

What is the Semantic Web?

Ivan Herman, W3C

Last update: 2008-11-04

Let's organize a trip to Budapest using the Web!

You try to find a proper flight with ...

... a big, reputable airline, or ...

Book flights - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.klm.com/travel/nl_nl/apps/ebt/ebt_home.htm

Stel hier uw vraag (in me ?)

KLM Royal Dutch Airlines **nwa**

Book flights You are not logged in

1 Vlucht zoeken 2 Datum kiezen 3 Tijd kiezen 4 Uw gegevens 5 Bekijken & betalen

Contact KLM Service Center

E-mail een vriend(in) Print deze pagina

Kies uw heen- en terugvlucht.

Vertrek: Amsterdam (Schiphol) naar Boedapest (Ferihegy Airport)

☒ Alleen vluchten gebaseerd op Alleen de beste verbindingen (10 van 13)

☐ Alleen rechtstreekse vluchten tonen (5 van 13)

☐ Laagste tarieven (9 van 13)

☐ Alle vluchten (13)

Kies	Prijs	Vertrek	Aankomst	Vlucht
Rechtstreekse vluchten				
<input checked="" type="radio"/>		10:00 Vr 15 Aug 08 Amsterdam (Schiphol) Totale reistijd: 2 uren 0 minuten Uitgevoerd door MALEV Hungarian Airlines Vliegtuigtype :Boeing 737	12:00 Vr 15 Aug 08 Boedapest (Ferihegy Airport)	KL3201
<input type="radio"/>		12:20 Vr 15 Aug 08 Amsterdam (Schiphol) Totale reistijd: 2 uren 0 minuten Uitgevoerd door MALEV Hungarian Airlines Vliegtuigtype :Boeing 737	14:20 Vr 15 Aug 08 Boedapest (Ferihegy Airport)	KL3203

Kies tarief

Take Off

RETOUR tarieven per persoon incl. belasting en toeslagen (excl. reserveringskosten)

Take Off (25% FB Miles)

300

☒ Geselecteerd

Take Off

341

Selecteer

Take Off (Flexibel)

383
455
537

... the airline of the target country, or ...

Review - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://booking.malev.com/BookingSite/Review/Review.aspx

BOOK YOUR TRIP
FLIGHTS, SCHEDULES
PREPARE FOR FLIGHT
FLYING WITH MALEV
DUNA CLUB
CUSTOMER CARE
CORPORATE INFO






MALEV Hungarian Airlines
ONE MORE REASON TO TRAVEL

English

1 Search 2 Select 3 Review 4 Traveller data 5 Purchase 6 Confirmation

SELECT DELIVERY METHOD


Please select ticket delivery method below!

	Delivery method	Service fee	Address
<input checked="" type="radio"/>	 E-ticket	EUR 10 View service fee breakdown	with e-invoice
<input type="radio"/>	 Airport	EUR 30	KLM ticket office, departure hall 2.
<input type="radio"/>	 Office	EUR 30	KLM ticket office, departure hall 2.
<input type="radio"/>	 Courier		Courier or mail delivery is available only within the country of departure! You will be asked to provide a delivery address on the next page. Please note that in case of courier delivery we will be unable to deliver your ticket(s) to a PO box.
<input type="radio"/>	 Mail	EUR 30	

FLIGHT SUMMARY

Outbound flight		Return flight	
From:	Amsterdam, Schiphol (AMS), Netherlands	From:	Budapest, Ferihegy 2A (BUD), Hungary
	Budapest, Ferihegy 2A (BUD).	To:	Amsterdam, Schiphol (AMS),

BOOKING GUIDE
Book Cheap!
Card payment
About ticket pickup
If you are not among the travellers
Online Client Service


Check III

... or a low cost one

Online booking | Select Flights - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wizzair.com/skylights/cgi-bin/skylights.cgi?step=1

W!ZZ wizzair.com

new destination from London Luton:
Timisoara (from 17 December)

online booking useful information destinations travel services partners

important changes regarding checked-in baggages - Please click here for more details...

flights agency login my account search bookings log in

Book a Flight

Round Trip One Way

From: Eindhoven

To: Budapest-Terminal 1

Depart: 14 Aug

Return: 03 Sep

Passengers: 1 Adult Over 14 years 0 Child 2 to 14 years

search select contact passengers purchase confirmation

The flights available for the date(s) that you have selected are shown below. Review and select that you wish to purchase by ticking the dot next to the fare price or use the form to the left to search for new flights. All times are local.

Fares shown below are for one way flights and per adult, child and infant. The total price includes the taxes and the charges. Payments made with debit and credit cards are subject to a payment Click here to find out the exact amount. The fee depends on the type of card that you wish to use for payment.

going out ✈

Eindhoven » Budapest-Terminal 1

date	fareclass	flight	departs	arrives		price excluding tax	taxes and charges
Fri 15 Aug 08	Web	W6 228	13:25	15:20	<input type="radio"/>	Adult 94.99 EUR	26.00 EUR
Sun 17 Aug 08	Web	W6 228	13:25	15:20	<input type="radio"/>	Adult 73.99 EUR	26.00 EUR

Next Week >

You have to find a hotel, so you look for...

... a really cheap accommodation, or ...

The screenshot shows the HostelTraveler.com website interface. The browser window title is "Hostels - online booking at Youth Hostels and Backpackers Hostels - instant online reservations and reviews with HostelTraveler.co...". The address bar shows "http://www.hosteltraveler.com/index.php". The website has a yellow and green color scheme. The main navigation bar includes links for "Hostels", "Reviews", "Best deals", and "Top Cities". A search bar is present with a "Search Hotels/Cities" button. Below the search bar are buttons for "Check Reservations" and "Free Membership". The main heading is "Find Hostels and Lodging at your destinations." with a subtext "Look for **IWB** for instant online booking." A sidebar on the right lists "How it Works", "Step 1-Find Lodging", and "Step 2-Make Reservations". The main content area shows "3 accommodations have been found matching your criteria." and a "Make Reservations" button. Below this is a "Sort by:" section with radio buttons for "Price (Lo-Hi)", "Price (Hi-Lo)", "Traveler Rating", "Hostel Class", and "Hostel Name". A "View Advanced Display Options" link is also present. The search results are for "Balaton, Hungary" and show a "Make Reservations" button. The first result is "Unity Hostel Balaton" located at "Rakoczi Ut 268", with "8 Units" and a "Write a Review" link. The price is listed as "From €12". A description states: "2hours from Budapest,we are located right behind a free beach access to the lake, right opposite a large shopping and dinning court, only few minutes from the best clubs.lots of freebies!!!".

Hostels - online booking at Youth Hostels and Backpackers Hostels - instant online reservations and reviews with HostelTraveler.co...

File Edit View History Bookmarks Tools Help

http://www.hosteltraveler.com/index.php

HostelTraveler.com

Hostel Traveler ... instant online booking for youth hostels, budget hotels and hostelling the globe

Welcome member travelers! [Sign in](#)

[hostels & Lodging Sign in](#)

Hostels [Reviews](#) [Best deals](#) [Top Cities](#)

everything for travelers:

[Search Hotels/Cities](#)

[Check Reservations](#)

[Free Membership](#)

Find Hostels and Lodging at your destinations.

Look for **IWB** for instant online booking.

[How it Works](#)

[Step 1-Find Lodging](#)

[Step 2-Make Reservations](#)

Secure online hostel booking at worldwide youth hostels, backpackers, and budget hotels.

[Home](#)

[Start Over](#)

[Members](#)

[Lodging Operators](#)

[About this Site](#)

[Selection Status](#)

3 accommodations have been found matching your criteria.

Select your accommodations and click [Make Reservations](#) for rates, availability, and reservations.

Click on names to see photos, reviews, and more information.

Tip: Click [Instant](#) for rates and instant secure confirmations.

Sort by: ☒ **Price (Lo-Hi)** ☐ Price (Hi-Lo) ☐ Traveler Rating ☐ Hostel Class ☐ Hostel Name

[View Advanced Display Options](#)

Balaton, Hungary [Make Reservations](#)

<input type="checkbox"/>	Unity Hostel Balaton Rakoczi Ut 268 Hostel 8 Units Write a Review		Instant Booking	From €12 2hours from Budapest,we are located right behind a free beach access to the lake, right opposite a large shopping and dinning court, only few minutes from the best clubs.lots of freebies!!!
--------------------------	---	--	---------------------------------	--

... or a really luxurious one, or ...

Search Results - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.hilton.com/en/hj/hotels/search/newresults.jhtml?searchType=city&sta

Hilton
Travel should take you places®

Sign in Username or HHonors #: Password or PIN: Register Forgot password? ☐ Remember Me View Text Only Customer Support 1-800-HILTONS

Specials & Packages Reservations Meetings Social Gatherings Hilton HHonors Things to Do eBrochures My Favo

Search Results

Hilton Hotels

Change Your Search

Location

City: Budapest

Search Within: 40 mi km

State/Province: State / Province

Country: Hungary

Brand

☒ Hilton Hotels
☐ All Hilton Family Hotels

Search Results Print Help

The following locations matched your request.
Rates displayed may be non-refundable.
Please review rate rules and restrictions prior to booking your stay.

Sort by: Brand Show: All Hotels Go View Hotels on a Map >

Hilton Hotels

Hilton Budapest WestEnd Compare Hotel

Vaci ut 1-3
Budapest, Hungary, 1062
36-1-288-5500

Available

... and intermediate one ...

Szállás Utazás Magyarországon - Wellness-Szállás, Nyaralás, Utazás, Programok - Magyarországon - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.travelsinhungary.hu/view_kat.php?katid=1&megye=budapest

TRAVELS HUNGARY
www.travelsinhungary.hu

MAGYAR ENGLISH DEUTSCH

Keresés Az összes kategóriában OK

TÖRZSVENDÉG
KEDVEZMÉNYEK

REGISZTRÁCIÓ

ELÉRHETŐSÉG

VENDÉGKÖNYV

Szállás (Wellness, Aktív
pihenés, Gyógyturizmus)

Étterem

Programok, Látnivalók

Szórakozás (Élményfürdők,
Kalandparkok)

Rendezvényszervezés
(konferenciák-tréningek)

AJÁNLATOK

Szálláshely \ Budapest

Válasszon megyét:
Válasszon!

Válasszon várost:
Válasszon!

Ajánlatok száma a kategóriában: 1.

Airport Hotel Budapest****

★★★★☆

SZÁLLÁSHELY
Budapest(Vecsés)
Ferihegyi repülőtéri szálloda és konferencia központ
részletesen...

**oops, that is no good, the page is in
Hungarian that almost nobody
understands, but...**

... this one could work

Bestwestern.com, the World's Largest Hotel Chain - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://book.bestwestern.com/bestwestern/selectHotel.do?ata=00158210

Customer Service Rewards Program Gift Card Groups & Meetings

Best Western

Welcome to bestwestern.com®

My Profile Email or Member#: Password: **SIGN-IN** [Forgot Password](#) [Create Password](#) [Enroll Now](#)

HOME FIND A HOTEL CHECK RESERVATIONS TRIP PLANNER PROMOTIONS & PROGRAMS PACKAGES

RESERVATIONS HOTEL LOCATIONS BEST WESTERN PREMIER HOTELS NEW HOTELS QUESTIONS & ANSWERS

→ **Hotel Search Results** ← Select Occupancy Select Room Review & Reserve Confirmation

Find a Hotel - Select Hotel

Page: 1

Modify Your Search:

City:

Select State or Province:

Select Country:

Check-In:

Check-Out:

Features & Amenities:

☐ High Speed Internet


☐ Complimentary Breakfast

☐ Breakfast Available


5 Hotels Found within of the **Budapest** Area

Show: By:

Display Currency In:


 [Show Hotels on a Map](#)

Best Western Hotel Hungaria



Stay at this 4-star Budapest hotel offering guests deluxe accommodations near some of Budapest's popular attractions and business locations. Visitors... [More >](#)

[Photo Gallery](#)

 [Pet Policy](#)

Rákóczi Ut 90,
Budapest, H-1074, Hungary
Distance from City Center: 0.86m / 1.38km

Hotel not available on selected dates.

[Check Alternate Dates](#)

Of course, you could decide to trust a specialized site...

... like this one, or...

Create your package from Amsterdam to Budapest (and vicinity) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.expedia.com/pub/agent.dll?qscr=cmsh&subm=1&CMBTX_0_rgnm=Bud

Welcome - Already a member? [My Itineraries](#) | [My Account](#) | [Customer Support](#)

Search Expedia

Home Flights Hotels Cars **Vacation Packages** Cruises Activities DEALS & OFFERS Maps Business Travel Rewards

Start search over

Change your search

Departing: 8/18/2008

Returning: 9/3/2008

Star Rating: Show all

Lodging Type: Show All

Name contains:

Go

Change Travelers

2 Adults
1 Room

Change travelers

Create your package from Amsterdam to Budapest (and vicinity)

Maps: [Area map view](#) [Hotel map view](#)

Hotel amenities: [Narrow your search](#)

Show hotels in this area:

Budapest (and vicinity) (all areas) [Go](#)

Not what you're looking for? [Choose a different destination](#)

View packages: 1 - 25 26 - 50 51 - 75 76 - 97 [Previous](#) | [Next](#)

Sort by: ☒ **Expedia Picks** ☐ Price ☐ Hotel Name ☐ City ☐ Star Rating ☐ Traveler Opinion

Avg/person: \$2889	
<p>Corinthia Grand Hotel Royal</p> <p>Impressive landmark building with imposing Neo-classical façade and soaring glass atrium, set on Pest's busy Erzsébet Avenue, and housing shops, a spa, ... More lodging info</p> <p>Hotel promotion - Stay 3 Nights and Save 20% on Your Stay!</p> <p>★★★★★ Budapest, PEST</p> <p>Executive Double-Executive lounge usage Check in: 8/18/08</p> <p>Includes: Free Wireless Internet, Spa Check out: 9/03/08</p> <p>Credit, Breakfast Buffet</p> <p>Amsterdam (AMS) to Budapest (BUD) Depart: 8/18/08 6:00 PM - 8:00 PM Malev Hungarian Airlines</p>	<p>Total: Price details \$5778</p> <p>Get ThankYou® Points</p> <p>Traveler Opinion 4.7 out of 5 15+ reviews</p>

... or this one

Budapest Hotels: Read Budapest Hotel Reviews and Compare Prices - TripAdvisor - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.tripadvisor.com/Hotels-g274887-Budapest-Hotels.html

My TripAdvisor
Register Now!

22,582,888 Travelers from 190 Countries Planned Trips Here This Week!

Home Destinations Fun & Games Just For Members

Home → Europe → Hungary → Budapest

Budapest Hotels

ADD TO MY MAP WRITE A REVIEW EMA

Hotels (272) B&Bs / Inns (24) Specialty Lodging (83)

Find Hotels Travelers Trust

Check-in: Any date Check-out: Any date ☒ My dates are flexible

mm/dd/yyyy mm/dd/yyyy

Price: Any Price U.S. Dollars Hotel class: Any Class Adults: 2

Recommended For: All

Best deals: Budapest hotels

- [Budapest: Book en bespaar tot 75%.](#)
Booking.com Geen reserveringskosten!
- [Great Budapest Hotels](#)
www.Venere.com/Budapest_Hotels See maps & pics, read book online. Relax and enjoy your stay!
- [Budapest easyHotel Deals](#)
www.easyHotel.com City Centre from just €15 per night from founder of easyJet
- [Cheap Hotels Budapest](#)
www.otel.com/BudapestHotels Fantastic rates on Budapest Huge Savings, Instant Confirmation!

[View all deals for Budapest](#)

Free Budapest Guide

Get the best picks for where to eat and play.

[Download pdf](#)

Recommended Hotels (1-20 of 272)

Sort by: Popularity [next >>](#)

**You may want to know something about
Budapest; look for some photographs...**

... on flickr ...

Flickr: Budapest - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.flickr.com/groups/budapest/

Signed in as Ivan Herman Help Sign Out


Home You Organize Contacts Groups Explore

Search this group's pool Search


Budapest Share This

Group Pool Discussion 1,418 Members Map Invite Friends


Group Pool (19,017 items | Add photos or video)




NEW From apuc




NEW From André Fromont




NEW From carlogambino




NEW From carlogambino




NEW From Crashbandi




NEW From Crashbandi




NEW From Crashbandi




NEW From Crashbandi




NEW From Crashbandi



NEW From Crashbandi



NEW From Crashbandi

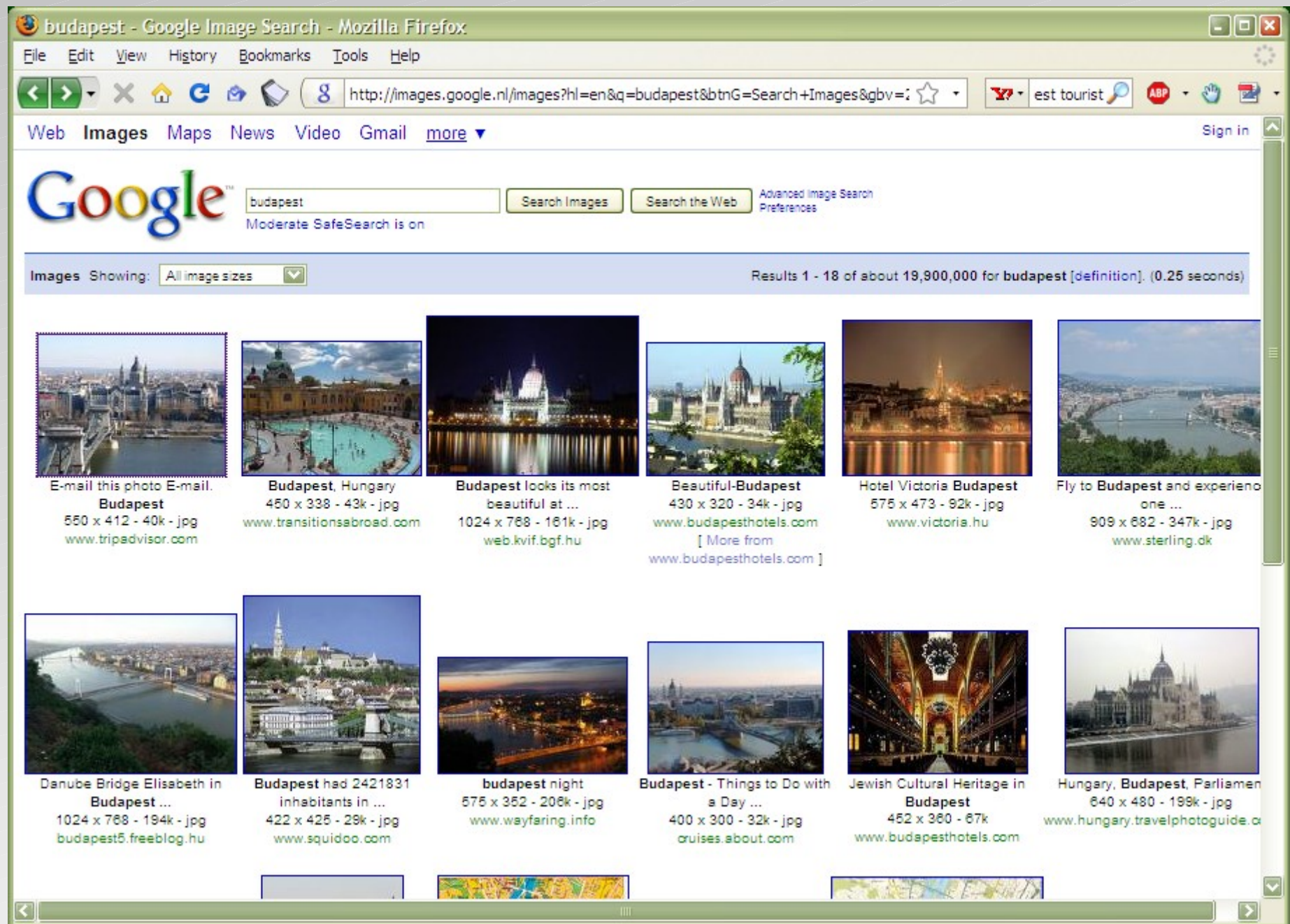


NEW From Crashbandi

» More

Discussion (33 posts | Post a new topic)

... on Google ...




... or you can look at mine 😊

Budapest, my home town.../img_0467 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.ivan-herman.net/Photos/Album/Budapest/slides/img_0467.html

Budapest, my home town...



NEW Táncsis Mihály utca, Budapest

Camera: Canon EOS 450D | Date: 2008-07-26 | City: Budapest | Country: Hungary

Total images: 69 | Last update: 2008-08-08 | Help

(CC) BY-NC-ND © Ivan Herman, 2008

but you can also look at a (social) travel site

The screenshot shows a web browser window with the title "Budapest Travel Guide | Budapest Tourism - RealTravel - Mozilla Firefox". The address bar displays the URL "http://realtravel.com/budapest-hungary-travel-guide-d13081-1.html". The website features a blue header with the "realtravel" logo and the tagline "Real People. Real Advice. Real Experiences.™". Navigation links include "Travel Guides", "Hotels", "Attractions", "Things To Do", "Editor's Picks", and "Deals". A search bar is located on the right. Below the header, a breadcrumb trail reads "You are here: Destinations > Europe > Hungary > Budapest > Travel Guide". A red banner highlights "BUDAPEST TRAVEL GUIDE AND TOURISM". A secondary navigation bar includes "Introduction", "Guides", "Trips", "Photos", "Flights", "Hotels", "Restaurants", "Attractions", and "Deals". The main content area features a photo of a statue in front of a building, credited to "photo by Taisteal". The text describes Budapest as a capital city on the Danube River, often called the "Paris of Eastern Europe". To the right, a "Price Compare Tool" section encourages users to search multiple sites for the best rate in Budapest, with buttons for "COMPARE FLIGHTS" and "COMPARE HOTELS". At the bottom, a section titled "Travel Guide Information From Our Partners" is visible.

Budapest Travel Guide | Budapest Tourism - RealTravel - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://realtravel.com/budapest-hungary-travel-guide-d13081-1.html

travel tom

Free Travel Blog Free Trip Planner Sign

Travel Guides Hotels Attractions Things To Do Editor's Picks Deals Search

You are here: Destinations > Europe > Hungary > Budapest > Travel Guide

BUDAPEST TRAVEL GUIDE AND TOURISM

Introduction Guides Trips Photos Flights Hotels Restaurants Attractions Deals

Budapest Travel Guide

This capital city - made up of two parts, Buda and Pest - sits on one of the most beautiful areas of the Danube River and it shows. Often dubbed the "Paris of Eastern Europe", it is a combination of Old World grandeur and a thriving cultural scene. Budapest has a vibrancy and vitality that never slows and the numerous sights can occupy travelers for weeks. With so much history and culture to explore, no traveler leaves unsatisfied.

photo by Taisteal

more Budapest photos >
Destinations near Budapest >

Price Compare Tool

Search multiple sites for the best rate in Budapest

COMPARE FLIGHTS

COMPARE HOTELS

Travel Guide Information From Our Partners

What happened here?

- You had to consult a large number of sites, all different in style, purpose, possibly language...
- You had to mentally *integrate* all those information to achieve your goals
- We all know that, sometimes, this is a long and tedious process!

- All those pages are only tips of respective icebergs:
 - the real *data* is hidden somewhere in databases, XML files, Excel sheets, ...
 - you have only access to what the Web page designers allow you to see

- Specialized sites (Expedia, TripAdvisor) do a bit more:
 - they gather and combine data from other sources (usually with the approval of the data owners)
 - but they still control how you see those sources
- But sometimes you want to personalize: access the original data and combine it yourself!

Here is another example...

The image shows three overlapping web browser windows. The background window is 'CoCoDat - Collation of Cortical Data - Mozilla Firefox' at <http://www.cocomac.org>. The middle window is 'Cell Centered Database - Mozilla Firefox' at <http://ccdb.ucsd.edu/sand/main?event=gallery&action=show&id=y>, displaying the 'Cell Centered Database Gallery' for the National Center for Microscopy and Imaging Research. The foreground window is 'NeuronDB - Thalamic relay neuron - Overview (A) - Mozilla Firefox' at <http://senselab.med.yale.edu>, showing the 'NeuronDB' interface for a 'Thalamic relay neuron'.

**CoCoDat: Collation of Cortical Is[...]
microcircuitry] Data**

CoCoDat is a microcircuitry database that published experimental reports. The data (and cellular compartment), as well as the

- Morphology
- Firing properties
- Ionic currents
- Ionic conductances
- Synaptic currents
- Connectivity

The database is available for download of data tables but also a Search Board with manual or automatic relaxation of the search

- Brain region
- Layer
- Neuron type

<http://www.cocomac.org/cocodat/catalyzer/inc>

**Cell Centered Database™
National Center for Microscopy and Imaging Research
Gallery**

Data | Search | Gallery | Dictionary | Publications | MyCCDB | Data Download | Contact us | Help

2D image | Reconstruction | Segmentation | Animation

NeuronDB

Thalamic relay neuron

Back

Mode: **Overview** Data/Search plus Connectivity plus Classical References/Notes Models

Region: Distal equivalent dendrite Middle equivalent dendrite Proximal equivalent dendrite Soma Axon hillock Axon fiber Axon terminal All Compartments

Properties: Receptors Channels Transmitters **All Properties**

Interoperation: Gene and Chromosome Experimental Data (neurodatabase.org) Microscopy Data (CCDB)

Neuron type: principal

Organism: Vertebrates

1. Equivalent dendrite Show other

2. Distal equivalent dendrite Show other

3. Middle equivalent dendrite Show other

4. Proximal equivalent dendrite Show other

5. Soma Show other

Done

- Companies may have to hire a person to answer questions based on those (public!) databases!

**Another example: social sites. I have a list
of “friends” by...**

... Dopplr,

DOPPLR: Ivan Herman's fellow travellers - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.dopplr.com/traveller/IvanHerman/fellows

W easy jet

DOPPLR FOR IVAN

[Find and Invite](#) | [Your connections](#) | [Your trips](#) | [Your account](#) | [Sign out](#)


[Visit our blog](#) for updates

Where Next? { **Gent, Boston, Vienna...**

+ Add a trip

Type the name of a city or a traveller

Find people and places



Welcome, Ivan

In the last 2 weeks,
one of your fellow travellers added a trip that coincides with you. [Find out more in your journal...](#)

You are at home in [Amsterdam](#).






You can [invite](#) people to Dopplr to see your trips, find them on [other networks](#) you use
or look for [travellers you already know](#) to encourage more coincidences.

You have a [public profile](#). [Edit it?](#)

You can now create a public profile to display to the whole internet if you want, not just Dopplr users — and take
any of the information to embed on your own website. [Give it a try!](#)

Your trips | **Fellow travellers** | Your journal | Your carbon

List or Map

-  Peter Brown is in [Montréal](#) until August 16th. [Boston](#) soon. [Montréal](#) later.
-  Daniel Appelquist is in [Washington](#) until August 23rd. [Aspen](#) soon. [Washington](#) later.
-  Eva Méndez is in [Maraña](#) until August 17th. [Santo Domingo](#) later.
-  Danny Weitzner is in [Bergen](#) until September 5th. [Los Angeles](#) later.
-  Charlton Barreto is in [Vienna](#) until August 18th. [Sacramento](#) soon. [Vienna](#) later.

... Twine,

The screenshot shows the 'My Connections' page on the Twine website. The browser window title is 'My Connections | Twine - Mozilla Firefox'. The address bar shows the URL 'http://www.twine.com/user/ivanherman/connections'. The Twine logo is in the top left, and the navigation bar includes links for Home, My Items, My Twines, My Connections (active), Explore, and Start a Twine. The page title is 'My Connections'. Below the title is a search bar and filters for 'View' (All) and 'Sort by' (Most Recent). A sidebar on the left allows refining the view by categories, with 'related twines' selected. The main content area lists three connections:

Profile Picture	Name	Location	Twines	Items	Actions
	Dean Allemang	at home Oakland, CA	3 Twines	4 Items	Send Message Disconnect
	David Provost	Breathing Boston	20 Twines	15 Items	Send Message Disconnect
	Attila Gardos	Hungary, Budapest	9 Twines	8 Items	Send Message Disconnect

On the right side, there are links to 'Connect with People' and 'Invite People to Twine', and a 'Recommended M' section showing a list of recommended users with their profile pictures and names.

... LinkedIn,

LinkedIn: My Contacts: Connections - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.linkedin.com/connections?trk=hb_side_cnts

LinkedIn

Account & Settings | Help | Sign Out | Language

People | Jobs | Answers | Companies

Advanced Search People Search

Home Groups Profile Contacts Inbox (19)

Add Connections

Ivan Herman
Semantic Web Activity Lead, World Wide Web Consortium
What are you working on?
Your profile is 80% complete [Edit]

Contacts

Connections Imported Contacts Network Statistics

Add Connections

Connections

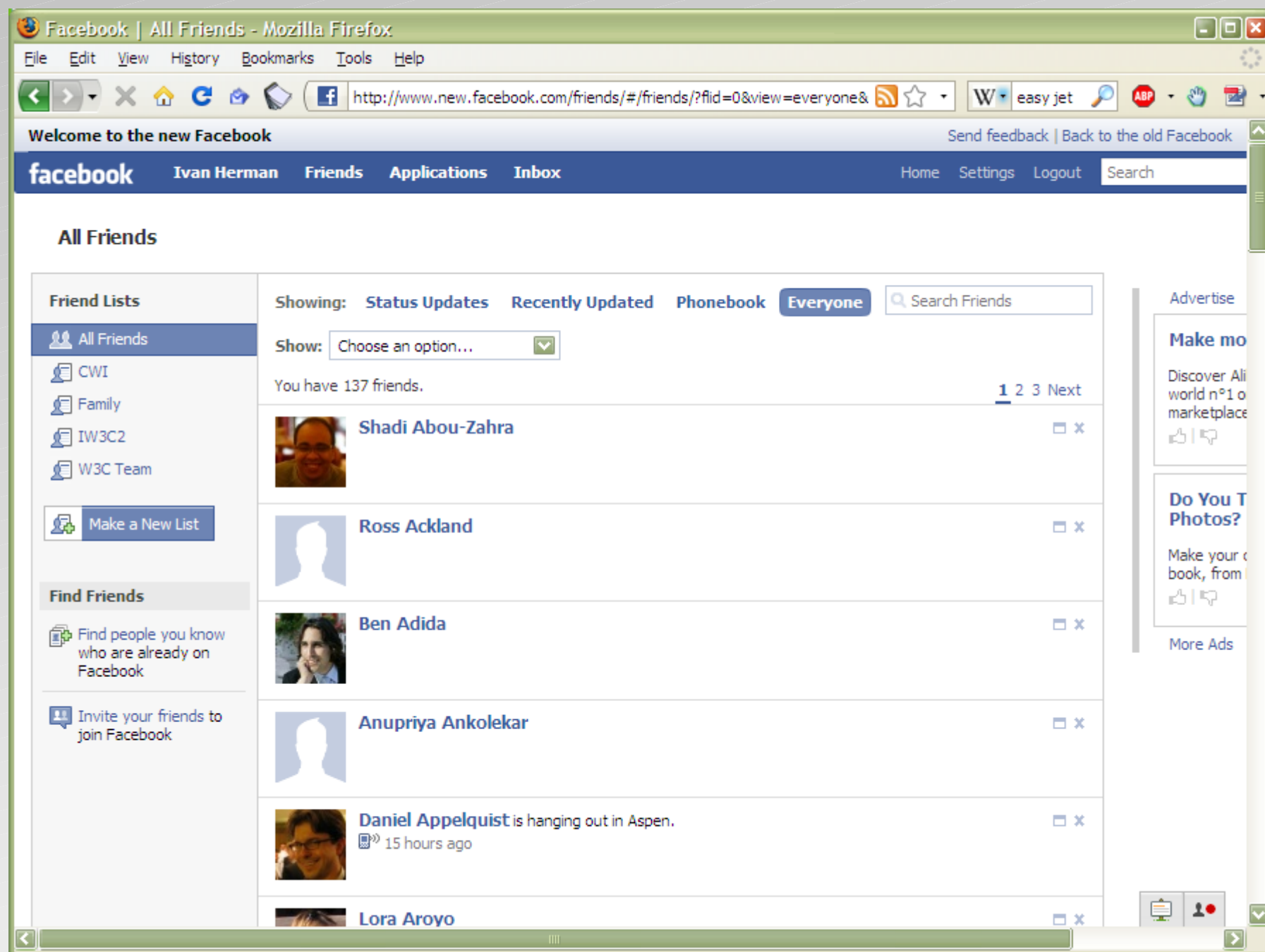
☐ Show contacts with new connections advanced options

Showing 311 of 311 connections. 15 outstanding sent invitations

	Name	Title	Connections
A	Aasman, Jans	CEO at Franz Inc	252
B	Abramatic, Jean-François	Chief Product Officer at ILOG	163
C	Adida, Ben	Software Security Researcher and Entrepreneur	148
D	Allemand, Dean	Chief Scientist at TopQuadrant Inc.	179
E	Allison, Kevin	San Francisco Correspondent at The Financial Times	152
F	Alonso, Jose Manuel	eGovernment Lead at W3C	106

View & edit details

... and, of course, the ubiquitous Facebook



- I had to type in and connect with friends again and again for each site independently 😞
- This is even worse then before: / feed the icebergs, but I still do not have an easy access to data...

What would we like to have?

- Use the data on the Web the same way as we do with documents:
 - be able to link to data (independently of their presentation)
 - use that data the way I want (present it, mine it, etc)
 - agents, programs, scripts, etc, should be able to *interpret* part of that data
- “*The bane of my existence is to do things that my computer could do for me*” — Dan Connolly

Put it another way...

- We would like to *extend* the current Web to a “Web of data”:
 - allow for applications to exploit the data directly

**But wait! Isn't what mashup sites are
already doing?**

A “mashup” example:

TripIt | Organize your travel - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.tripit.com/trip/show/id/858966

Trip Details Summary View Expanded View View Change Log

Thursday, July 24, 2008 Budapest, Hungary (Edit) Avg: Sunny / Hi 28°C / Lo 14°C Add Plans

Flight from Amsterdam (AMS) to Zurich (ZRH) edit | delete | copy | move

Swiss International Airlines 729	Depart: Amsterdam (AMS), 14:55 CEST	nonstop 1h 25min aircraft Airbus A320-100/200 374 miles	Conf. # JFFRAL
Connects to: LX 2258 at 17:20 CEST		Passengers Ivan Herman Eva Boka ep Herman	Booking Information Booked on 18/4/2008 http://www.swiss.com

Flight from Zurich (ZRH) to Budapest (BUD) edit | delete | copy | move

Swiss International Airlines 2258	Depart: Zurich (ZRH), 17:20 CEST	nonstop 1h 35min aircraft Fokker 100 500 miles	Conf. # JFFRAL
Passenger(s): Ivan Herman, Eva Boka ep Herman.			

Map of Budapest, Hungary delete |

Budapest, Hungary

Map Satellite Hybrid

- In some ways, yes, and that shows the huge power of what such Web of data provides
- But mashup sites are forced to do very ad-hoc jobs
 - various data sources expose their data via Web Services
 - each with a different API, a different logic, different structure
 - these sites are forced to reinvent the wheel many times because there is no standard way of doing things 🤖

Put it another way (again)...

- We would like to extend the current Web to a standard way for a “Web of data”

But what does this mean?

- What makes the current (document) Web work?
 - people create different documents
 - they give an address to it (ie, a URI) and make it accessible to others on the Web

An example: Steven's site on Amsterdam (done for some visiting friends)

The Internet Guide to Amsterdam - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://homepages.cwi.nl/~steven/amsterdam.html



The Internet Guide to Amsterdam

Contents

- [Introduction](#)
- [Time](#)
- [Weather](#)
- [Language](#)
- [Money](#)
- [Tipping](#)
- [Electricity](#)
- [Safety and Health](#)
- [Hotels](#)
- [Eating and Drinking](#)
- [Transport](#)
- [Shopping](#)
- [News](#)
- [Communications](#)
- [Places to See](#)
- [What's On](#)
- [The Amsterdam Year](#)
- [Maps](#)
- [Books](#)
- [Other Resources](#)

Designed to be printed out and taken with you.

Written by [Steven Pemberton](#), CWI, Amsterdam, and [Astrid Kerssens](#), Amsterdam.

Linked to by more than 450 other sites; more than **3,500,000** grunted readers!

The top Amsterdam travel guide according to Google. If you know how Google works, you know that that says something about this site!

See also [London](#)

A Review of this Guide

The Internet Guide To Amsterdam:
WebUser Gold Award
Rating: ★★★★★
Reviewed By: Jane Hoskyn

Sometimes, it's the simple things in life that make your heart skip a beat. This is especially true when you're abroad and you need a guide that loads really fast on your mobile phone or PDA (check), doesn't involve clicking from page to page to find what you want (check), isn't written in fluffy tourist-board-speak (check), has all the links you need and none of the ones you don't (check), and is put together by someone who loves your destination and knows it better than the insides of his own eyelids (check). Step forward Steven Pemberton, creator of this exemplary guide to having a damn good time in the 'Dam.

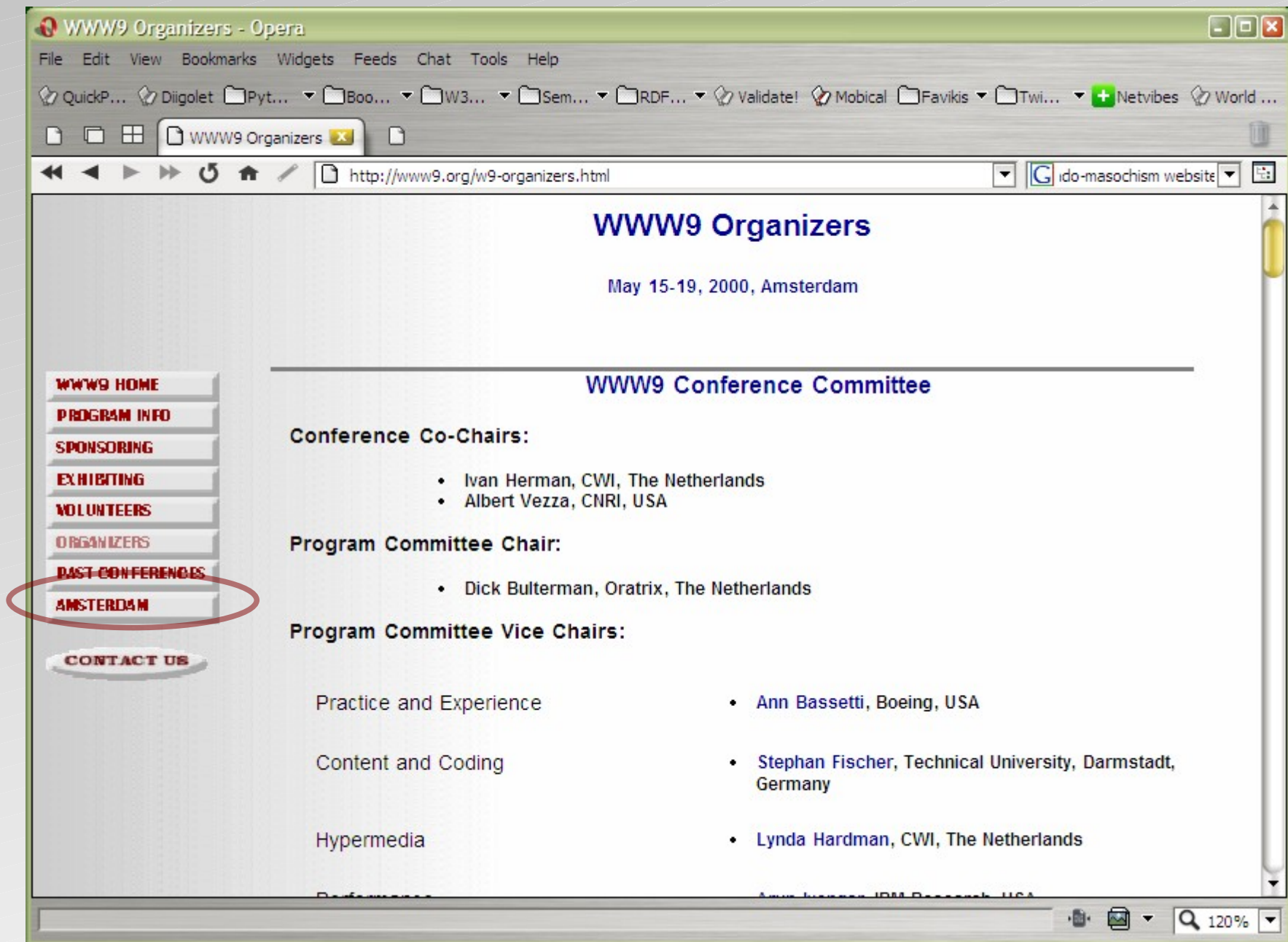
Introduction

Amsterdam is an unusual city in that it has all the advantages of a big city – culture, history, food, entertainment, good

Then some magic happens...

- Others discover the site and they link to it
- The more they link to it, the more important and well known the page becomes
 - remember, this is what, eg, Google exploits!
- This is the “Network effect”: some pages become important, and others begin to rely on it even if the author did not expect it...

This could be expected...



but this one, from the other side of the Globe, was not...

Netherlands - Spring Break Information - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://msass.case.edu/international/SPNetherlandsFAQ.html

CASE.EDU: HOME | DIRECTORIES | SEARCH

CASE WESTERN RESERVE UNIVERSITY
MANDEL SCHOOL OF APPLIED SOCIAL SCIENCES

INTERNATIONAL COURSES/PROGRAMS

MSASS | About | Admissions | Programs | Students | Faculty | Research | Library | Calendar | Departments

International Courses

- General Information
- Descriptions by Country
- Passport Application
- Dutch Visa Application
- Previous Trips
- Testimonials

Netherlands - Spring Break Information

Please also see the following links for information on the trip to the Netherlands

- General FAQ
- Applying for a Dutch Visa
- A Students Photo Journal of the Netherlands

What Forms do I need for this Program?

All of the forms you will need are linked from the Forms page.

More information? Check out these links:

Amsterdam Links
Spring Break Trip participants to Amsterdam may familiarize themselves with Amsterdam by visiting the following web sites. On website address nl refers to the Netherlands.
Information on travel outside the United States , including instructions on getting a passport: http://travel.state.gov
A must see website http://homepages.cwi.nl/~steven/amsterdam.html
United States Consulate, Amsterdam: http://www.usemb.nl
Virtual Tour of Amsterdam: http://www.channels.nl

What would that mean for a Web of Data?

- Lessons learned: we should be able to:
 - “publish” the data to make it known on the Web
 - standard ways should be used instead of ad-hoc approaches
 - the analogous approach to documents: *give URI-s to the data*
 - make it possible to “link” to that URI from *other* sources of data (not only Web pages)
 - ie, applications should not be forced to make targeted developments to access the data
 - generic, standard approaches should suffice
 - and let the network effect work its way...

Example: combine data from experiments

- A drug company has huge amount of old experimental data on its Intranet
- Data in different formats (XML, databases, ...)
- To reuse them:
 - make the important facts available on the Web via standards
 - use *off-the-shelf* tool to integrate, display, search

Internal Compound Repurposing Example

Welcome, Allergy & Respiratory Team Member

This tool allows you to identify opportunities for additional uses of compounds from other teams within your project. It combines internal data, public data and the results of case mining experiments to provide testable hypotheses.

Control Panel & Item Filtering

Area	5/2 Approach	3/2 Term+Reason	1/2 Max_Stage_Reached	1/2 Literature Links
29 Pain	<input checked="" type="checkbox"/> 7 Antibody	<input type="checkbox"/> 37 ACTIVE	<input type="checkbox"/> 51 Candidate	<input checked="" type="checkbox"/> 0 - 50
10 Metabolic Disease	<input checked="" type="checkbox"/> 1 Recombinant	<input type="checkbox"/> 12 BIOMARKER	<input type="checkbox"/> 10 Discovery	<input type="checkbox"/>
8 Cancer	<input type="checkbox"/> 18 SM_Agonist	<input checked="" type="checkbox"/> 51 EFFICACY	<input checked="" type="checkbox"/> 41 Exploratory	<input type="checkbox"/>
3 Sexual Health	<input checked="" type="checkbox"/> 12 SM_Antagonist	<input checked="" type="checkbox"/> 11 MARKET	<input type="checkbox"/> 19 HTS	<input type="checkbox"/>
2 Infectives	<input checked="" type="checkbox"/> 21 SM_Inhibitor	<input checked="" type="checkbox"/> 11 REORG	<input type="checkbox"/> 11 Phase I	<input type="checkbox"/>
1 Urogenitals	<input checked="" type="checkbox"/>	<input type="checkbox"/> 10 TOXIC	<input type="checkbox"/> 13 Phase III	<input type="checkbox"/>
			<input type="checkbox"/> 41 Screening	<input type="checkbox"/>

51 items filtered from 710 originally (Reset All Filters)

Area	Original+Indication	Target_Name	Approach	Start	Term+Reason	Max_Stage_Reached	Owner	OMIM Lit	All Lit	2007 Lit	Mech	RNA	GED	Pathway	Compounds
Metabolic Disease	Diabetes	Liver glycogen phosphorylase	SM_Inhibitor	2007-Q2	EFFICACY	Candidate	P. Person								SW-030072
Sexual Health	Erectile Dysfunction	Integrin alpha-3 (Galactose 6.3)(VLA-3) (CD49C)	SM_Antagonist	2006-Q3	EFFICACY	Candidate	P. Person								SW-029782
Sexual Health	Erectile Dysfunction	Leukotriene C4 synthase	SM_Agonist	2006-Q3	EFFICACY	Candidate	M. Manager			1					SW-029638
Sexual Health	Erectile Dysfunction	transcription elongation factor A (SII)-like 4	SM_Inhibitor	2005-Q2	EFFICACY	Candidate	P. Person								SW-029626
Infectives	HEV	Putative four repeat ion channel (ix)	SM_Inhibitor	2006-Q3	EFFICACY	Candidate	L. Leader								SW-029994
Infectives	HEV	Voltage-gated potassium channel protein KV1.2 (ix)	SM_Agonist	2007-Q1	EFFICACY	Candidate	A. Scientist							1	SW-029653
Urogenitals	Incontinence	Human RNA binding motif (RBM) gene, partial cds.	SM_Agonist	2007-Q3	EFFICACY	Candidate	L. Leader							1	SW-029684
Pain	Migraine	Monocarboxylate transporter homologues 2 (SLC6A4) (ix)	SM_Inhibitor	2007-Q3	EFFICACY	Candidate	L. Leader	18							SW-030085

Courtesy of Nigel Wilkinson, Lee Harland, Pfizer Ltd, Melliya Annamalai, Oracle (SWEQ Case Study)

But it is a little bit more complicated 🤖

- On the traditional Web, humans are implicitly taken into account
- A Web link has a “context” that a person may use

Eg: address field on my page:

Ivan Herman - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.w3.org/People/Ivan/

W3C

Ivan Herman

[My Work at W3C](#) | [Contact information](#) | [Short CV](#) | [Upcoming trips](#) | [Public presentations](#)

My Work at W3C

I am Semantic Web Activity Lead; that is my main work at W3C. I am member of [IW3C2](#) (International World Wide Web Conference Committee) (the committee coordinating the yearly WWW conference series), serving as a liaison for W3C, and of [SWSA](#) (Semantic Web Science Association), the committee responsible for the International Semantic Web Conferences series.

As part of my work, I also participate in lots of outreach activities, and I regularly make presentations, tutorials, etc. You can consult my [list of presentations](#) for further details.

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Phone numbers:
 phone: +31-20-5924163
 mobile phone: +31-641044153
 fax: +31-20-5924312

PGP/GPG:
 My GnuPGP key and signature is available on-line.

FOAF:
 You can either extract a short FOAF information from this page, or consult my more complete, public FOAF file.

Misc:



... leading to this page

Centrum Wiskunde & Informatica | CWI - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.cwi.nl/

home | contact | a/z | intranet | nl Search...

CWI Centrum Wiskunde & Informatica

about cwi events library news research scientists

Centrum Wiskunde & Informatica

Centrum Wiskunde & Informatica (CWI) performs fundamental scientific research in mathematics and computer science. CWI transfers the acquired knowledge to society and industry. The institute's strategy for the period up to 2012 is to concentrate research on four broad, societally relevant themes:

Earth & life sciences

The data explosion

Societal logistics

Software as service

News

13-10-08
PhD defence Jarek Byrka

22-09-08
Best Paper Award for SMIL State research

At the ACM DocEngineering Symposium in Sao Paulo, Brazil, from 16 till 19 September, CWI researchers Jack Jansen and Dick Bulterman received the Best Paper Award.

Agenda

18-10-08
Science Day at the Science Park Amsterdam
At Science Day the Science Park Amsterdam will be open for This year the theme of Science Day is 'Crack the code'. CWI workshops en demonstrations within this theme for every age
[read more](#)

21-10-08
MAS Seminar, speaker Svetlana Dubinkina
Two speaker session
Tea starting at 10.00
Room: M279
Speakers:
1. Svetlana Dubinkina, CWI MAS 1, tba
2. James Glazier, University of Indiana Bloomington, tba
[read more](#)

28-10-08
MAS Seminar, speaker Peter Sonneveld

- A human understands that this is my institution's home page
- He/she knows what it means (realize that it is a research institute in Amsterdam)
- On a Web of Data, something is missing; machines can make no sense of the link alone

- New lesson learned:
 - extra information (“label”) must be added to a link: “this links to my institution”
 - this information should be machine readable
 - this is a characterization (or “classification”) of *both* the link *and* its target
 - in some cases, the classification should allow for some limited “reasoning”

Let us put it together

- What we need for a Web of Data:
 - use URI-s to publish data, not only full documents
 - allow the data to link to other data
 - characterize/classify the data and the links (the “terms”) to convey some extra meaning
 - and use standards for all these!

Example: find the right experts at NASA

- NASA has nearly 70,000 civil servants over the whole of the US
- 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!

Example: find the right experts at NASA

- Approach: integrate all the data with standard means, and describe the data and links using generic vocabularies

The screenshot displays the POPS v.28.3 application interface. The top window has a title bar: "POPS v.28.3 - Connected to 'POPS on FatDuck' - Using Model 'POPS on FatDuck Model' - Logged in as 'Michael Grove'". Below the title bar is a menu bar with "File", "Options", "Bookmarks", "Advanced", and "Help".

The main interface is divided into several panels:

- NASA Center (15):** A list of NASA centers including ARC, DFRC, GRC, GSFC (highlighted), HQ, IVV, JPL, JSC, KSC, LARC, MAF, and MSFC. Source: x500.
- Project (176):** A list of projects including Mars Global Surveyor, Mars Odyssey 2001, Mars R&A, Mars Reconnaissance Orbiter 2005 (...), Messenger, Minor Revital, Mission Operations, Mission Science Guest Investigator, Mission Success - Center Specific, Multi-Mission Operations, NMP Program Management and Futur..., and NPP/ESS Preparation Project (NPP). Source: WIMS.
- Competency (21):** A list of competencies including Astrobiology, Astronomy and Astrophysics, Climate Change and Variability, Earth Atmosphere, Earth Science Applications Research, Earth System Modeling, Fluid Physics, Fundamental Physics, Geophysical/Geologic Science, Geospatial Science and Technologies (highlighted), Icing Physics, and Laser Technology. Source: CMS.
- People (1):** A list of people including Jeanne M. (highlighted). Source: CMS.

Below these panels is the **Information Panel**, which contains a section titled "View Different Social Network's Present in the Data". This section displays a social network graph with nodes representing people and their connections. The graph shows a path from Jeanne M. to Jeffrey T. to Michael H. Grove. A detailed information box for Michael H. Grove is shown, including his name, email (@nasa.gov), phone (301...), and employer (Clark and Parsia).

On the right side of the Information Panel, there is a legend with four items:

- Same Skill and Same Department (red line)
- Same Skill and Same Project (green line)
- Same Skill, Project, and Facility (blue line)
- Am I Connected? (purple line)

At the bottom of the Information Panel, there is a "Social Net" button and a page indicator "1 of 1".

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

So What *is* the Semantic Web?

**It is a collection of standard technologies
to realize a Web of Data**

- It is that simple...
- Of course, the devil is in the details
 - a common model has to be provided for machines to understand the “labels” and draw some conclusions from that info
 - the “classification” of the terms can become very complex for specific knowledge areas: this is where ontologies, thesauri, vocabularies, etc, enter the game...

Example: eTourism in Zaragoza

- Provide personalized itinerary service
- Integration of different databases in Zaragoza (using targeted ontologies)

Zaragoza TURISMO

TOURISM THE CITY COUNCIL FOR PEOPLE THE CITY

Start > Proposed route > Details about the day

ITINERARY FOR 17/06/08

We propose the following route. You can modify it to your taste indicating the places you would like to visit or the activities you would like to do.

Click on each of the monument names to read detailed information below. You can modify your selection using the button "At another time" (which will move the site from its current slot and try to place it at another time or on another day), and "It doesn't interest me" (which deletes it from the route). You can also press "No itinerary at these times", in order to leave a free morning or afternoon. Remember that any changes made will not be confirmed until the route is recalculated.

Back to Create

Proposed routes **Other suggestions**

Morning

-Tourist Sites-

- (10:10) Basilica of the Pilar
- (10:55) Ibercaja Camón Aznar Museum
- (11:40) Cathedral of San Salvador o La Seo
- (12:25) The Caesaraugusta Forum Museum
- (12:55) The Caesaraugusta River Port Museum
- (13:25) The Caesaraugusta public baths museum
- (13:50) Iglesia Parroquial de San Gil Abad
- (14:15) Molins house

No itinerary at these times

Afternoon

-Tourist Sites-

- (16:15) Church of la Mantería
- (16:35) Church of San Ildefonso o de Santiago el Mayor
- (17:00) Church of Santo Tomás de Aquino (Escuelas Pías)
- (17:20) Church of San Pablo
- (17:50) Casa Armas
- (18:10) Central market
- (18:30) Church of Santa Isabel de Portugal o San Cayetano
- (18:45) Samaritana fountain
- (19:05) Church of San Felipe and Santiago el Menor
- (19:25) Church of San Juan de los Panetes
- (19:50) Church of Santa Cruz
- (20:20) Church of Santa Maria Magdalena

No itinerary at these times

Zaragoza street plan

Tourist site

BASILICA OF THE PILAR

Full accessibility

The construction of the current Basilica of the Pilar is closely linked to the increase in devotion to the Pilar throughout the 17th century. The previous Gothic-Mudejar building was not big...

Know more...

It doesn't interest me

At another time

Why are you recommending it?

Google Maps IDEZar

Mapa Satélite Híbrido

Paseo de Echegaray y Caballero

Paseo de la Ribera

Rio Ebro

Plaza de San Salvador

Calle de San Salvador

Calle de San Juan

Calle de San Felipe

Calle de San Juan de los Panetes

Calle de Santa Cruz

Calle de Santa Maria Magdalena

Datos de mapas © 2008 Tele Atlas

W3C IDEZar Export to KML

Back to Create

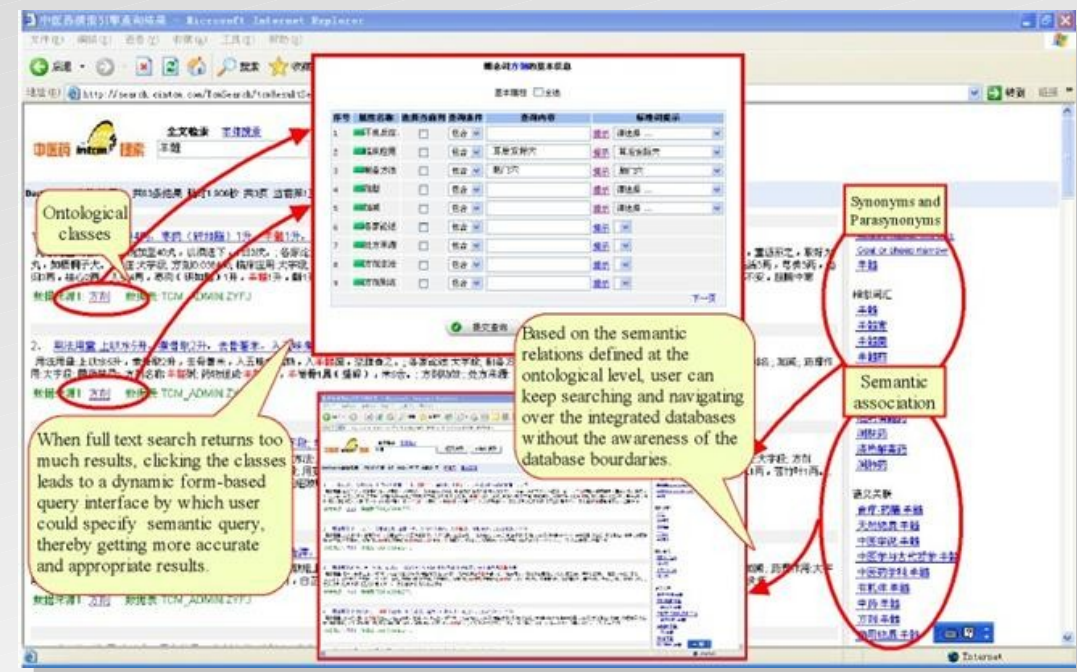
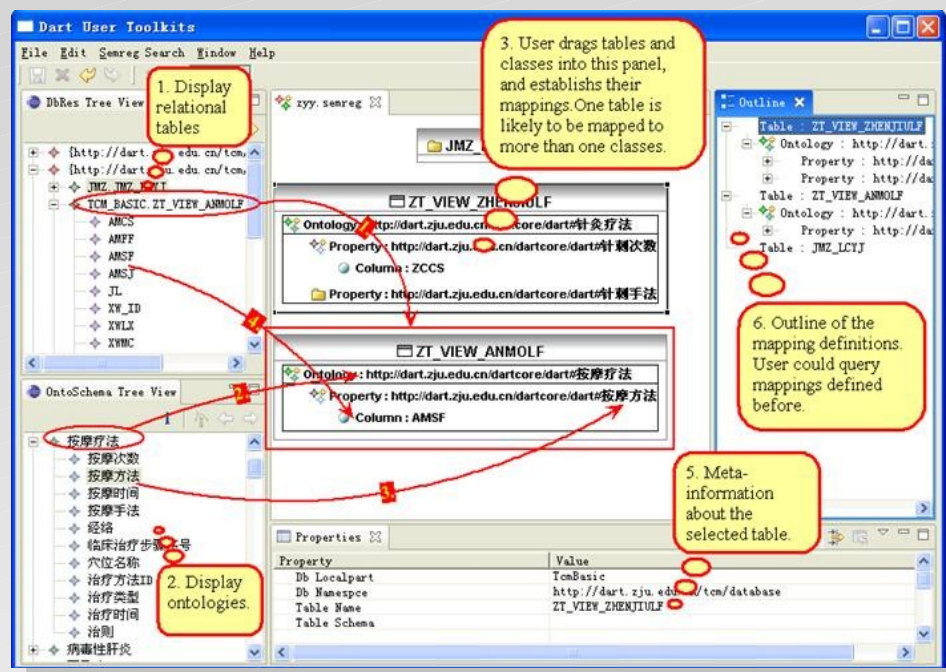
Courtesy of Jesús Fernández, Municipality of Zaragoza, and Antonio Campos, CTIC (SWEO Use Case)

**Wait! Does it mean that I have to convert
all my data in some way?**

- Not necessarily; this would not always be feasible
- There are technologies to make your data accessible to standard means without converting it
 - run-time “bridges” (eg, rewriting queries on the fly)
 - annotate existing data (eg, XHTML pages)
 - etc
 - these techniques are still being developed

Example: integrate knowledge for Chinese Medicine

- Integration of a large number of TCM databases
 - around 80 databases, around 200,000 records each
- Uses specialized ontologies
- Queries are converted on-the-fly to the databases



Courtesy of Huajun Chen, Zhejiang University, (SWEO Case Study)

In the end...

- More and more data should be “published” on the Web
 - this can lead to the “network effect” on data
- Different communities will develop their own vocabularies
- New breed of applications
 - “mashups on steroids”
 - better representation and usage of community knowledge
 - new customization possibilities
 - ...

