

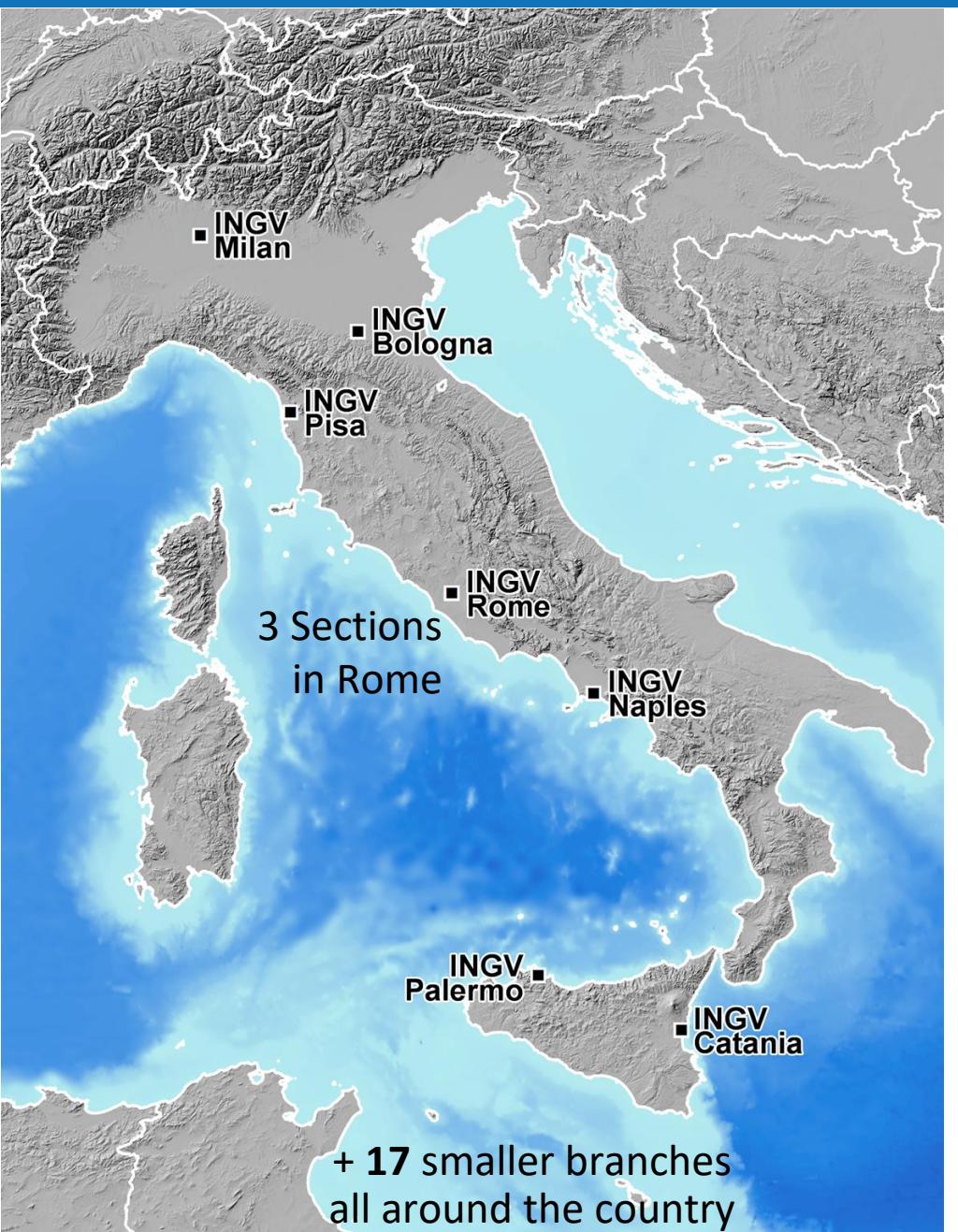


Putting the INGV data policy into practice: considerations after the first-year experience

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INGV scientific overview



Established in 2000 by merging pre-existing institutions, INGV is a Public Research Institute supervised by the Italian Ministry of Education, Universities and Research.

3 Departments

Environment



Volcanoes



Earthquakes



- Seismic, GNSS, gravity, magnetic, geochemical networks
- Experimental laboratories for rocks and fluids
- Computational resources
- 3 surveillance centers 24/7 for the seismic, volcanic and tsunami monitoring in cooperation with the Civil Protection
- ~ 800 researchers & technicians



Since 2005 <https://www.earth-prints.org/> is the INGV Open Access repository used to collect all publications.



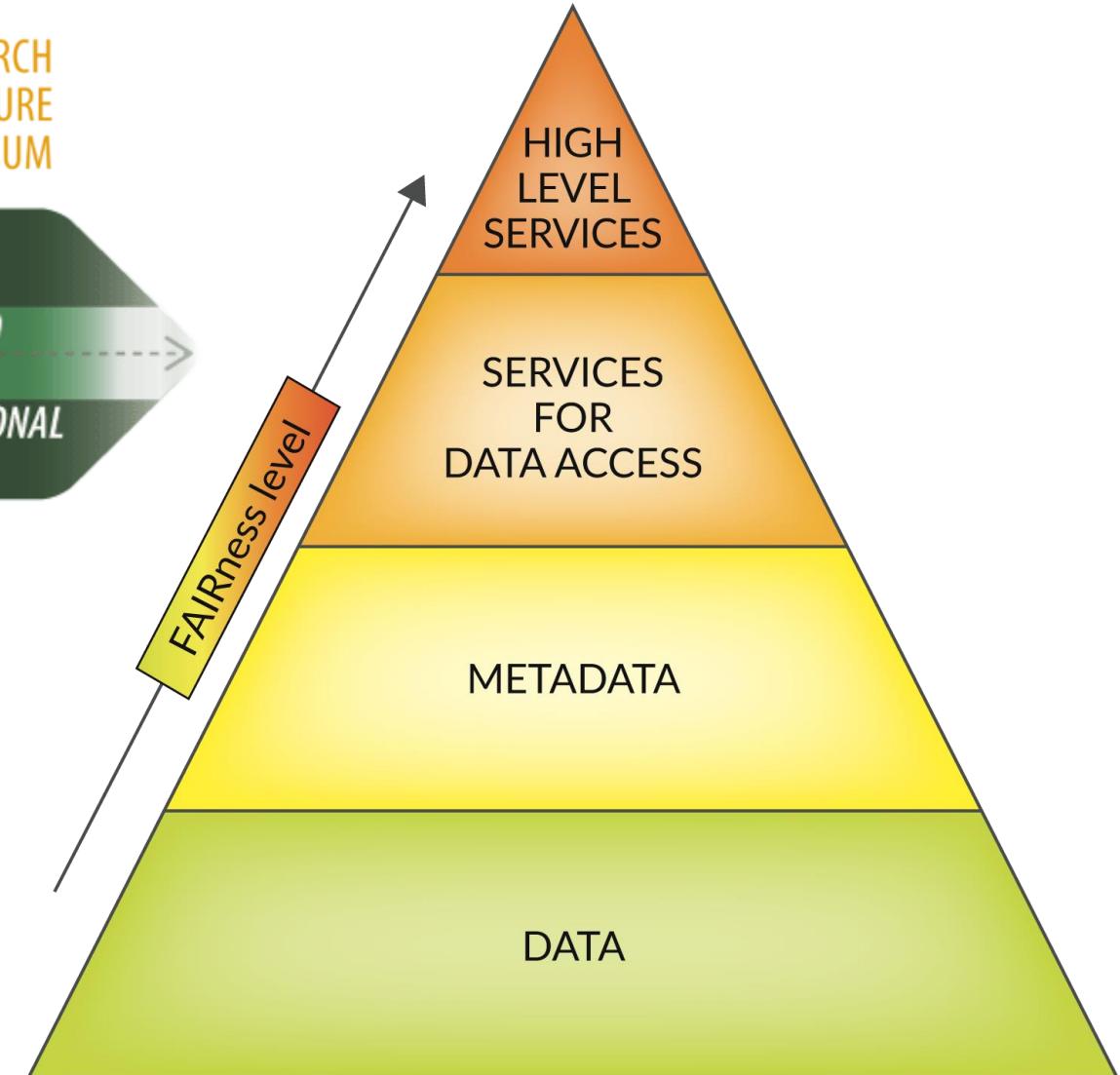
Extensive re-use of Data in the European Research Area (ERA)



EUROPEAN
RESEARCH
INFRASTRUCTURE
CONSORTIUM



2018
EPOS Data Policy



Extensive re-use of Data in the European Research Area (ERA)



EUROPEAN
RESEARCH
INFRASTRUCTURE
CONSORTIUM

2002 2008 2010 2014 2014 2019 2020

CONCEPTION
PHASE

PREPARATORY
PHASE

IMPLEMENTATION
PHASE

PILOT
OPERATIONAL
PHASE



2015 > 2020

2018
EPOS Data Policy



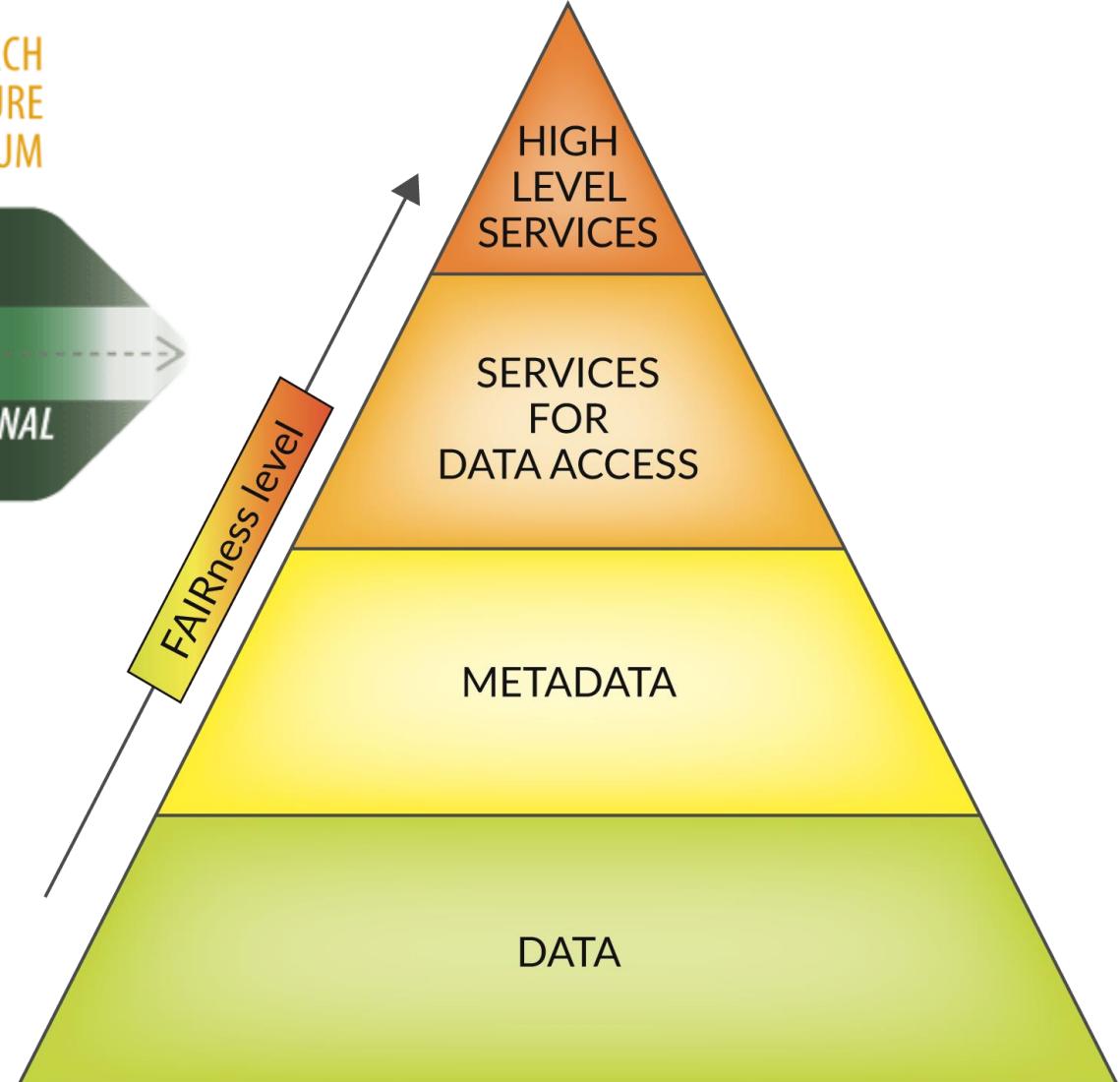
National Laws |

AGID

Agenzia per
l'Italia Digitale



European legislation on open data and
the re-use of public sector information



The INGV Data Policy is made of 3 documents

1. **Data Policy Principles** (2016)

- Define the area of competence, the legal framework and the main principles inspiring the Data Policy

2. **Open Access Policy on published papers** (2017)

- Establish a Commission supervising the adoption of the Open Access principles
- Enforce employees to deposit their works in the Institutional repository (green road) established since 2005, and encourage the publication on the Open Access compliant scientific journal (gold road) run by INGV

3. **Detailed implementation plan for data management** (2018)

- Provides precise definitions and procedures on how to manage published data
- Establish the Data Registry and Data Management Office to look after it



Data Licensing Scheme

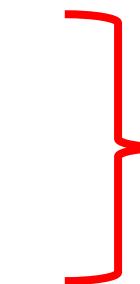
In coordination with the EPOS & EMSO ERICs, INGV selected the **Creative Commons** licenses. The type of license depends on the **level of intellectual contribution** to the data creation.

0 Raw or basic data (e.g. environmental measurements)

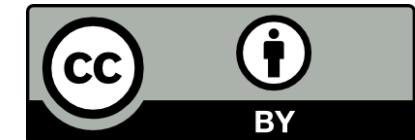
1 Data products coming from (nearly) automated procedures

2 Data products resulting from scientific investigations

3 Integrated data products resulting from complex analysis



Preferred license



Authors can suggest another license but must provide a valid reason for it. An evaluation panel approves each suggestion.



INGV

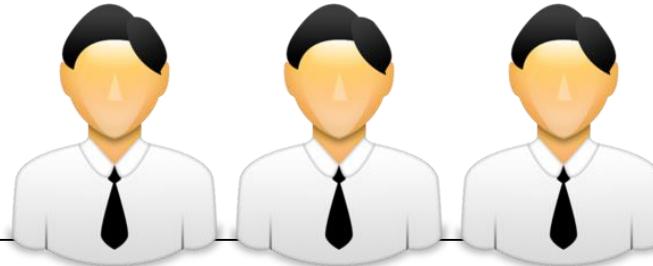
- Promotes the adoption of Open Science
- Implements and manages the (Meta)Data Registry
- Revises agreements dealing with data in coordination with the legal office

**Part-time involvement*



**Office
Coordinator***

- Plans the activity
- Interacts with scientific and administrative managers
- Interacts with the legal office
- Interacts with the transparency manager



**Seismic, Volcanic, Environmental
Data Experts***

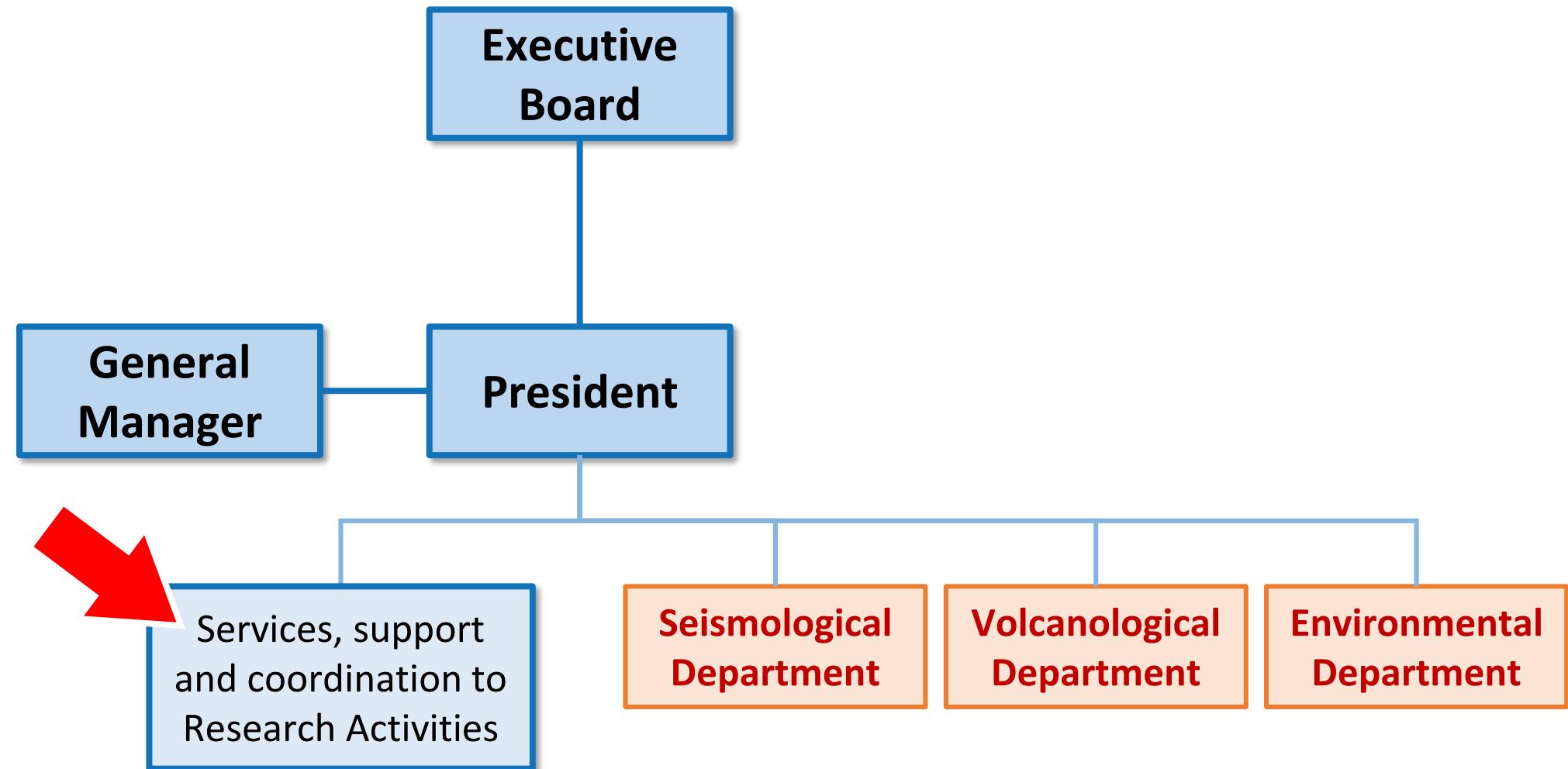
- Deals with disciplinary specific issues
- Supervises the Data Registry scientific content
- Suggests the most suitable standards for harmonizing and optimizing data



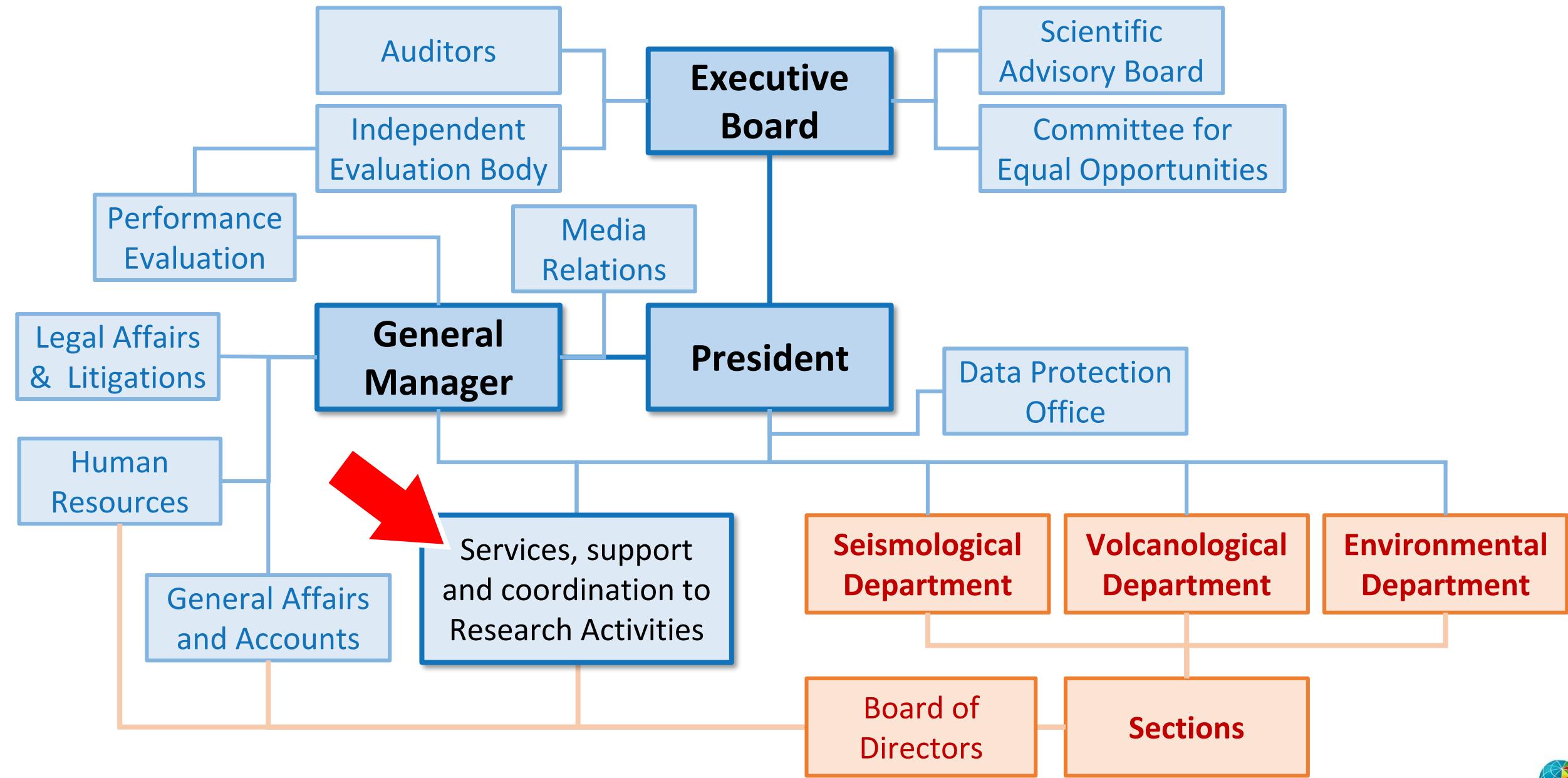
IT Experts*

- Supports the coordinator in selecting IT solutions
- Supervises the various existing databases hosting the data
- Interacts with the IT management office

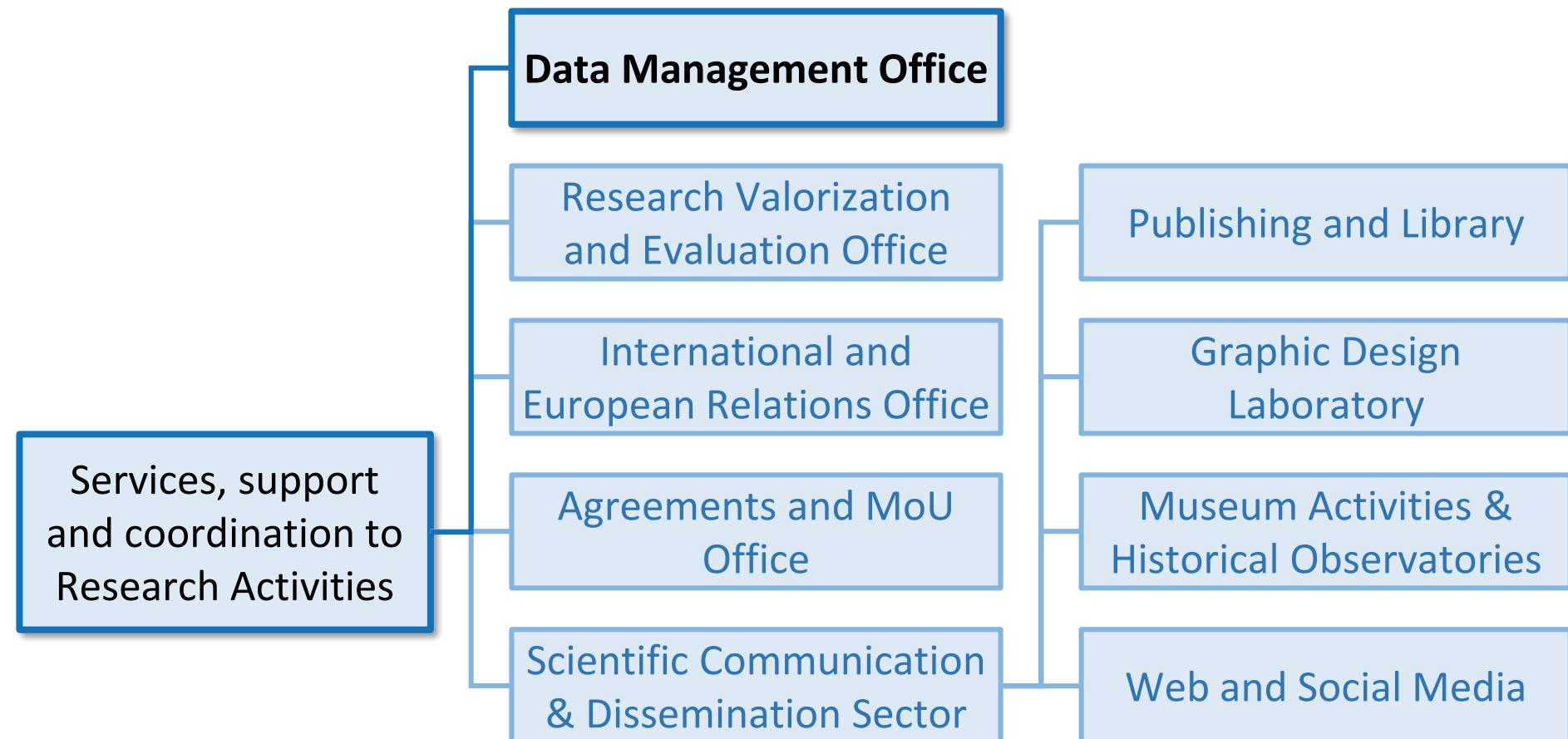
Data Management Office and its role in the administration



Data Management Office and its role in the administration



Data Management Office and its role in the administration



Data Survey

| | | | | | | | | | | | |
|----|--|--------------------|---|---|---|-------------|---|---|--------------------|--|----|
| 38 | Zonesismiche - Pericolosità sismica di riferimento per il territorio nazionale | MP504 | Dati Sismologici e infrasonici | 3 | http://zonesismiche.mi.ingv.it | PI MI | carlo.meletti@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 39 | Engineering Strong-Motion database | ESM | Dati Sismologici e infrasonici | 0 | http://esm.mi.ingv.it | MI | lucia.luzi@ingv.it | rodolfo.puglia@ingv.it maria.damico@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 40 | Engineering Strong-Motion database | ESM | Dati Sismologici e infrasonici | 1 | http://esm.mi.ingv.it | MI | lucia.luzi@ingv.it | rodolfo.puglia@ingv.it maria.damico@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 41 | Engineering Strong-Motion database | ESM | Dati Sismologici e infrasonici | 2 | http://esm.mi.ingv.it | MI | lucia.luzi@ingv.it | rodolfo.puglia@ingv.it maria.damico@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 42 | European Archive of Historical Earthquake Data | ARCHED | Dati Sismologici e infrasonici | 3 | http://www.emidius.eu/ARCHED/ | MI | mario.locati@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 43 | SHARE European Earthquake Catalogue | SHEEC | Dati Sismologici e infrasonici | 3 | https://www.emidius.eu/SHEEC/sheec_1000_1899.html | MI | andrea.rovida@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 44 | Basic European Earthquake Catalogue and a Database for the evaluation of long-term seismicity and seismic hazard | BEECO | Dati Sismologici e infrasonici | 3 | https://emidius.mi.ingv.it/BEECO | MI | paola.albini@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 45 | Review of Historical Seismicity in Europe | RHISE | Dati Sismologici e infrasonici | 2 | https://emidius.mi.ingv.it/RHISE | MI | paola.albini@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 46 | Global Historical Earthquake Catalogue | GHEC | Dati Sismologici e infrasonici | 1 | http://ghec.mi.ingv.it | MI | paola.albini@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 47 | Global Historical Earthquake Catalogue | GHEC | Dati Sismologici e infrasonici | 2 | https://emidius.mi.ingv.it/ghec | MI | paola.albini@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 48 | Refraction/Wide-Angle Reflections Database | REWALD | Dati Sismologici e infrasonici | 1 | http://reward.mi.ingv.it | MI | gaetano.riccio@ingv.it rocco.cogliano@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì | |
| 49 | Distributed Archive of Historical Earthquake Data | NERIES_NA4 | Dati Sismologici e infrasonici | 3 | https://emidius.mi.ingv.it/neries_NA4 | MI | andrea.rovida@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 50 | Gruppo Nazionale per la Difesa dai Terremoti | GNDT | Dati Sismologici e infrasonici | 2 | https://emidius.mi.ingv.it/GNDT | MI | gaetano.riccio@ingv.it | mario.locati@ingv.it | 2016-11-24 DIR MI | 2017-01-13 DIR MI | sì |
| 51 | Campagne di monitoraggio per gli effetti di sito durante le emergenze sismiche | EMERSITO | Dati Sismologici e infrasonici | 0 | | MI | RM1 | giovanna.culturra@ingv.it | 2016-11-24 DIR MI | 2017-01-13, 2017-01-23 DIR MI, DIR RM1 | sì |
| 52 | Campagne di monitoraggio per gli effetti di sito durante le emergenze sismiche | EMERSITO | Dati Sismologici e infrasonici | 1 | | MI | RM1 | giovanna.culturra@ingv.it | 2016-11-24 DIR MI | 2017-01-13, 2017-01-23 DIR MI, DIR RM1 | sì |
| 53 | Campagne di monitoraggio per gli effetti di sito durante le emergenze sismiche | EMERSITO | Dati Sismologici e infrasonici | 2 | | MI | RM1 | giovanna.culturra@ingv.it | 2016-11-24 DIR MI | 2017-01-13, 2017-01-23 DIR MI, DIR RM1 | sì |
| 54 | Quick Earthquake Survey Team | QUEST | Dati Sismologici e infrasonici | 2 | http://quest.ingv.it | BO MI OE PI | andrea.tertulliani@ingv.it raffaele.azzaro@ingv.it | mario.locati@ingv.it laura.graziani@ingv.it | 2016-12-12 DIR MI | 2017-01-13 DIR MI | sì |
| 55 | banca dati annuari osservatori geomagnetici | Geo_Yearbook | Dati Geofisici terrestri | 1 | http://mi.ingv.it | RM2 | guido.dominici@ingv.it | sabina.spadoni@ingv.it | 2016-11-24 DIR RM2 | 2017-01-17 DIR RM2 | sì |
| 56 | banca dati anni osservatori magnetotellurici | Geo_Yearbook | Dati Geofisici terrestri | 1 | http://mi.ingv.it | RM2 | stefania.lepidi@ingv.it | domenico.dimaura@ingv.it | 2016-11-24 DIR RM2 | 2017-01-17 DIR RM2 | sì |
| 57 | banca dati bollettini dati geofisici | geo_bulletin | Dati di Geofisica atmosferica e Aeronomia | 1 | http://www.eswua.ingv.it/ingv_i_ita.php | RM2 | luca.santarelli@ingv.it | sabina.spadoni@ingv.it | 2016-11-24 DIR RM2 | 2017-01-17 DIR RM2 | sì |
| 58 | banca dati bollettini osservatori ionosferici italiani | iono_bulletin | Dati di Geofisica atmosferica e Aeronomia | 1 | http://www.eswua.ingv.it/ingv_i_ita.php | RM2 | enrico.zuccheretti@ingv.it | enrico.zuccheretti@ingv.it | 2016-11-24 DIR RM2 | | sì |
| 59 | Stations | Pnet | Non assegnata | 0 | http://nowebserver/TSDSystem/index.php | OE | | marco.allotta@ingv.it | 2016-11-25 DIR CT | | sì |
| 60 | Volcanic Observatory Reserved Access Database | VORAD | Non assegnata | | http://nowebdc.ct.ingv.it/doc/so/ | OE | placido.montalto@ingv.it | placido.montalto@ingv.it carmelo.cassisi@ingv.it | 2016-11-25 DIR CT | | sì |
| 61 | DB_EQ_Analisti | TSDSystemEq | Dati Sismologici e infrasonici | 3 | http://isimoweb.ct.ingv.it/maps/eq_maps/eqly/index.php | OE | alfredo.urgino@ingv.it | marco.allotta@ingv.it | 2016-11-25 DIR CT | | sì |
| 62 | DB_Sismovolcan | TSDSystem | Dati Sismologici e infrasonici | 2 | http://isimoweb.ct.ingv.it/index.php | OE | luciano.zuccarello@ingv.it | carmelo.cassisi@ingv.it | 2016-11-25 DIR CT | | sì |
| 63 | Analisti Catalogo2000_2010 | TSDSystemCatalogue | Dati Sismologici e infrasonici | 2 | http://sismoweb.ct.ingv.it/Catalog_2000-2010/index.php | OE | andrea.ursino@ingv.it | marco.allotta@ingv.it carmelo.cassisi@ingv.it | 2016-11-25 DIR CT | | sì |
| 64 | SeismicWafeform | | Dati Sismologici e infrasonici | 0 | | OE | luciano.zuccarello@ingv.it | orazio.torrisi@ingv.it | 2016-11-25 DIR CT | | sì |
| 65 | InfraWaveform | | Dati Sismologici e infrasonici | 0 | | OE | luciano.zuccarello@ingv.it | orazio.torrisi@ingv.it | 2016-11-25 DIR CT | | sì |
| 66 | Clinometric | | Dati Sismologici e infrasonici | 0 | | OE | marianella.saccoccia@ingv.it | orazio.torrisi@ingv.it | 2016-11-25 DIR CT | | sì |

- Lasted 2 months, started in 2016-11-24, ended in 2017-01-23

- Launched by a temporary Working Group in charge of drafting the Data Policy

- Supervised and validated by 9 Section Directors, 3 Departments Directors

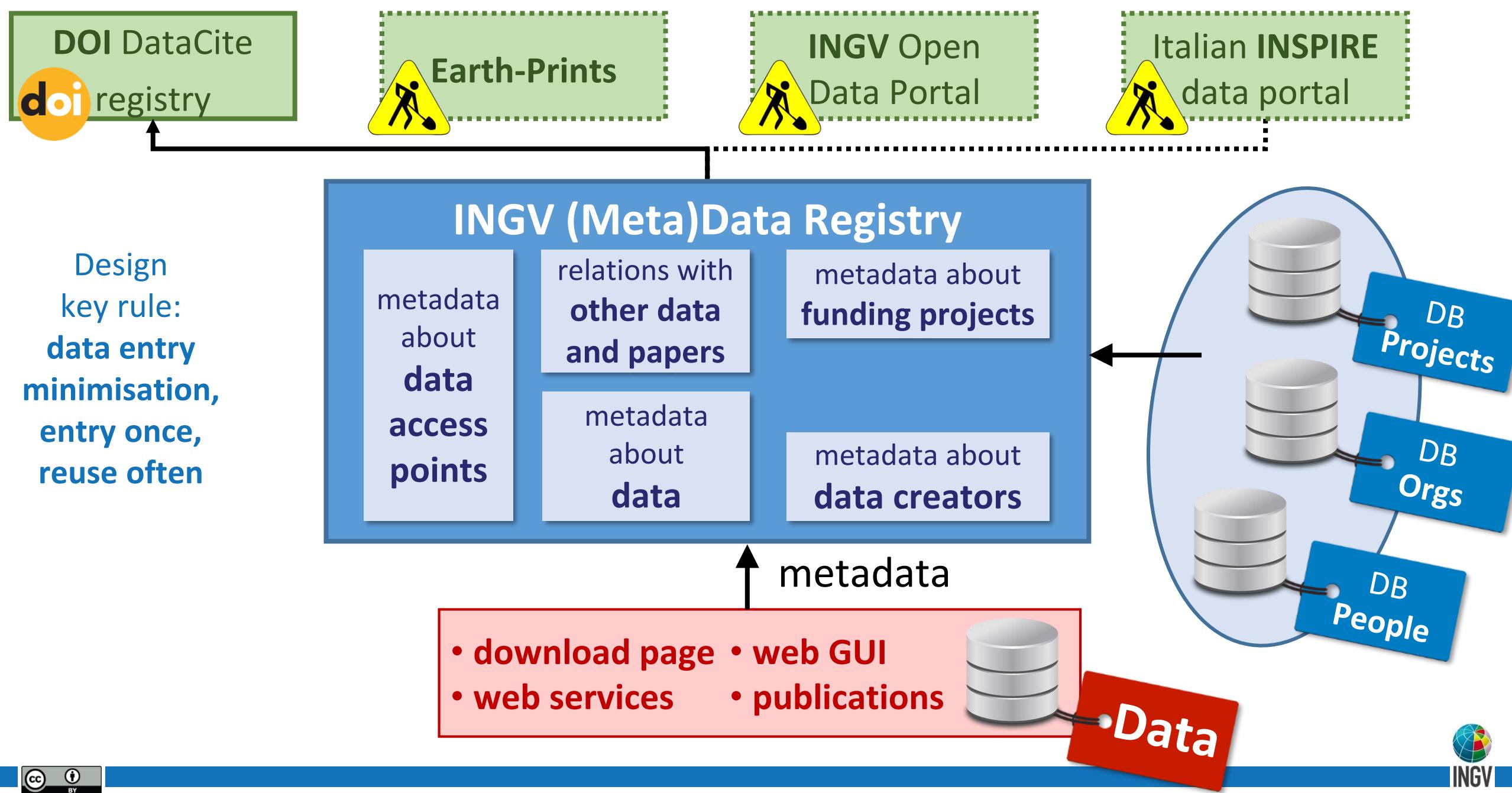
- Massive involvement of individual Researchers

- 275 different types of data identified

- Allowed for getting a better picture of the data generated

- Allowed for establishing an effective classification of available data

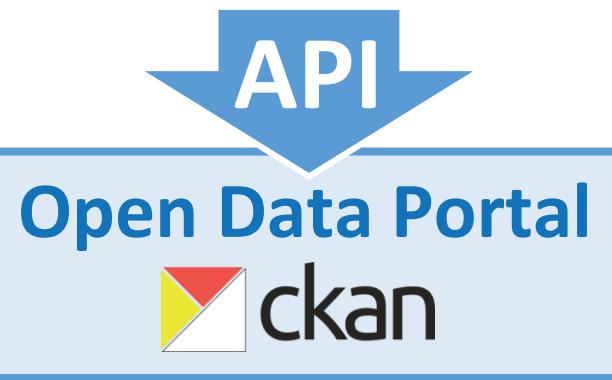
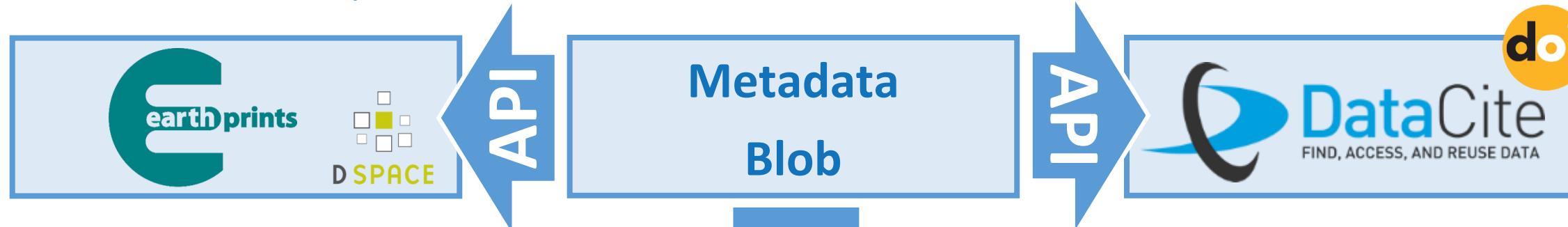




Data Registry as a central hub for publishing metadata on various platforms



➡ Guidelines on web accessibility, metadata standards, data sharing
valid for any Public Administrations



Browse content by

- Dataset
- Author

Advanced search engine
CKAN API Support

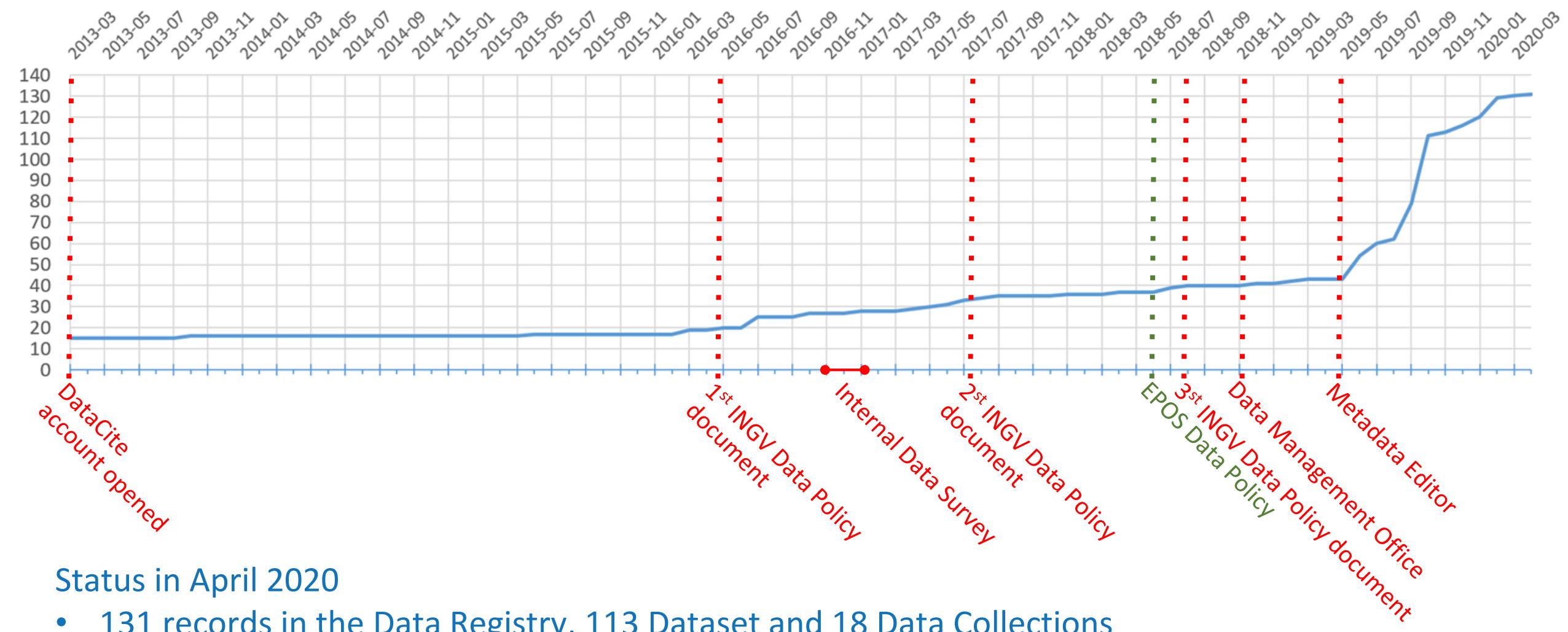
Supported metadata standards

- DataCite
- BibTex
- Citation Style Language (CSL)
- Schema.org
- DCAT-AP

In preparation

- GeoDCAT-AP
- ISO 19115/19139 (INSPIRE)
- NASA DIF



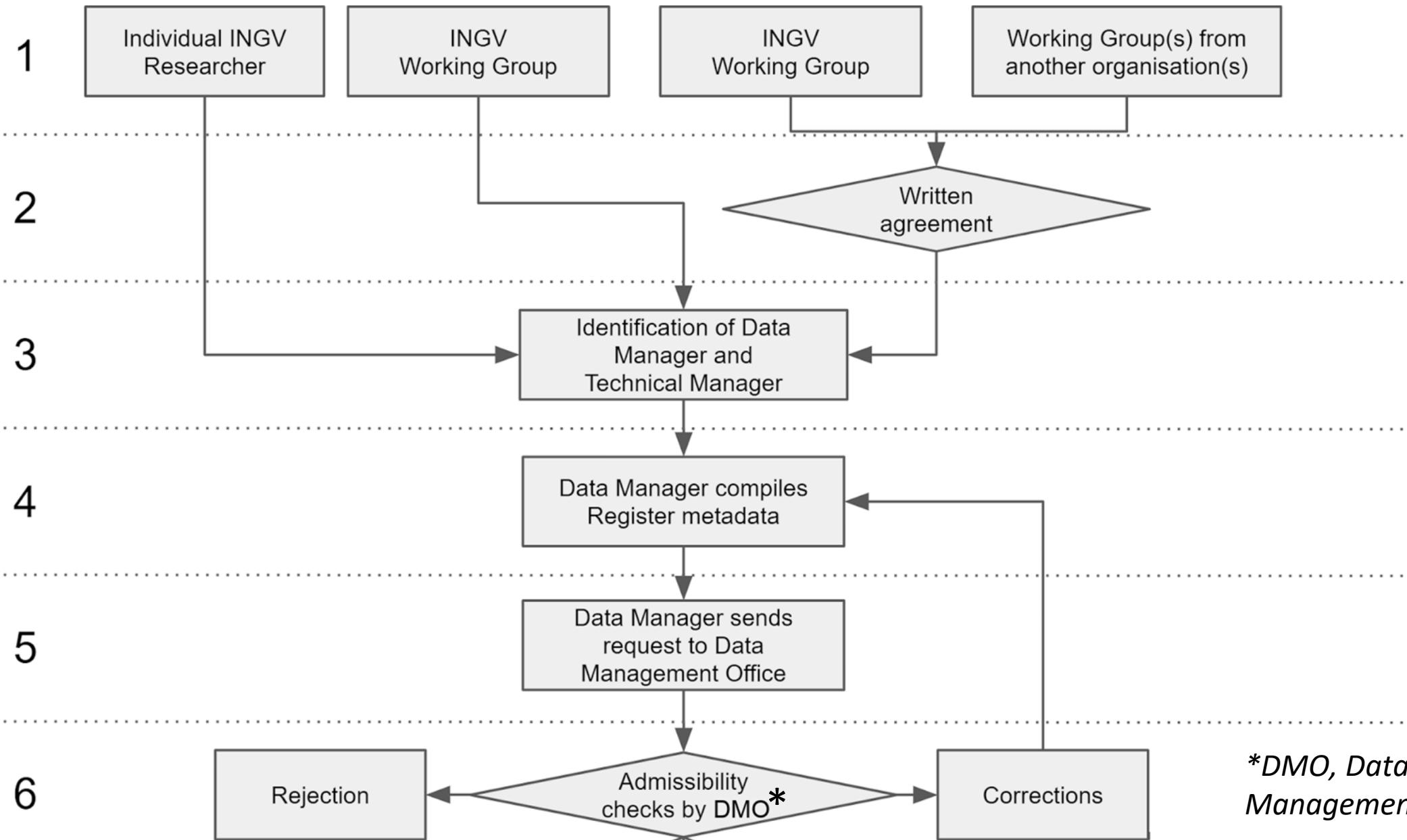


Status in April 2020

- 131 records in the Data Registry, 113 Dataset and 18 Data Collections
- 405 contributing people identified, 71.4% males, 28.6% females, 77% with ORCID
- 66% of people affiliated to INGV, 34% affiliated to 61 other orgs
- 20 related orgs in Italy, 31 in EU, 5 in the Middle East, 2 in North America, 2 in Africa, 1 in Asia



Procedure for entering new data (1 of 2)

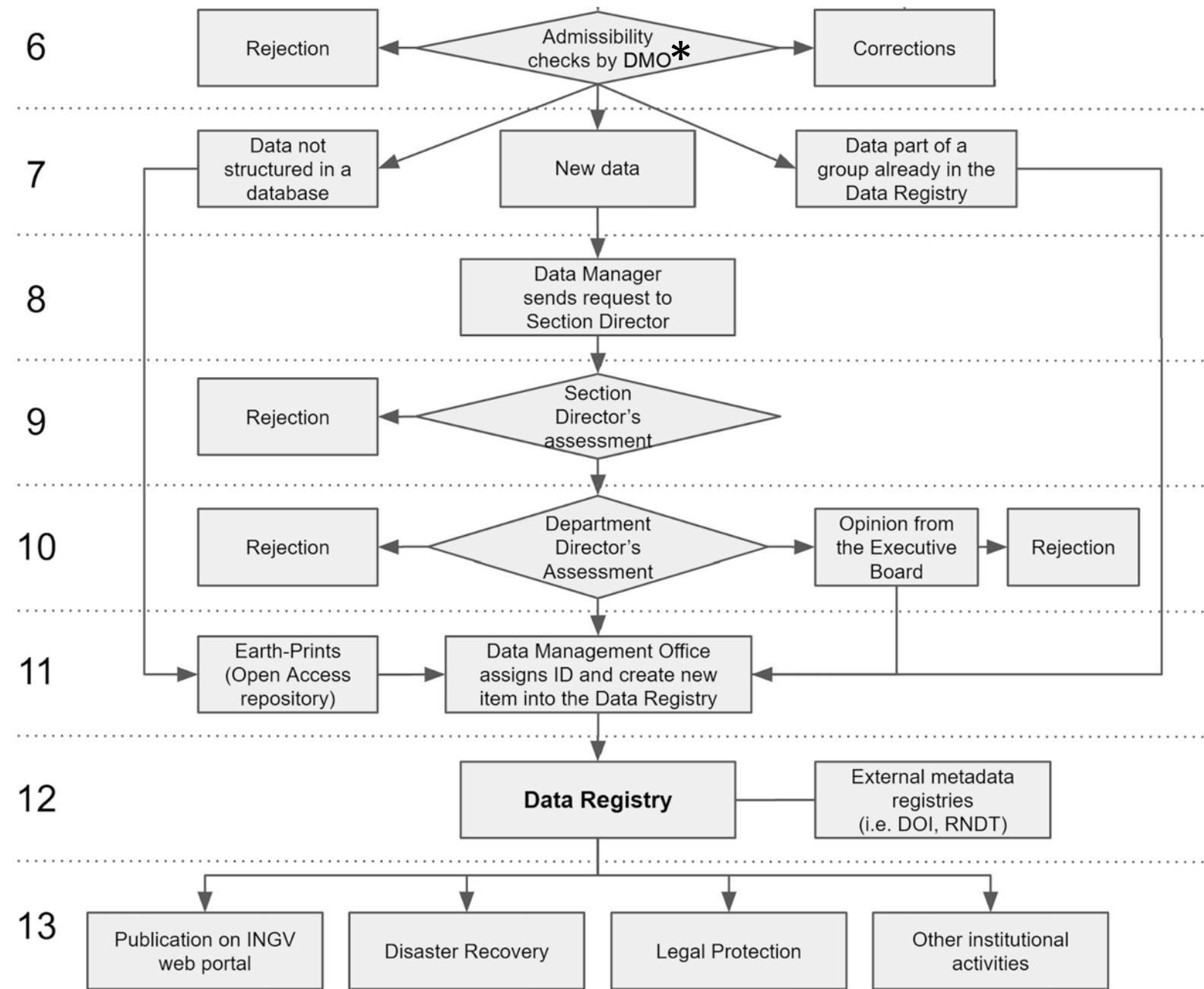


*DMO, Data Management Office

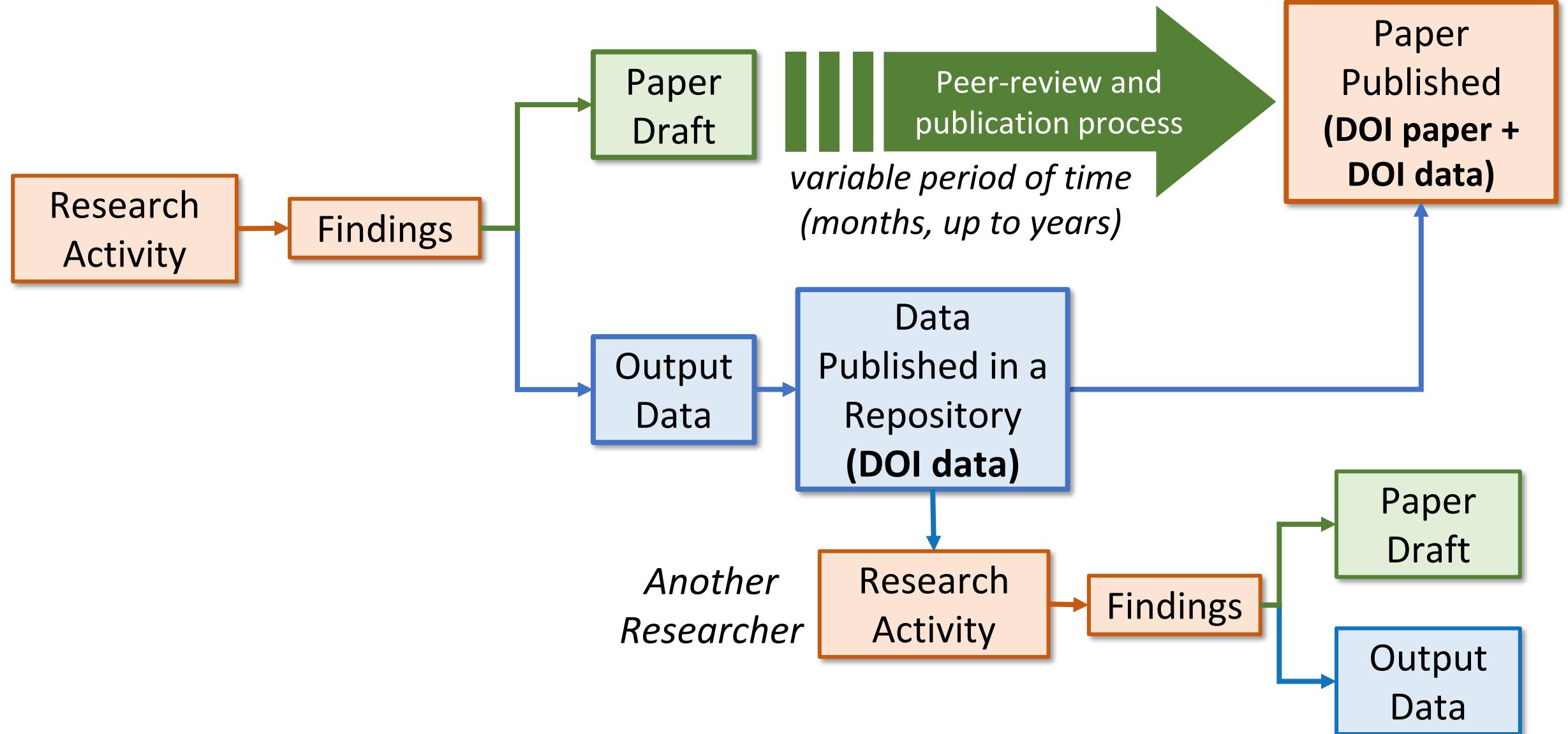


Procedure for entering new data (2 of 2)

*DMO, Data Management Office



Faster data publication will enable Open Science practices



Amount of data shared

- Hundreds of datasets emerged from the internal survey, smaller datasets still not traced
- Only a fraction of produced data is publicly accessible, mostly seismological data
- Not -yet- published data is used internally or made accessible to the Civil Protection only

Data encoding and web services

- Delays in publication due to missing data encoding and/or suitable web services standards
- Lack of skills and expertise for investigating OGC standards (i.e. Sensor Web Enablement)

Colleagues response

- Some people still reluctant in openly sharing data
- Overall, data authorship recognition via DOI metadata very well perceived
- Willing to see a tangible recognition during job evaluation processes, inside & outside INGV

Data management

- INGV hosts archives only for specific data, relies on external platforms for data publication
- Building an institutional data repository is under investigation

**Thank you
for your attention!**

datamanagementoffice@ingv.it

