Bringing the Web of Data to Developing Countries: Linked Market Data in the Sahel

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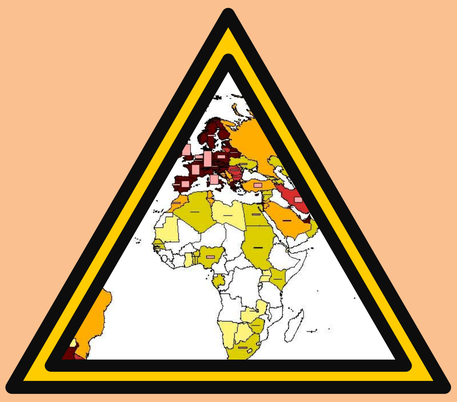
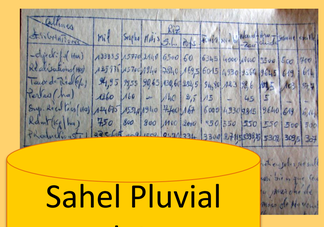
Is Linked Data for everyone?

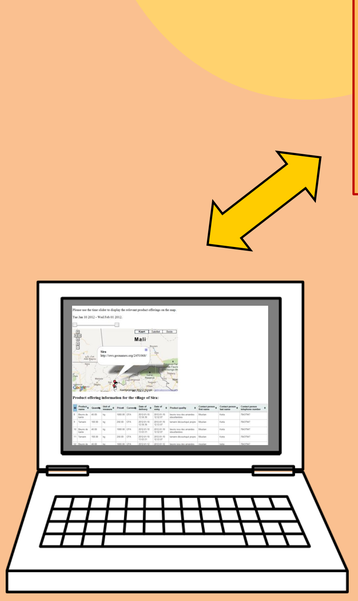


- As engineers of the Web of Data, we have the opportunity to reduce the Digital Linked Data Divide
- In developing regions sharing and re-use of locally produced and consumed data can increase its value as well.

Linked Market Data in the Sahel

The Linked Market data is a first node in a ”Web of Linked Development Data”. It’s linked to DBpedia, GeoNames, Agrovoc. It is accessible through HTTP, SPARQL, a client web application and a client voice application, accessible for 2G mobile phones.




`Ecomash’
Client application

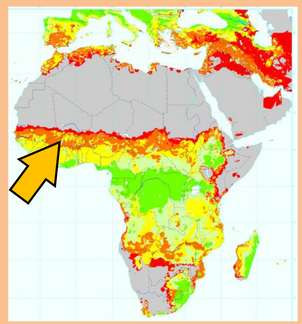
RadioMarché Linked market data

ClioPatria
Linked Data server

<VoiceXML> to SPARQL

Voice browser
Tel: +31208080855
Skype: +990009369996162208

RadioMarché: distribution of local market information



Field pilot in Tominian, Mali

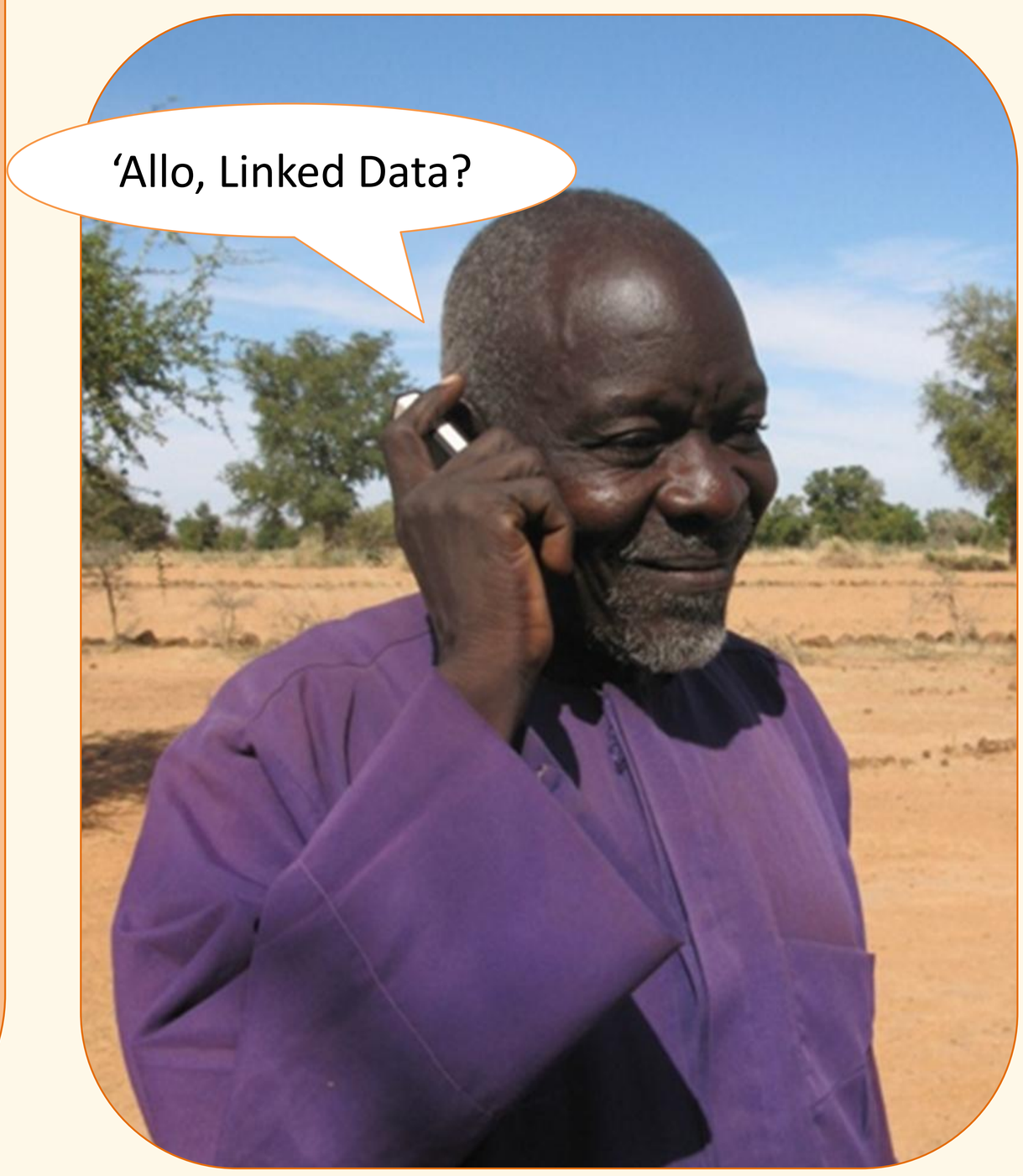
Collaborate with local farmers

Share market information

Distribute via community radio-stations using the Web and Mobile phones"

Locally deploy 2G phone hardware

Use (pre-recorded) locally recognized voices



Contact: *v.de.boer@vu.nl*
RadioMarche server: semanticweb.cs.vu.nl/radiomarche
Web for regreening in Africa blog: w4ra.few.vu.nl

worldwidesemanticweb.wordpress.com
SemanticXO: semweb4u.wordpress.com
LinkedIDS: idswrapper.appspot.com

This research is partially funded by the European Union through the 7th Framework Programme (FP7) under grant agreement Num. 269954

Images by Bruno van Moerkerken, Matthew Zook (zook.info) , sda.gov, flickr.com/photos/curiouslee/3985626381/ and Victor de Boer

Downscale 2012

Data Sharing

the privilege
of a few?

or everybody's
basic right?

The first international Workshop of Downscaling the Semantic Web. ESWC 2012. Heraklion

FRAMING THE WORLD: GENRE AS WORLDVIEW

MICHAEL SINDING
MARIE CURIE RESEARCH FELLOW

VU VRIJE UNIVERSITEIT AMSTERDAM
Faculteit der Letteren

"Who Wants Me" by George Cruikshank. *Thomas Paine*. A. J. Ayer. London: Secker & Warburg, 1988. Illustration 12: Trustees of the British Museum.

The Project

The problem of worldview in cognitive science concerns how high-level conceptual structures govern lower-level interpretation, emotion, reasoning, and discourse. This study examines how metaphor and narrative interact to structure liberal and conservative worldviews.
I develop contrasting models of:

1. the body as a moral ideal (flexible and open vs. strong and rigid), and as a political metaphor (the Body Politic), and
2. basic story types, or genres (comedy and tragedy) as sources of structure for key event-concepts in moral-political domains: origins, course, and destiny of human life, the family, society, and the world.

I develop these models by analyzing Edmund Burke's *Reflections on the Revolution in France* (1790) and Thomas Paine's *Rights of Man* (1791/92). These defined the poles of the debate over the French Revolution, formulating modern liberalism and conservatism.

[Attributed to Frederick George Byron]: *The Knight of the Wo[e]ful Countenance*. Published 15 November 1790, by William Holland. BM 7678; private collection. *Edmund Burke: A Life in Caricature*. Nicholas K. Robinson. New Haven: Yale UP, 1996. 142.

Approach: Background and Research Plan

Background: George Lakoff's analyses of framing and metaphor in political thought:

1. *Framing structures thought*.

- "Surface frames" rest on "deep frames" of basic moral worldviews.

E.g. "tax relief" evokes situations, roles, actions, values (affliction, victim, villain, hero).

- Inferences: taxes are an affliction; opposing tax cuts is villainous.
- Surface frame resonates with a conservative deep frame idealizing disciplined independence against social engineering.

2. *Worldview (deep) frames are metaphorical*.

- The Nation is a Family -- but what kind of a family? Two opposing models:

Liberal: "Nurturant Parent" model / Conservative: "Strict Father" model

- Deep frames include more specific moral metaphors (NP moral nurturance, empathy, self-development, happiness, fair distribution / SF moral strength, authority, order, boundaries, essence, wholeness, purity, health).

3. *Narrative structures reasoning and worldview*.

- *S*tory types interact with argument frames, carrying moral and emotional values and shaping interpretation and evaluation.

E.g. Arguments for war: "fairy-tale" framing of participants justifies invasion: our group/ state (hero) must rescue an oppressed group (victim) from an oppressing group (villain).

What's missing:

- Additional major worldview metaphors: the body as moral ideal and political metaphor.
- Richer model of story structures and types: refine, systematize, contextualize.
- Account of how story types (like tragedy) link surface frames with deep frame "background assumptions" (like "life is difficult" and "the world is dangerous").
- Account of how metaphor and narrative structures interact in political discourse.

Plan: Develop additional worldview models by integrating analyses of how genres frame political thought with analyses of conceptual structures of narrative:

- Literary scholars analyze how genres frame experience in terms of plot shapes, character types, emotional tones and psychological attitudes (Bakhtin, Burke, Frye).

E.g. Political deep frame genres: Liberalism has a comic-romantic "utopia" social vision / Conservatism has a tragic "social contract" social vision (Frye)

- Recast genre analyses in cognitive narratology terms (Herman, Hogan, Fludernik, Turner).
- Integrate cognitive narrative-genre political models with conceptual-metaphor models

Examples: Edmund Burke vs. Thomas Paine

Tragic-drama framing of moral-emotional factors in argument:

***Burke*: French Revolution events invite frame of tragic loss of heroic glory:**

•"[T]he age of chivalry is gone. That of sophisters, economists, and calculators, has succeeded; and the glory of Europe is extinguished for ever. Never, never more shall we behold that generous loyalty to rank and sex, that proud submission, that dignified obedience, that subordination of the heart, which kept alive, even in servitude itself, the spirit of an exalted freedom. The unbought grace of life, the cheap defence of nations, the nurse of manly sentiment and heroic enterprise is gone! It is gone, that sensibility of principle, that chastity of honour, which felt a stain like a wound, which inspired courage whilst it mitigated ferocity, which ennobled whatever it touched, and under which vice itself lost half its evil, by losing all its grossness."

•"When kings are hurled from their thrones by the Supreme Director of this great drama ..., we behold such disasters in the moral as we should behold a miracle in the physical order of things. ... [O]ur minds ... are purified by terror and pity."

***Paine*: Burke's tragic frame omits facts and distorts interpretation:**

•"I can consider Mr. Burke's book in scarcely any other light than a dramatic performance ..., by the poetical liberties he has taken of omitting some facts, distorting others, and making the whole machinery bend to produce a stage effect."

•"Not one glance of compassion, not one commiserating reflection ... has he bestowed on those who lingered out the most wretched of lives, a life without hope in the most miserable of prisons. ... He is not affected by the reality of distress touching his heart, but by the showy resemblance of it striking his imagination. He pities the plumage, but forgets the dying bird. ... [H]e degenerates into a composition of art, and the genuine soul of nature forsakes him. His hero or his heroine must be a tragedy-victim expiring in show, and not the real prisoner of misery, sliding into death in the silence of a dungeon. "

The Network Institute

The Network Institute's "Connected World" programme emphasizes inter-disciplinary and integrative research on communication and interaction in a networked world.

"Framing the World" examines worldviews as networks of metaphoric and narrative conceptual frames. It studies their implications for human interaction and communication. The project integrates approaches from cognitive linguistics and psychology, discourse analysis, and literary and cultural studies.

References

Primary:
Burke, Edmund. *Reflections on the Revolution in France*, 1790.
Paine, Thomas. *Rights of Man*, 1791/92.
Secondary:
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The Metaphor Lab

The Metaphor Lab is an internationally unique expertise center for Metaphor Studies. Its mission is to stimulate interdisciplinary collaboration, innovation, and application in all areas of metaphor research inside and outside academic communities.

The Metaphor Lab combines fundamental research on metaphor in language, cognition, and communication with applied research on metaphor in varied domains of discourse such as media use, organization, management, health etc.

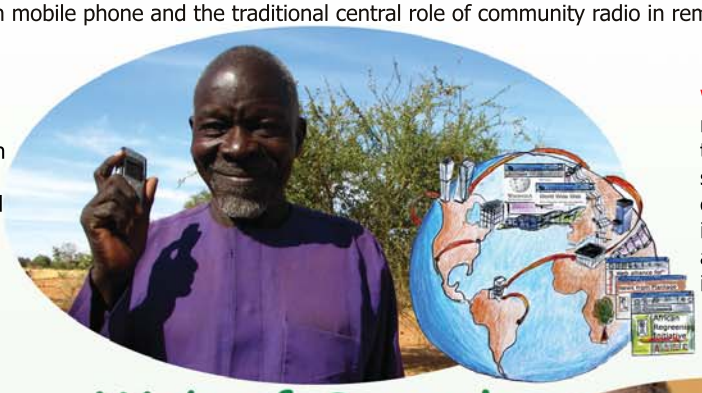
The lab specializes in linguistics and discourse studies, psycholinguistics and cognitive science, sociolinguistics and social science, and applied linguistics. It seeks to develop new products and services for the non-academic community, to improve self-awareness, monitoring, training and testing of metaphor use in design, management, communication, and interaction.

Radio Marché Voice System

Can the Web mean something for knowledge sharing, even under very constraining conditions?
Like no internet, no computer, no electricity, multitude of languages, and low levels of literacy?

Radio Marché is a mobile voice system that supports farmers from rural communities in Mali.

Radio Marché (RM), is a Market Information System developed for rural conditions in the African Sahel. RM has voice-based and web-based interfaces and exploits the wide-spread usage of first-generation mobile phone and the traditional central role of community radio in remote rural areas in Sahel countries.



Web of Speech: Creation of a new voice-based extention to the World Wide Web, allowing to search information, access, create, share and retrieve information using only voice, and a mobile phone, with no internet access.

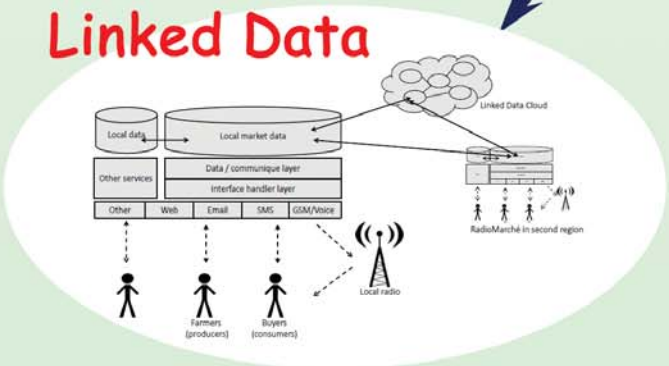
Living Labs are environments for experimentation and validation of ICT-based innovation activities. The Living Lab concept is characterised by early involvement of user communities, extensive context analysis, and an iterative methodology of use case analysis, requirement engineering, system development and validation. Besides local adoption it ensures adaptation of the system in the local context.

Web of Speech

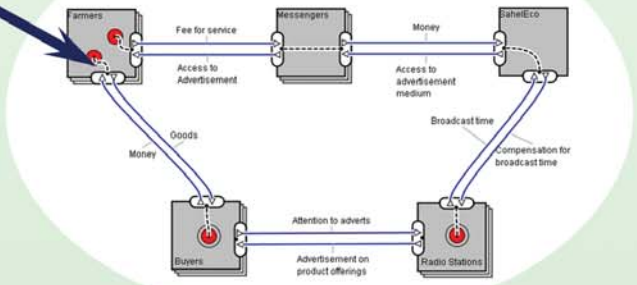
The Linked Data project is aimed at adding machine-readable (meta-)information to enrich the Web with meaning and make it more searchable. By opening the repositories of voice content, created through RM, the information can be shared over a wider area and serve more people, using Linked Data principles to connect to similar (micro-)services in other regions, As RDF is particularly suited to abstract over multiple languages and facilitate data integration, Linked Data will enable these knowledge sharing capabilities.

Voice technologies: For local African languages text-to-speech (TTS) libraries are still not available.Therefore new speech resourcing methods are being developed and used for the RM interactive voice response, especially for several local African dialects.

Linked Data



Value Modelling



Sustainable business models: RM as a multi-actor service value network: Web-based market info through mobile voice service. Important features must be identified towards sustainability of the possible business models, looking at different viewpoints: business logics, customer/market logics, techno-logics. e3 value model is used to explore,understand and evaluate its profitability.

The Network Institute
Centre for International Cooperation (CIS) vrije Universiteit amsterdam
voices
SEVENTH FRAMEWORK PROGRAMME
WORLD WIDE WEB FOUNDATION
SAHEL ECO

W4RA: Web alliance for Regreening in Africa

W4RA: http://www.w4ra.org I: Hans Akkermans, Anna Bon E: a.bon@cis.vu.nl, info@thenetworkinstitute.eu VOICES: http://www.mvoices.eu

The Web is World Wide

The World Wide Web is for all of us. But not everyone on the planet enjoys its important benefits: still more than 4.5 billion people do not have access. W4RA, with its EU companion project VOICES, is an initiative to help extend the Web benefits of the knowledge society and economy to rural communities in Africa.

To do so, serious challenges must be addressed, in content, access, and language. Currently, information on the Web is not relevant to farmers in the Sahel. But, mobile telephony is now within the reach of many poor people. This trend opens up great opportunities. Most African farmers use simple mobile phones without internet access. They don't even use their phones for SMS. W4RA and VOICES therefore focus on Web access and interaction that is mobile and voice based.

Open voice access

Important information channels for farmers and rural communities in Africa are mobile telephony and community radio. With European and African partners we develop VOICES service tools and demos, integrating audio and radio content into open and interactive voice-based mobile Web services. W4RA pilots test these services in the field in cooperation with local NGO's, radio stations and farmer networks in West Africa.

The W4RA philosophy is to develop such a *"Web of Speech"* by Open Source software only. That is the best way to support local Web and ICT entrepreneurs in Africa in developing a sustainable business providing innovative mobile, Web and voice-based services to local users.

Empowerment

We envision a world where all people are empowered by the Web. Everyone - regardless of language, ability, location, gender, age or income - is to be able to communicate and collaborate, create valued content, and access the information that they need to improve their lives and communities. Thus, the creativity of billions of new Web users can be unleashed.

African Regreening Initiatives

In the 1970s and '80s, periods of draught severely deteriorated living conditions for the rural communities in the Sahel. Now, 25 years later, conditions have been largely improved through the arduous work of innovative farmers using simple but effective farming techniques. An area of over 5 million hectares has been restored and converted into fertile land. The Sahel in these areas has literally been regreened (see e.g. the article in the National Geographic in October 2008).

Take the village Ranawa, Burkina Faso, with now 2300 inhabitants. In the difficult 1980s many people left, so the number of inhabitants dropped to less than half. This village has now become an example of a community that has actively been regreening its agricultural land area in the past two decades - and it has demonstrably benefited from its own farming innovation. Crops of sorghum, millet etc. and many trees have been grown and now offer shade and other benefits benefit to crops, livestock and farmers. The village now sustains a growing number of people.

The success of regreening activities in Africa is due to the rapid exchange and spread of local knowledge amongst large numbers of farmers. Knowledge about how to effectively and sustainably manage the lands, how to preserve trees and enhance soil fertility and how to improve crops and herds is of key importance to people in rural communities.

Knowledge sharing

Today, the vast majority of households in the Sahel has mobile phones. Basically everyone owns a radio. The radio is a great source of community information, broadcasting programs for farmers in local languages. Combining existing radio content with novel ways for voice based access and other mobile Web services enables to increase the speed of knowledge sharing among farmers, families and communities.

130 years VU University Amsterdam · The Network Institute · SAHEL ECO · voices · Seventh Framework Programme · World Wide Web Foundation

ScienceWise.info - a web-based scientific platform to boost research

Upcoming challenges in research ...

The volume of information produced outgrows our individual capacity to process it

Most knowledge resides "within the head of the experts"

Publications/knowledge scattered across different sources

complexity

availability

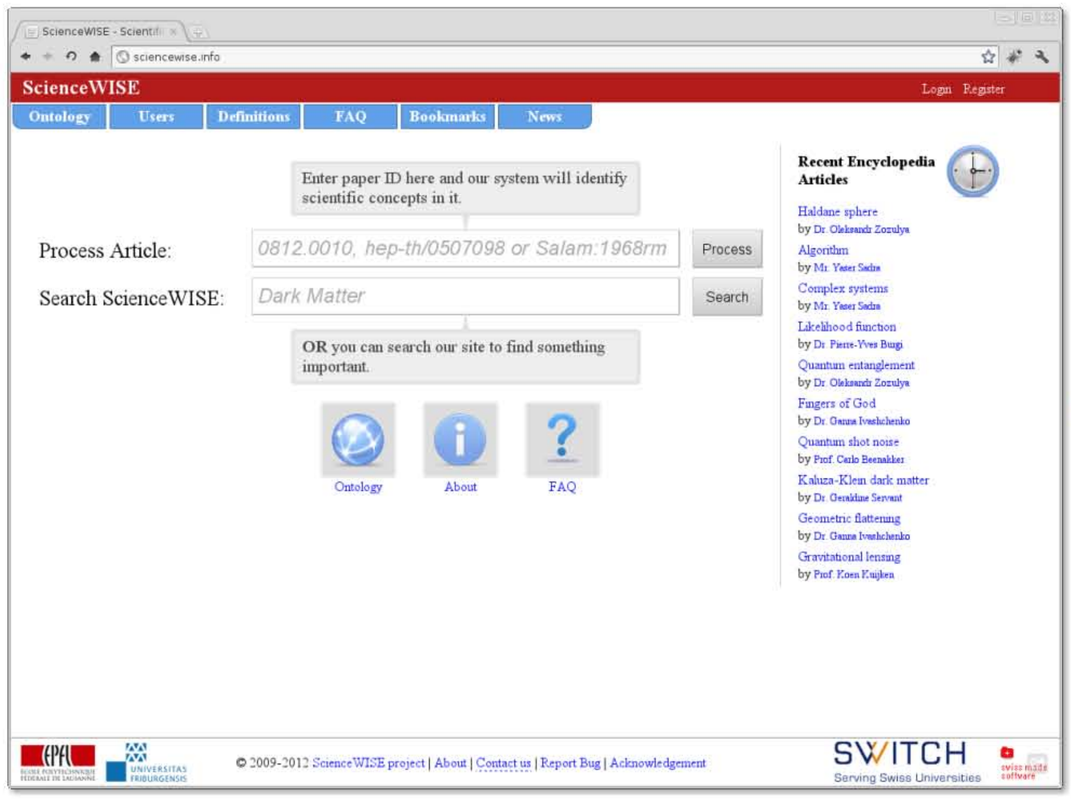
distribution

and what ScienceWise offers

Usage of Semantic Web techniques to process the data and reduce its complexity

Crowd-sourcing of information via an interactive and intuitive portal to tag papers with concepts

Interface between Arxiv, the HEP ontology, and other data sources



ScienceWise is not only a cool idea!

Production-grade web site launched in 2009, opened to public registrations in April 2011

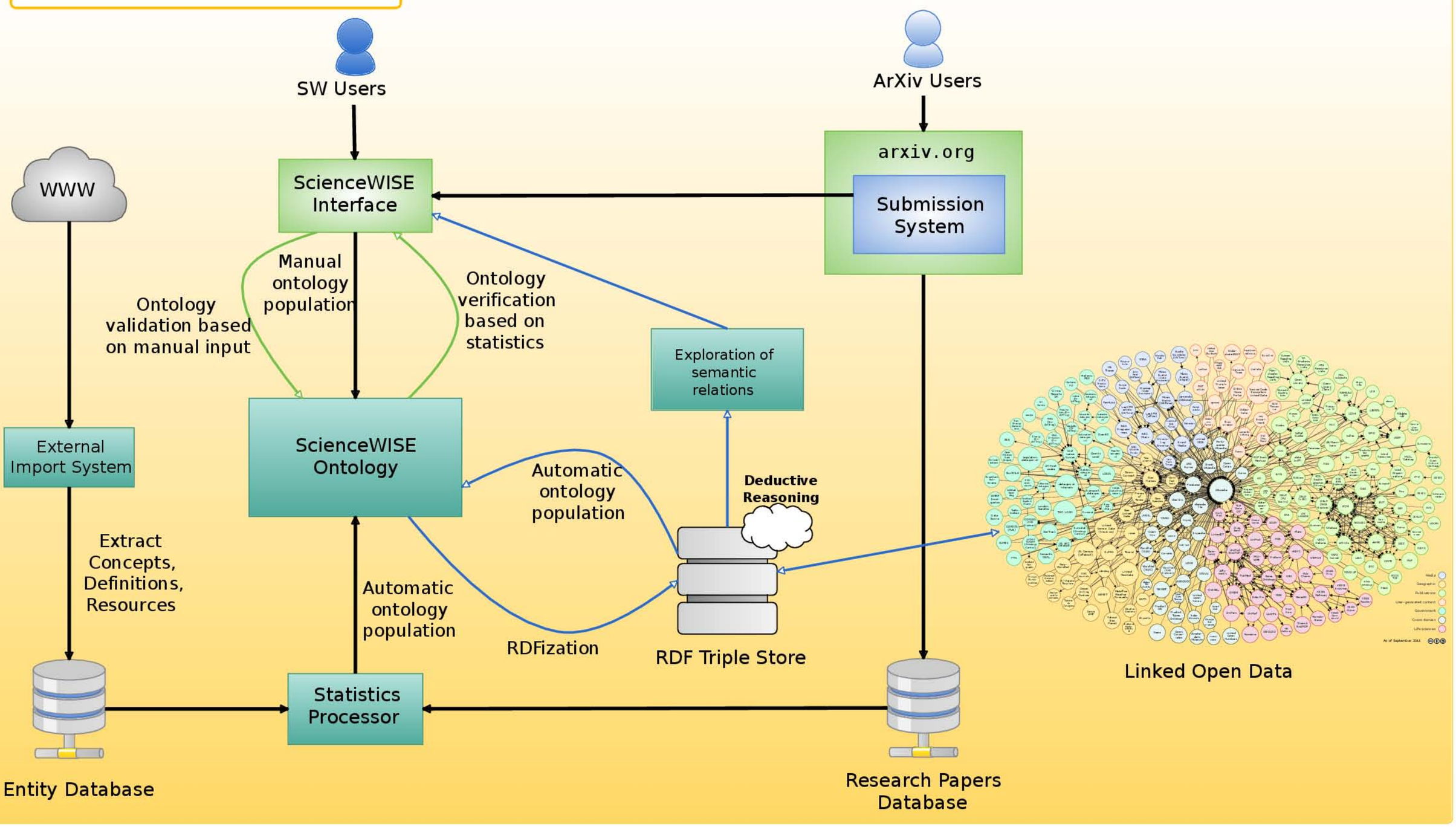
Several hundred of users (and 1-2 new registrations daily)

Crowd-sourced ontology rich of more than 15k concepts

Tens of thousands papers indexed and tagged

Essentially used by physicists but open to other research fields

Under the hood



ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Universiteit Leiden

CERN

UNIVERSITAS FRIBURGENSIS

vrije Universiteit amsterdam

http://sciencewise.info

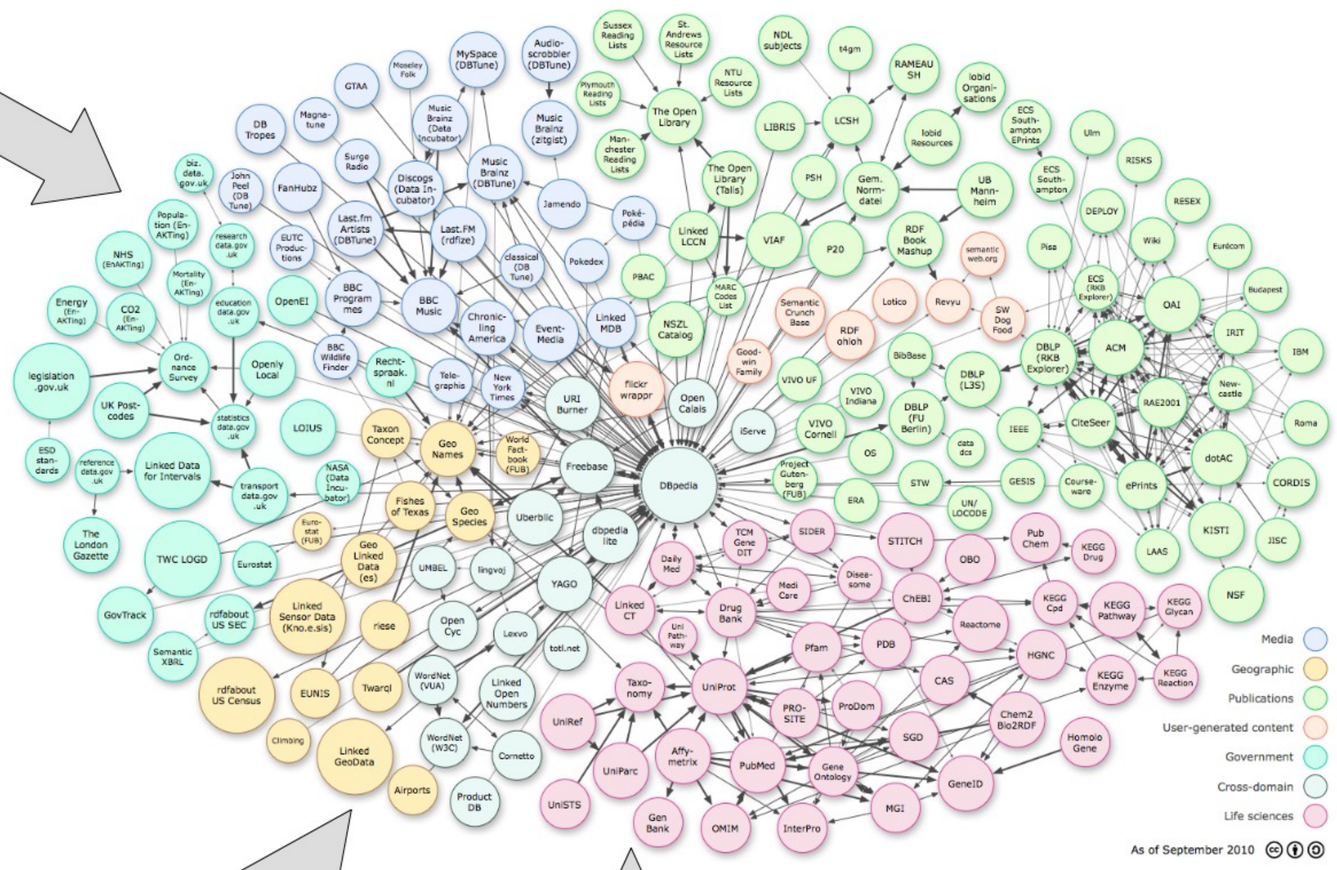
SemanticXO

Making the XO ready for the Web 3.0 by adding Semantics to its software stack

XO's software gets a dedicated meta-data store

http://www.flickr.com/photos/curiouslee/3985626381/

OLPC contributor project which impacts the software, the developers and the end users



Linking Open Data cloud diagram, by Richard Cyganiak and Anja Jentzsch. http://lod-cloud.net/

Users can better collaborate and produce re-usable content

Amy Mahan in Salto, Uruguay (http://comunica.org/radio2.0/archives/210)

Developers gain access to the World's largest information Network – the Web of Data

http://www.flickr.com/photos/thomaspurves/525012273/

Christophe Guéret and Stefan Schlobach

FEW – AI sectie – KRR group

http://semweb4u.wordpress.com

The Network Institute

130 years VU UNIVERSITY AMSTERDAM

System and Network Engineering

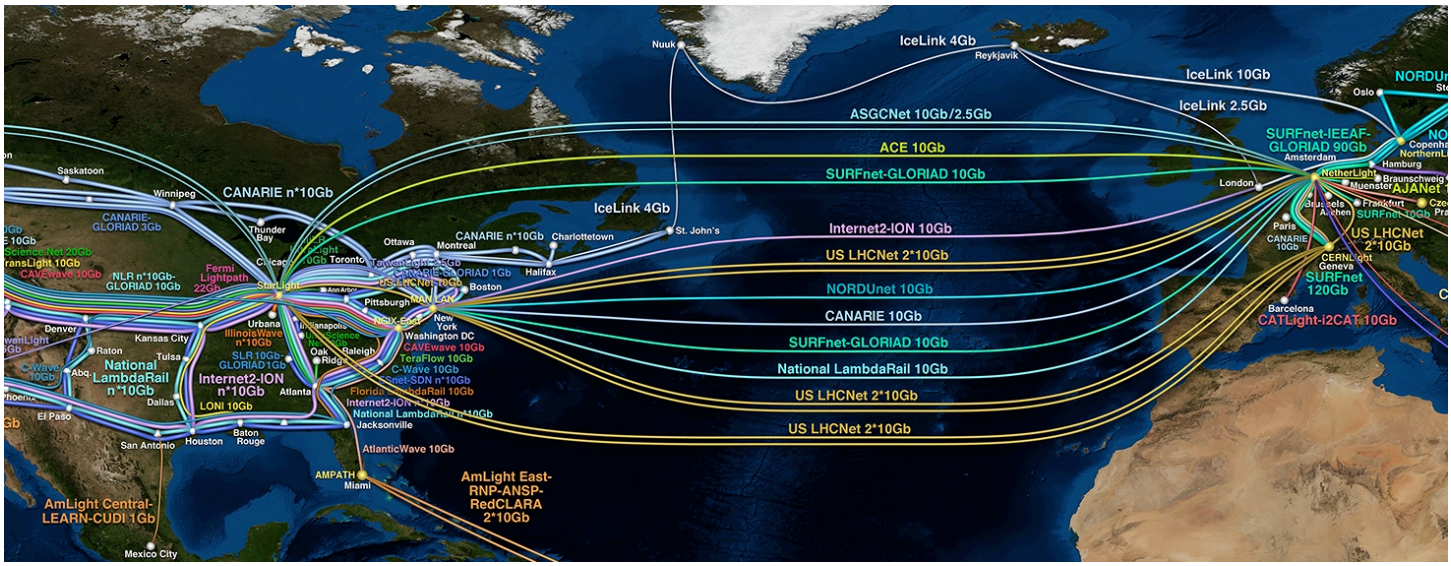
University of Amsterdam

System and Network Engineering

Computer networks have opened up new possibilities in providing enhanced services to end users. Our group researches new architecture and models for these type of future e-Infrastructures where computing and networking are highly integrated. We focus our work on the following sub-topics.

Describing Computing Infrastructures

We develop semantically rich information models to describe resources and services in e-Infrastructures. These models provide us the means to develop inter-domain path finding algorithms that are capable to handle aggregated or incomplete information. The same models are also at the basis of federation methods for integrated services in Future Internet platforms. An interesting challenge ahead is the modeling of clouds with their virtual devices and virtual networks and how to make scheduling in these environments more efficient and energy-aware.



Security and Policy

Research on generic AAA models for dynamically provisioned distributed Authentication, Authorisation and Identity Management services that are exposed as independent infrastructure services or integrated with distributed applications. This includes models, architectures mechanisms for security context, and trust management in dynamically provisioned service environments such as Cloud or SOA platforms. Implementation is provided as GAAA Toolkit pluggable Java library and composable OSGi service bundles; defines specialised XACML policy and attribute profiles.

Network Workflow Planning

focuses on including network quality in the life-cycle of the scientific workflow for selecting resources, composing workflow logics and for scheduling runtime processes. A NEtwork aware Workflow QoS Planner (NEWQoSPlanner) is prototyped using semantic web and software agent technologies. The prototype of NEWQoSPlanner has been successfully demonstrated in SC10 and 11 in the context of the CineGrid project, where supporting distributed parties collaboratively work on large quantity of very-high-quality digital media is the main mission.

Programmable Networks

Research on architectures, service models and interoperability frameworks in heterogeneous multi-domain multi-stakeholder environments of interconnected clouds, campus and general transport networks. This defines the open multi-layer Inter-Cloud architecture. This also includes supporting infrastructure services and mechanisms to support on-demand service provisioning, as well as dynamically provisioned manageable security infrastructure for cloud and trustworthy ICT.

Privacy

Processing privacy-sensitive information in Grid or cloud environments places high demands on security and reliability of the systems on which the data is processed. Our research focuses on trust models, security and authorization, policies for data use, and on privacy-preserving techniques, in middleware and in operating systems. We address technical (infrastructural) aspects, but also consider applications, data, and users. Control over the disclosure of data by the data subject is a central aspect of our work.

http://www.science.uva.nl/research/sne/