



AGILE 2018, 21th
AGILE International
Conference on
Geographic
Information Science,
12-15 June, Lund,
Sweden

Is NSDI Dead ?



**Çetin
Cömert**

Karadeniz Technical
University
Geomatics Department
Trabzon

**M. Emre
Yıldırım**

Mapisso, İzmir
mapisso

- What NSDI has brought ?
- What Open data brings
- Comparison
- What to do

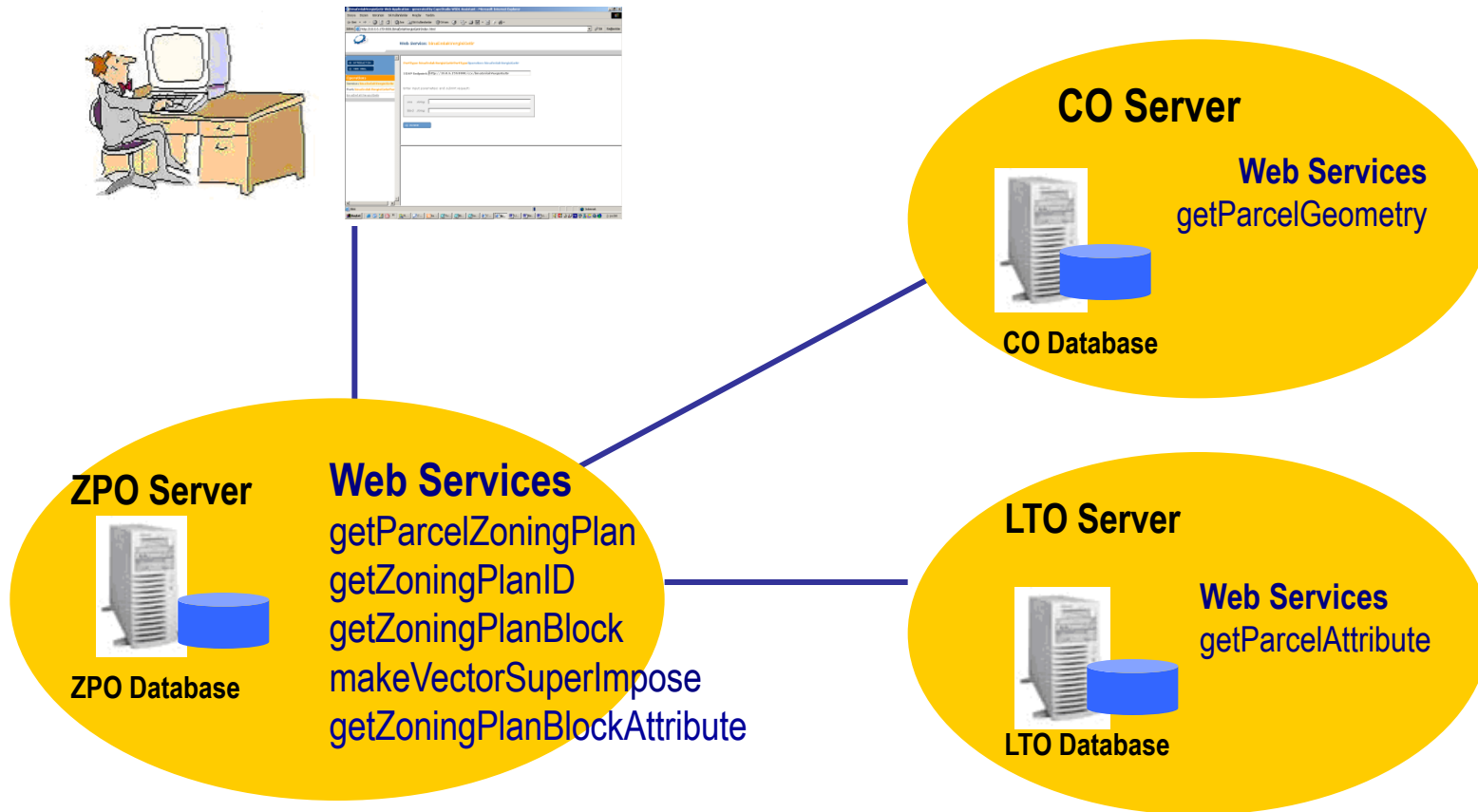


our earlier work and motivation

- I proposed NSDI for Turkey in 1995 ..
- Around 2000s...
- With the vision that, **NSDIs** may be implemented using «SOA/WSs», We implemented «e-municipality web services. to show the potentials of **services oriented architectures (SOA)**
- We have **designed** and **implemented** a number of Web Services for the **Trabzon Municipality** in Turkey. -
- Our services were **non-OGC**, but **W3C** (World Wide Web Consortium) type of web services (W3C)



Municipality ZPO GUI



E-municipality web services - “thick – clients”

Microsoft Internet Explorer

Adres: C:\Documents and Settings\Halil AKINCI\Belgelerim\SVG Samples 08.04.2004\IDF\IDF_HTML.html

alınacak roperli kroki, harita mudurlugunden alınacak imar istikamet rolevesi, blok ebatlari, on, arka ve komşu bahçe mesafeleri, tabi zemin ve yol kotlari icab eden yerlerden muhtelif en, boy kesitleri eklenecektir.

SVG toolbar

2003....

One of the very first

Point Coordinates
x = 30873.65
y = 28799.55
OK

MER'İ İMAR PLANI

İmar Plan No	20L-IIIb	Kat Adedi	4	İnşaat Nizamı	Ayrık
İmar AdaID	121	Bina Yüksekliği	13	TAKS (%)	0.30
Tasdik Tarihi	20.05.1997	Bina Derinliği	10	KAKS (%)	1.20
Mahallesi	Esentepe	Ön Bahçe Mesafesi	5	Kot Alınacak Nokta: 19	
Sokağı	Sahil	Yan Bahçe Mesafesi	4		
		Arka Bahçe Mesafesi	6.5		
Kadastro	Pafta 20L-IIIb	Ada 6	Parsel 39	Yüzölçümü 8417.90	a-İskan Sahasındadır b-Konut Dışı Kent. Çal. Alanı c-İskan Dışı Sahasındadır d-Ticaret Sahasındadır e-Sanayi Sahasındadır f-Amme Hiz. Ay. Sahada



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earlier work

- **“Developing Web services for “e-municipality” (for the municipality of Trabzon)**

Necati Şahin - M.Sc. Thesis, KTU, 2003

- **“Can SDIs be implemented with Web services? Current status and future trends”**

Halil AKINCI - Ph.d., Thesis, KTU, 2006

- **“Design and development of Cadastral Web services”**

Hasan T. Bostancı - Ph.d., Thesis, KTU, 2010

**«NSDI requires a transition of State organizations. A transition from the
«current state» to a «SOA-compatible state »**

More phds...

- **Systems theory and NSDI methodology** is now transformed it into a phd about **National Open data strategy** lately..... **Ongoing**

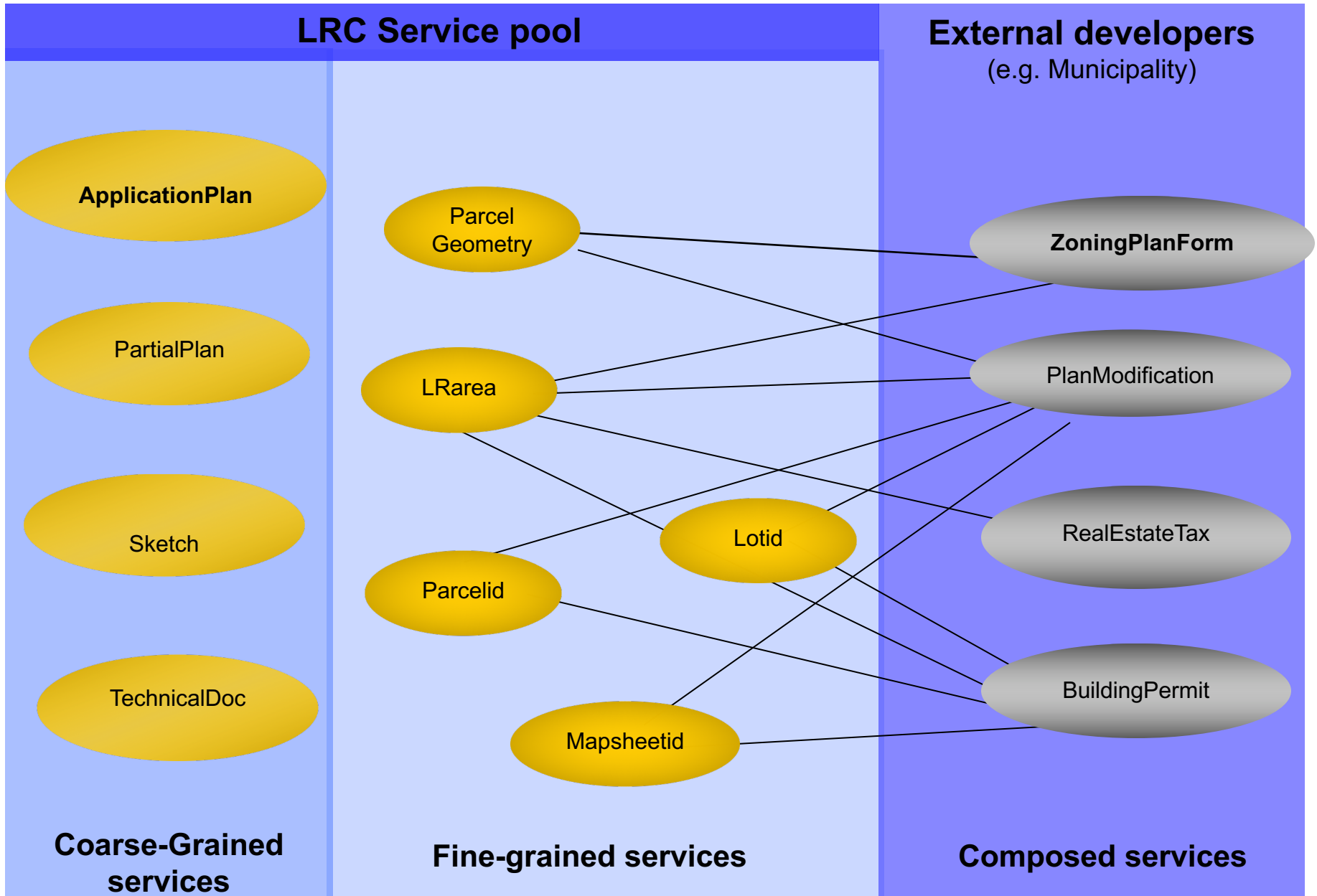
- **Semantic annotation of institutional data and services – completed**

General Command of Mapping **Project ongoing** -- «**How to Open and link GCM data?**»

- **Semantic service composition –completed–**«**Show me land slide areas in Trabzon**» - Just like what I do in «Siri»

- **Ontology–based geospatial data quality checking–**

Fine – coarse -, and composed services



ApplicationPlan

AK MÜHÜRSLÜK BİLGİSAYAR LTD.ŞTİ

İli

GÜMÜŞHANE

İlçesi

MERKEZ

Köy - Mah

AKHISAR KÖYÜ

Plan No

Patta no

Ada / Parsel No

Yüzölçümü

Tapu

Hesap

132/6

2580.000

2578.341

GÜMÜŞHANE

Kadastro Müdürlüğü

Aplikasyon Kroki

Aplikasyonun

Kesilen Makbuzun

Tarihi

Kayıt No

Tarihi

No su

26.12.2008

123

29.12.2008

2008108

Poligonlar

No

Y

X

Poligonlar

No

Y

X

P. 117

571434.003

4478572.961

P. 118

571341.376

4478564.111

P. 132

571378.545

4478496.264

Köşe Koordinatları

No

Y

X

132137

571391.570

4478484.868

132138

571397.005

4478492.686

132139

571376.900

4478503.595

132140

571367.842

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132147

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4478545.451

132148

571366.088

4478552.714

132194

571384.790

4478568.274

132195

571381.189

4478560.123

Ölçü huzurunda yapılmıştır

Aplikasyonu yapan

Kontrol eden

Tasdik Olunur

Önvanı

Taşınmaz Malik

Kadastro Teknisyeni

Kadastro Teknisyeni

Kontrol Memuru

Kontrol Mühendisi

Kadastro Müdürü

Adı Soyadı

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132147

571365.332

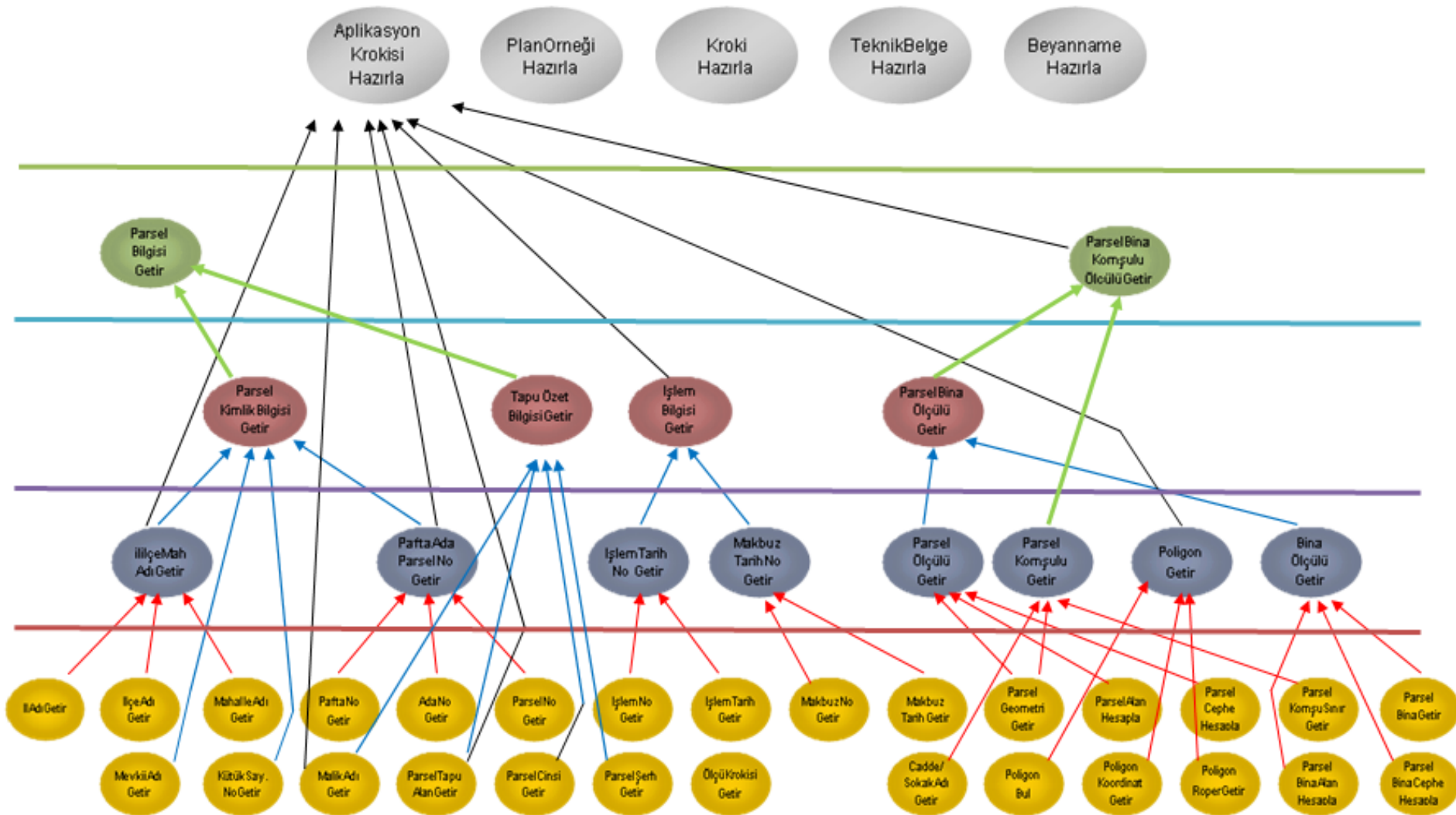
4478545.451

132148

571366.088

4478552.714

3rd level generalization



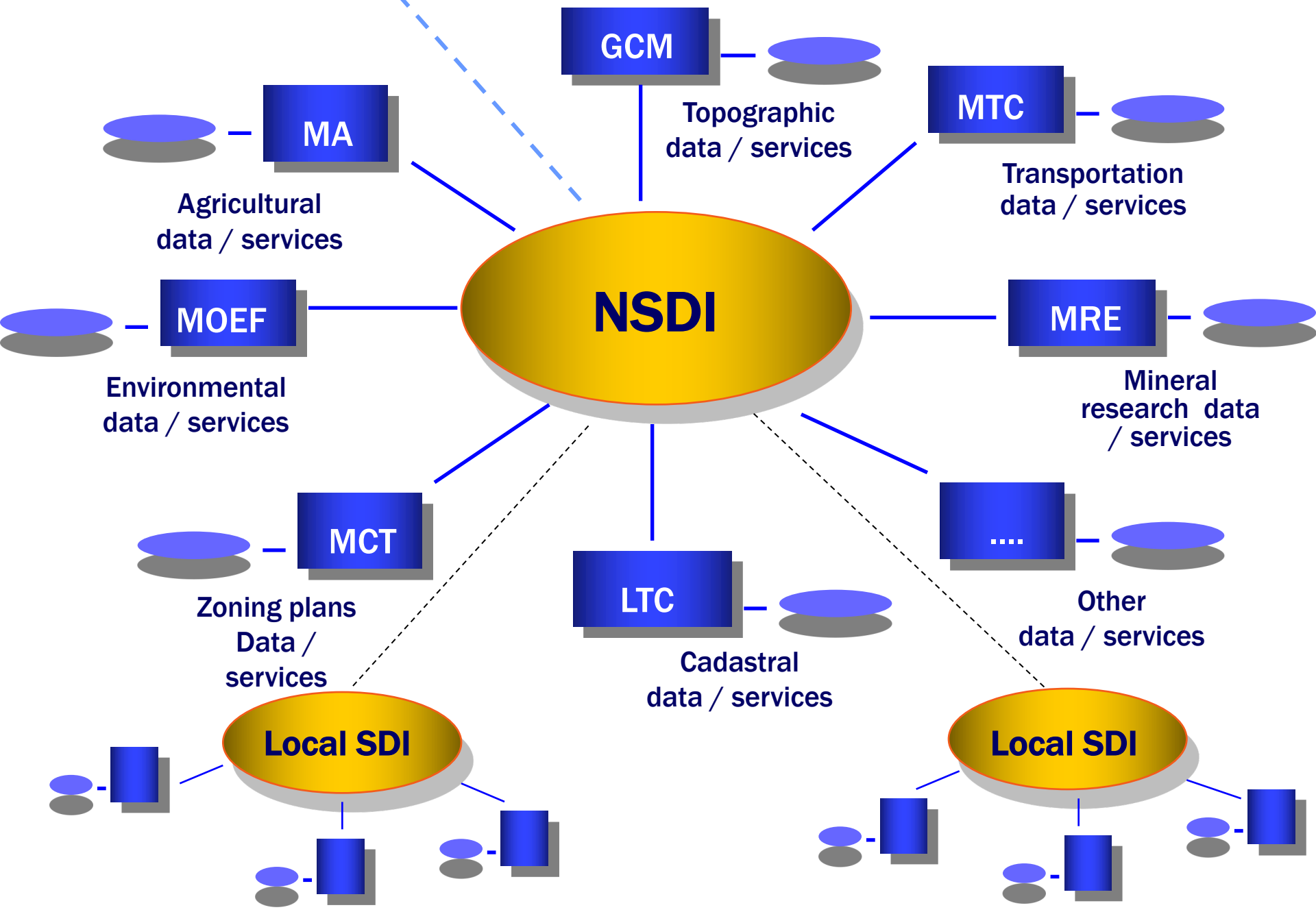
Science (!) vs. technology ??

We were too much involved in WSC (Web services Composition semantic one... a phd completed manages it in a semi-automated way)

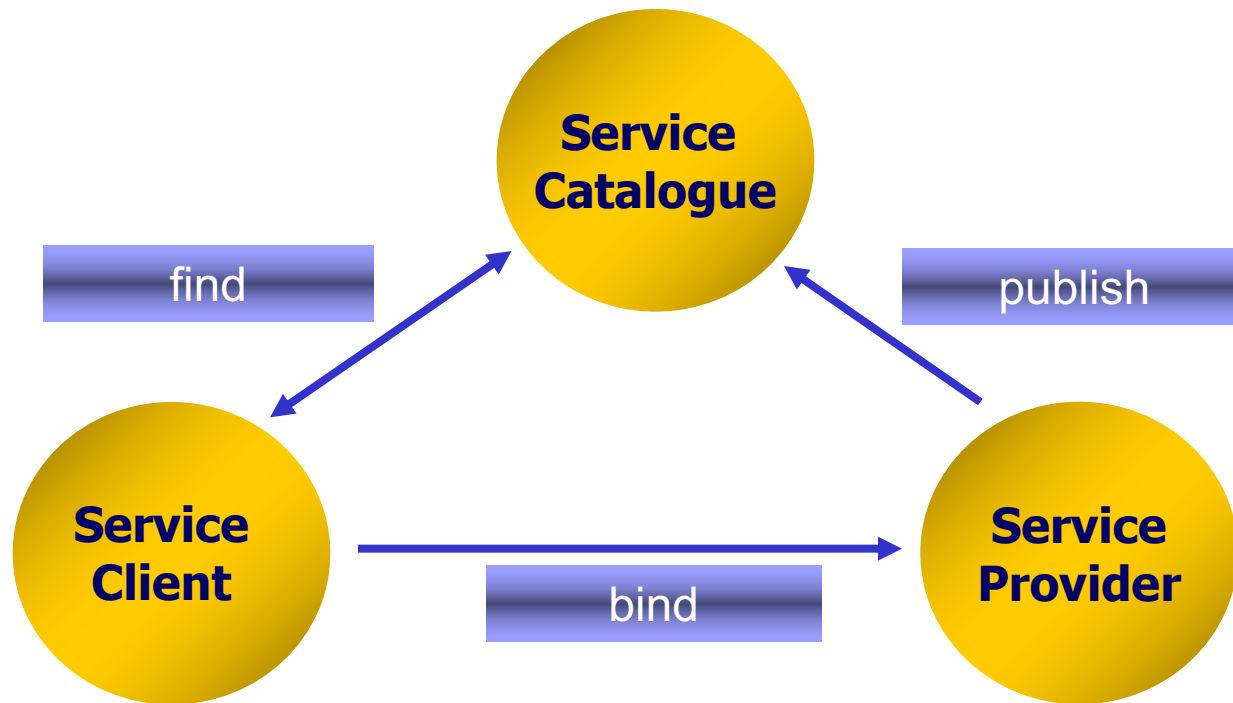
Mapisso - Emre (my phd student) said ; «...practical World is different »



INTERNATIONAL SDI



Services Oriented Architecture (SOA)



“consensus based interoperability”



What NSDI has Brought ?

- **Standards** for
interoperability Consensus based
- the definition of **geometry**
many of them.....SDTS, SAIF,GML
- the definition of **attributes** --- **application schemas**
INSPIRE application schemas
- the definition of **metadata**



What NSDI has Brought ?

- **Standards** for
interoperability Consensus based
- the definition of **geometry**
- many of them.....SDTS, SAIF,GML
- the definition of **attributes** --- application schemas
 - INSPIRE application schemas
- the definition of **metadata**



Catalogues (Geoportals) for discovery

- discovery by **metadata**; a «syntactic match» of «**keywords**». It is not easy to find what exactly you are looking for.

could such queries be answered ?

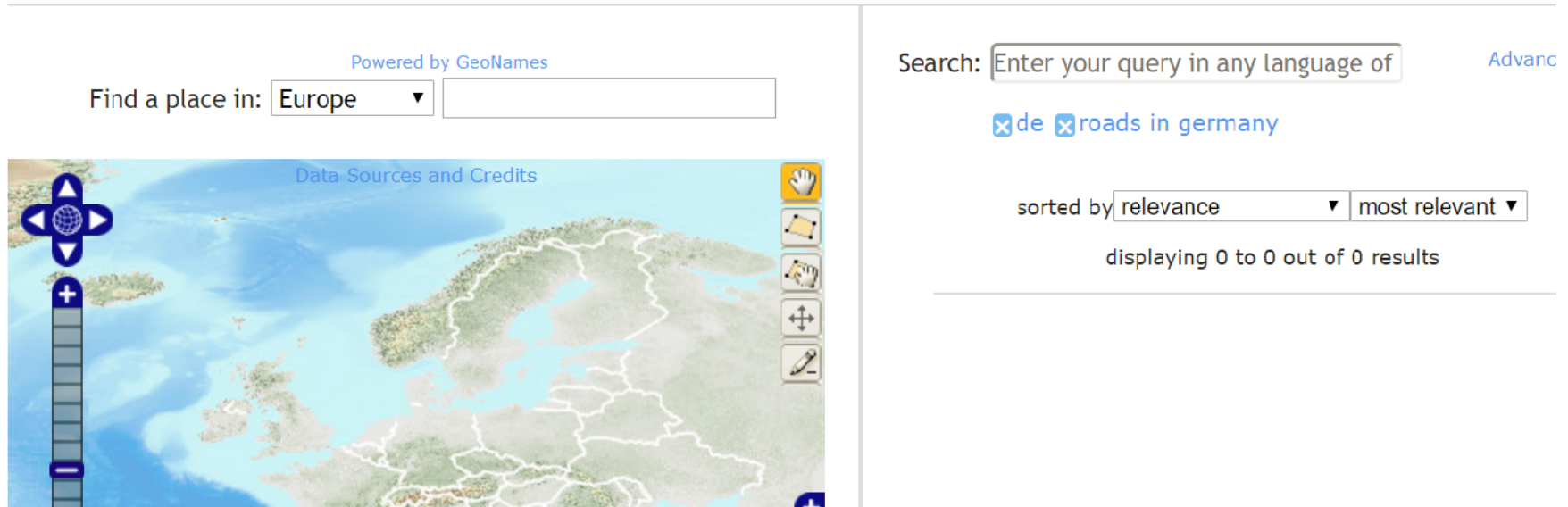
« the **Rivers** in Germany with **sediments of heavy metal** ions (Ni, Zn, Fe) higher than a certain value ». —» «the highest rivers in Europe»

« the **secondary school** with the largest **service (catchment) area** «
- «the country with largest areas»

« the **buildings** in Istanbul, which **under risk** when there is a **7.0 earthquake**»

What NSDI has Brought?

Finding data is dif



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Is NSDI Dead ?

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What NSDI has Brought ?

Application development

- Mostly by **data integration** at the client;
- Data comes in a «known» application schma (AS),
- translators from AS to client schema can be re-used.
The **reusability** is the king; All the heavy work has been
for..
- Schema matching is manual (done by the user).



What Open Data Brings ?

- **Standards** for
interoperability

Consensus based

- the definition of **geometry**

GML, JSON, GeoJSON, GeoSPARQL

-  the definition of **attributes** --- application schemas
INSPIRE application schemas

- the definition of **metadata** - DCAT, CKAN, Profiles



Open data portals for discovery

by **metadata** and by **full text search** by the advent of **full text search engines** like solr, elasticsearch, etc. . However, it is **not semantic** yet

Queries ?..

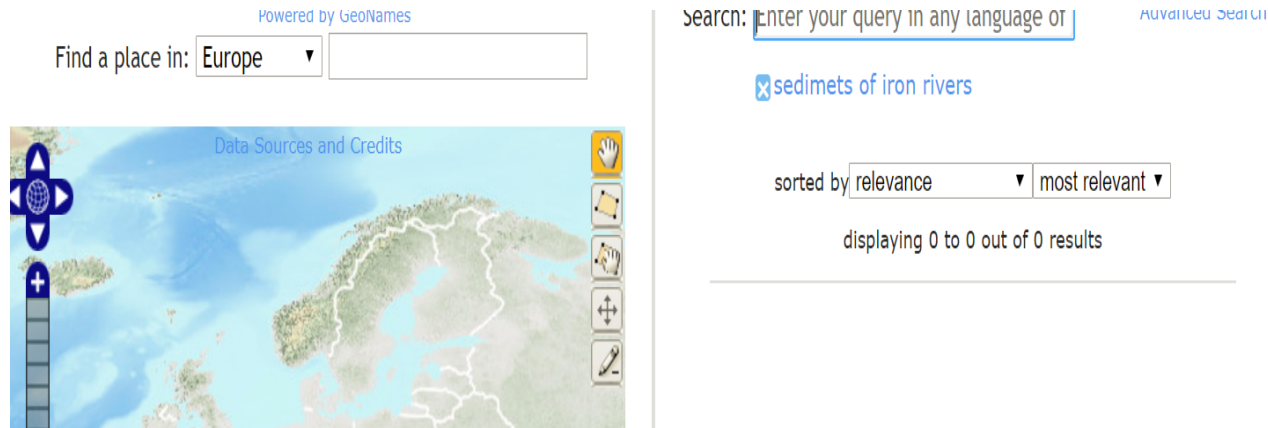
« the **Rivers** in Germany with **sediments of heavy metal** ions (Ni, Zn, Fe) higher than a certain value ». → «the highest rivers in Europe» - **Federated**

« the **secondary school** with the largest **service (catchment) area** »
- «the country with largest areas» - **Federated**

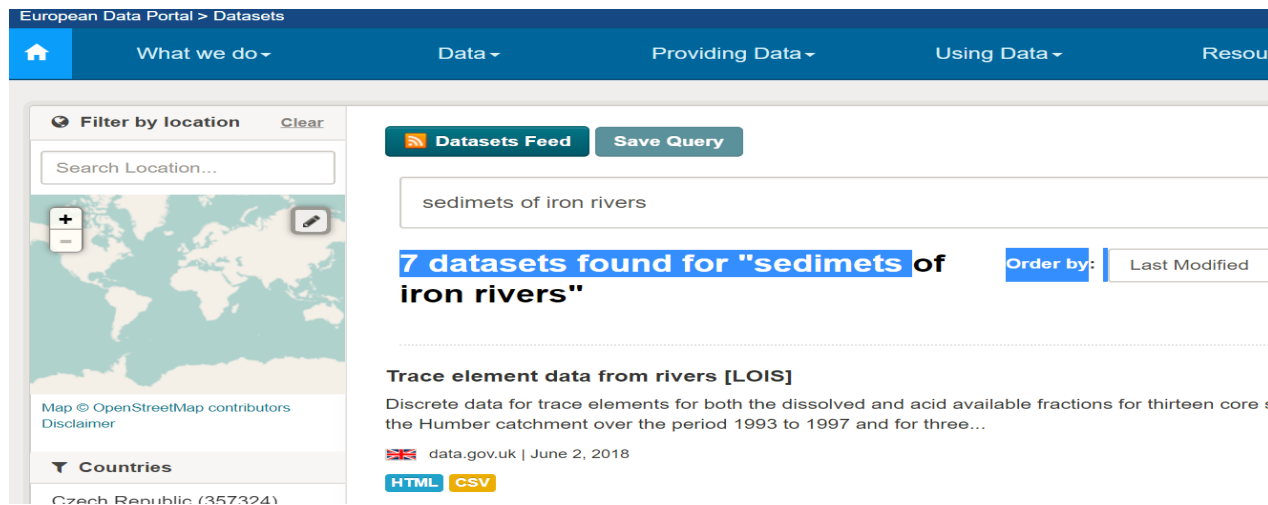
« the **buildings** in Istanbul, which **under risk** when there is a **7.0 earthquake**»

What OD brings?

Finding data is still difficult



There are also 'advance search' option in INSPIRE Geoportal but, semantic search is still a challenge...

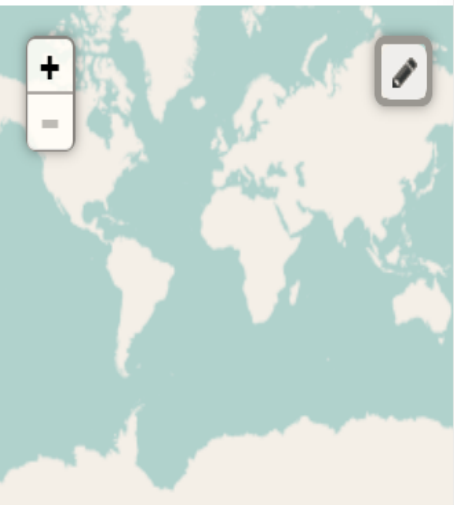


What OD brings?

Finding data is still

Filter by location [Clear](#)

Search Location...




Map © OpenStreetMap contributors
Disclaimer

Countries

Czech Republic (357324)

Germanv (192409)

 **Datasets Feed** **Save Query**


« the Rivers in Germany with sediments of heavy metal ions

8 datasets found for "« the Rivers in Germany with sediments of heavy metal ions "

Order by: Last Modified

Species point records from 1992 SWW Tamar Estuary sublittoral sediment s...

In September 1992, a study was undertaken by Marine Biological and Chemical Consultants, on behalf of South West Water to investigate the sediments and benthic fauna of the...

 data.gov.uk | April 16, 2017

CSV



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What OD brings?

Finding data is still


Filter by location [Clear](#)

Federal Republic of Germany



Map © OpenStreetMap contributors
Disclaimer

 Datasets Feed [Save Query](#)

« the Rivers in Germany with sediments of heavy metal ions 

**No datasets found for "« the Rivers
in Germany with sediments of
heavy metal ions "**

Order by:

Last Modified ▼

Please try another search.



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- Mostly by **data integration** at the client;.



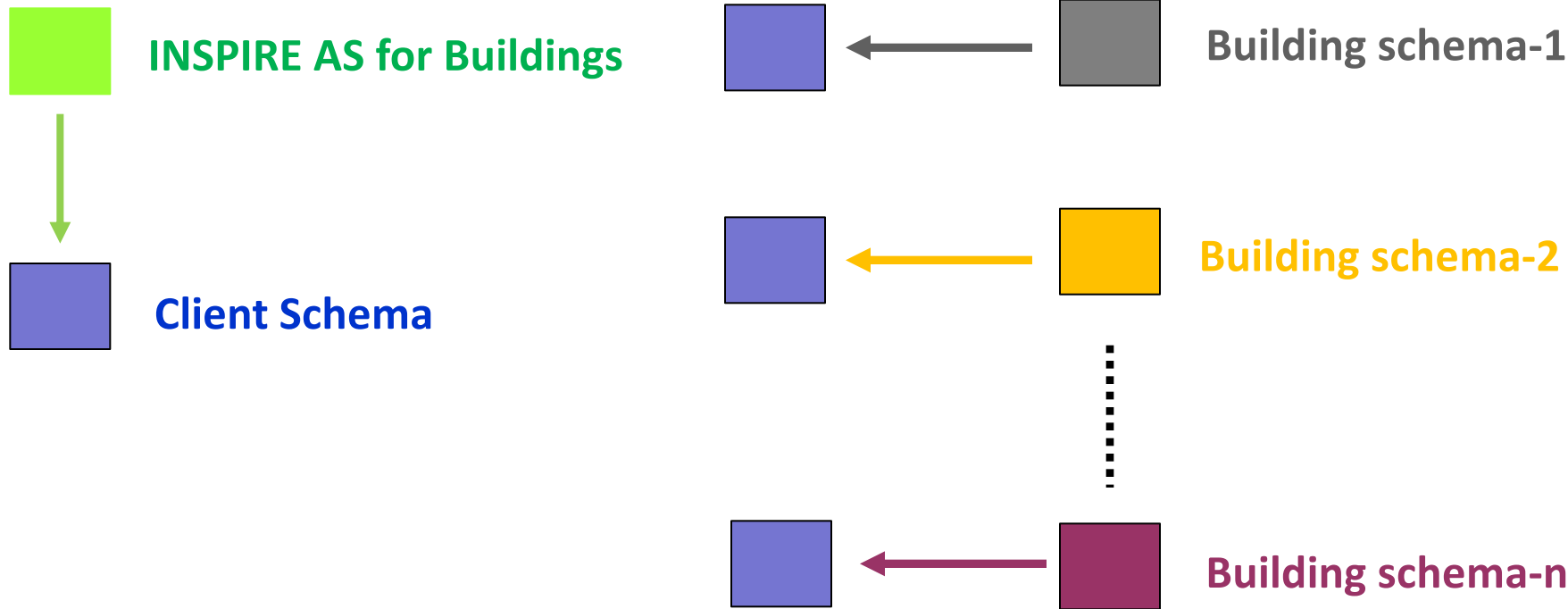
Data comes in a « known » application schma (AS),

- translators from AS to client schema can be re-used.

The **reusability** is the king; All the heavy work has been for..

- Schema matching is manual (done by the user)

More schemas to be known



« Let the burden be on the developer

Nevertheless, ammendmend for reusability
could be made;

only specifying the matches between the sche
(like XSLT),
translator code generation could be automate

No need to design Application schemas.

-very valuable !

I proposed NSDI for Turkey in 1995. It is still far from being a reality..
One big reason was the lack of technical expertise for the design !...

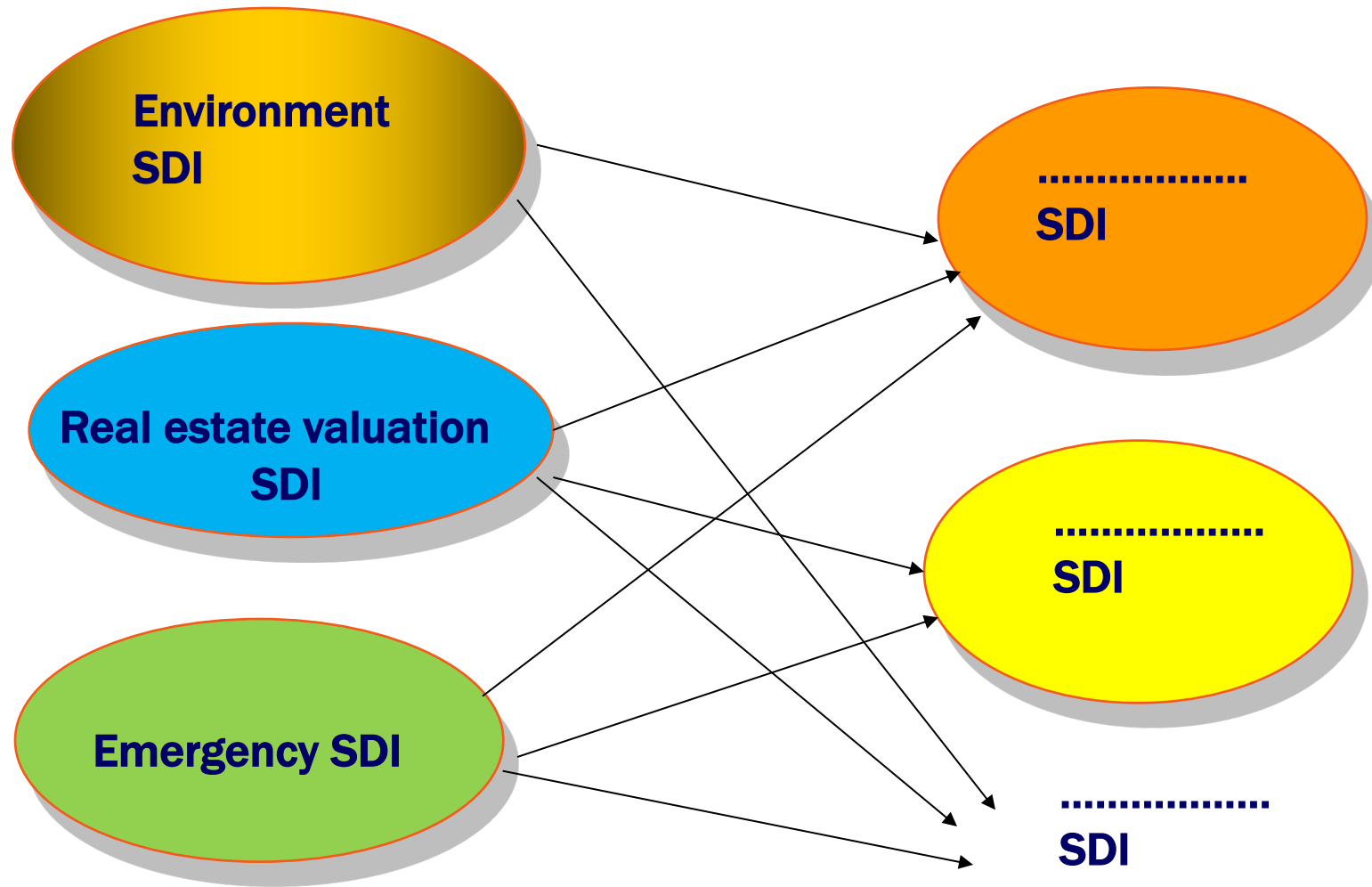
**No risk of application schema coverage of the information
(e.g. «earthquake risk») required by an application**

-very valuable !

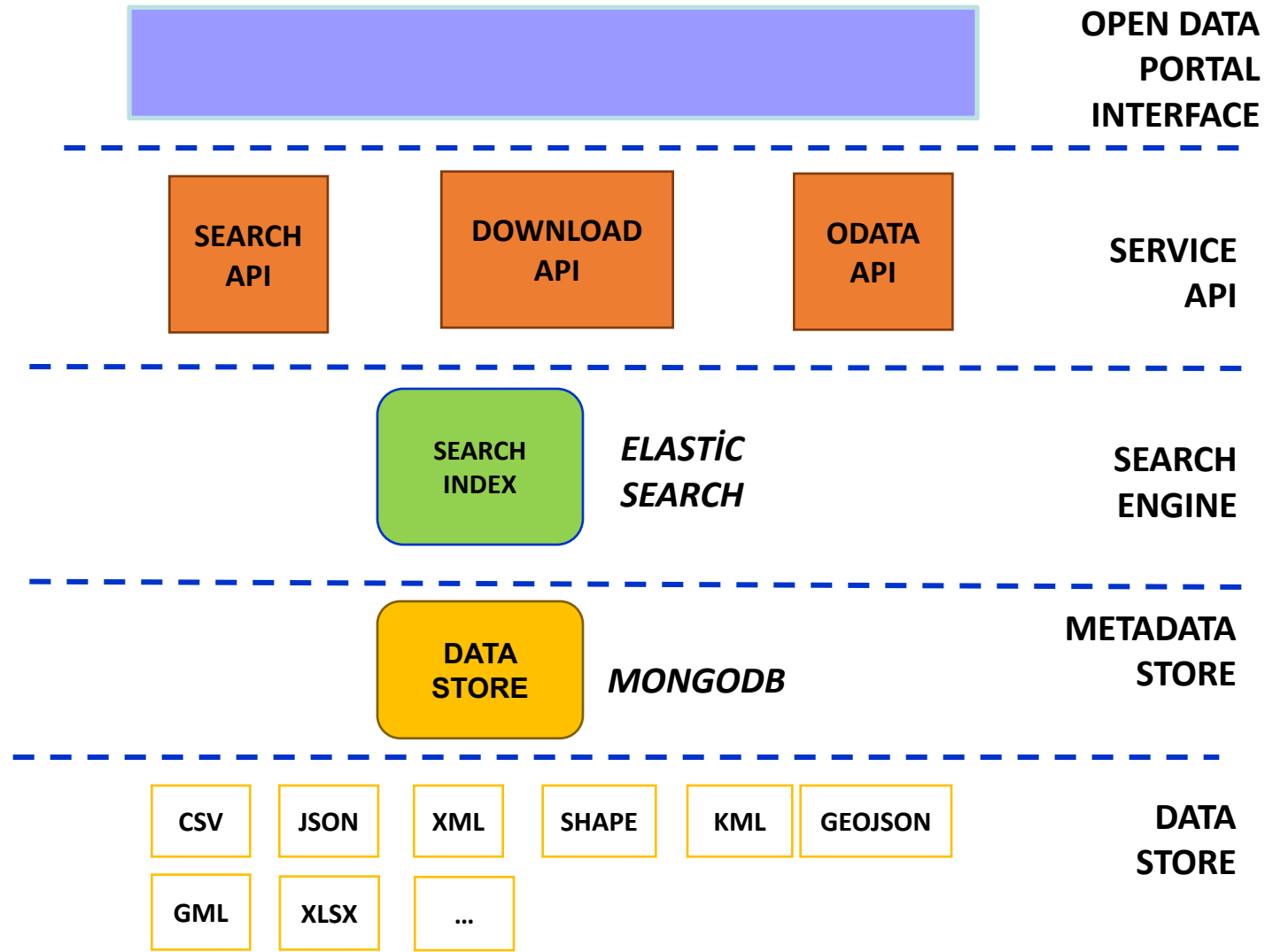
Several SDIs needed to cover various domains
like environment, emergency, etc. ...



Several SDIs with different contents naturally...

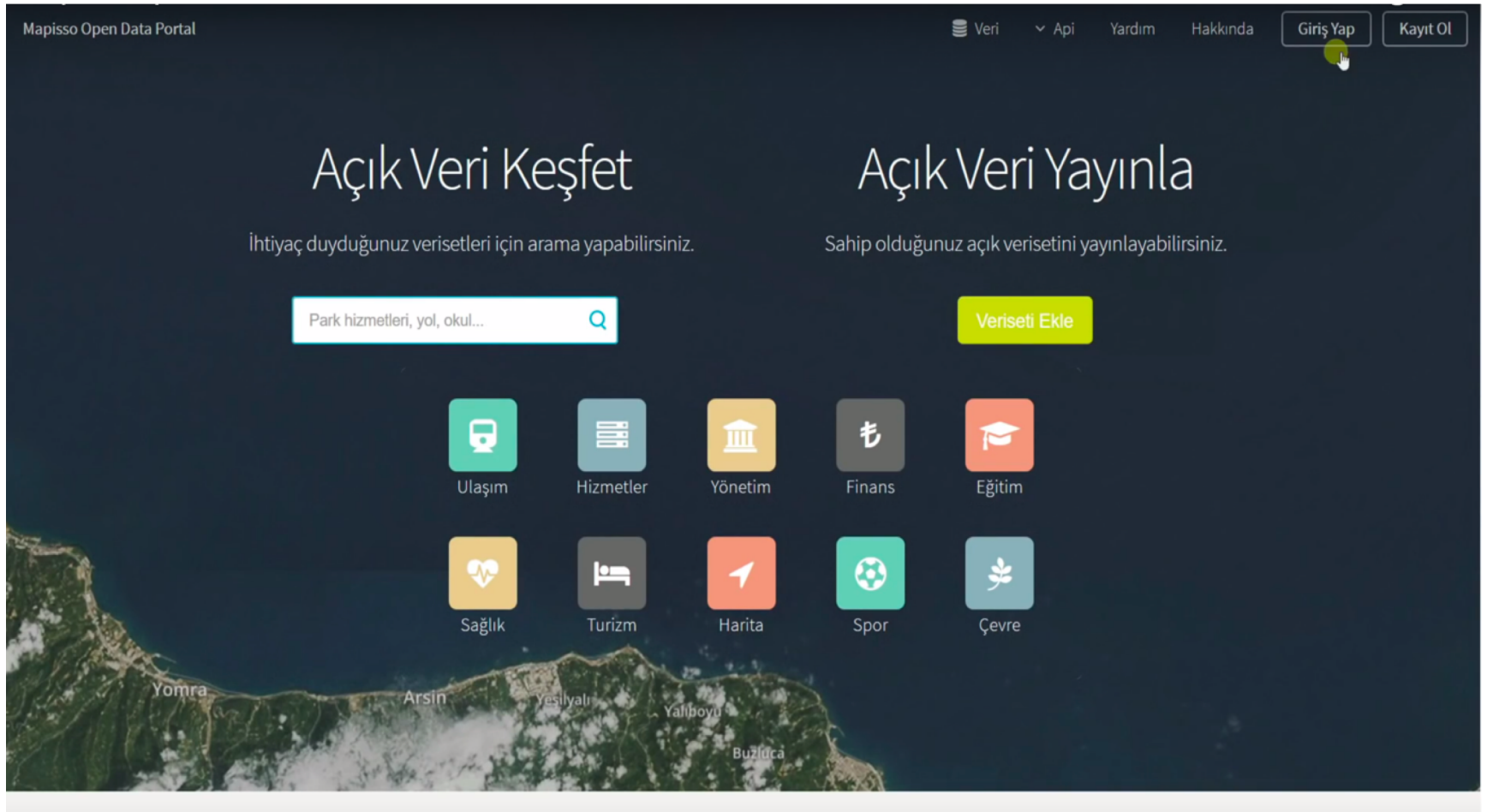


MAPISSO OPEN DATA PORTAL FRAMEWORK



MAPISSO OPEN DATA PORTAL FRAMEWORK

2014



Main page of Mapisso Open Data Portal



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Is NSDI Dead ?

mapisso

MAPISSO OPEN DATA PORTAL FRAMEWORK

2014

Mapisso Open Data Portal

Veri Api Yardım Hakkında muhammetemreyildirim@gmail.com

Filtre Seçenekleri

2 sonuç bulundu

Topluluk:
mapisso (2)

Etiket:
test (2)
veri (1)
yol (1)
shape (1)

Veri Formatı:
geojson (1)
shp (1)

Kategori:
ulaşım (1)
hizmetler (1)
yönetim (0)

test yol verisi
Shape formatında bir yol verisinin açık veri olarak yayınlanmasına örnek olarak yüklenen bir test verisidir
yol test shape

test verisi
bu bir verinin açık veri olarak mapisso portalde yayınlanmasına örnek bir işlemdir
test veri

M

Search page of Mapisso Open Data Portal



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MAPISSO OPEN DATA PORTAL FRAMEWORK

2014

Mapisso Portal

Veri Api Yardım Hakkında muhammetemreyildirim@gmail.com

Açık Veriseti Ekle

Genel Bilgiler Veri Sorumlusu - Harita Veri Yükle

İsim ("Veriyi tanımlayacak isim giriniz): *URL: verisetibilgileri?dataset= <veriseti ismi>

Açıklama ("Veri ile ilgili açıklama giriniz):

Anahtar Kelimeler: Kategori: Herhangi bir kategori seçmediniz

Topluluk İsmi: Yayınlanma Koşulları: Herhangi bir lisans koşulu seçmediniz

M

Adding Open data of Mapisso Open Data Portal



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Is NSDI Dead ?

mapisso

conclusion

Countries like Turkey, which have not been successful for initiating a NSDI must not bother any more and move directly into an Open Data strategy.

NSDI for them is Dead! Sorry..

For the countries who already have a NSDI, NSDI data must be transformed into linked data.

NSDI for them will be dead soon...

Ordnance survey's work..

Soren Auer -- Geoknow projects, wikipedia to dbpedia work,

Linked Open Data in Spatial Data Infrastructures, Marcell Roth & Arne Bröring (52°North, editors), 2013.

H. Patni, C. Henson, and A. Sheth, "Linked Sensor Data", *Collaborative Technologies and Systems (CTS)*, pages 362–370, IEEE, 2010.

K. Page, D. D. Roure, K. Martinez, J. Sadler, and O. Kit, "Linked sensor data: RESTfully serving RDF and GML", *Second Int'l Workshop on SSN2009*, 2009.

C. Keßler, and K. Janowicz, "Linking Sensor Data - Why, to What, and How?", *The 3rd International workshop on Semantic Sensor Networks 2010 (SSN10) in conjunction with the 9th International Semantic Web Conference (ISWC 2010)*, 2010.

K. Janowicz, A. Bröring, C. Stasch, S. Schade, T. Everding & A. Llaves, "A RESTful Proxy and Data Model for Linked Sensor Data", *International Journal for Digital Earth*, 2011



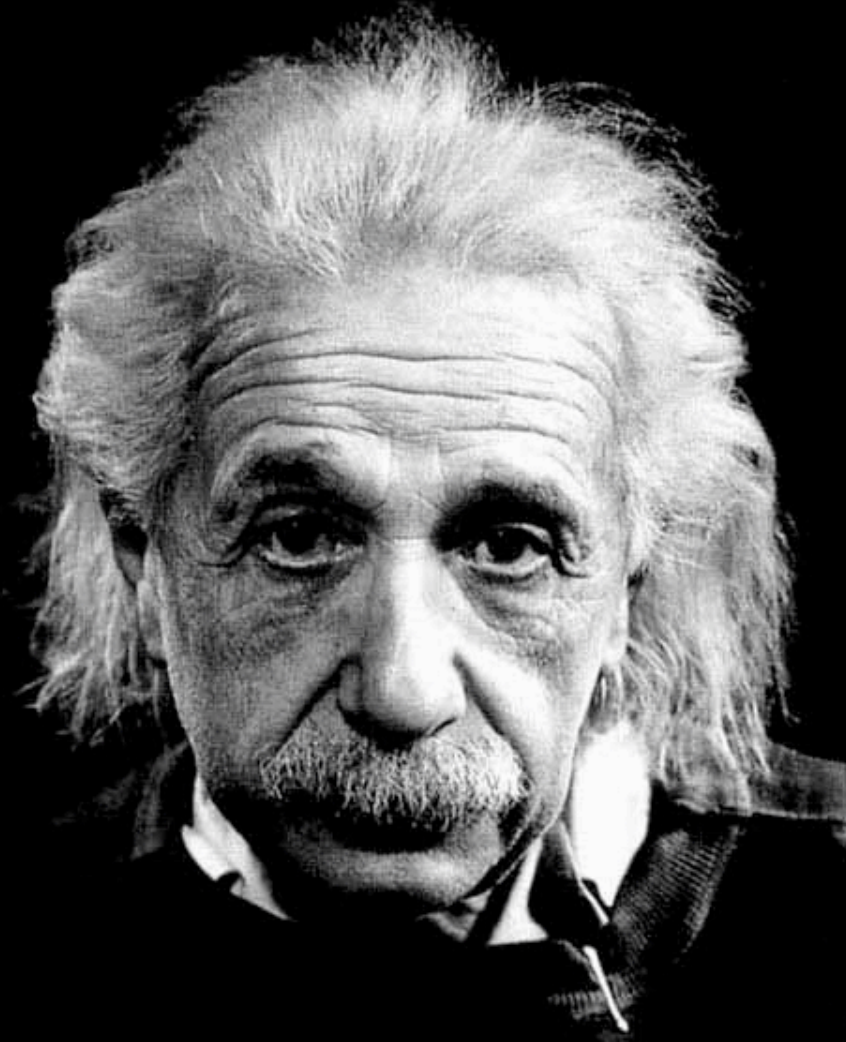
“Everything should be made
as simple as possible,
but not simpler.”

Albert Einstein

1879-1955

There are millions of papers, books
etc. Which claim their
contribution, but it is really hard
to get any useful piece of
information out most of them...ÇC

thank you...



Reserach areas

Scenario-based projects in which data/information needs are beyond the base structured data in SDI. E.g. SDG, REDD

SDI and IoT intersection points must be identified e.g. with applications in smart cities

How to automate the incorporation of unstructured data into application through data mining, knowledge discovery.

Research on feeding un(semi) structured Open Data in Semantic web services composition

Streamlining NSDI curricula within the context of current research agenda.

- Action
 - Apply for research fund
 - Apply for capacity building projects for Exchange of good practices and experiences
 - In-depth Conferences and workshops

Vocabularies

- DCAT is an RDF vocabulary designed to facilitate interoperability between data catalogs published on the Web [DCAT, 2014]. DCAT makes extensive use of terms from other vocabularies, in particular Dublin Core.
- CKAN
- Your own (ours is an extension of CKAN)