

Singapore Management University

Institutional Knowledge at Singapore Management University

Research Collection School Of Computing and Information Systems

School of Computing and Information Systems

10-2010

Rich Internet GeoWeb for Spatial data Infrastructure

Tin Seong KAM

Singapore Management University, tskam@smu.edu.sg

Follow this and additional works at: https://ink.library.smu.edu.sg/sis_research




Part of the [Databases and Information Systems Commons](#), and the [Geographic Information Sciences Commons](#)

Citation

KAM, Tin Seong. Rich Internet GeoWeb for Spatial data Infrastructure. (2010). *Global Spatial Data Infrastructure 12 World Conference*.

Available at: https://ink.library.smu.edu.sg/sis_research/1353

This Presentation is brought to you for free and open access by the School of Computing and Information Systems at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection School Of Computing and Information Systems by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email cherylds@smu.edu.sg.




GSDI 12 WORLD CONFERENCE
Realising Spatially Enabled Societies
SINGAPORE | 19-22 October 2010

GSDI 12 | Singapore 2010

**Rich Internet GeoWeb Service for
Spatial Data Infrastructure**

Dr. Kam Tin Seong,
Practice Associate Professor
School of Information Systems, Singapore
Management University
E-mail: tskam@smu.edu.sg

School of Information Systems



Content

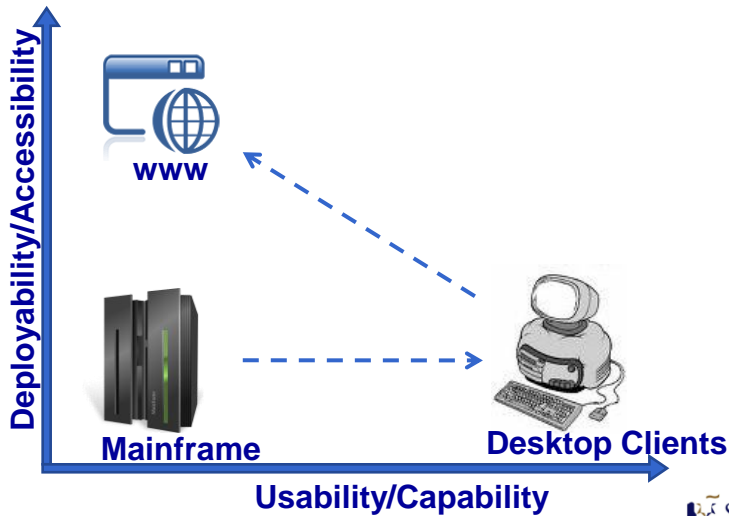
- Geospatial Web Services for Spatial Data Infrastructure: issues and problems
- The Solution: Rich Internet Geospatial Visual Analytics Tool (RIGVAT)
- Use Case Scenario: Singapore property market
- Toward a User-centric Geospatial Web Services framework
- Q & A

School of Information Systems



GSDI evolution...

- From desktop GIS to web-based GIS



School of
Information Systems

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

Conventional InternetGIS Architecture



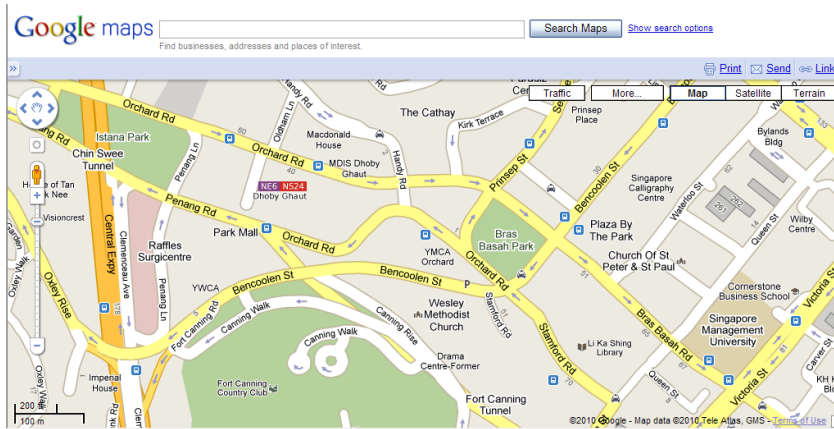
- Deficiencies of conventional internet GISs:
 - data rich, content poor
 - poor usability
 - low client side capability
 - platform incompatibilities

School of
Information Systems

SMU
SINGAPORE MANAGEMENT
UNIVERSITY

What is Geospatial Web Service

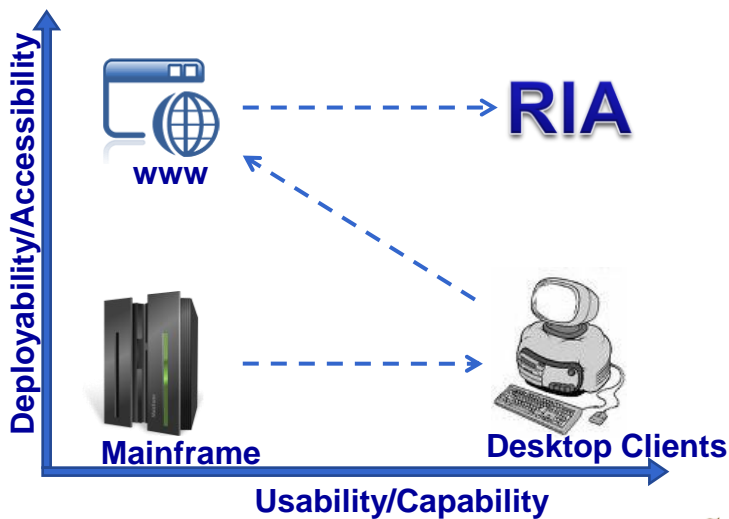
- It all start with Google Earth in 2005



School of Information Systems



Geospatial Web evolution...



School of Information Systems



Interactive API by GIS vendors

- Google Earth API
- Yahoo Flash API
- ArcGIS Flash API
- Mapquest Flash API

Google™

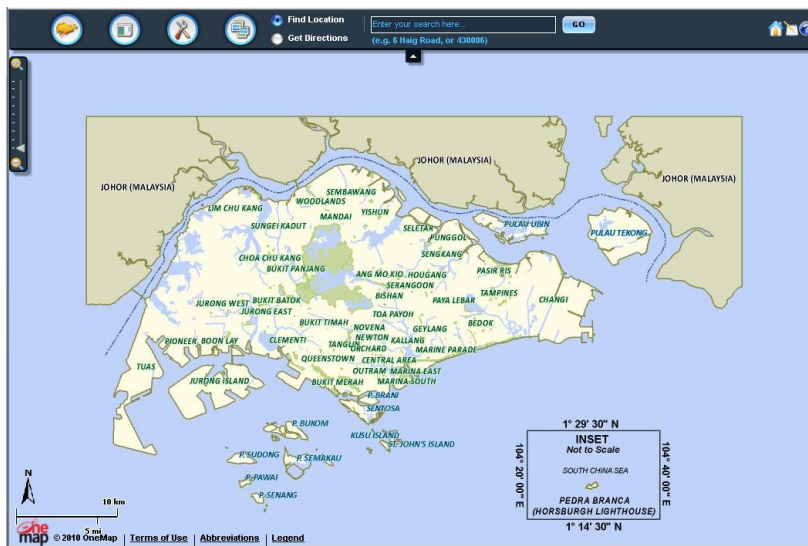
YAHOO!

MAPQUEST.



ESRI

Geospatial Web 2.0



Limitation of API approach

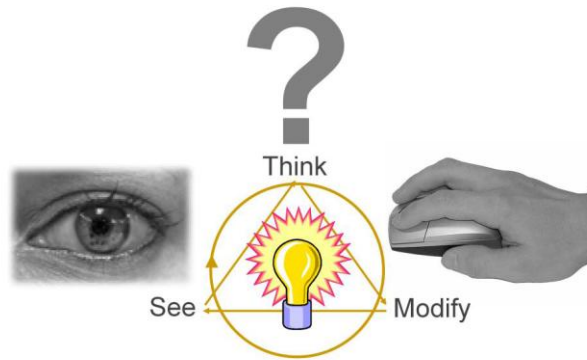
- Inflexible UI - you will quickly recognise sites built from the template. Both the look and feel and animation are a give away.
- The need to customise widgets - widgets have usually been built for a specific purpose, particularly the more advanced widgets such as query builder.
- Locked into a particular internet mapping services or GIS.

What is Geospatial Visual Analytics

- is the science of analytical reasoning and decision-making with geospatial information, facilitated by interactive visual interfaces, computational methods, and knowledge construction, representation, and management strategies

Geospatial Visual Analytics framework

- Maps are used to stimulate (visual) thinking about geospatial patterns, relationships and trends



Geospatial Visual Analytics framework

VISUAL THINKING

Exploration

Confirmation

VISUAL COMMUNICATION

Synthesis

Presentation

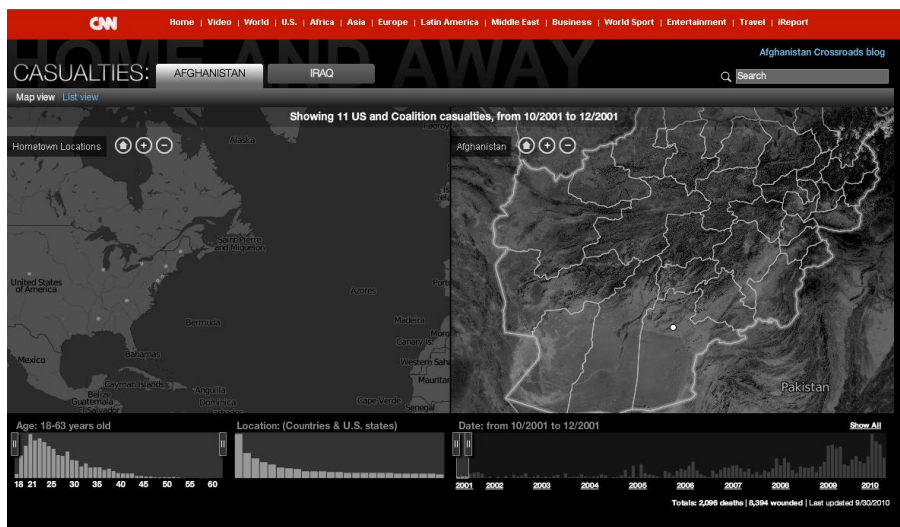
PRIVATE REALM

PUBLIC REALM

Why people Geospatial Visual Analytics

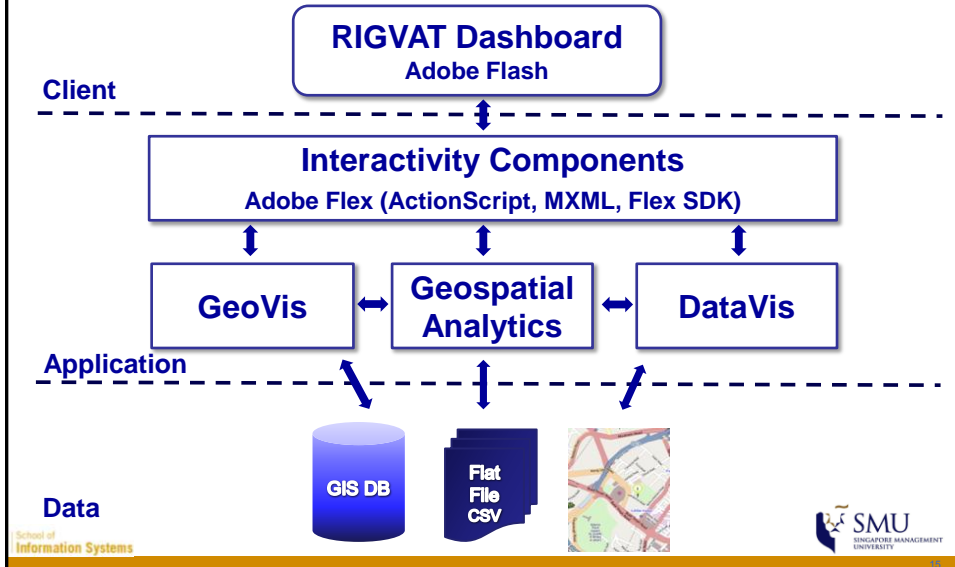
- People use visual analytics tools and techniques to
 - Synthesize information and derive insight from massive, dynamic, ambiguous, and often conflicting data
 - Detect the expected and discover the unexpected
 - Provide timely, defensible, and understandable assessments
 - Communicate assessment effectively for action

Example 1



RIGVAT framework

- Rich Internet Geospatial Visual Analytics Tools



How property data being distributed

e-Services IS@EDB HomePage  [Terms and Conditions](#) | [FAQs](#) | [Help](#)

Resale Transactions 12 Jul 2008 6:44 am

Search Results

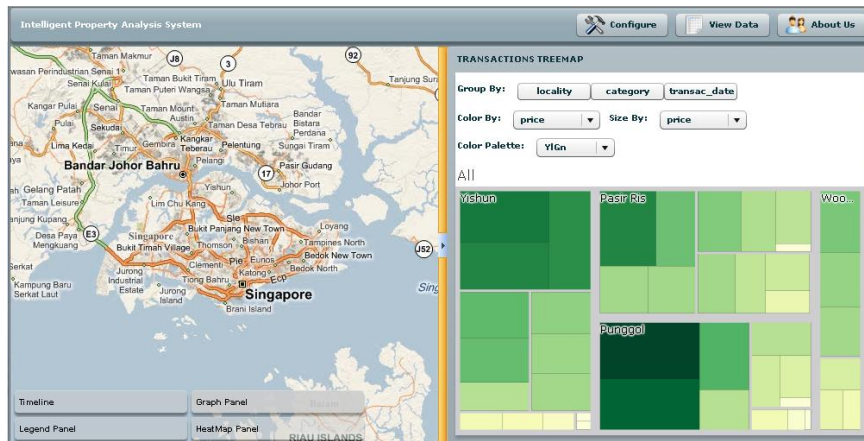
Flat Type : 4 Rooms
HDB Town : Ang Mo Kio
Resale Approval Date : Apr 2008 to Jun 2008

Block	Street Name	Storey	Approximate Area (sqm)	Lease Commencement	Resale Price	Resale Approval Date
221	Ang Mo Kio Ave 1	06 to 10	106.00	1993	\$380,000.00	Apr 2008
222	Ang Mo Kio Ave 1	01 to 05	102.00	1993	\$315,000.00	Jun 2008
225	Ang Mo Kio Ave 1	06 to 10	92.00	1978	\$333,000.00	Jun 2008
303	Ang Mo Kio Ave 1	01 to 05	97.00	1977	\$382,000.00	Jun 2008
303	Ang Mo Kio Ave 1	01 to 05	97.00	1977	\$370,000.00	Apr 2008
320	Ang Mo Kio Ave 1	06 to 10	98.00	1977	\$395,000.00	Jun 2008
334	Ang Mo Kio Ave 1	01 to 05	92.00	1982	\$295,500.00	May 2008

School of Information Systems 

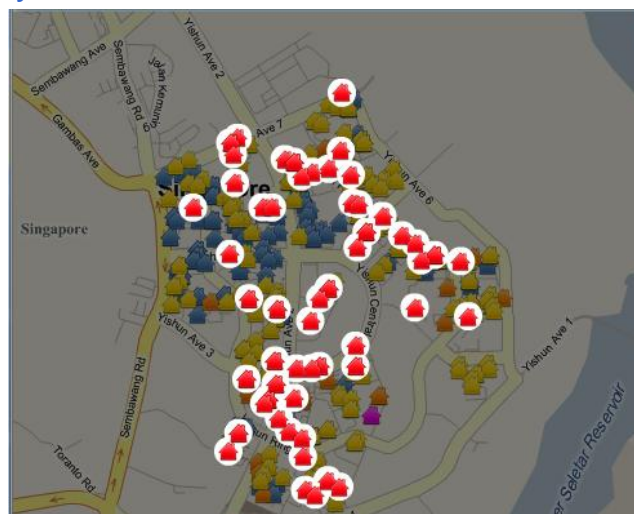
Multiple Coordinated Views

- Pin map + Treemap

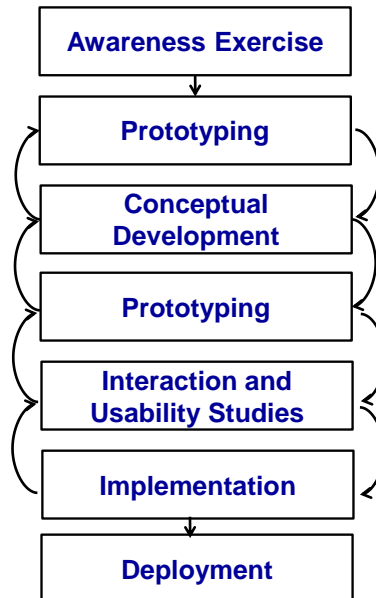


Highlighting

- Now, you can see the trees in the forest



The User-Centered Design Process



In Conclusion

- Geospatial Visual analytics is the next step in visually supporting solving (geo)problems
- Geospatial information solution development should go beyond conventional GIS and system integration approaches