cumulative ROI becomes net-positive

2006-7

Return

2000 2005

Government R&D

Venture capital & commercial R&D

Early Adopter R&D

Commercialization: $40–60 billion market in 2010

Market Adoption: ROI of 2-10X for semantic solutions

Source: TopQuadrant
Who is Investing in Semantic Web?

$ \text{Invested} $

\begin{align*}
\text{I} & \quad 2000-04 & \quad \text{II} & \quad 2005-07 & \quad \text{III} & \quad 2008-10 \\
\text{Industry Commercialization} & \quad \$2,222.4 & \quad \$4,008.8 & \quad \$8,475.6 \\
\text{Venture Capital} & \quad \$600 & \quad \$600 & \quad \$600 \\
\text{Government R&D} & \quad \$2,062.4 & \quad \$2,406.8 & \quad \$7,290 \\
\end{align*}

Source: TopQuadrant

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Two Types of Innovations

- **Discontinuous innovations**
  - Product requires change of current mode of working
    - Car running on alcohol
    - Mobile phones
    - PDAs, Palm
    - Digital cameras
    - The Web and Google?

- **Continuous innovations**
  - Do not require us to change behavior
    - Hard disk size, RAM
    - More economic cars
    - More pixels in digital cameras
What is a High-Tech Market?

- High-Tech Market consists of
  - Set of actual or potential customers (not end users)
  - For a given set of products or services
  - Who have a common set of needs or wants, and
  - Who reference each other when making a buying decisions

- If two organizations buy the same product for the same reason, but they have no way to reference each other, they are NOT part of the same market
Types of Markets and Its Customers

Fig. 1.1 Technology Adoption Life Cycle
Early Adopters: The Visionaries

- Have insight to match emerging technology to strategic opportunity
- Have ambition to translate insight in high-visibility, high-risk project, and the charisma to get rest of organization buy into project
- May have considerable budgets
- They have a dream. Understand the dream and you will understand how to market to them
- Visionairs are not looking for an improvement; they are looking for a fundamental breakthrough
- See potential for an "order of magnitude" ROI
- Willing to serve as highly visible references
- Visionaries are easy to sell but very hard to please
- Be aware of visionaries

In sum, visionaries represent an opportunity early in the product's life cycle to generate a burst of revenue and gain exceptional visibility
Early Majority: The Pragmatists

- Do not want to be pioneers
- Represent bulk of market for technology products
- Goal of pragmatist is to make a percentage improvement
- Do not want to take risks
- Once won, they are very loyal and prescribe you for others in his organization
- When they buy, they care about the company they are buying from (long term decision)
- Because they are the major pie of the market, it pays off to build trust relationships with them
- They think vertically (sector), not horizontally (technology)
- References to their peers are very important
- Catch22: they don't buy from you until you are established; to get established they need to buy from you
- They like competition
  - Vendor needs to Get price down
  - Fall back opportunity for security
- Want to buy from proven market leaders
  - Because third parties design supporting products around a market-leading product
  - Reduces burden of support and risk
Fig. 1.2  The Revised Technology Adoption Life Cycle
Considerations

- **Common experience**
  - 90% of high-tech companies are suffering from the chasm
  - It took ILOG +/-10 years to reach the mainstream market
  - It took Documentum many years until they changed strategy

- **Entering large markets (type Forrester, Gartner)** usually does not happen at once when your technology/product implies a discontinuous innovation, but needs careful planning
  - Unless you are a giant

- **FOCUS!**
What Markets to Consider?

- Public Adm
- Cultural
- Computer
- Tourism
- Legal
- Pharma
- Finance

Semantic index & search

Application Integration & B2Bi

Reasoning & Problem Solving

Navigation & Visualisation

Organization Structuring

Intermezzo from Ovum

- The market for Search and Discovery

- Ovum
  - Analysis and consulting for vendors and users
  - In-depth knowledge of products and the market
  - Highly critical approach to analysis

- www.ovum.com

- Most of the topics covered by the SEKT project fall within the market that Ovum refers to as the enterprise search and discovery market

- Why is this interesting to consider?
  - Solutions incorporating Semantic Web technology need to be bought by customers
  - Customers have limited budgets to spend on IT
  - Buying a Semantic Web Technology solutions implies not buying something else
  - Customers need to be able to “classify” the new product
  - A candidate is: Search
The KM technology environment

Source: Ovum

Search play a role in all three of them
Global enterprise search & discovery forecast

Source: Ovum

Licence revenues expected to reach $1.1 billion by 2009
Regional division of revenues

Source: Ovum

Western Europe accounts for 31% by 2009

Source: Ovum
The search market in context

Source: Ovum

- Enterprise search and discovery software market was worth $494 million in 2004
- Other information management markets:
  - Portal software - $900 million
  - Content management software - $1.59 billion
  - Collaboration software (including e-mail) - $2.3 billion

- The global software market was worth $173 billion in 2004
  - Combined, these four markets made up only around 3% of the total
2004 vendor market share

Source: Ovum

Estimated/actual software licence revenues by vendor, 2004 ($million)

- Verity
- Autonomy
- FAST
- Google
- Microsoft
- Endeca
- Inxight
- Open Text
- IBM/Lotus
- Convera
- Hummingbird
- Entopia
- Mercado
- Tacit Software
- Entrieva
- Recommend
- ISYS Search Software
- Northern Light
- Open Road Technologies

The top 3 vendors account for almost 40% of the market
Vendor positioning

Source: Ovum

- Leaders
- Market position
- Emerging

Axes:
- Focused
- Breadth of knowledge discovery offering
- Discovery platform

Companies:
- Google
- Microsoft
- Verity
- Autonomy
- FAST
- Endeca
- Open Text
- IBM
- Inxight
- Convera
- ClearForest
- Entopia
- Recommind
- Semagix
- Mondeca
- ISYS
- TripleHop

Source: Ovum
Vendors with competing functionality (1)

Source: Ovum

- Entity handling/extraction, entity-based navigation

- Clustering
  - 80-20 Software, Autonomy, FAST, Inxight, Northern Light, Open Text, Quiver, Recommind, Temis, Verity

- Visualisation
  - Aduna, Autonomy, Entopia, Entrieva, Intelligent Views, Inxight, Mondeca, Semagix, Verity
Vendors with competing functionality (2)

Source: Ovum

- Agents & alerts
  - APR SmartLogik, Autonomy, Convera, Copernic, FAST, Inxight, ISYS, Microsoft, Mondeca, Open Text, SER Solutions, Teragram, Verity

- User profiling
  - APR SmartLogik, Autonomy, Entopia, iPhrase, Mondeca, Recommind, SER Solutions, TripleHop Technologies, Verity

- Document summarisation
  - Autonomy, Copernic, Coveo, FAST, Hummingbird, IBM, Teragram, Verity
Some conclusions, reflections

- Is Search the right market for Semantic Web technology?
  - Not so big
  - Broad functional coverage (not only pure search)
  - Difficult to sell on its own
  - 3 top players have 40%
- What is the added value of Semantic Web Technology to search?
  - From keywords to domain semantics → Ontologies
  - Danger of “over-promising”

- Instead of general search engines, we could focus on niche markets where
  - Semantic Web technology solves business problems, rather than does search

- Example Niche markets
  - Semantic Search Engine for Public Administration
  - Case analyzer + document generator for the legal domain
  - Automatic Invoice Integration for Pharmaceutical industry
  - Patent “Discovery” in Medical Literature

*Source: Not Ovum, but VRB*
End Intermezzo

But how do we select a (niche) market?
Reflection:
- How mature is our candidate?
- What phase or we in to market high-tech?
- Depending on phase the strategy and message is different

Type of Innovation

With a discontinuous innovation:
- Select the right market niche
- Become market leader
- Hop to an adjacent market
Different Messages to Reach Markets

Techies and visionaries
- Product Centric
- Fastest product
- Easiest of use
- Elegant architecture
- Product price
- Unique functionality

Pragmatists and conservatives
- Market Centric
- Largest installed base
- Most third party supporters
- De facto standard
- Quality of support
- Cost of ownership
How to Launch Your Product/Service to the Right Market?

- Look for a killer application
  - = give the customer a compelling reason to buy

- **Scenarios**
  - Before and after description
  - Evaluation of scenarios

- **Elevator Test**
  - Convince someone in two minutes why your product is so good
  - The message should be printed in the brain of the buyer
  - In other words: if you can’t convey your message easily and clearly, you have no chance

- Select partners and allies
Elevator Test

For (target customers - beachhead only)
Who are dissatisfied with (current market alternative)
Our product is a (new product category)
Unlike (the product alternative)
We have assembled (key whole product features for specific application)

For civil lawyers
Who are dissatisfied with the way to find relevant information in multiple digital legal repositories (law, jurisprudence)
Our product provides an integrated intelligent search facility
Unlike online databases such as Westlaw, Aranzadi, El Derecho, COLEX DATA, LEX NOVA, Leggio Opening, Iliberis,
We have assembled a meta search engine that searches multiple legal digital repositories and allows for query answering rather than document retrieval.
BUSCADOR SEMÁNTICO

Búsqueda por temas | Hazme una pregunta

Hazme una pregunta: ¿A qué organizaciones pertenece España

Frase Extendida: Obtiene Organización Internacional Organización de Destino Lugar Pertenece a Organización País y Nombre en España

RESULTADOS DE LA BÚSQUEDA:

Se han encontrado 25 resultados.

Organizaciones Internacionales

Nombre Corporación De Las Finanzas Internacionales
Abreviatura Organización IFC
Objetivo Organización Empresa Privada De La Ayuda De o En El Desarrollo Económico Internacional, Una Agencia Especializada La C.n.u y Afiliado De Iord
Tipo Organización Organización Internacional
Caracter Organización Internacional
Acontecimientos en los que Participación
Acuerdos suscritos
Miembros organización
Países que le toman República De Africano Central
La India
Bosnia Herzegovina
Tailandia
3D Visualization of Semantic Content

Domain Ontology

Visualization Ontology

Visualization

PEOPLE

PERSON

CREATION

PLACES
Final user
- Consejo General del Poder Judicial
- General Council for Juridical Power

Intelligent FAQ for recent graduated judges
- Criminal Process Law questions, Office practice (Non binding)

Technologies
- NLP
- Ontology of legal domain
- Semantic distance between new questions and stored ones
Preguntas relacionadas con la formulación

- ¿Qué debemos hacer ante una denuncia por daños personales causados por imprudencia leves? (En los juzgados de instrucción de las grandes capitales se considera como tal las lesiones causadas por un accidente de tráfico, salvo excepciones).
  
  Matching = [Qué, hago, juzgado, denunciar, hechos]

- ¿Qué hacer en caso de que se presente en el Juzgado de Guardia una denuncia de una madre contra su hijo al que pretende expulsar de su casa a causa de los malos tratos que recibe del mismo?
  
  Matching = [Qué, hago, juzgado, denunciar, hechos]

- ¿Si se trata de una querella que reúne todos los demás presupuestos procesales para los hechos objeto de la misma carecen de relevancia penal o bien declararán falsos?
  
  Matching = [hago, si, hechos, falsos]

- Estamos en guardia de incidencias, comparecen en nuestro juzgado el capitán de nacionalidad griega de un buque de bandera panameña, el consul de Panamá en Barcelona y un Abogado, nos expresan que el buque se halla en la zona cálida de un mar territorial español y que la tribulación, de nacionalidad paquistaní, se halla a bordo anotada. Solicitan que autoricemos a la fuerza pública para que se haga a bordo, reduzcan a los anotados y los lleven directamente al aeropuerto del Prat para embarcarlos en un avión de vuelta a su país para el que ya se han adquirido los billetes. Alegan que es de aplicación la Ley Penal y Disciplinaria de la Marina Mercante de 22 de diciembre de 1955 y el Convenio Internacional de 26 de abril de 1958 del Mar territorial y la Zona Contigua ¿Qué hacemos?
  
  Matching = [Qué, hago, juzgado, hechos]

- Artículo 271 de la Ley de Enjuiciamiento Criminal, Art. 271 LECR.: La querella se presentará por medio de procurador con poder bastante y suscrito por Leandro..., en ella se expresará: la forma del querellante, cuando el procurador no tuviera poder especial para formular la querella. ¿Qué hacer procesalmente si el Procurador no tiene poder especial?
  
  Matching = [Qué, hago, si, hechos]
### Contact Information

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