e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The European eInfrastructures Observatory

www.e-observatory.eu | www.enventory.eu

eConcertation

Brussles, 06.03.2013

Jorge-A. Sanchez-P.
Project inventor

e-infrastructure

CAPACITIES

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Initiatives

- GEANT/TERENA compendium
- e-IRG knowledge base
- CEENGINE knowledge base
- EuroRIs-Net+ knowledge repository
- EGI.eu databases and compendium
- TOP500 supercomputers
- RI-IMPACT study
- ERINA+ assessment
- e-FISCAL study

- and other initiatives…

e·nventory
The European
eInfrastructures
Observatory
www.enventory.eu

e·nventory

- Established the **European e·Infrastructures Observatory**
  - an online, single-entry-point platform
  - offering interactive, user-driven visualisation tools, and
  - an extensive set of benchmarking indicators
  - geographically addressing Europe to:
    - facilitate multidimensional and polymorphic monitoring and analysis
    - support fact-based policy and learning, and
    - disseminate achievements of e·Infrastructures in Europe and beyond

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Current status

- Offers **7** **intuitive, interactive and user-friendly visualisation tools** based on best practices in visualisation and representation techniques
- Features a core set of more than **45** **benchmarking indicators** that are the baseline for **monitoring e·**Infrastructures development progress, usage, impact and investments
- Provides access to more than **12.000** individual figures and other related data and benchmarks
- Consolidates more than **18** **months** of **stakeholders' feedback and consensus** on the structure and functionality of a world-class **e·Infrastructures Observatory**

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Numerical indicators

- **Performance/Capacity** *(What are we getting for what we pay?)*
  - **Networking infrastructure**:
    - NREN typical backbone capacity, direct IP connection to GEANT, IP access capacity
  - **Supercomputing infrastructure:**
    - National supercomputers maximum performance, peak performance, number of cores, number of processors, in the top500 list
  - **Grid infrastructure**:
    - NGI maximum performance, number of cores, number of processors, installed disk capacity, Number of Grid sites connected to the NGI
- **Usage/Utilisation** *(How many users are utilising/accessing it?)*
  - **Usage:**
    - NREN IP traffic from external networks, NREN backbone congestion index, National supercomputers core hours, NGI core hours, NGI number of jobs
  - **Users:**
    - Researchers, R&D personnel, Teaching staff in tertiary education, Teaching staff in secondary education, Students in tertiary education, Students in secondary education
- **Cost/Budget** *(How much are we paying for it?)*
  - NREN budget, National supercomputers cost of ownership, NGI budget

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Numerical indicators

- **Other indicators**
  - **Scientific Impact**:
    - Patent applications, Publications, Citations
  - **Digital Agenda:**
    - Fixed broadband penetration, Mobile broadband penetration, Regular internet users, Population who have never used the internet, Fixed broadband internet connection charge, Fixed broadband internet monthly subscription, International commercial internet bandwidth
  - **Horizon 2020:**
    - Gross domestic expenditure on R&D, Total unemployment rate
- **Supporting:**
    - Gross domestic product, Gross domestic product per capita, Gross enrolment ratio, Population, Surface area

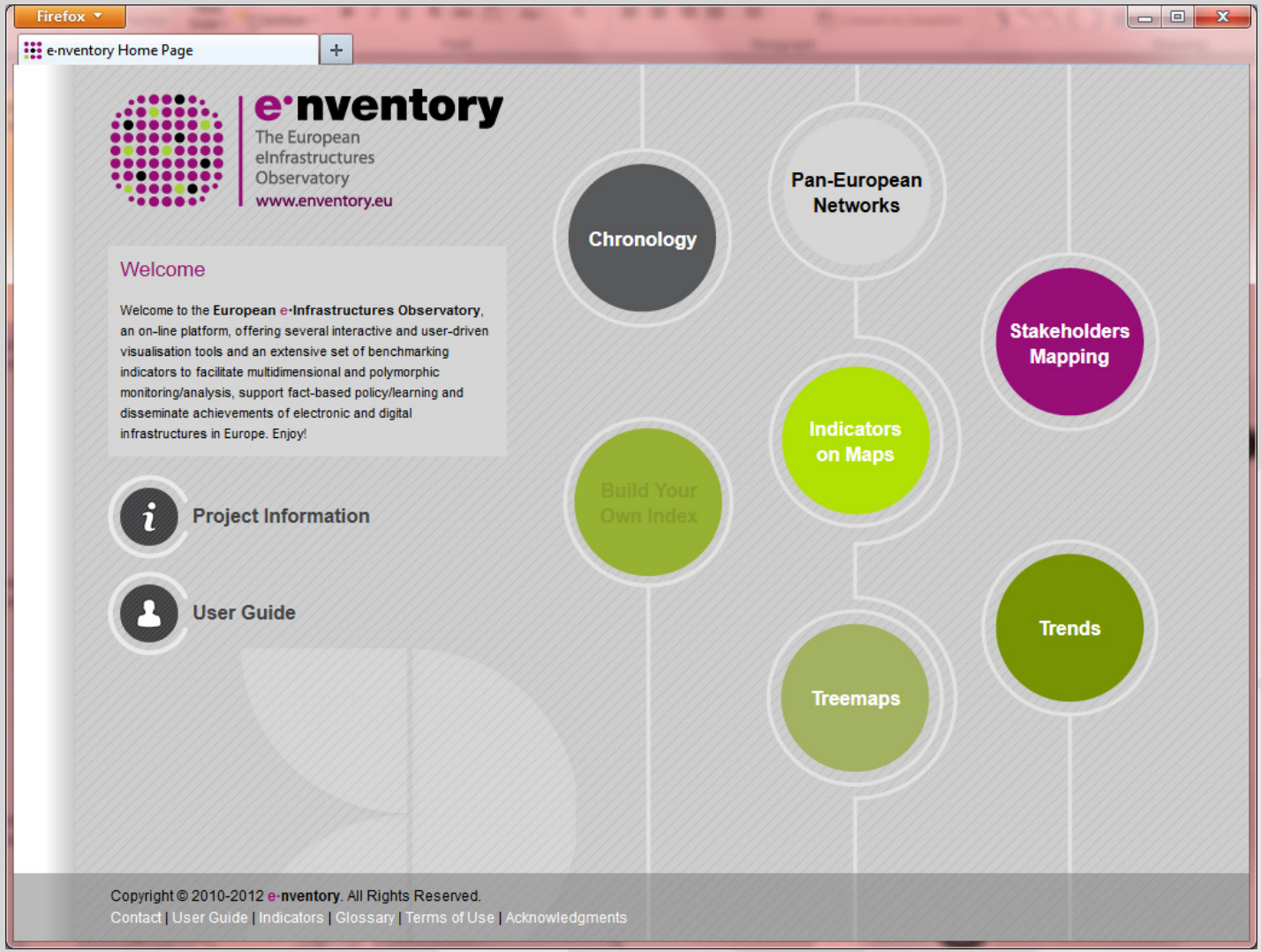
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Non-numerical indicators

- Stakeholders Mapping: **43 NRENs**, **41 NGIs**, **59 Supercomputing centres** and **4 Pan-European coordinating entities** with information provided in 7 attributes (country, logotype, full name, abbreviation, website, address, description)
- Pan-European Networks : **GEANT network backbone links** and **Cross-border fibre connections, memberships.**
- Chronology: establishment of **NRENs**, **NGIs, Supercomputers, major projects**, other milestones.

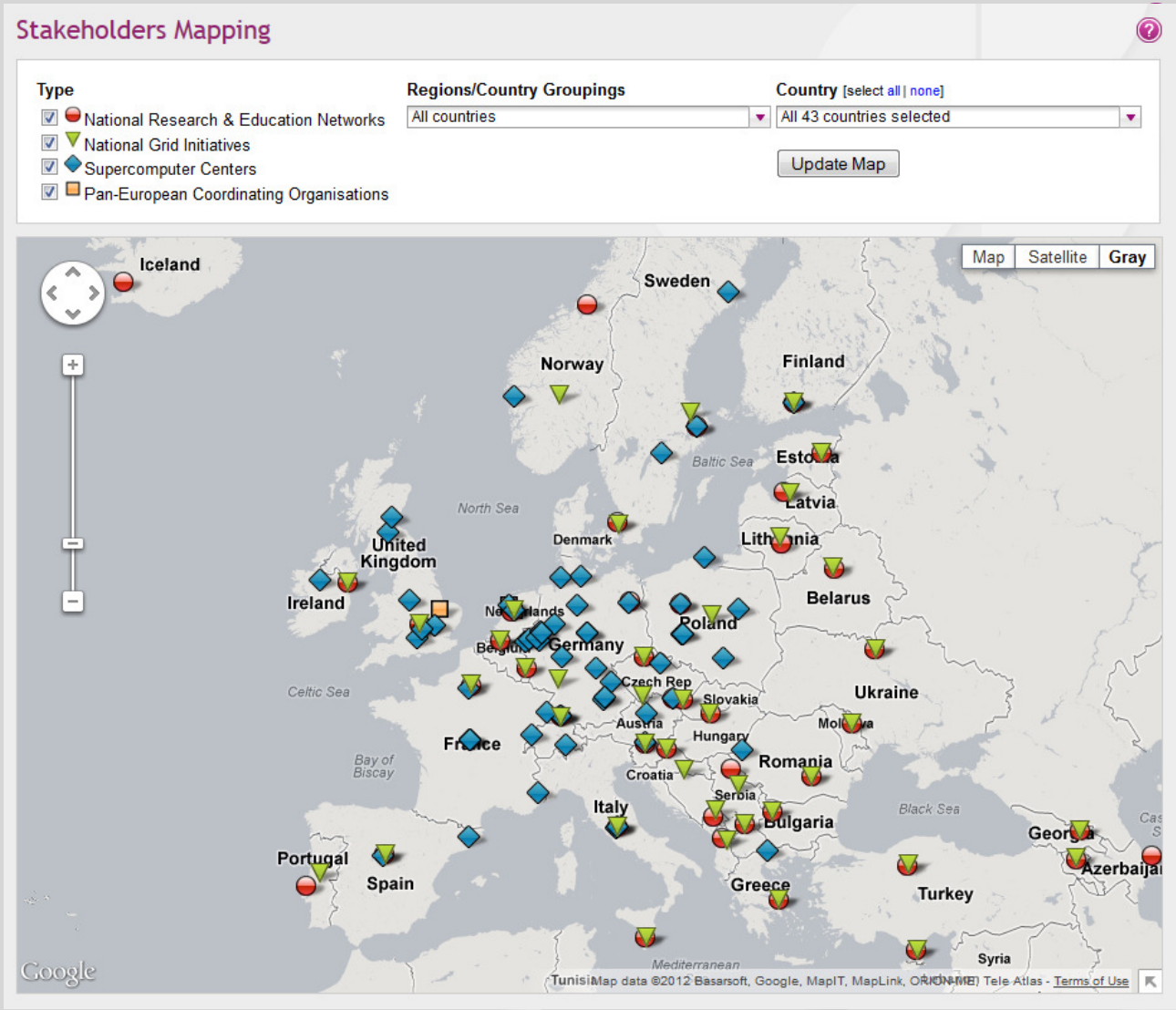
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The observatory is public
www.e-observatory.eu



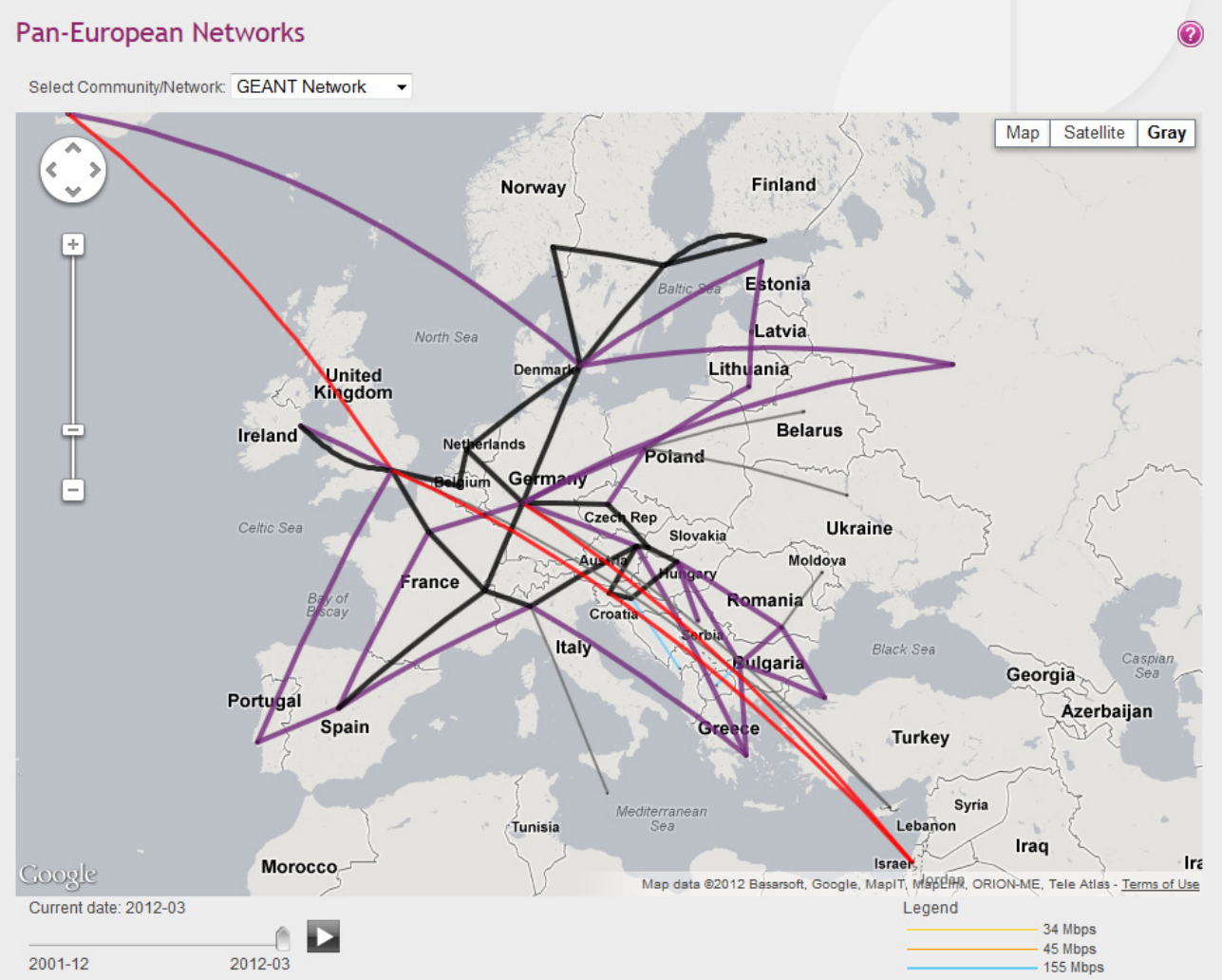
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The *Stakeholders Mapping* service



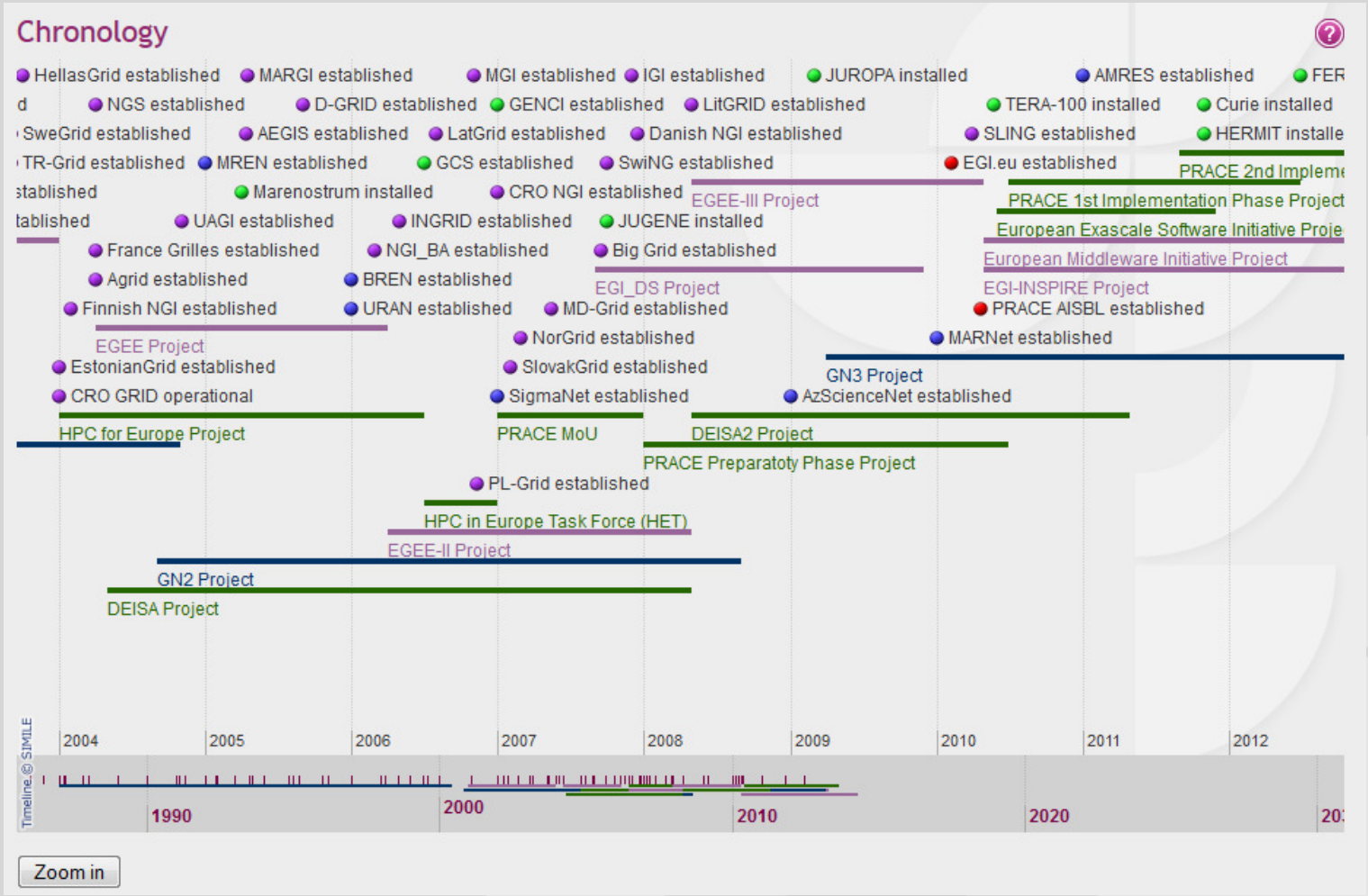
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The *Pan-European Networks Mapping* service



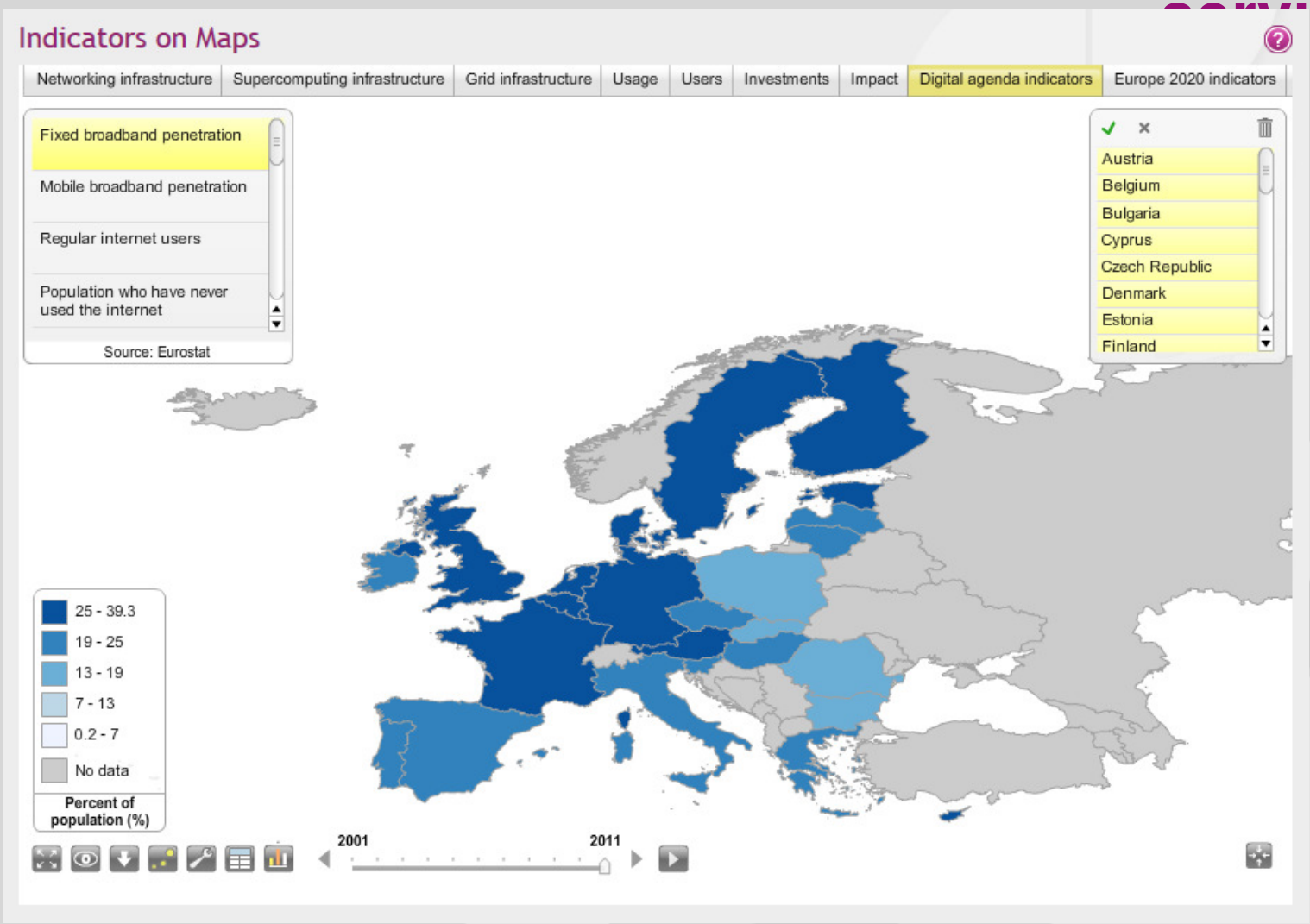
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The *Chronology* service



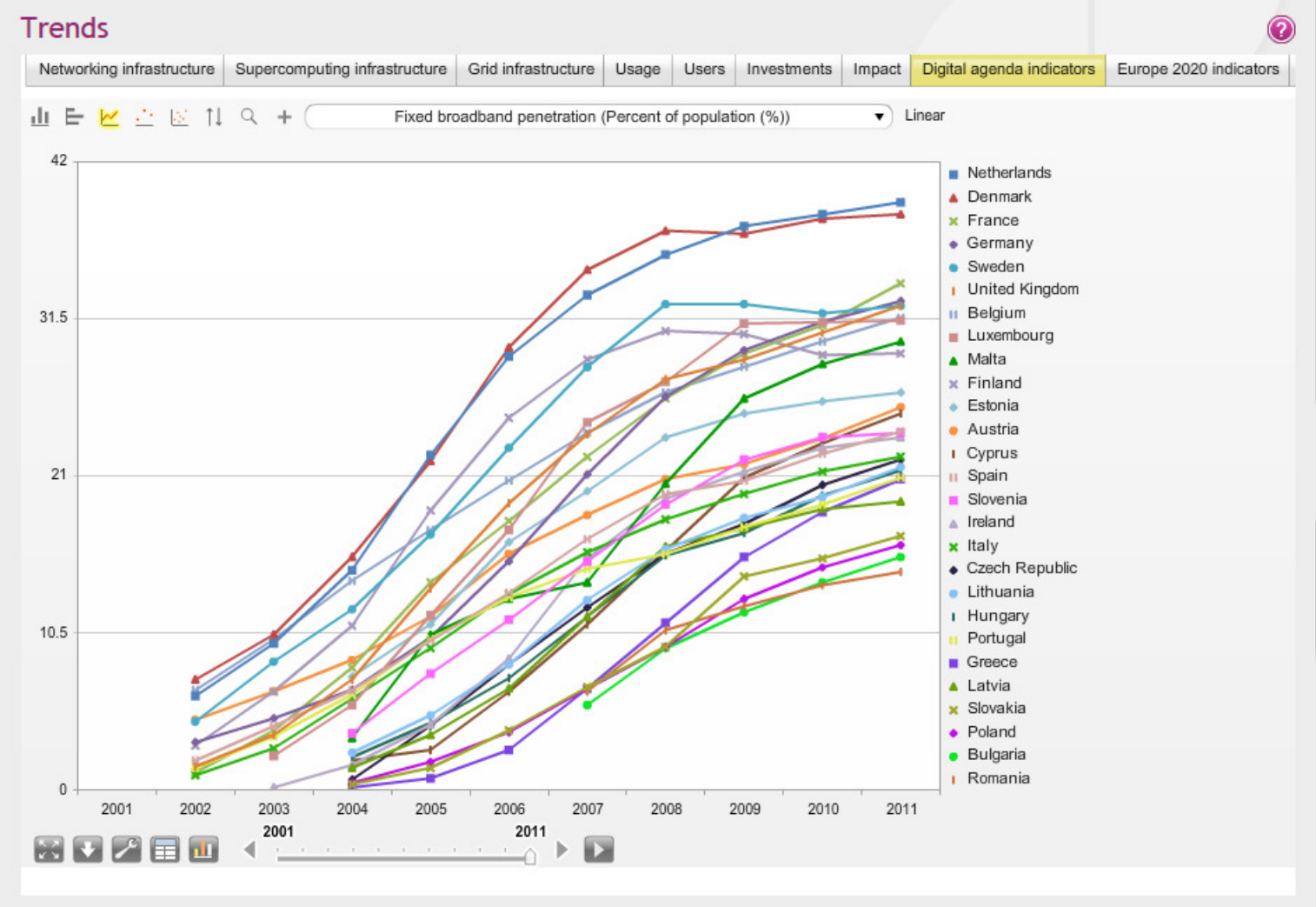
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The *Indicators on Maps* service



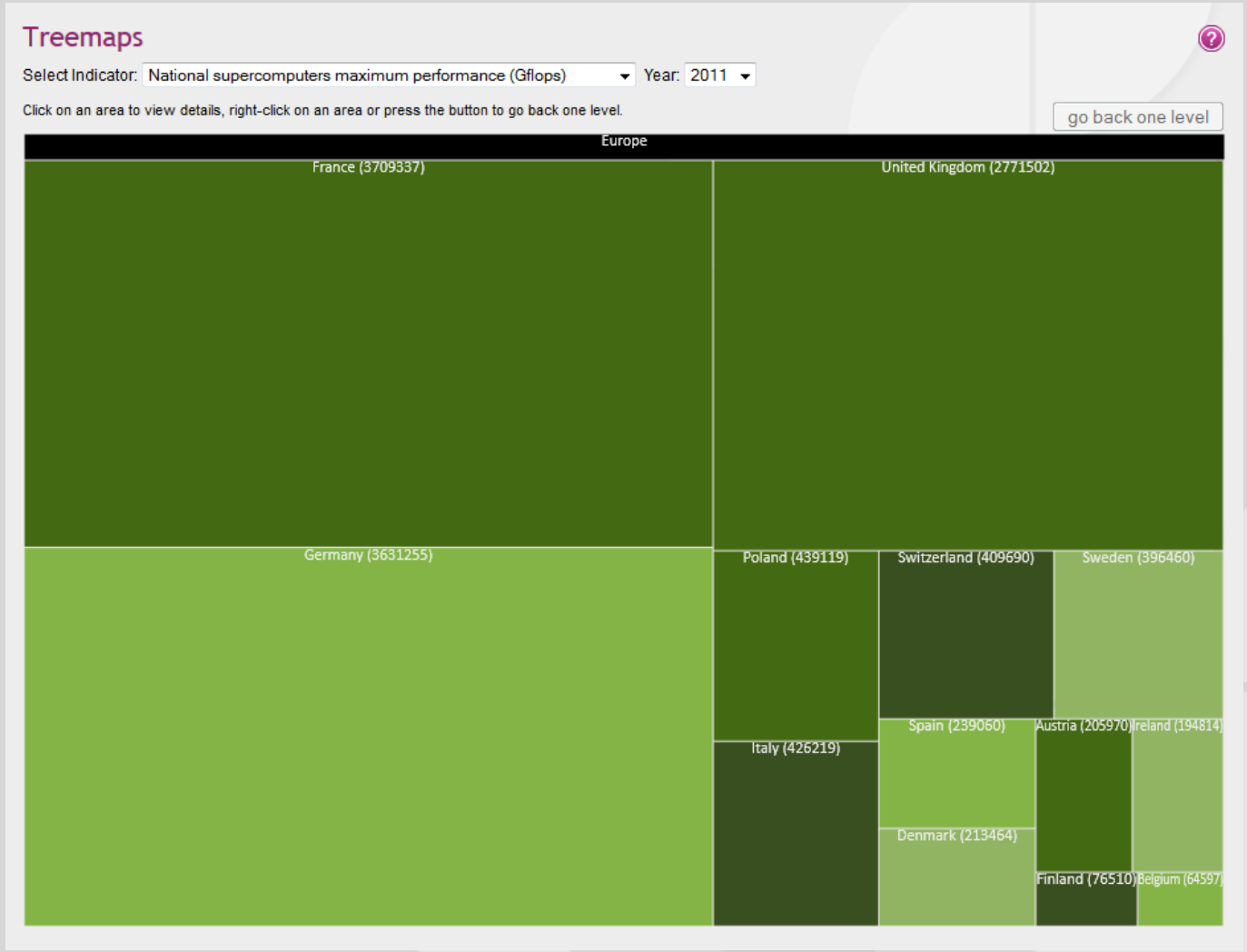
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The *Trends* service



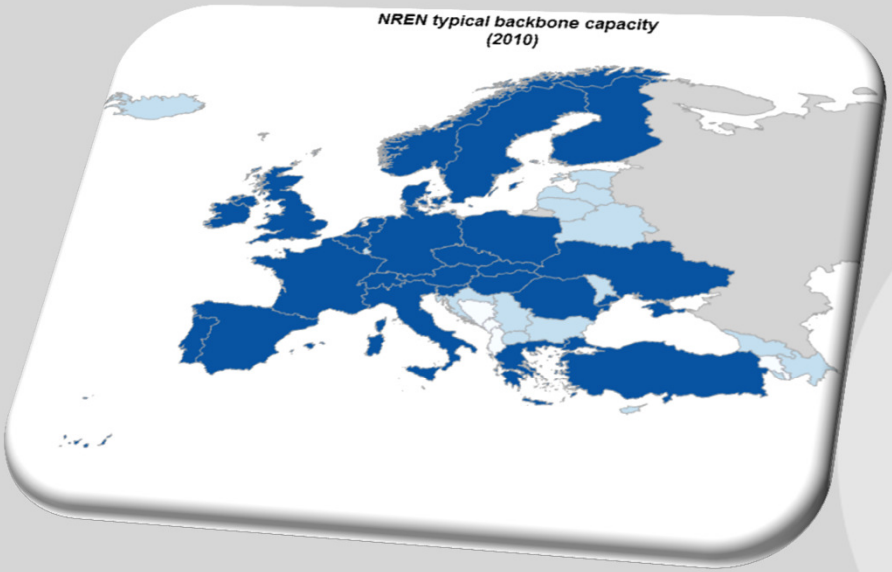
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

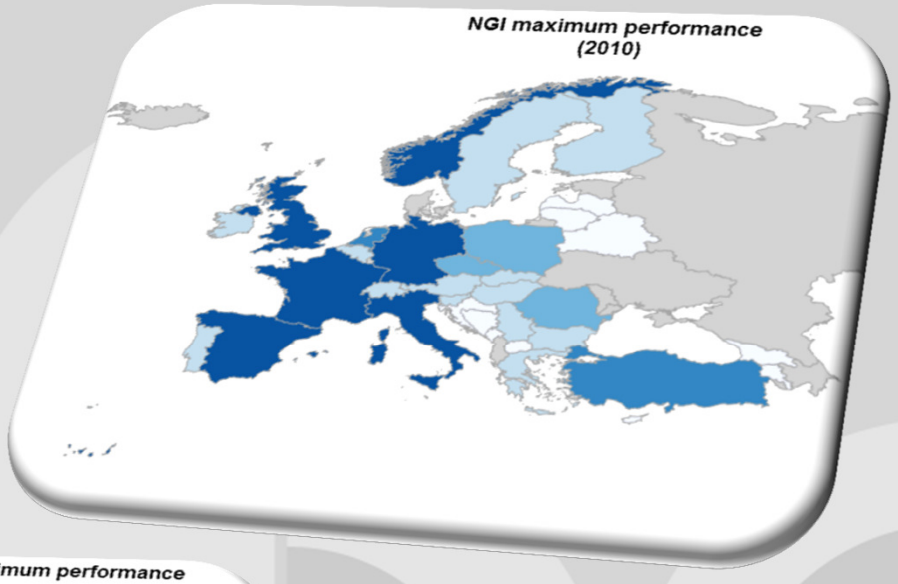
The *Treemaps* service

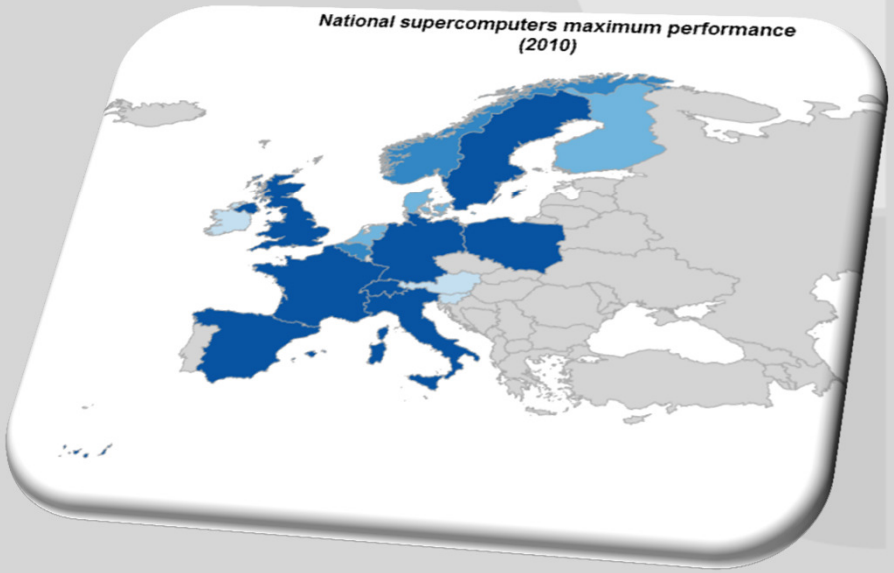


e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Networking, Supercomputing & DCI

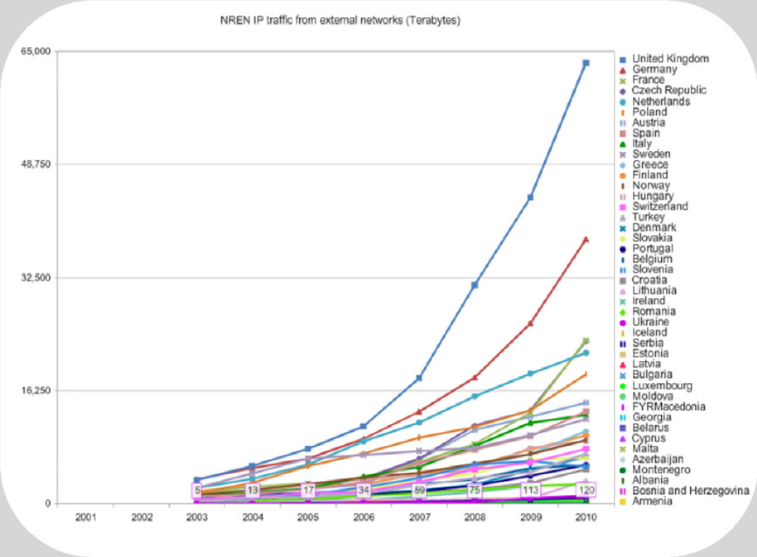


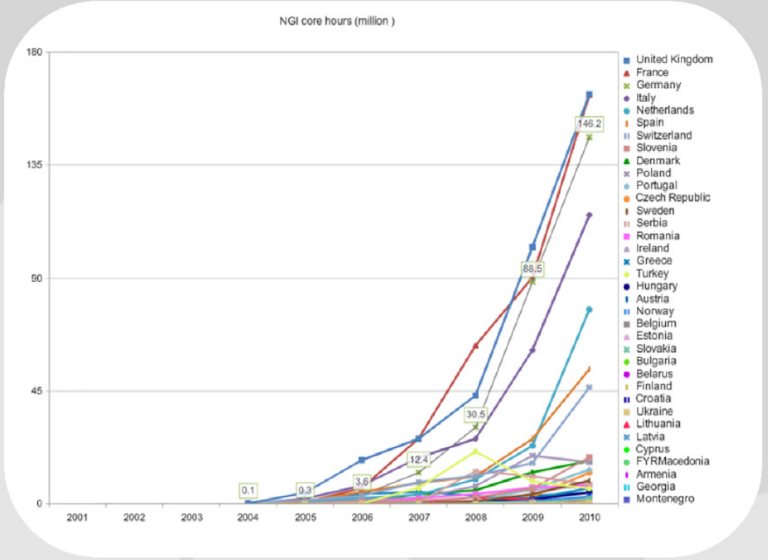


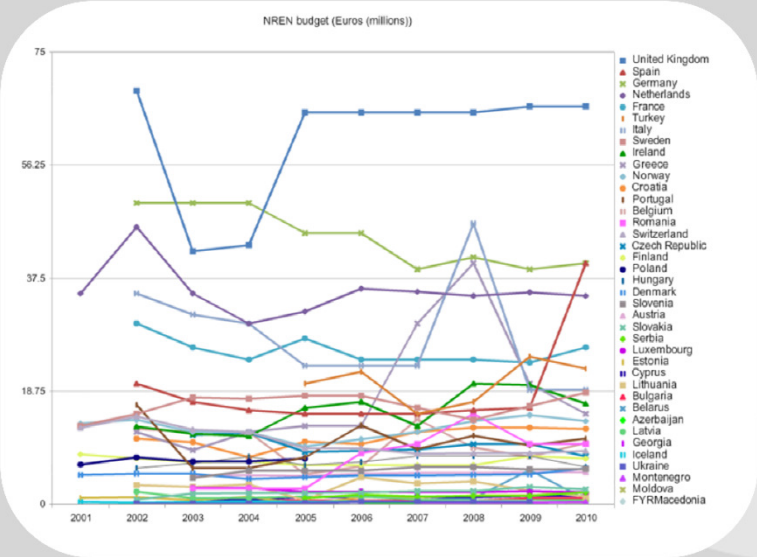


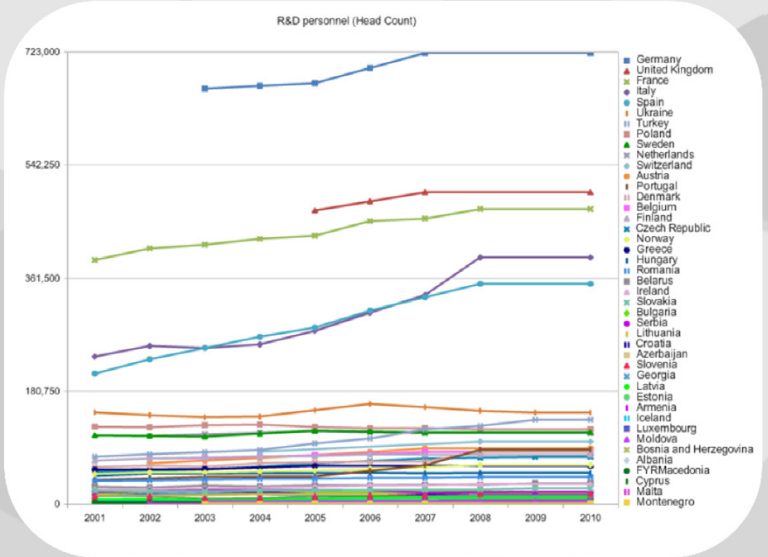
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Usage vs. Users vs. Budget

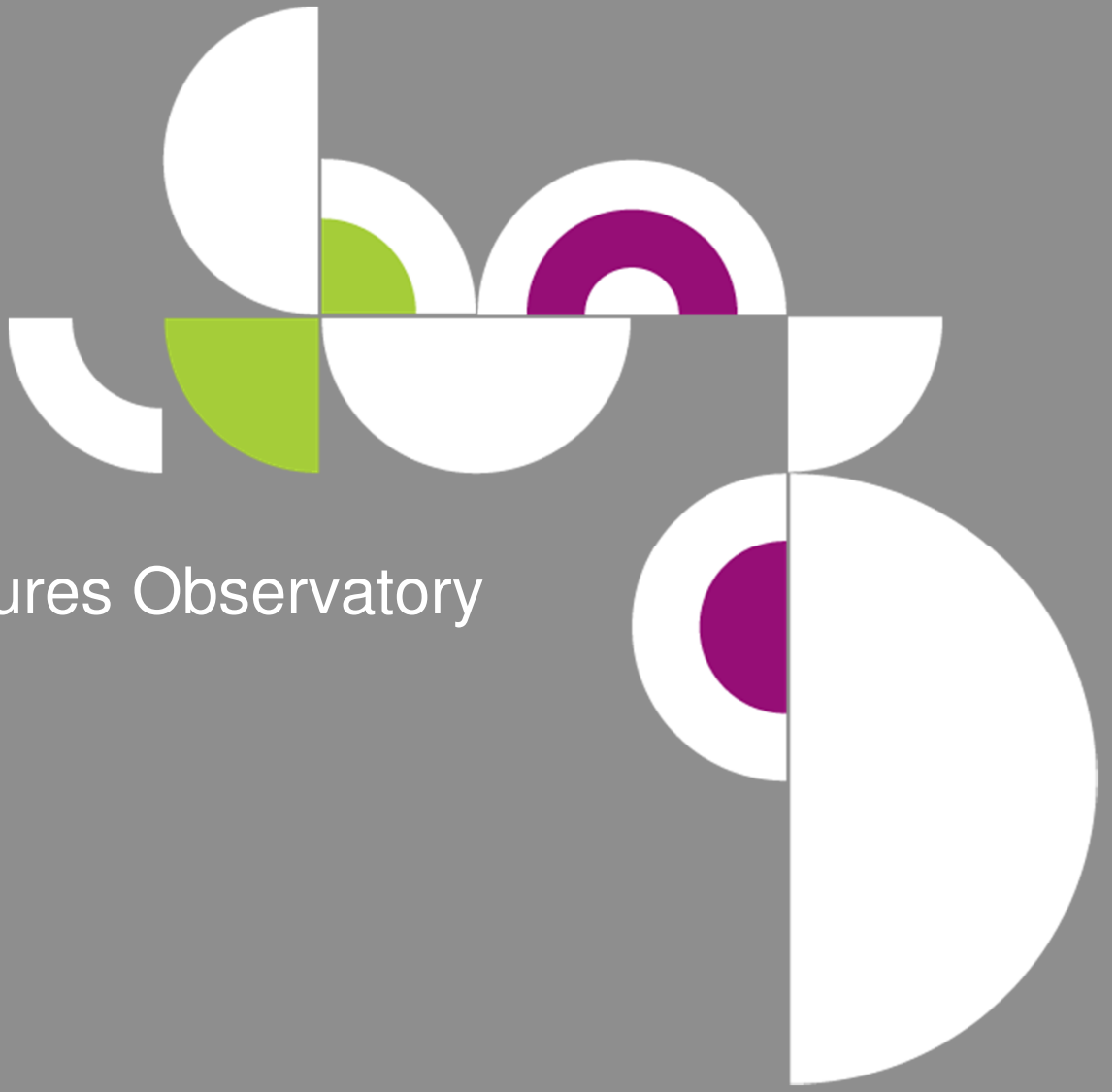








e·nventory
The European eInfrastructures Observatory
www.enventory.eu



European e·Infrastructures Observatory

the future

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The Roadmap

- **The Commission and e·Infrastructure policy bodies** shall explore possibilities how to support a holistic framework for monitoring e·Infrastructures development, capitalising on and expanding the results of the European e·Infrastructures Observatory, to:
  - **Cover global regions** of interest where significant e·Infrastructures actions are taking place and/or international cooperation initiatives have been supported by the EU;
  - **Address emerging e·Infrastructures** and related initiatives that will be key enablers of the European Digital Agenda 2020, such as data infrastructures, cloud computing and broadband access initiatives;
  - **Standardise and automate data harvesting** and repository processes, in an manner interoperable with existing data repositories, in order to support updating as new data becomes available at the data source;
  - **Deploy novel visualisation tools and techniques** for representing the development of new e·Infrastructures themes, revealing Pan-European as well as Trans-Continental collaborations and impacts of e·Infrastructures that are key enabling pillars of international e·Science.

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The Roadmap

- **The Commission** should facilitate consultation and consensus processes at a global level towards the establishment of a global e·Infrastructures Observatory via the engagement of international e·Infrastructures experts, representing both regions of interest as well as themes of interest.

- **Running flagship e·Infrastructure initiatives/projects** should strengthen the collection and aggregation of data values for selected indicators, through a systematic and well-defined framework, for each of the e·Infrastructure fields (networking, DCI, HPC, etc.) by the organisations/structures that coordinate the respective initiatives (e.g. DANTE/TERENA, EGI.eu, PRACE AISBL, etc); wherever possible this process should build up a time series including past events.

- **The Commission and National Governments** should pursue a holistic approach for consistently applying data validation/curation to ensure that the collected data accurately represent the e·Infrastructures status quo.

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

The Roadmap

- **The Commission** should ensure that future flagship e·Infrastructure initiatives/projects incorporate appropriate monitoring and assessment procedures according to relevant indicators suitable for the long-term e·Infrastructures assessment and benchmarking, which if not in the project proposal should be incorporated into projects at the project negotiation phase.

- **The Commission** should pursue, in close cooperation with **National Governments**, its efforts to support the maintenance and update of a European e·Infrastructures Observatory to keep up-to-date with the on-going developments in this field at international level.

- **Major e·Infrastructure stakeholders** should facilitate, in close cooperation with **pan-European coordinating organizations and national bodies**, the collection of indicators in two emerging, important aspects of the development of European e·Infrastructures: sustainability and human capacity of e·Infrastructures. In neither case is there any information gathered consistently at present, if at all.

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Call you to

- Use the **European e·Infrastructures Observatory** and provide feedback
  - **www.e-observatory.eu**

- Provide feedback on the **Copenhagen e·Infrastructures Observatory White Paper - *Towards a European strategy for an e·Infrastructures Observatory***

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Thank you for your attention!

The European e·Infrastructures Observatory has been developed by the **e·nventory** project, co-financed by EU's 7th Framework programme for R&D under Grant Agreement no RI-261554.

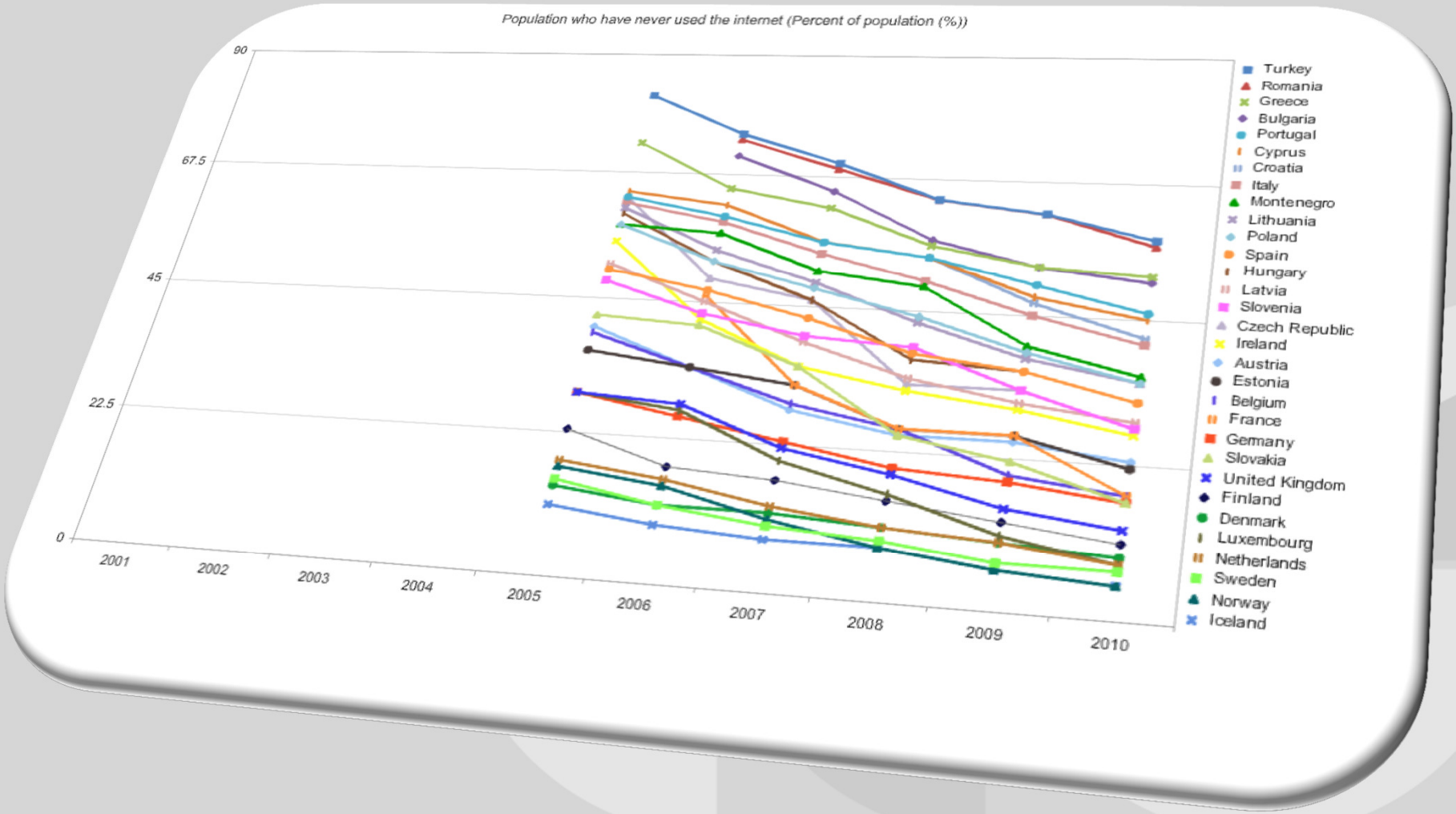
The **e·nventory** project acknowledges the invaluable support and contribution of its Advisory Board and the following European flagship e·Infrastructures initiatives and coordinating organisations: GEANT, DANTE, TERENA, EGI.eu, PRACE

Dr.-Ing. Jorge-A. Sanchez-P.
E: info@enventory.eu, **T:** +30.211.850.1843, **F:** +30.211.800.1843

e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Surroundings (1/4)

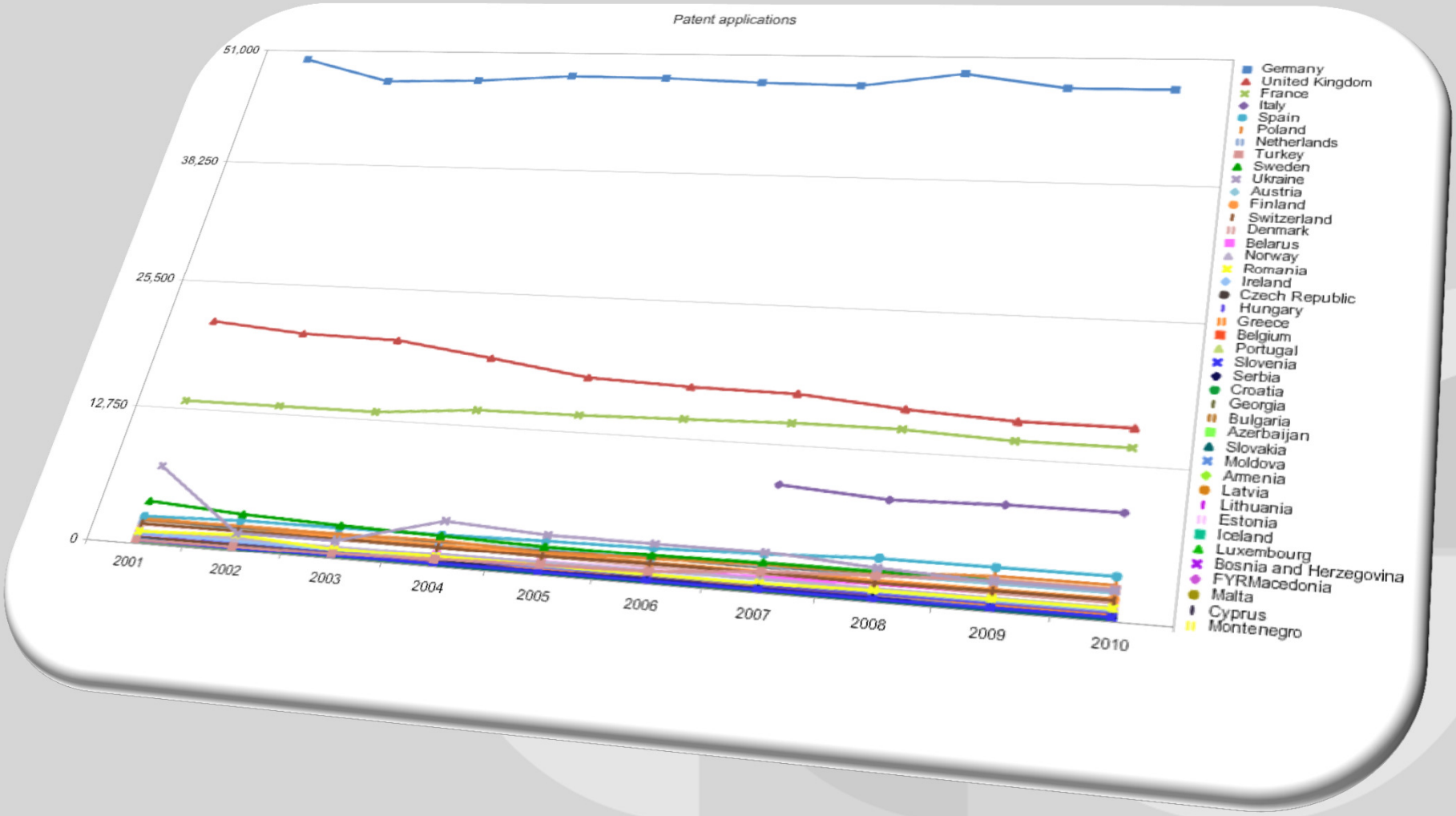
Population who have never used the internet



e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Surroundings (2/4)

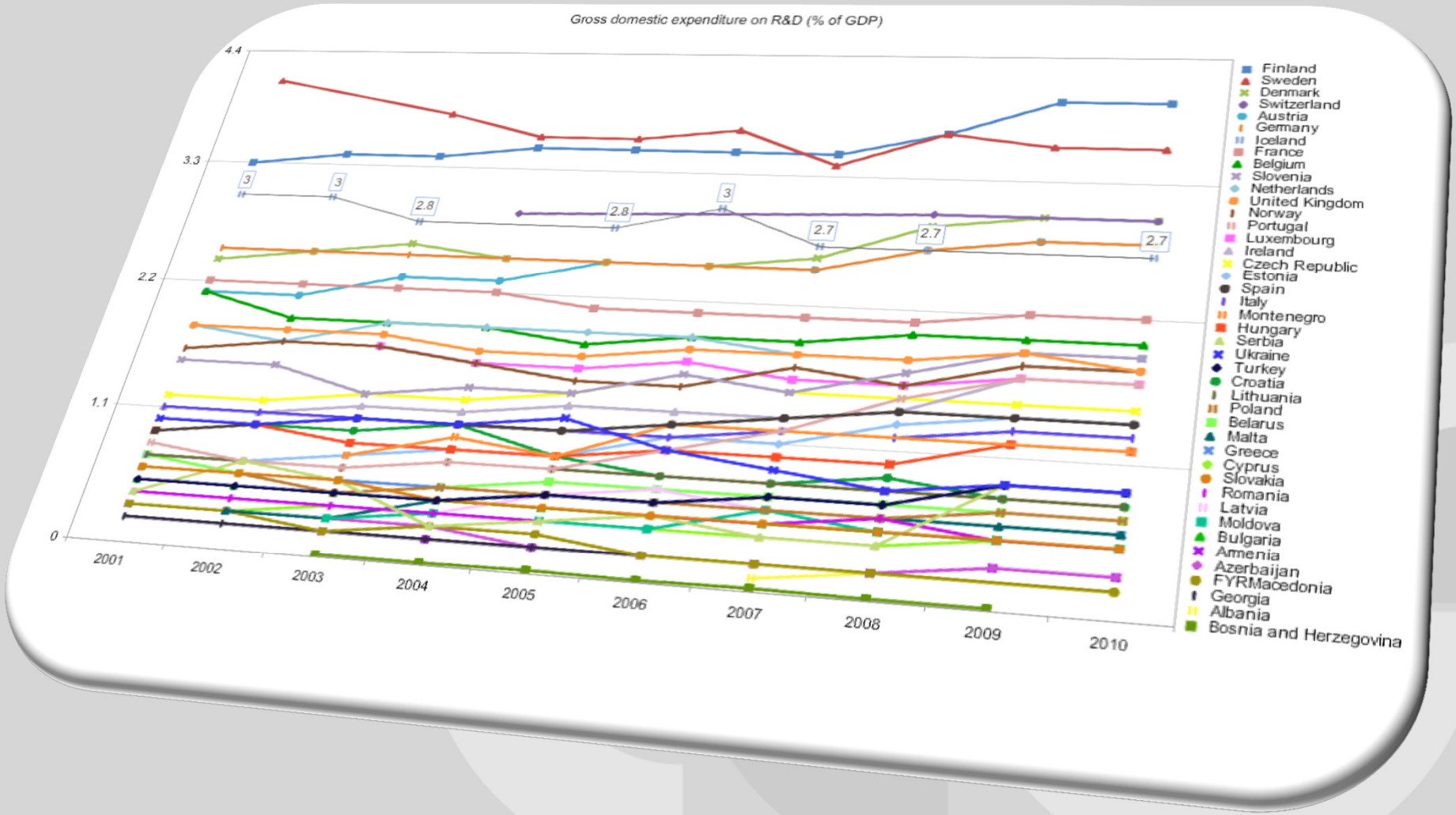
Patent applications



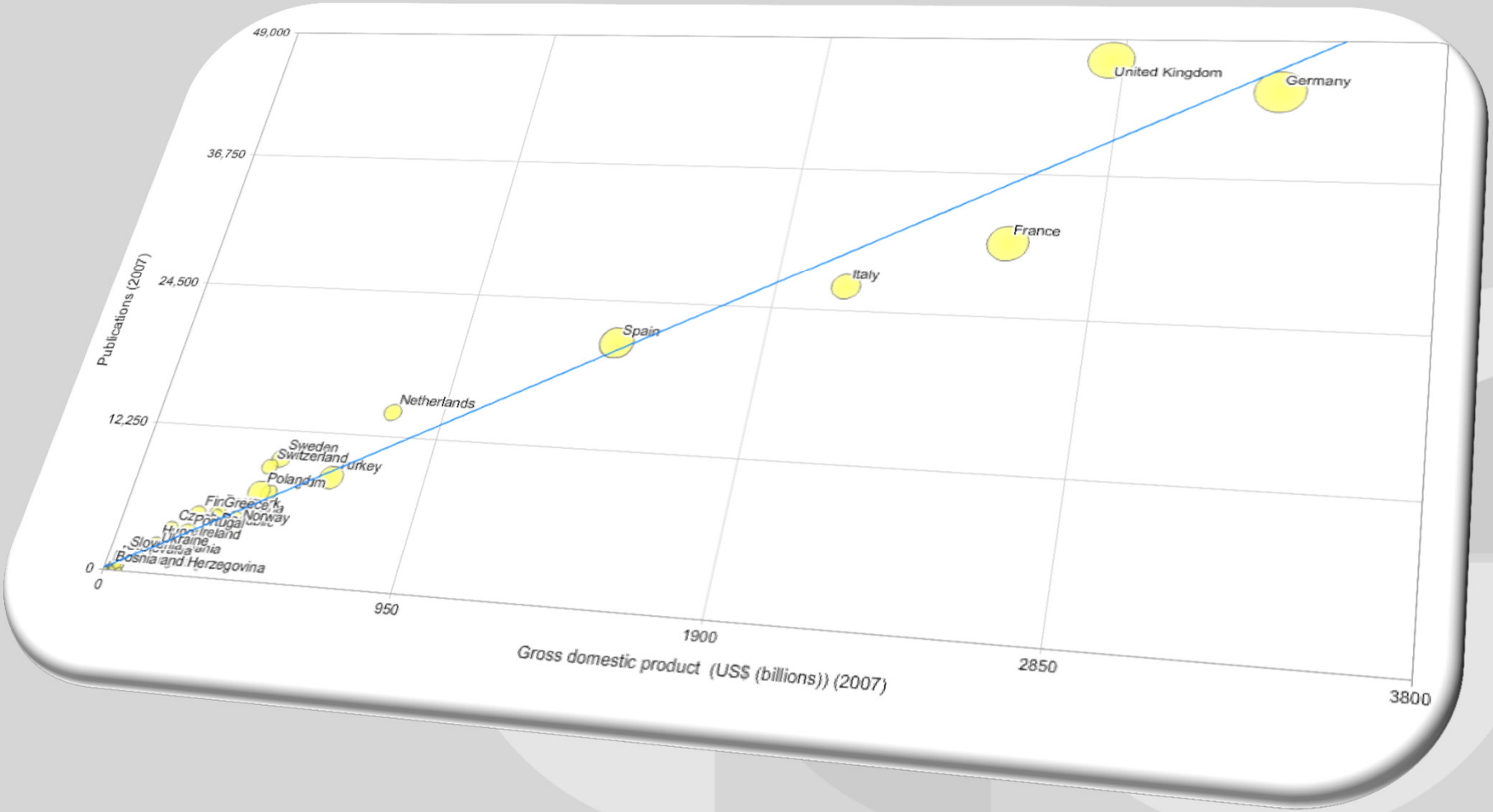
e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Surroundings (3/4)

Gross domestic expenditure on R&D



e·nventory
The European eInfrastructures Observatory
www.enventory.eu

Surroundings (4/4)

Publications vs. GDP