



# e-Infrastructures for Open Science

EAPEC18 Conference, Chisinau

[www.geant.org](http://www.geant.org)

## Objectives: “e-Infrastructures for Open Science”

1. Understanding what is the European Open Cloud initiative:
  - European Open Science Cloud (EOSC)
  - European Data Infrastructure (EDI)
2. How you can benefit
3. How you can participate/get involved

# Agenda overview

Setting the scene (EOSC and EDI)

 supporting Open Science/e-science





# GÉANT + e-infrastructures working together for Open Science

GÉANT and the NRENs are a trusted European Commission (EC) partner in many global collaboration projects and initiatives through our special relationship with the European Union.



European  
e-infrastructure  
projects



Trust & identity  
projects



NGI\_Trust



Network  
projects



Collaborative  
projects



OCRE

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GÉANT





# The European Cloud Initiative

- *European Open Science Cloud (EOSC)*
  - **Integration and consolidation of e-infrastructures**
  - **Federation of existing research infrastructures and scientific clouds**
  - **Development of cloud-based services for Open Science**
  - **Connection of ESFRIs to the EOSC**
- *European Data Infrastructure (EDI)*
  - **Development/deployment of large-scale European HPC, data and network infrastructure**
- *Widening access*
  - **SMEs, Industry at large, Government**







# GÉANT as a key enabler of European e-science

EAPEC18 Conference, Chisinau

Annabel Grant, GÉANT, October 17th 2018

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# Dedicated Network & Services for Research & Education

**The GÉANT network interconnects research, education and innovation communities worldwide, with secure, high-capacity networks.**

We design, plan, build and operate the large-scale, high-performance GÉANT network that connects European NRENs to each other and the rest of the world for sharing, accessing and processing the high data volumes generated by research and education communities and for testing innovative technologies and concepts.



Interconnecting Europe's NRENs over a 500Gb highly-resilient pan-European backbone. NRENs serve 50 million users at 10,000 institutions across Europe.

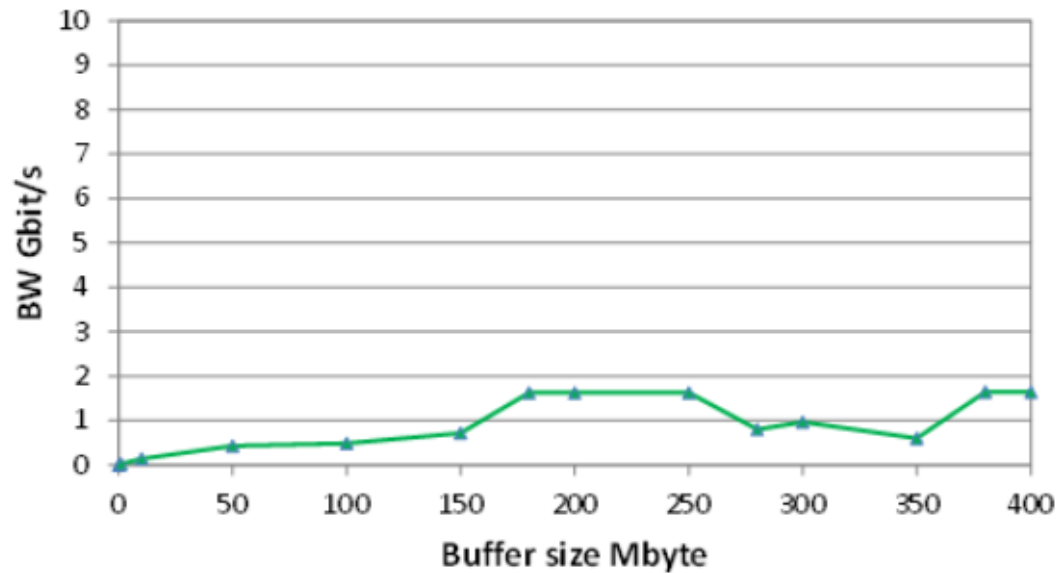
Network services: IP, Point-to-Point Services, VPN, Testbeds, performance monitoring



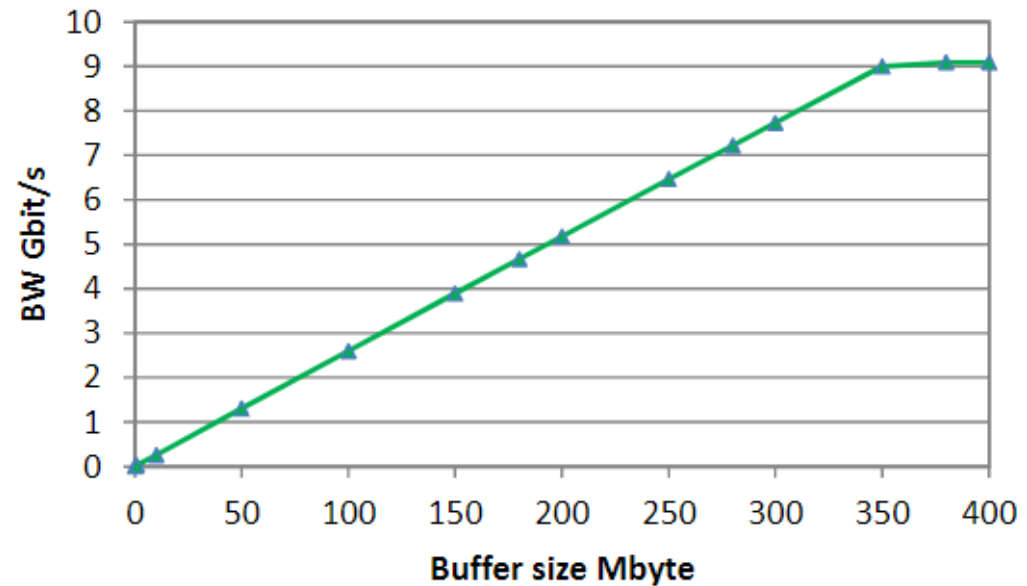


**“Today it would not be possible to work without the network that GÉANT and the NRENs have provided.”**  
CMS experiment, Large Hadron Collider (LHC)

## Public Internet



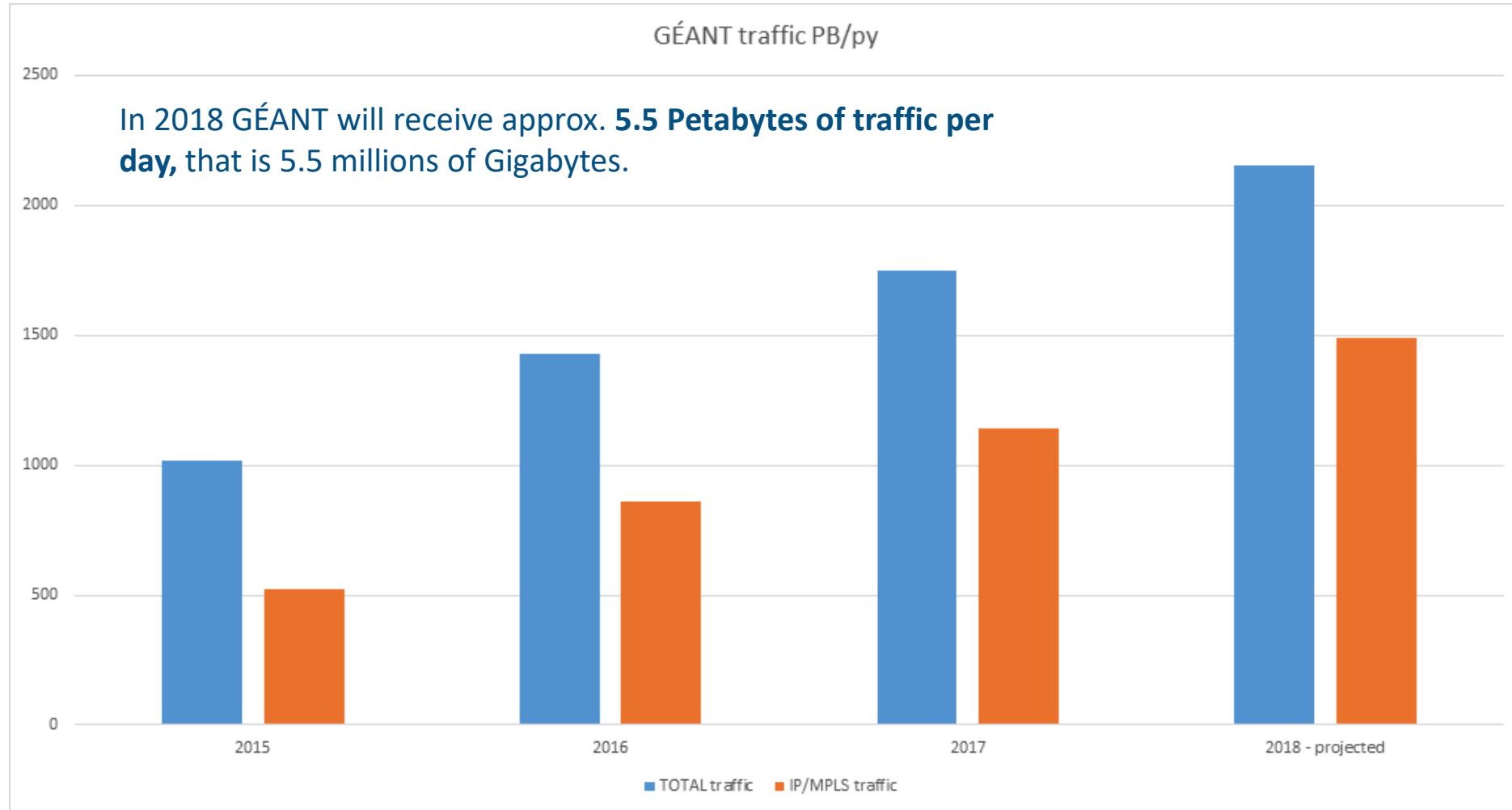
## GÉANT, R&E partners





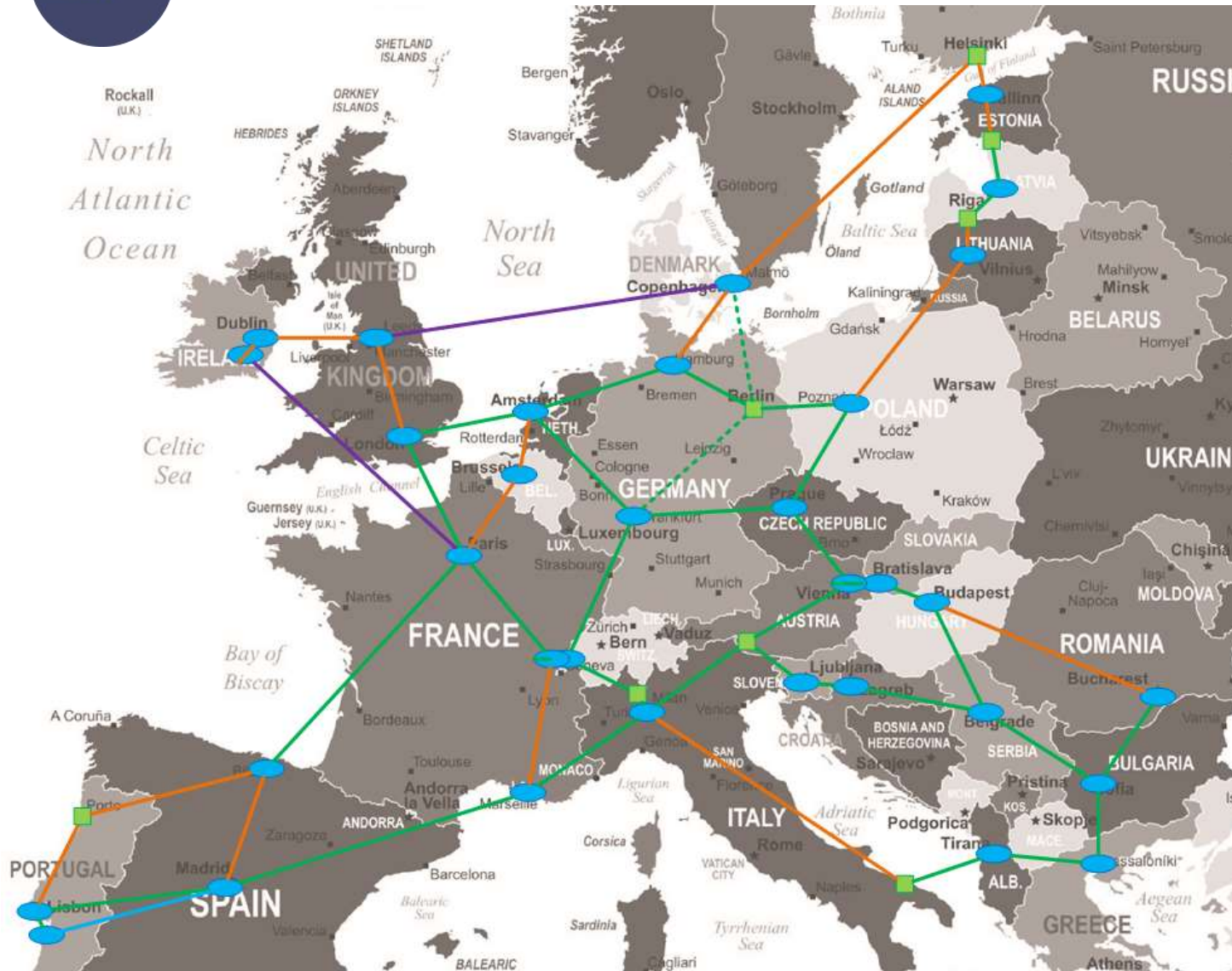


## GÉANT challenges – total network traffic doubled over 3 years





# New network for new challenges



Optimised for better regional and global connectivity

Ability to flexibly and quickly increase capacity across the network

Decrease in operational costs

Bridging the digital divide

Long term sustainability



## GÉANT community supporting EuroHPC

- GÉANT is a key enabler of the future HPC ecosystem at both the European and global level - making Exascale infrastructure available to researchers in all participating countries
- GÉANT will make the network and services developed under the EuroHPC programme also available in the context of EOSC
- The network to support Exascale/HPC will be:
  - Scalable enough to support the exponential increases in data
  - Cost effective
  - Flexible, Intelligent and programmable
  - Robust, reliable and resilient
  - Capable of hosting new end to end services



## Seamless user experience



Remote, on-demand access to HPC resources and storage facilities with:

- High-performance connections
- Security
- Federated authentication and Single-SignOn





# Thank you

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© GEANT Limited on behalf of the GN4 Phase 2 project (GN4-2).

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Iryna Kuchma  
EIFL

# OpenAIRE Advance: Science. Set free



<https://www.openaire.eu>



@openaire\_eu



# OpenAIRE: Supporting Open Science scholarly communication

- **Foster and encourage** the shift of scholarly communication towards Open Science
- **Monitor** Open Science scholarly communication
- **Support** Open Science publishing



Citizen Scientist



Research admins



Researchers



Content providers



Research communities



Funders



SMEs

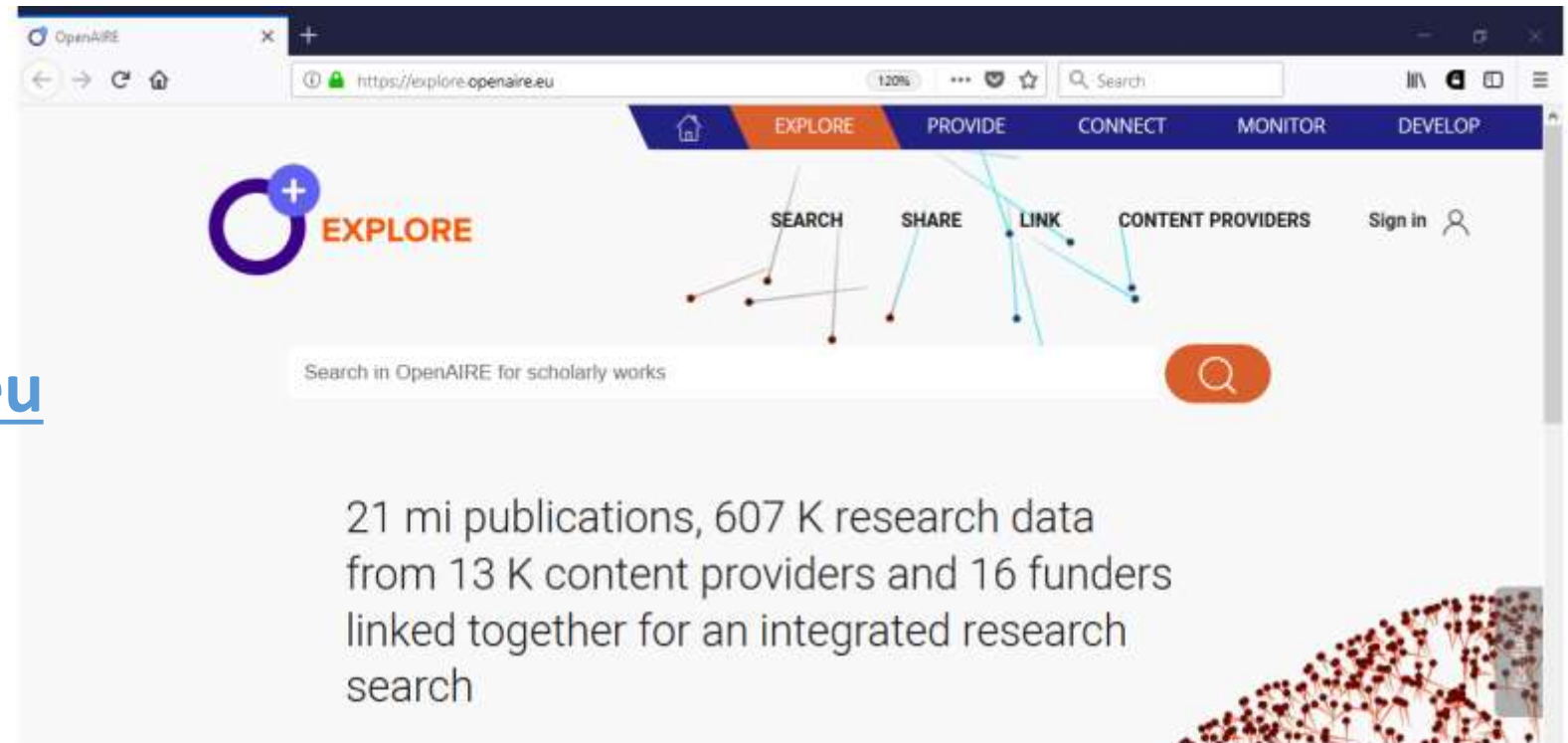


Research Organization



# Explore: Search for scholarly works. Link your research

<https://explore.openaire.eu>



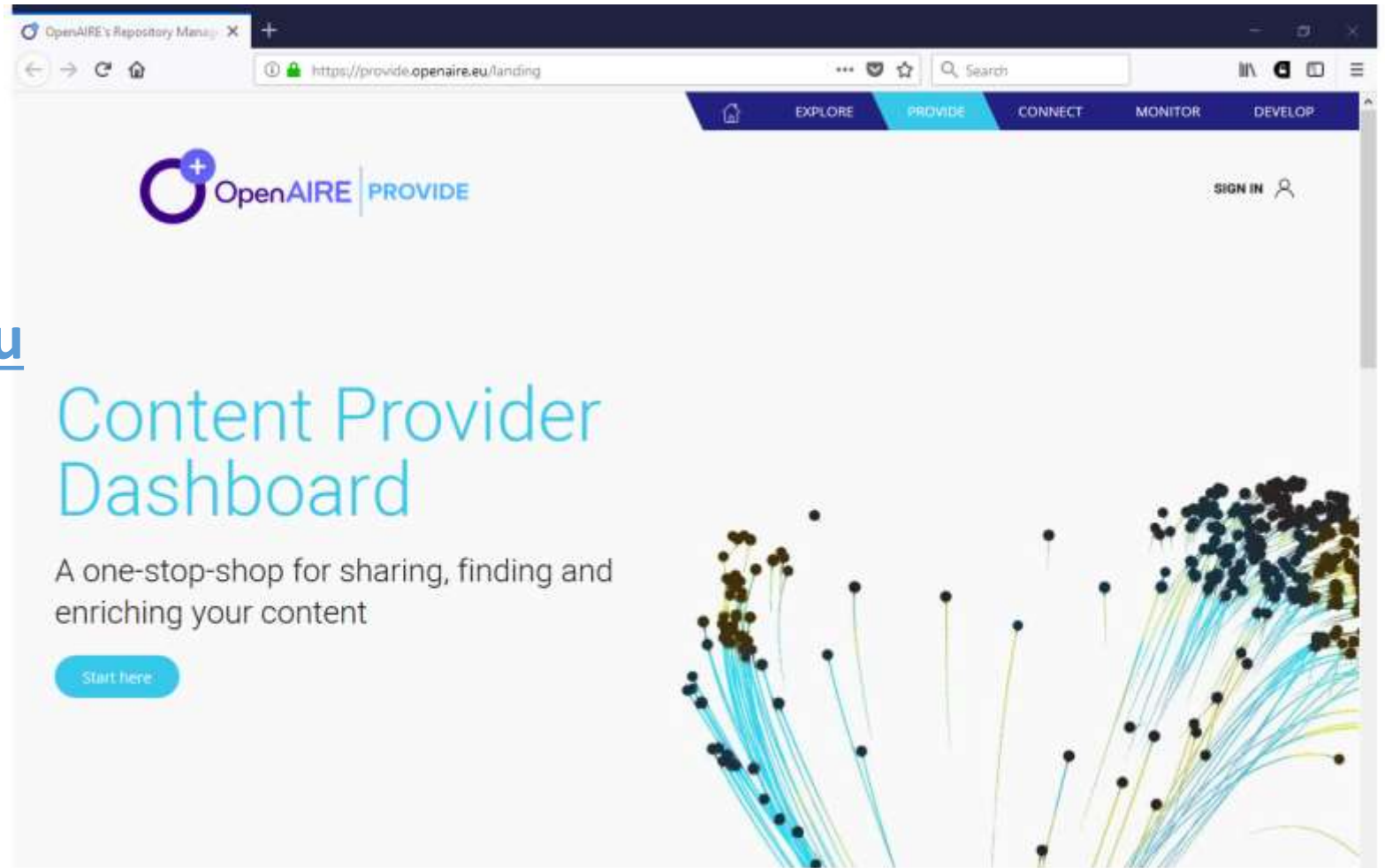


# OpenAIRE services for researchers

- Zenodo <https://zenodo.org>
  - A catch-all repository for all researchers, all research outputs
- AMNESIA <https://amnesia.openaire.eu>
  - Anonymize your data sets
- Open science training & helpdesk  
<https://www.openaire.eu/support>
  - Support materials, ask a question service, training
- OpenAIRE ScholeXplorer <http://scholexplorer.openaire.eu>
  - The data & literature interlinking service

# For content providers: Join OpenAIRE, share & enrich your content, track open research impact

<https://provide.openaire.eu>



Validate



Register

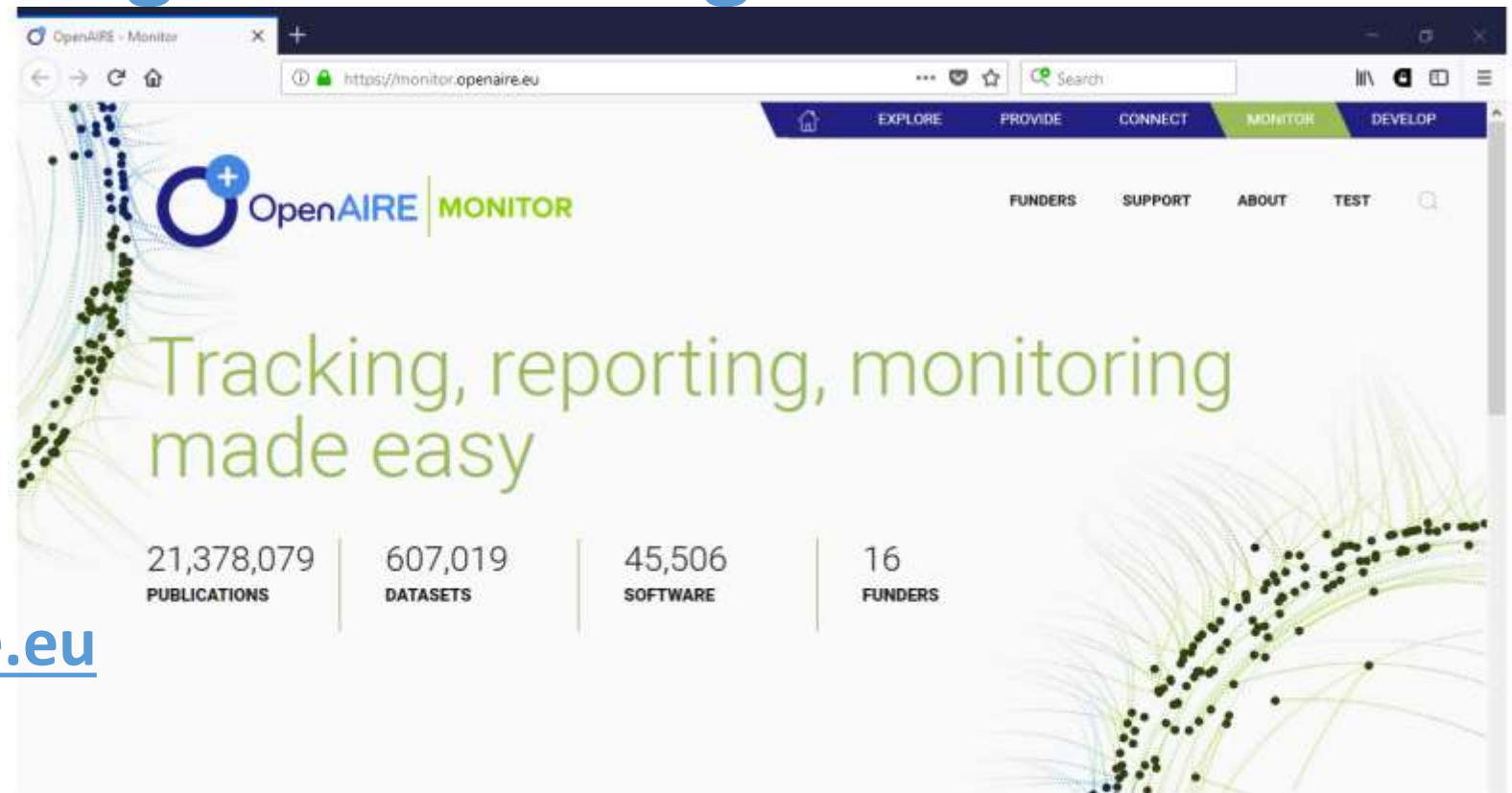


Enrich



Measure

# For funding bodies: Join & use our tracking, reporting & monitoring services



<https://monitor.openaire.eu>



## Are you a funder?

All you need to do is to provide OpenAIRE with a 'very limited' set of metadata fields from your database and we will take it up from there.



## Advanced Analytics

Using text mining (topic modeling) on the full texts we can discover hidden structures and identify useful patterns, similarities, correlations trends and communities.

Our tech team would be happy to work with



## Have more questions?

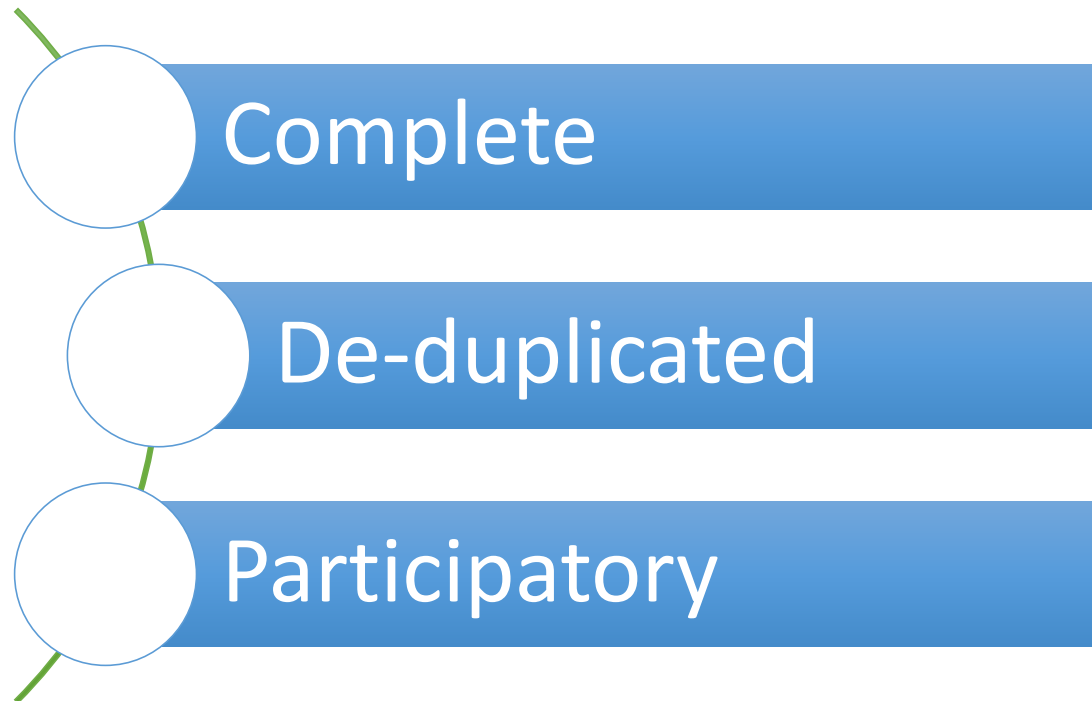
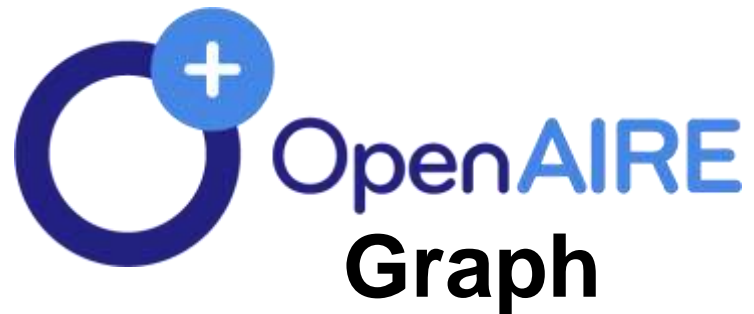
[Learn about open science policies and how to align](#)

[Learn more on how to manage your data in the open science era](#)



# OpenAIRE scholarly communication graph

Building and maintaining an **open metadata** scholarly communication graph of interlinked **scientific products**, in turn linked to **Open Access information**, **funding information** and **community views**





# How YOU can get involved

- Check our catalogue of services and find the service that matches your needs <http://catalogue.openaire.eu>
- Get started on Open Science:
  - Open Access Basics & Research Data Management Handbook <https://www.openaire.eu/os-primers>
  - Open Science Guides <https://www.openaire.eu/guides>
  - Horizon 2020 Factsheets <https://www.openaire.eu/openaire-h2020-factsheets>
- Try our Research Community Dashboard <https://beta.connect.openaire.eu> – a virtual environment to share and link your research results, monitor & report
- Use our APIs <http://develop.openaire.eu>

# Thank you!

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