EVs and relations to the GEO Common Infrastructure (GCI)

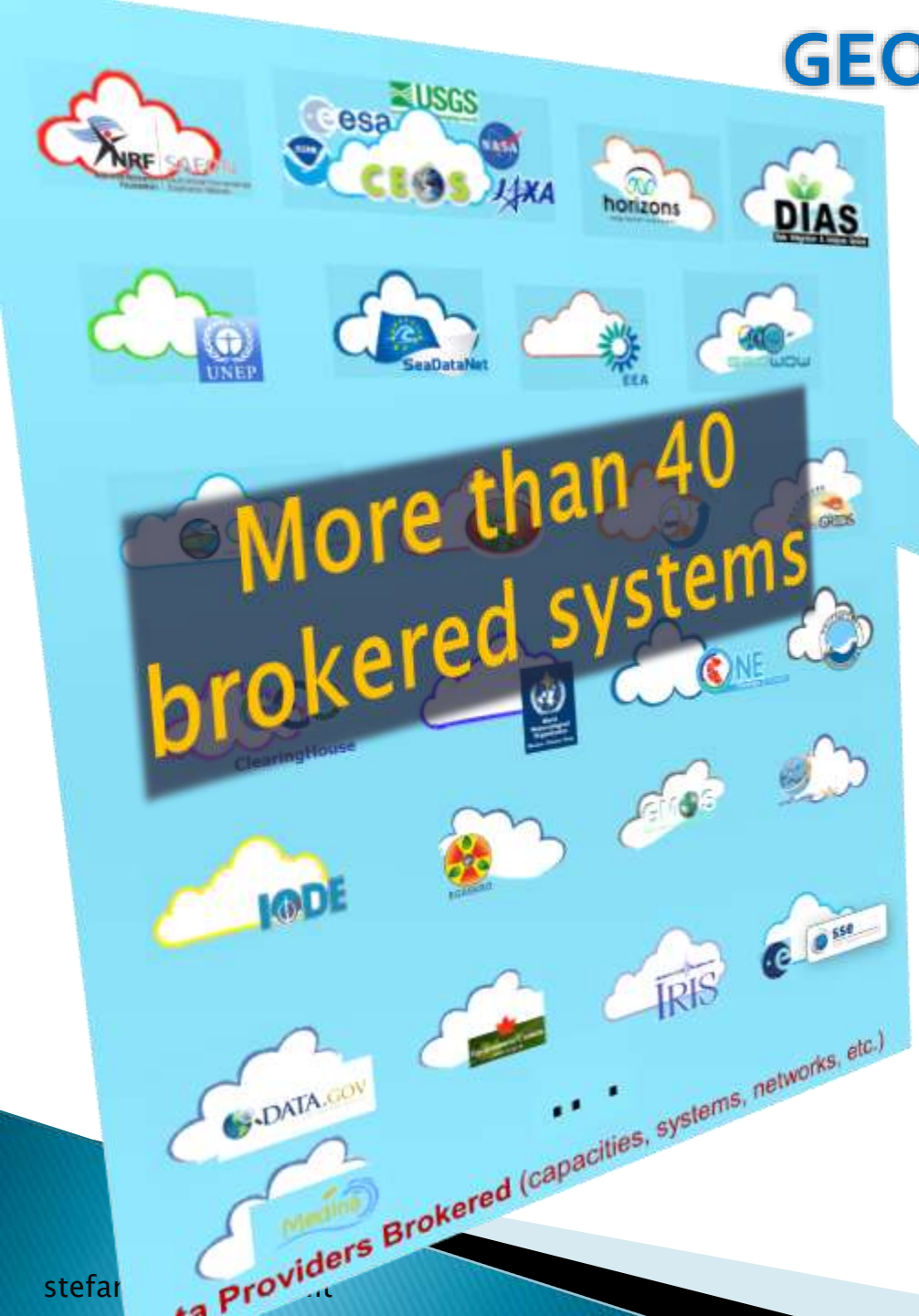
11-12 June 2015, Bari-Italy

Stefano Nativi
CNR-IIA

Coordinating an Observation Network of Networks EnCompassing saTellite and IN-situ to fill the Gaps in European Observations

stefano.nativi@cnr.it

GEOSS Information System



GEOSS Assets (Apr 2015)

More than **40 brokered Data Providers** – capacities, systems, Communities

Publish

About **40 Million** (about **2 Million** GEOSS Data Core) Discoverable and potentially Accessible **first level resources**

(mix of data collections, datasets and individual images)

Contain [source: data providers]

More than **170 Million (more than 51 Million GEOSS Data Core)** Discoverable and potentially Accessible **individual resources**

(e.g. satellite scenes, rain gauge records)

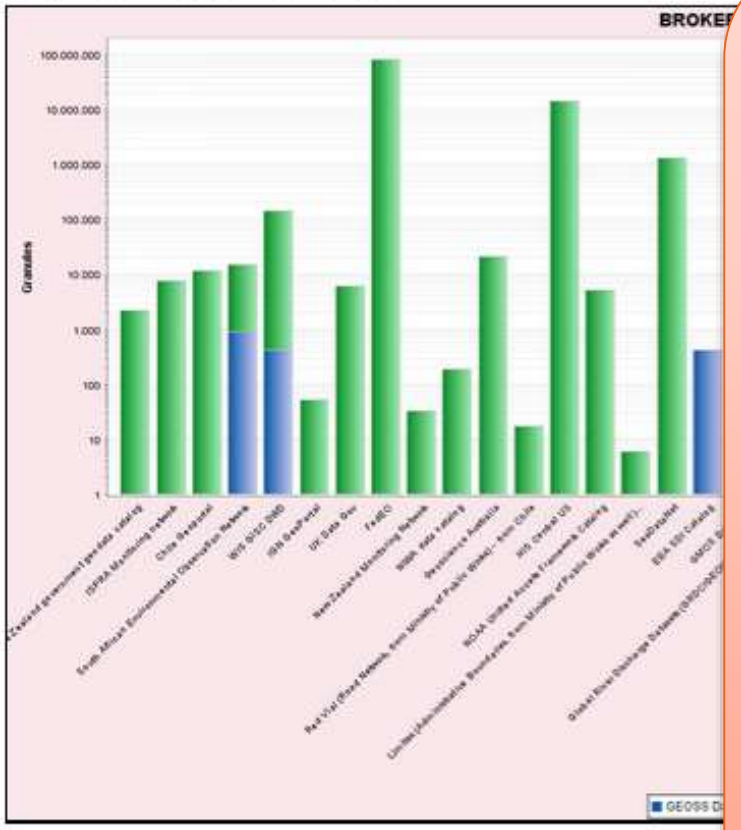
Resources

stefano.nativi@cnr.it

GROUP ON EARTH OBSERVATIONS

GEODAB

Date 2015-04-13



Capacities Und

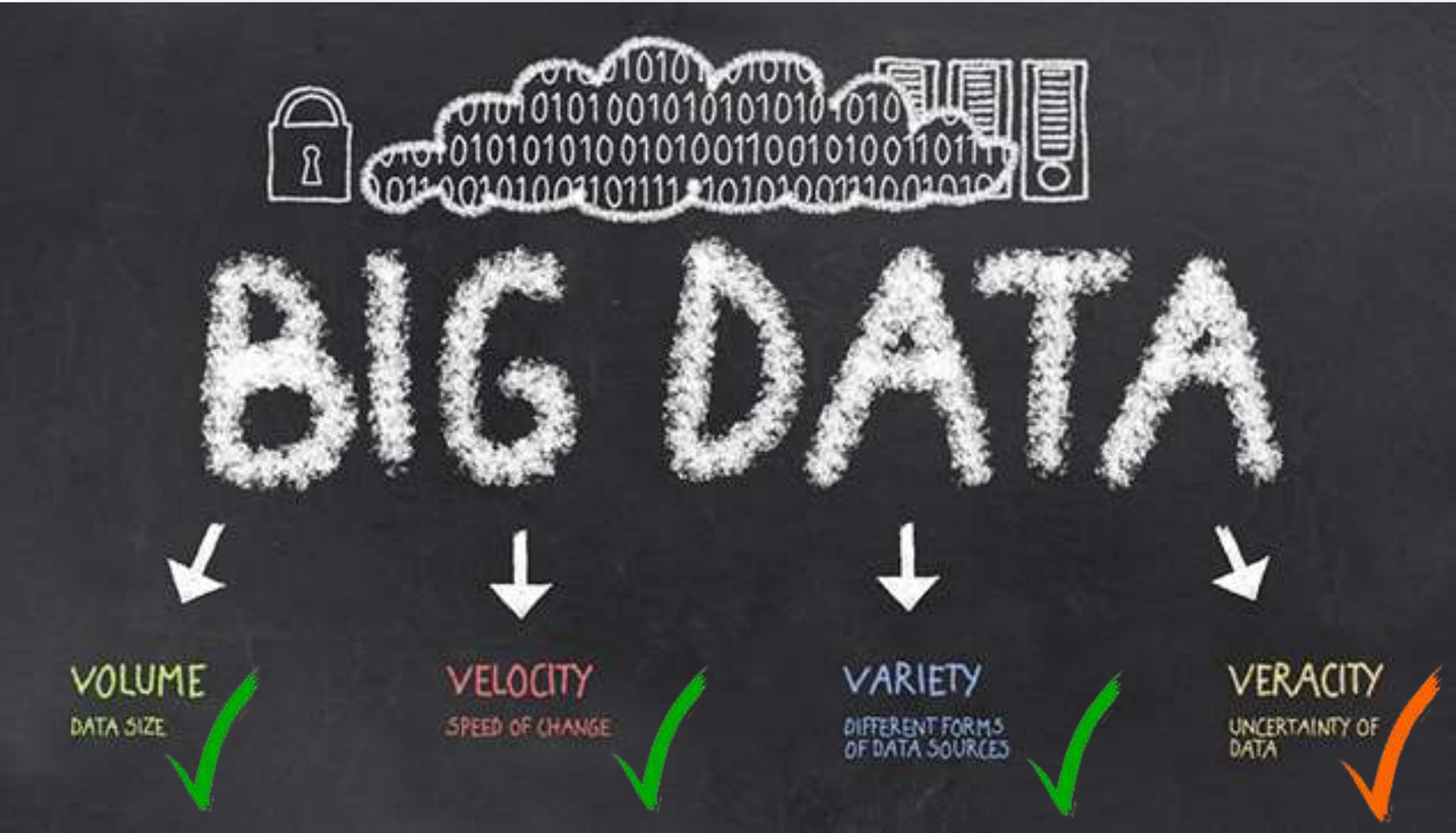
	Records	GEOSS Data Core records	Granules		
New Zealand government geodata catalog	2.175	0	2.175	0	
ISPRA Monitoring network	7.680	0	7.680	0	
PANGAEA	335.877	335.877	335.877	335.877	Number of records and granules harvested by GEODAB
US Data Gov	85.229	467	85.229	467	Number of records and granules harvested by GEODAB
One Geology	438	438	438	438	Number of records and granules harvested by GEODAB
Total	40.642.337	1.219.917	174.292.868	51.218.096	

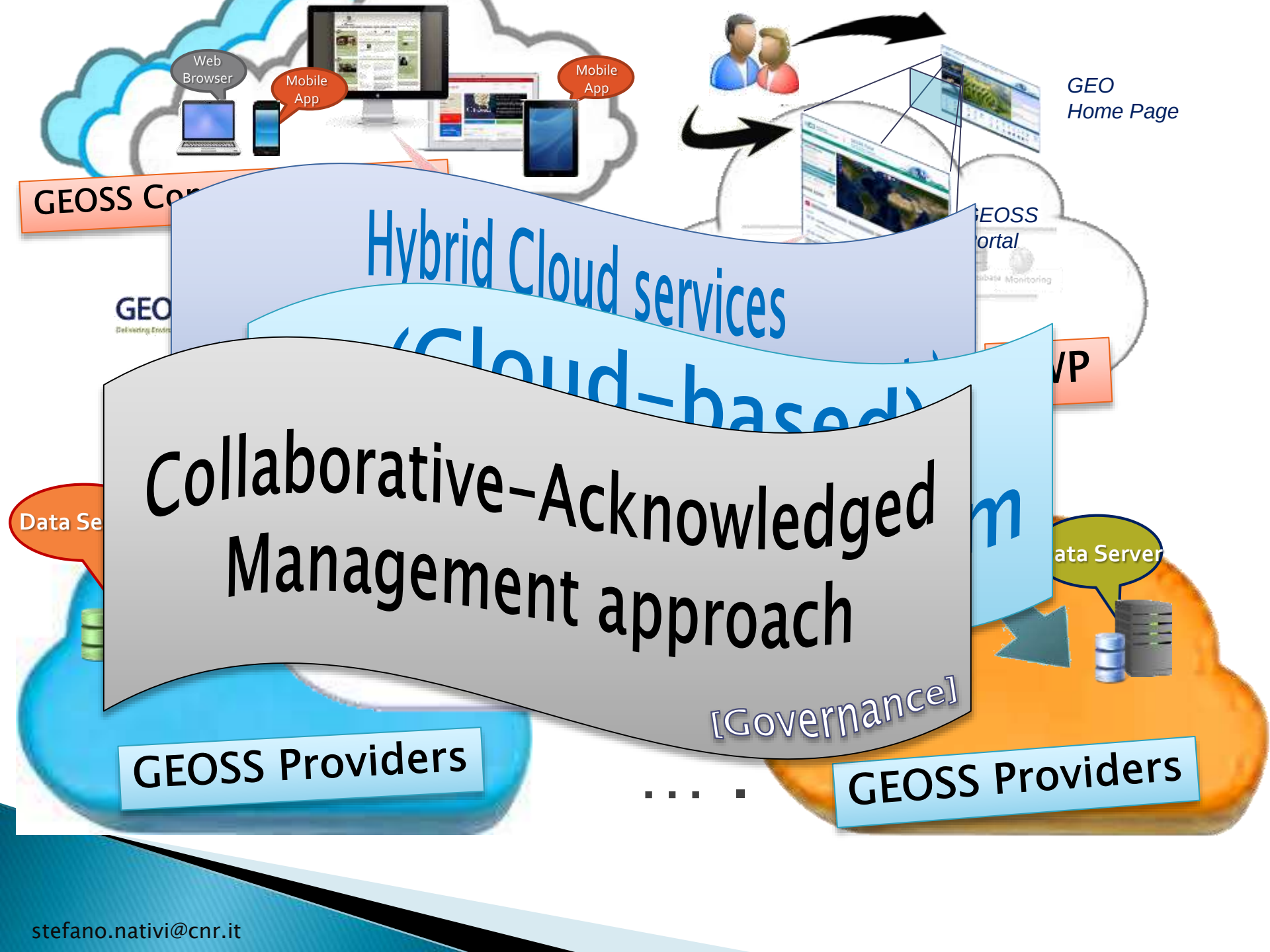
Ongoing Brokering tests:

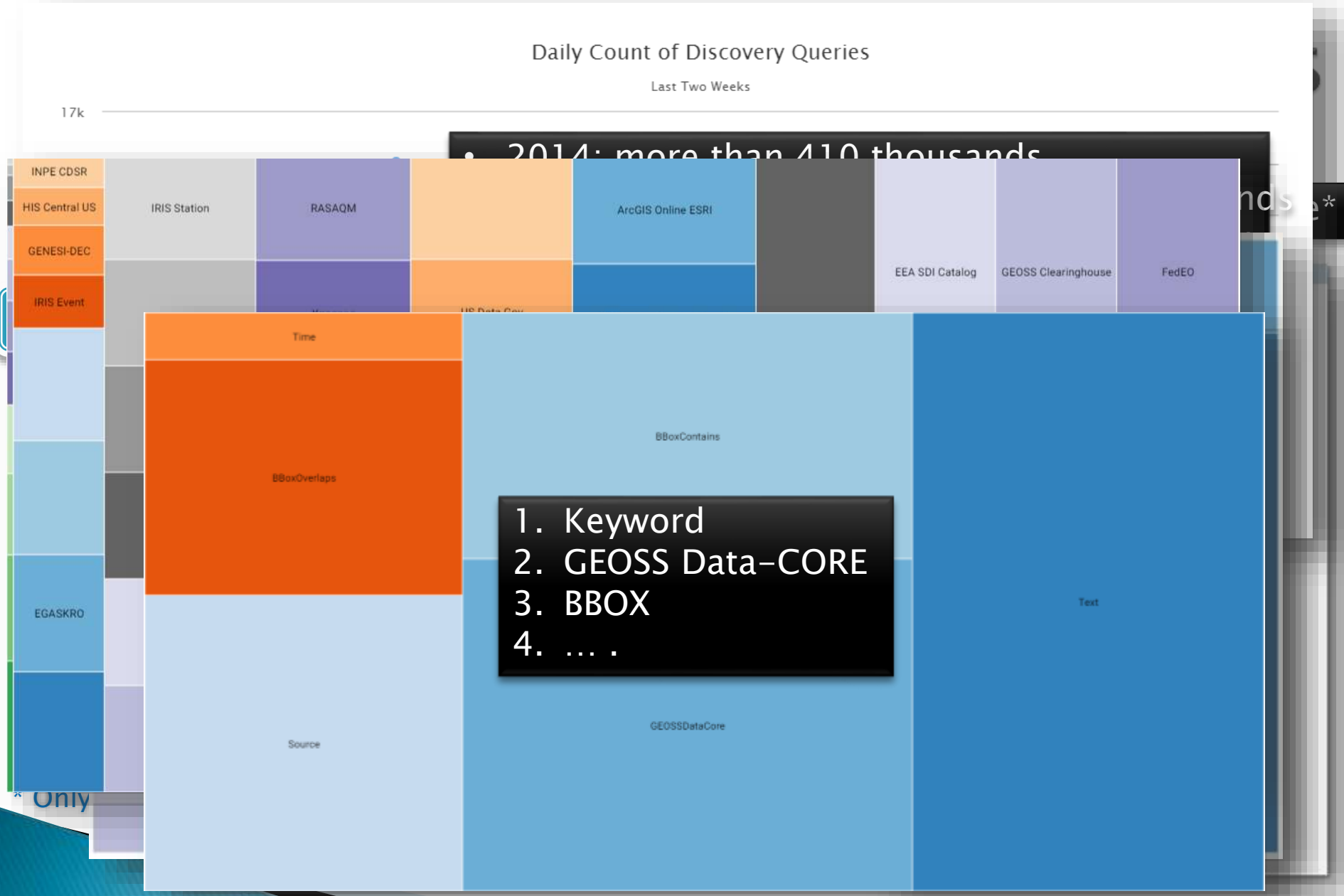
- IGN
- DigitalGlobe
- GBIF
- Geoscience Australia
- FP7 GeoCarbon DBs
- UK.gov
- FAO
- RapidEye
- EO MAP
- Arctic Data archive System (ADS)
- …. ..

Published by

Big Data challenges for GEOSS

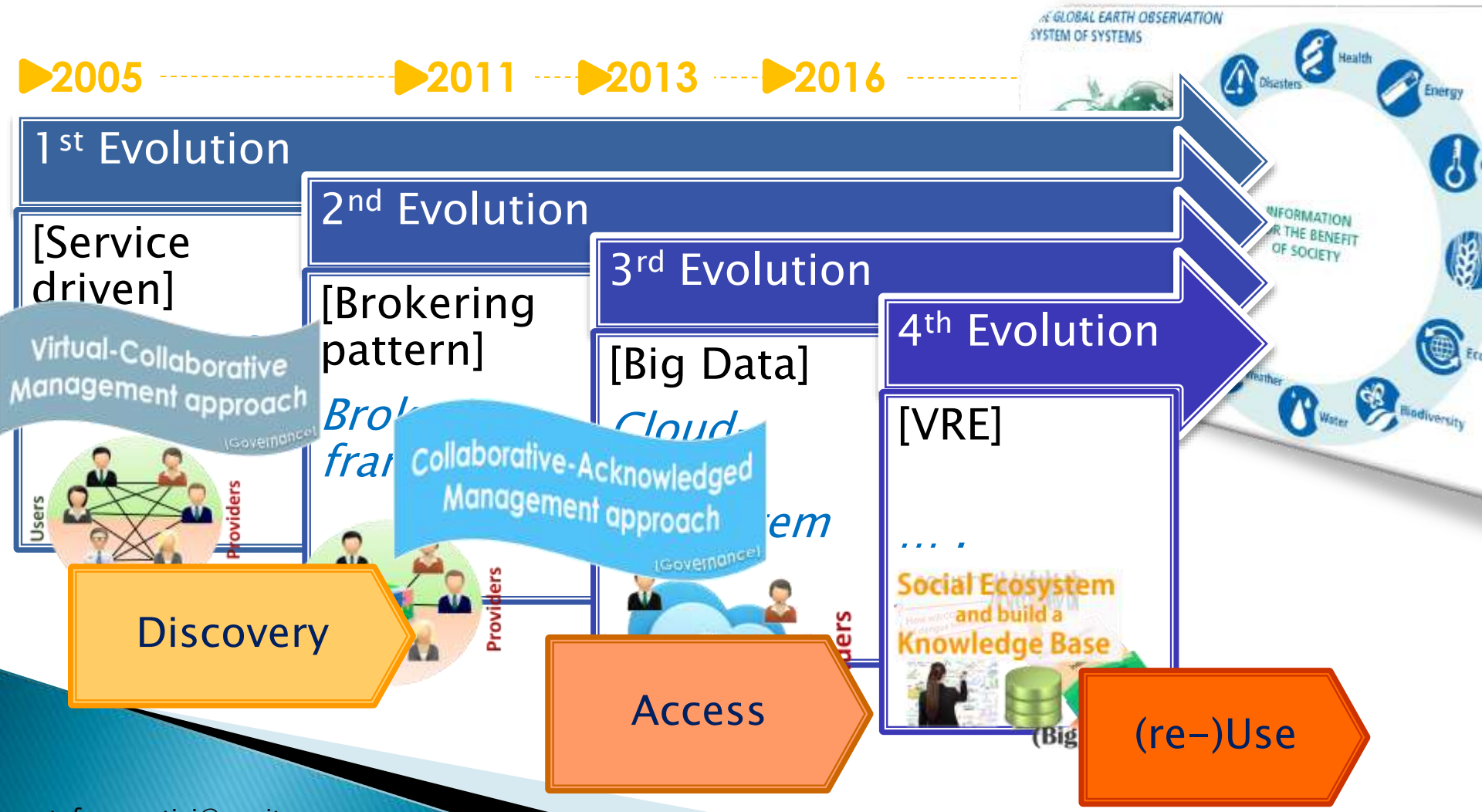



Web Browser
Mobile App
Mobile App
GEO Home Page
GEOSS Co
Hybrid Cloud services
(Cloud-based)
Collaborative-Acknowledged Management approach
[Governance]
Data Se
ata Server
GEOSS Providers
GEOSS Providers
. . . .



stefano.nativi@cnr.it

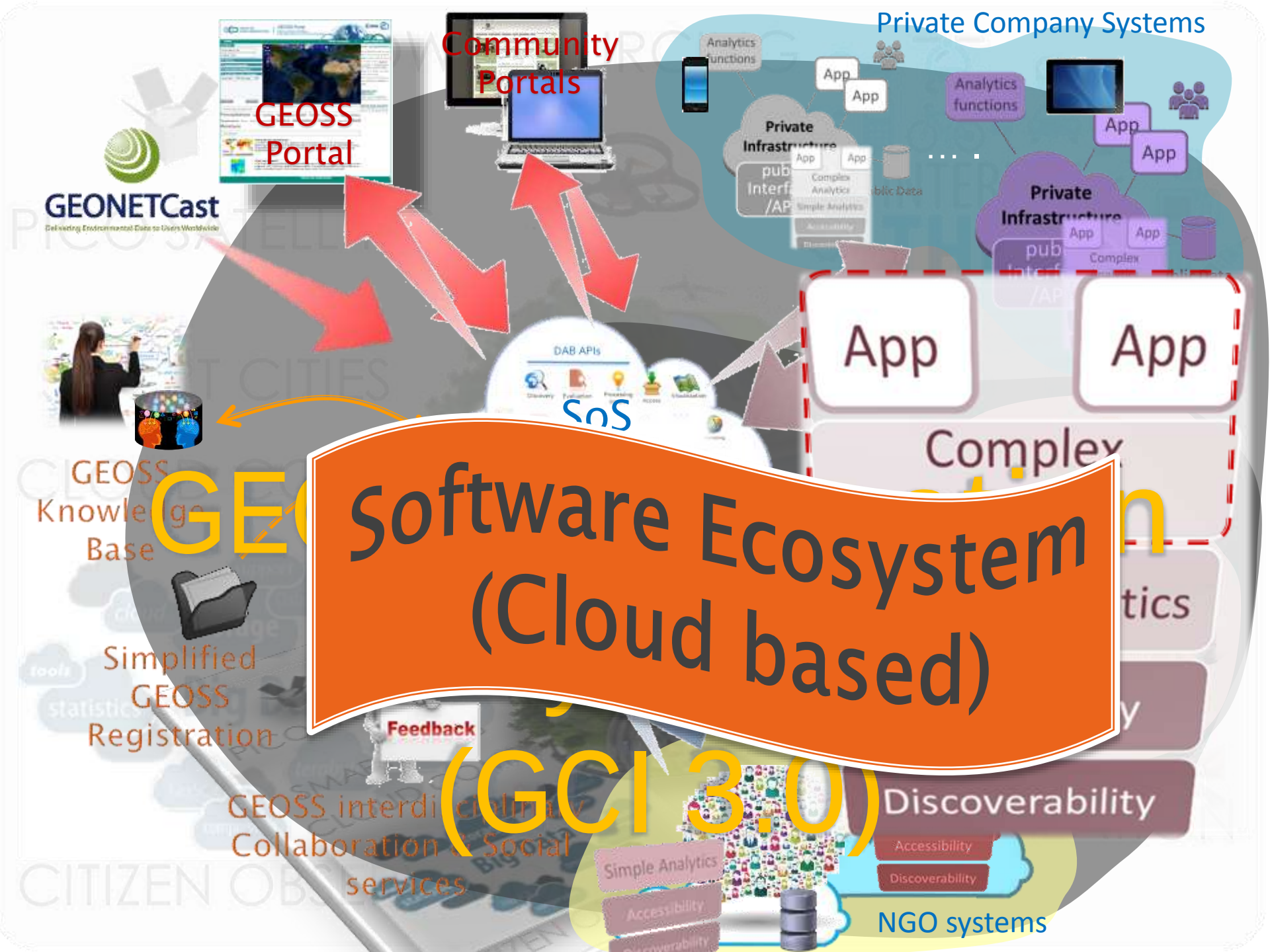
The Architectural Evolutions



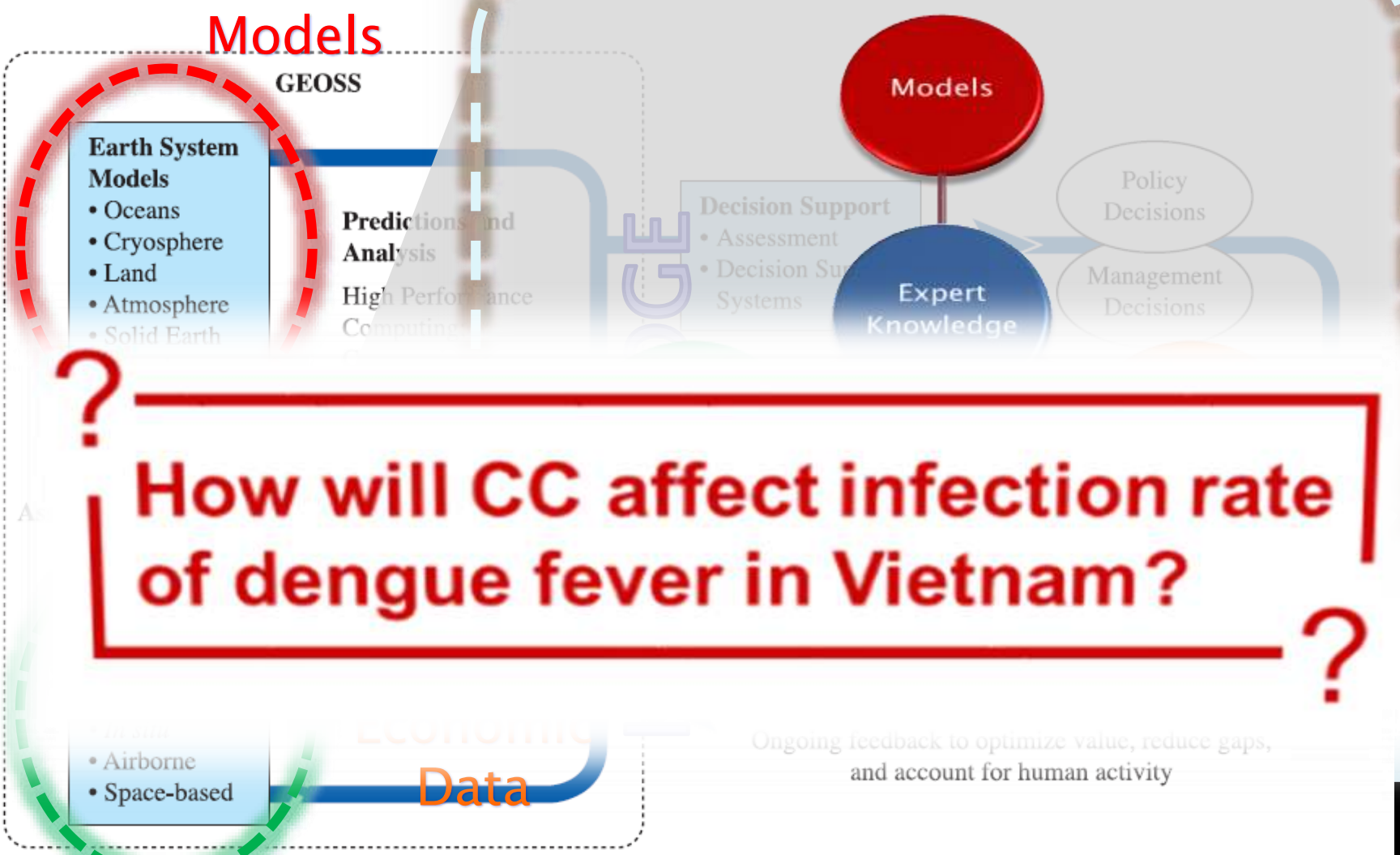
stefano.nativi@cnr.it

INTERNET of
THINGS

support
Database
cloud
storage
analize
information
tools
statistics
Big Data
mobile
processing
terabytes
NoSQL
compression


Private Company Systems
Community Portals
GEOSS Portal
GEONETCast
Delivering Environmental Data to Users Worldwide
Analytics functions
App
Private Infrastructure
Complex Analytics
Simple Analytics
Accessibility
Discoverability
DAB APIs
SoS
GEOSS Knowledge Base
Simplified GEOSS Registration
Feedback
GEOSS interdisciplinary Collaboration & Social services
Software Ecosystem (Cloud based)
(GCI 3.0)
NGO systems

Models

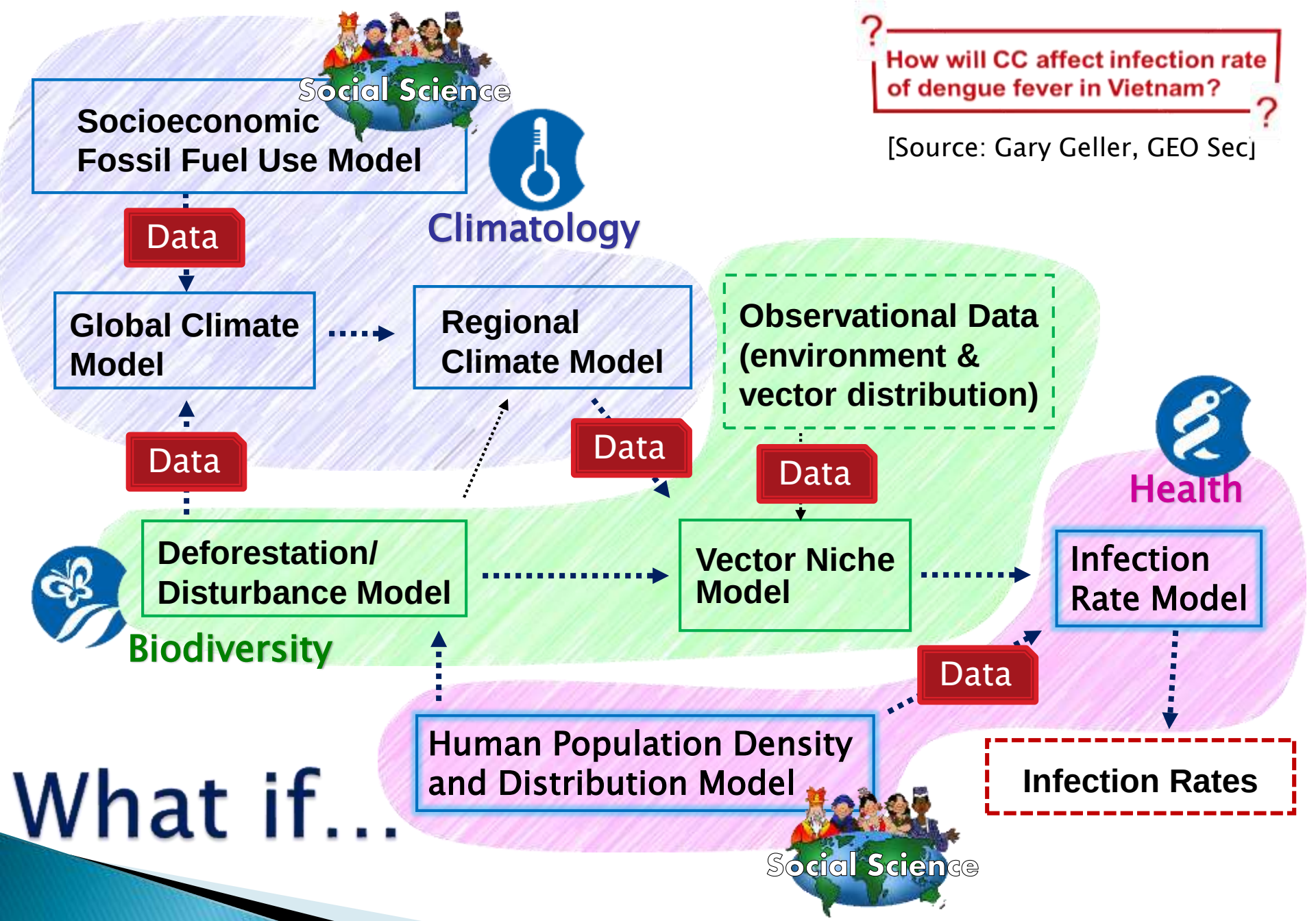


? How will CC affect infection rate of dengue fever in Vietnam? ?

Earth Observation Data

2005 GEOSS Implementation Plan Reference Document

stefano.nativi@cnr.it

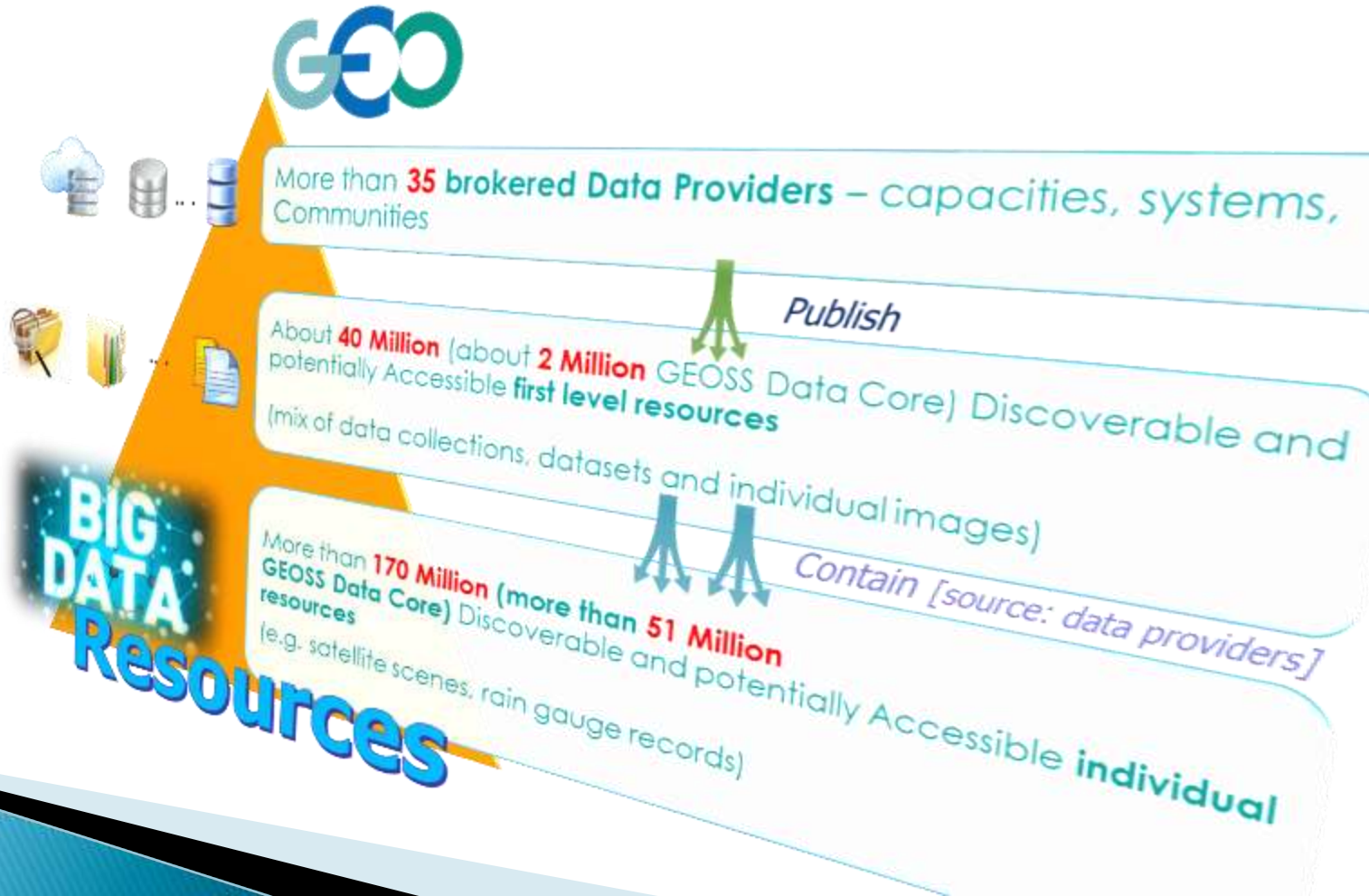


stefano.nativi@cnr.it

? How will CC affect infection rate of dengue fever in Vietnam? ?

Resources…

Data



stefano.nativi@cnr.it

How will CC affect infection rate of dengue fever in Vietnam?

Resources…

Data

Model

stefano.nativi@cnr.it

How will CC affect infection rate of dengue fever in Vietnam?

Resources…

Data

Model

Link (Integration)

.....▶

Knowledge Bases (ontologies)

Semantic services

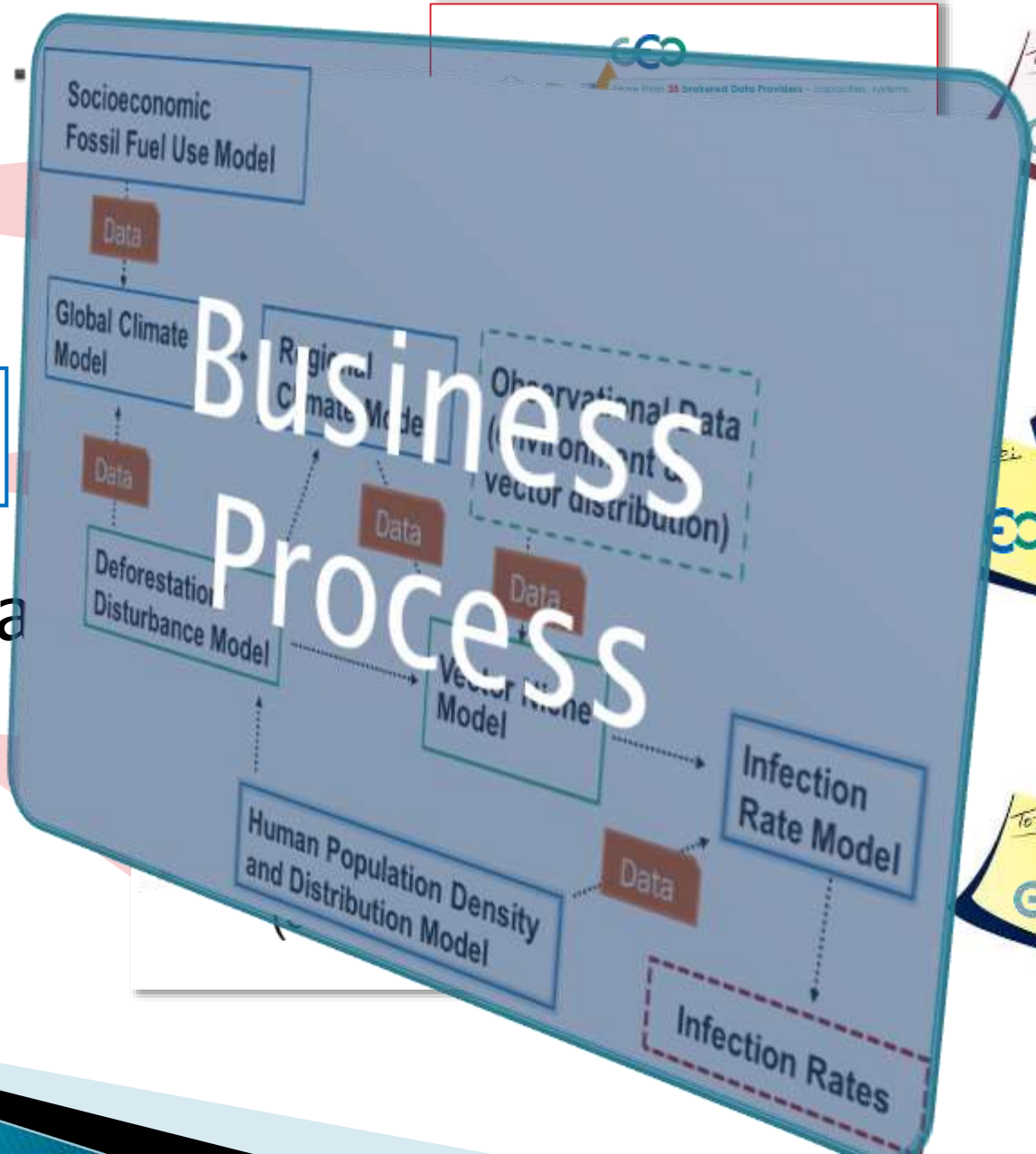
Brokers

Resources…

Data

Model

Link (Integra ……►



stefano.nativi@cnr.it

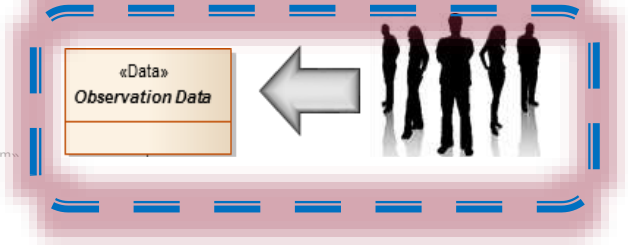
GEO Model Web

A dynamic web of models, integrated with databases and websites, to form a consultative infrastructure where researchers, managers, policy makers, and the general public can go to gain insight into "what if" questions

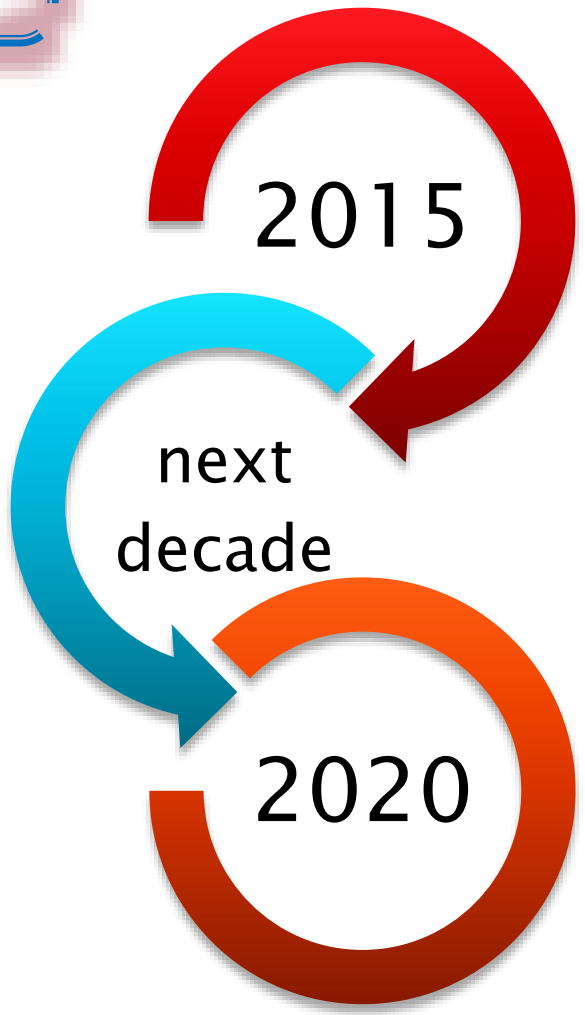
[Coordinators: Stefano Nativi (CNR) and Gary Geller (GEO sec)]

stefano.nativi@cnr.it

From Data to Knowledge



Social Ecosystem



Users Targets

Data Volume

Users

EO Data Experts
(IT experts)

Environmental
Experts
(Practitioners)

Global Change
Experts
(Educators)

Policy Makers
(Citizens)

Today

Tomorrow

Re-use

Access

Discover

Interoperability Level

Observations

Essential Variables

Indicators

(Sustainability) Indexes

From Data to Knowledge

GCI 2.0 Achievements

- (*From a "Catalog of Catalogs" to*) a **multi-disciplinary Brokering Platform**
- (*From discoverability to*) **accessibility and harmonization**
- *(From an infrastructure to)* **cloud-based software ecosystem**
- *(From a virtual governance to)* **collaborative-acknowledged governance**

stefano.nativi@cnr.it

Future Work

From Observation to **Knowledge management**

- *Add* **socio-economic data**
- *Add scientific* **models**
- *Establish a* **Social ecosystem (a VRE)** to capture expert knowledge

From accessibility to **re-usability** *and* **re-producibility**

stefano.nativi@cnr.it

Thank you !

Questions?

stefano.nativi@cnr.it