

# INDICATE

## International Network for a Digital Cultural Heritage e-Infrastructure

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EVA 2011 Florence, Workshop “Ten years of networking for Digital Cultural Heritage”  
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- INDICATE (WP2, WP4, WP5)
- e-Infrastructures: international level, national level, GARR network

# INDICATE at a glance ([www.indicate-project.eu](http://www.indicate-project.eu))

- Full title: International Network for a Digital Cultural Heritage e-Infrastructure
- Support Action co-funded by the European Commission under the call FP7-INFRASTRUCTURES-2010-2
- Grant Agreement no.: 261324
- Duration: 24 months
- Start: 1st of September 2010
- Budget (Total): ~682 k€
- Budget (EC contribution): ~600 k€ (~88%)
- Person months: 113
- Project Manager: Rossella Caffo (ICCU)
- Technical Coordinator: Antonella Fresa (ICCU)

# The INDICATE partners

- **Italy:** Ministero per i beni e le attività culturali - Istituto Centrale per il Catalogo Unico (coordinator)
- **Italy:** Consotium GARR
- **Italy:** COMETA
- **France:** Ministère de la Culture e la Communication
- **Greece:** National Technical University of Athens
- **Spain:** I2CAT
- **Slovenia:** Institute for the Protection of Cultural Heritage
- **Egypt:** CULTNAT
- **Jordan:** Department of Antiquities
- **Turkey:** Ministry of Culture and Tourism

# INDICATE objectives

- To establish a long-term network of common interest, following a tried and tested approach using working groups and high-quality publications;
- To deliver a range of demonstrators (two pilot applications and three case studies) that address the main priorities for research in the **D**igital **C**ultural **H**eritage (in both cases, these are not new R&D activities but they are a porting of existing work to an e-Infrastructure platform, with subsequent analysis and lesson learning);
- To establish a permanent dialog for e-Infrastructures and DCH to work together.

# The relationship between INDICATE and DC-NET

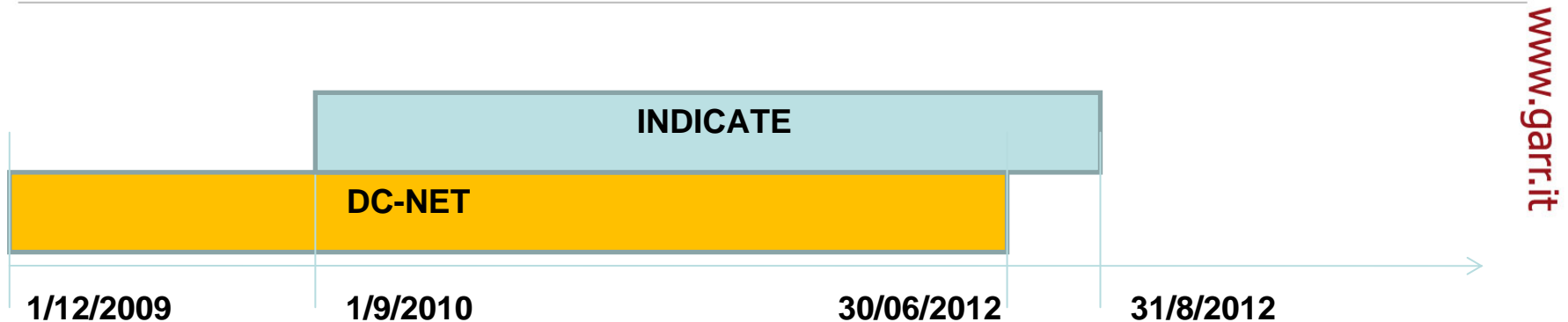
DC-NET is the ERA-NET for building a new e-Infrastructure dedicated to the research on the digital cultural heritage

[www.dc-net.org](http://www.dc-net.org)

**INDICATE** is based on the results of DC-NET:

- Research priorities that can enable the implementation of new advanced services
- A Joint Activities Plan, agreed among European Ministries of Culture, fosters a common e-Infrastructure platform

# DC-NET and INDICATE



The two projects run in parallel for more than 1 year.

They have some partners in common:

- ICCU and MCC
- NTUA and AAS that provide technological support to DC-NET partners from Greece and Slovenia
- GARR and COMETA participate to the DC-NET working groups

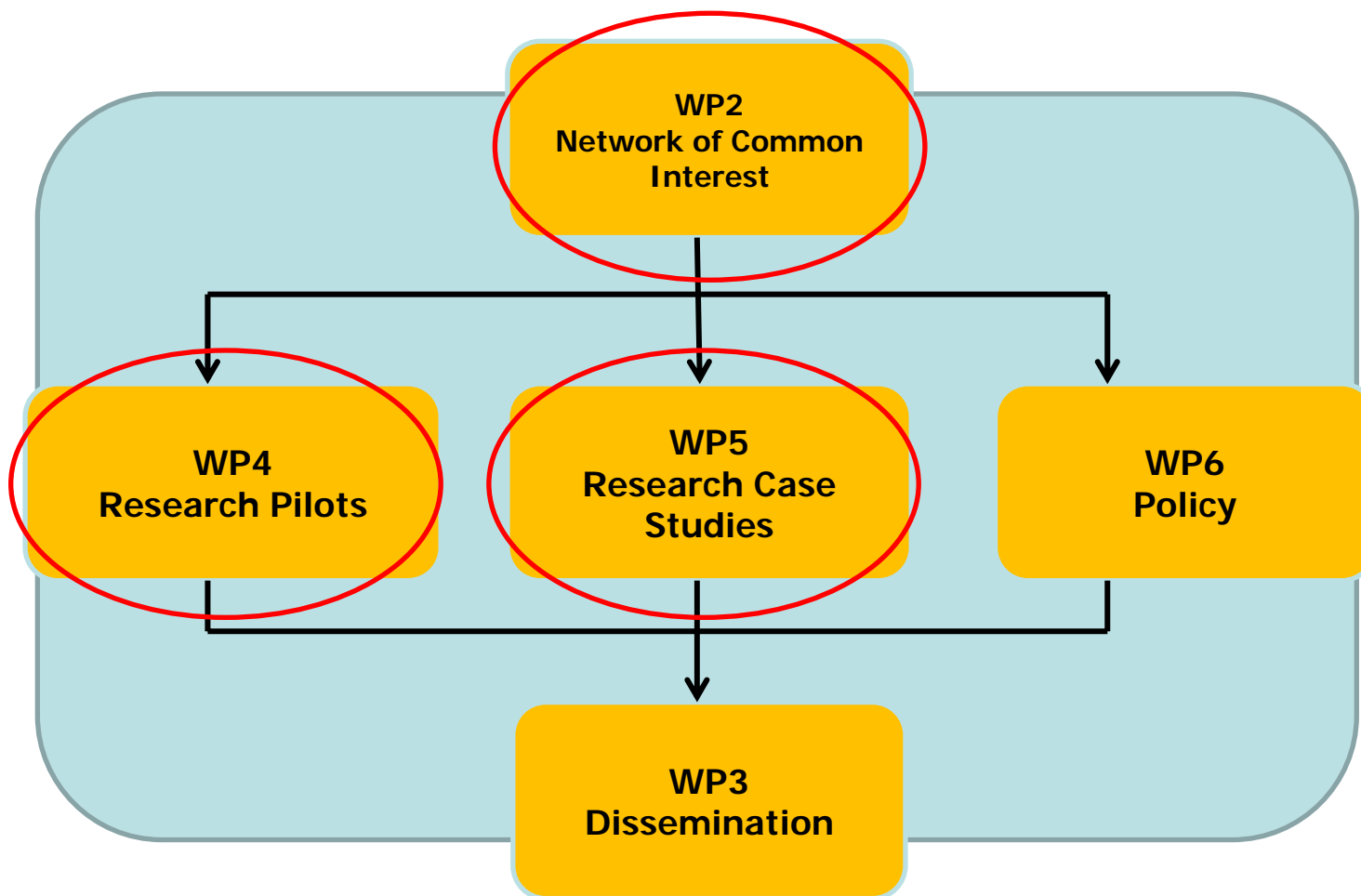
DC-NET has started the work on the new area of the digital cultural heritage enabled by e-Infrastructures.

INDICATE continues this work, exploiting the DC-NET results at international level, with a special focus on the Mediterranean region, aiming at:

- involving new partners in the dissemination of the DC-NET results
- developing pilots and case studies in order to put into practice the priorities identified by DC-NET



# INDICATE workplane



# WP2 - Network of Common Interest

- To establish a network of common interest dedicated to policy and best practice in the complementary domains of e-Infrastructures and e-Culture
- To build and animate working groups dedicated to key aspects of the projects
- To stimulate discussion and collaboration, through workshops, seminars, brainstorming and online communication
- To involve in the working groups researchers and experts from beyond the project, in order to add their perspectives to our work
- To create the conditions for the sustainability of the network beyond the project duration

**National working Group**



**Project Board**



## E-Infrastructure-enabled semantic search

for cultural repositories, where data aggregated by the MICHAEL project are semantically enriched and relating to search, retrieval and publishing approaches are evaluated for porting to the e-Infrastructures platform provided by the EUMEDGRID e-Infrastructure and EUMEDCONNECT2 network.

## E-infrastructure-enabled e-Collaborative Digital Archive

protected by access control and rights management. This pilot will put in place two e-collaborative repositories:

- Architectural and Archaeological Heritage present in Mediterranean Area (MED Repo)

**<http://indicate-gw.consortio-cometa.it/med-repo>**

- Federico De Roberto literary works archive

**<http://indicate-gw.consortio-cometa.it/deroberto-dr>**

# WP4 – Pilot application

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www.garr.it

- Pilot Applications**
- De Roberto DR**
- Browse**
- MED Repo**
- Browse**
- Status classification**
- Back to the home page**

## MED Repository

Medrepo	Thumb	Nation	Area	Municipi
<ul style="list-style-type: none"> <li>Cultural Heritage                             <ul style="list-style-type: none"> <li>Drawings</li> <li>Photos</li> </ul> </li> </ul>		Italia	Sicilia	Taormi
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## De Roberto DR

De Roberto	Thumb	FileName	Description	Keywords
<ul style="list-style-type: none"> <li>Scanned documents                             <ul style="list-style-type: none"> <li>Manuscripts</li> <li>Typescripts</li> <li>Printed drafts</li> </ul> </li> </ul>		004_la_lupa.tif	manoscritto della tragedia lirica in due atti, musicata da pierantonio tasca, pubblicata da officine tipo-litografiche barravecchia e balestrini, palermo 1919; altre edizioni: noto, tipografia rosario caruso, ottobre 1932; conservato presso la biblioteca di storia patria per la sicilia orientale	verismo, federico de roberto, la lupa, giovanni verga, officine tipo-litografiche barravecchia e balestrini palermo, tipografia rosario caruso noto, società di storia patria per la sicilia orientale catan manoscritti letterari moderni, la.mu.s.a. facoltà di lettere e filosofia, università di studi di catania, società di storia patria per la sicilia orientale
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		030_la_lupa.tif	manoscritto della tragedia lirica in due atti, musicata da pierantonio tasca, pubblicata da officine tipo-litografiche barravecchia e balestrini, palermo 1919; altre edizioni: noto, tipografia rosario	verismo, federico de roberto, la lupa, giovanni verga, officine tipo-litografiche barravecchia e balestrini palermo, tipografia rosario caruso noto, società di storia patria per la sicilia orientale catan manoscritti letterari moderni, la.mu.s.a.

# WP5: Research Case Study

Examine how E-Infrastructures can solve e-Culture problems:

- to gather e-Culture problems through 3 research cases
- to analyze resources provided by e-Infrastructures, and how they can be deployed
- to provide input to the best practice work

Case studies: the “learning centers” of the project based on real world examples combining e-Culture and e-Infrastructures

- Digital preservation
- Virtual Exhibitions
- Geo-coded digital cultural content

# Definitions

## e-Science

- Immense science data sets that require relevant computing power and storage capacity (Grid, HPC)
- Technologies that enable distributed collaboration

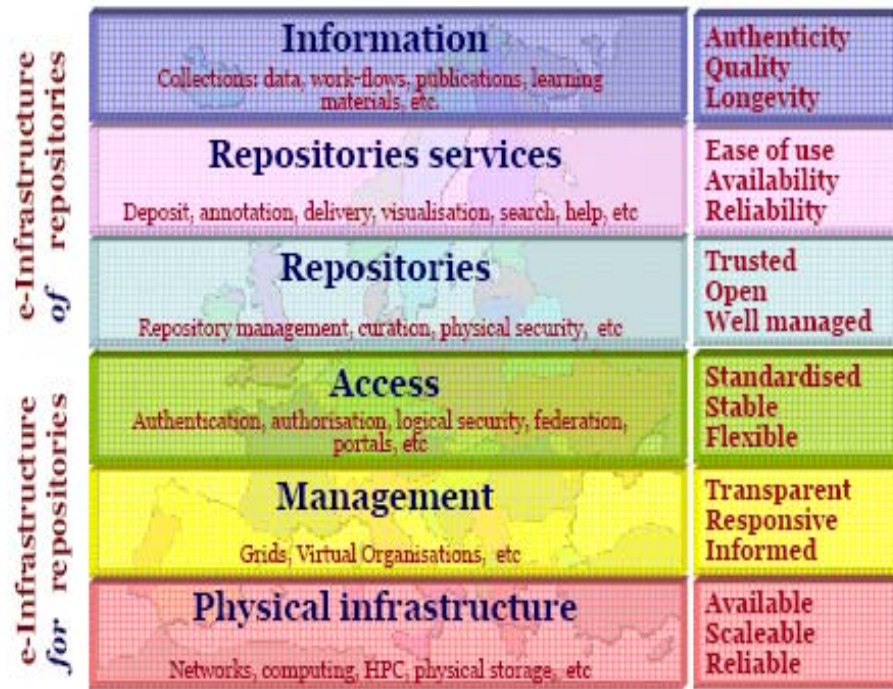
## e-Infrastructures

- Easier and trusted access for e-Science with dedicated network connectivity
- Virtual research environments for collaboration, processing, simulation
- Data Repositories

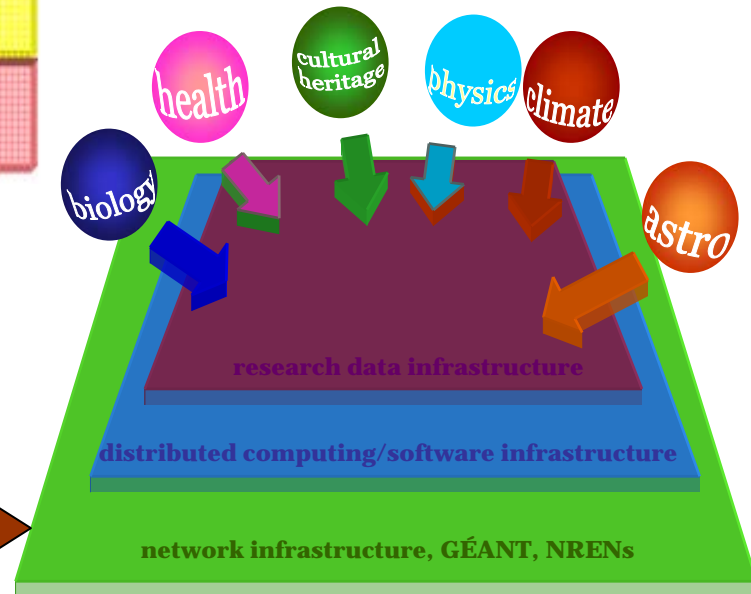
## e-Research

- Extends e-Science and e-Infrastructure to all domains, supporting existing and new forms of research





**GÉANT and NRENs are the  
enabling layer of  
e-Infrastructures**



# Why Research and Education Networks?

## Providing capabilities beyond commercial ISPs

- A question of purposes
  - Overprovisioning helps enabling new applications
- Platform for supporting key Research and Education collaborations
  - Authentication and Authorization
  - Shared use of computation facilities – i.e., the Grid
  - Collaborative environments
- Potential to mitigate constraints in non-competitive marketplaces

## Aggregating demand of a key user community

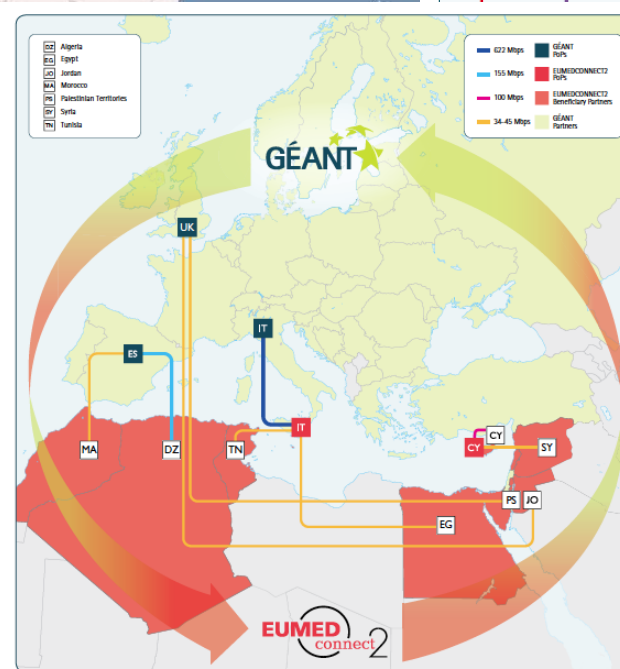
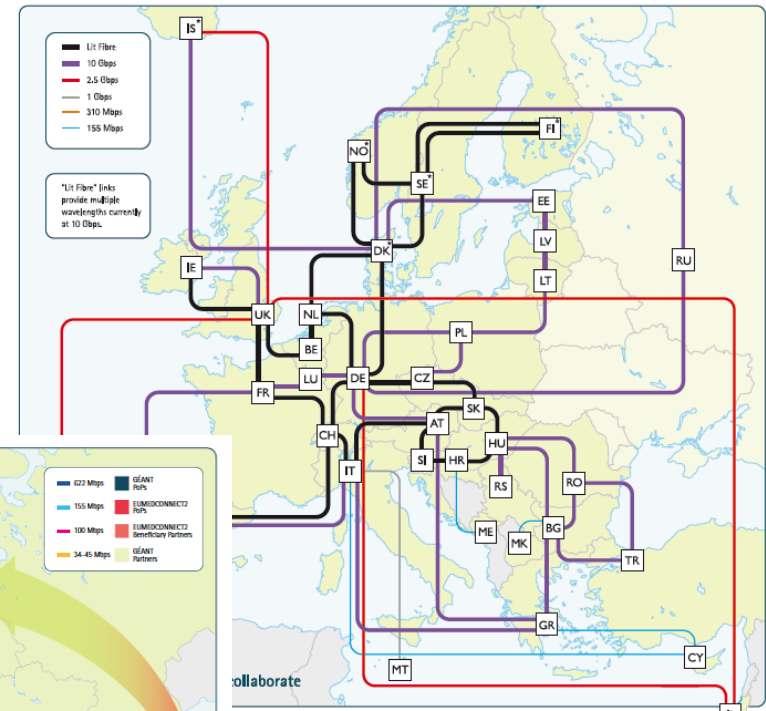
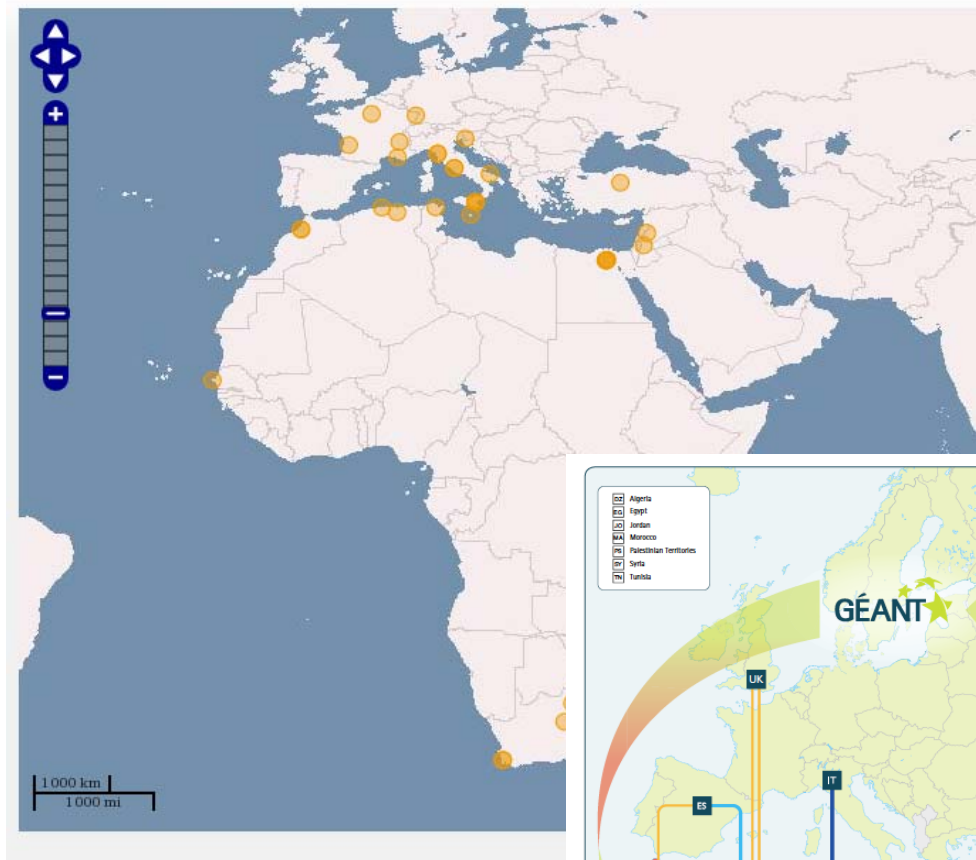
- Different demand patterns than residential, business users
- Tailored support to user requirements

## Collaboration among the Research and Education Community

- Where much more can be achieved together than separately



# E-Infrastructures in the Mediterranean



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<http://www.geant.net>

<http://www.eumedconnect2.net>

<http://roc.africa-grid.org/>

# The role of NRENs

## The role and importance of National Research and Education Networks:

- non-commercial and dedicated to serve research and education
- offer large network capacity and advanced services not available generally
- research networks and their user communities form important environments that become sources of innovation
- “Networks of networks” (NRENs interconnecting): participation in international, world-leading broadband developments with particular applications to leading-edge Education and Research
- outreach, technology implementation and support for application development in various ways

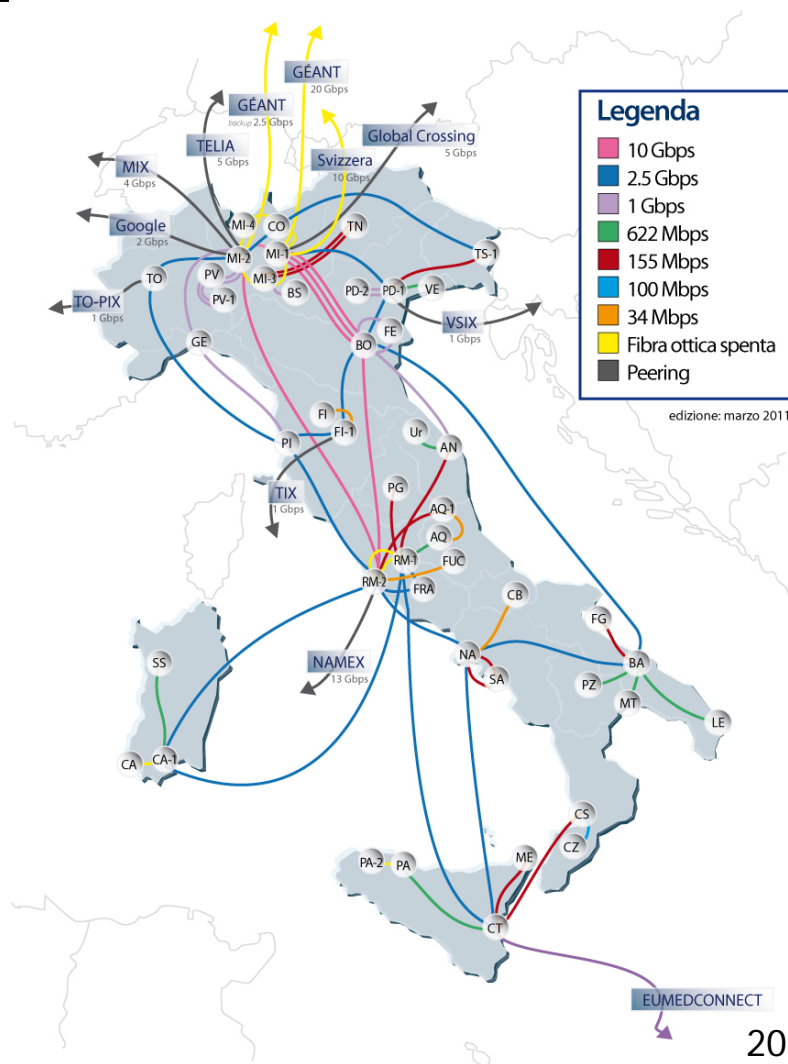
# GARR User Communities

- Italian universities, CNR, INFN and ENEA are the founding members
- The most important institutes belonging to the research and education community in Italy:
  - More than 120 laboratories, observatories and research centres of CNR, ENEA, INGV, INFN and ASI;
  - 88 public and private universities;
  - 31 Academies of Art and some Academies of Music;
  - More than 70 biomedical research and healthcare centres;
  - More than 50 sites among National Archives, National and University Libraries;
  - 17 Astronomical and Astrophysical observatories;
  - 74 other international research, cultural and educational institutes located in Italy.

# Today: GARR-G network

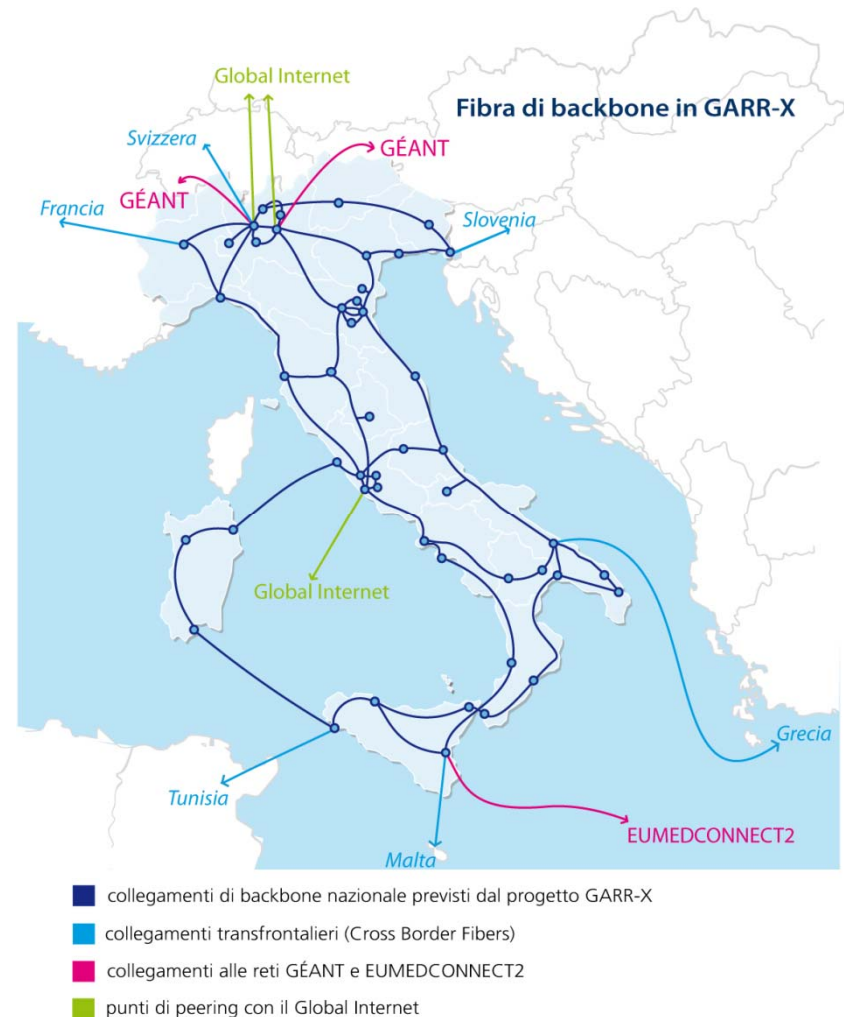
- 45 PoP (and other small aggregation points)
- Aggregate backbone IP Capacity :
  - ~ 130Gbps
- Access links:
  - Aggregate capacity: ~ 70Gbps
  - from 2Mbps access link up to 10Gbps access links
  - Total access links: more than 400
- Interconnection to Metropolitan Area network and Regional Area Network
  - MAN GARR in Florence
    - Soprintendenza Speciale Polo Museale di Firenze
    - Galileo Galilei museum
    - Riccardiana and Medicea Laurenziana libraries and many others
- Network Advanced Services for the infrastructure management.

Topologia di backbone di GARR-G



# Ongoing: from GARR-G to GARR-X

- **GARR-X** is the name of the project that will lead GARR technical evolution during the next 6 years
- GARR-X will provide research, professors and students high bandwidth network at the same level as the major european NREN
- 10.500 km backbone fibre
- 1.500 km access fibre (not indicated in the figure)



Thank you !

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