ΙΙΒΕΑΑ
ΙΔΡΥΜΑ ΙΑΤΡΟΒΙΟΛΟΓΙΚΩΝ ΕΡΕΥΝΩΝ
ΑΚΑΔΗΜΙΑΣ ΑΘΗΝΩΝ

Παγκόσμια Πρωτοβουλία για τα Ερευνητικά Δεδομένα, RDA
Ευρωπαϊκό Νέφος Ανοικτής Επιστήμης, EOSC

Δρ. Ζωή Κούρνια
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COVID19 Workshop v.2

Ίδρυμα Ιατροβιολογικών Ερευνών Ακαδημίας Αθηνών

RDA COVID19 Working Group

https://www.rd-alliance.org/groups/rda-covid19

Presentation to

COVID-19 Workshop v.2

November 6, 2020

RDA COVID-19 Recommendations and Guidelines

DOI: https://doi.org/10.15497/rda00052

Zoe Cournia, Biomedical Research Foundation, Academy of Athens

Natalie Meyers, Navari Family Center for Digital Scholarship, University of Notre Dame

Research Data Alliance

Vision

Researchers and innovators openly share and **re-use** data across technologies, disciplines, and countries to address the grand challenges of society.

Mission

RDA builds the social and technical bridges that enable open sharing and **re-use** of data.

https://www.rd-alliance.org/about-rda

THE RESEARCH DATA ALLIANCE
www.rd-alliance.org

building the social and technical bridges that enable open sharing and re-use of data

50 FLAGSHIP OUTPUTS

including 8 ICT Technical Specifications

100+ ADOPTION CASES

across multiple disciplines, organisations & countries

94 GROUPS WORKING ON GLOBAL DATA INTEROPERABILITY CHALLENGES

37 Working Groups
57 Interest Groups

11,154 INDIVIDUAL MEMBERS FROM 146 COUNTRIES

69% Academia & Research
14% Public Administration
11% Enterprise & Industry

52 ORGANISATIONAL MEMBERS
11 AFFILIATE MEMBERS

What does RDA do?

Members come together through self-formed, volunteer and focused Working Groups and exploratory Interest Groups to exchange knowledge, share discoveries, discuss barriers and potential solutions, explore and define policies and test as well as harmonise standards to enhance and facilitate global data sharing & re-use.

RDA members collaborate together across the globe to tackle numerous infrastructure & data sharing challenges related to:

- Reproducibility
- Data preservation
- Best practices for domain repositories
- Legal interoperability
- Data citation
- Data type registries
- Metadata

Who Can Join RDA?

Any individual or organisation, regardless of profession or discipline, with an interest in **reducing the barriers to the sharing and re-use of data** and who agrees to RDA's guiding principles of:

- Openness
- Consensus
- Balance
- Harmonization
- Community-driven
- Non-profit and technology-neutral

Individual Membership is free at https://www.rd-alliance.org/user/register

Why Join RDA as an Individual Member?

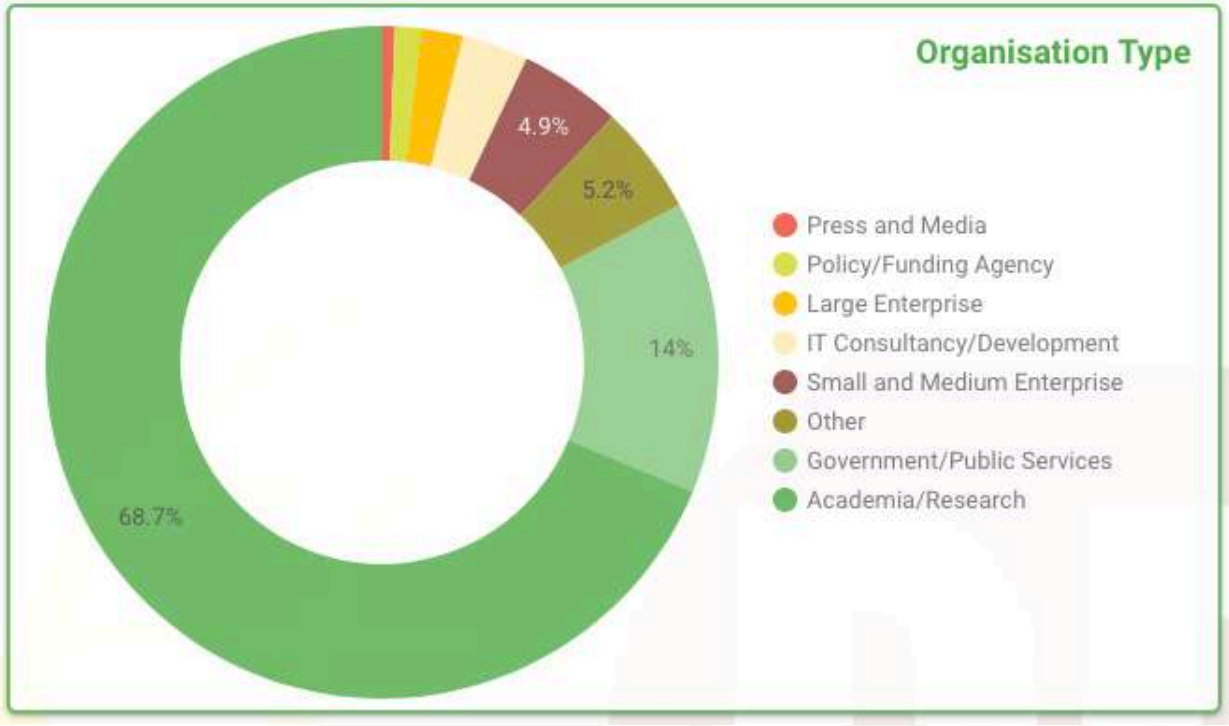
Individual Member Benefits

- ***Contribute*** to acceleration of data infrastructure development
- Work and ***share experiences*** with collaborators throughout the world
- ***Access*** to extraordinary network of colleagues with various levels of experience, perspectives and practices
- Gain greater ***expertise*** in data science regardless of whether one is a student, early or seasoned career professional
- ***Enhance*** the quality and effectiveness of personal work and activities
- ***Improve*** one's competitive advantage professionally and positioning oneself for leadership within the broader research community

https://www.rd-alliance.org/about-rda

Individual RDA Members 11,154

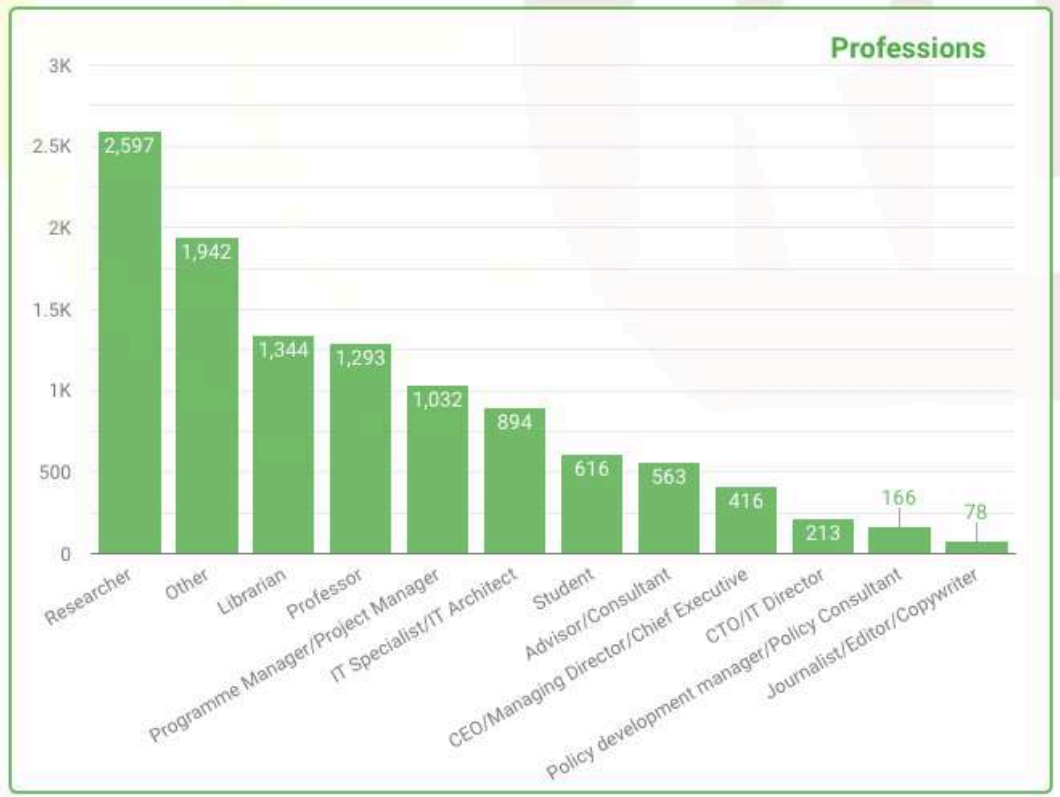
Who is RDA – Organisation type



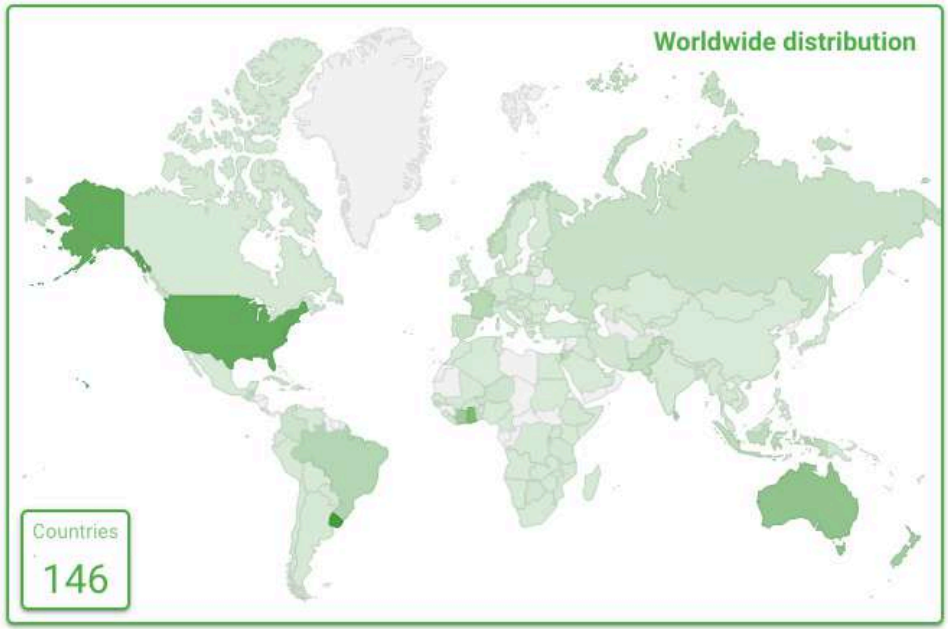
	Organisation Type	%
1.	Academia/Research	68.71%
2.	Government/Public Services	14.05%
3.	Other	5.24%
4.	Small and Medium Enterprise	4.93%
5.	IT Consultancy/Development	3.18%
6.	Large Enterprise	2.02%
7.	Policy/Funding Agency	1.26%
8.	Press and Media	0.6%

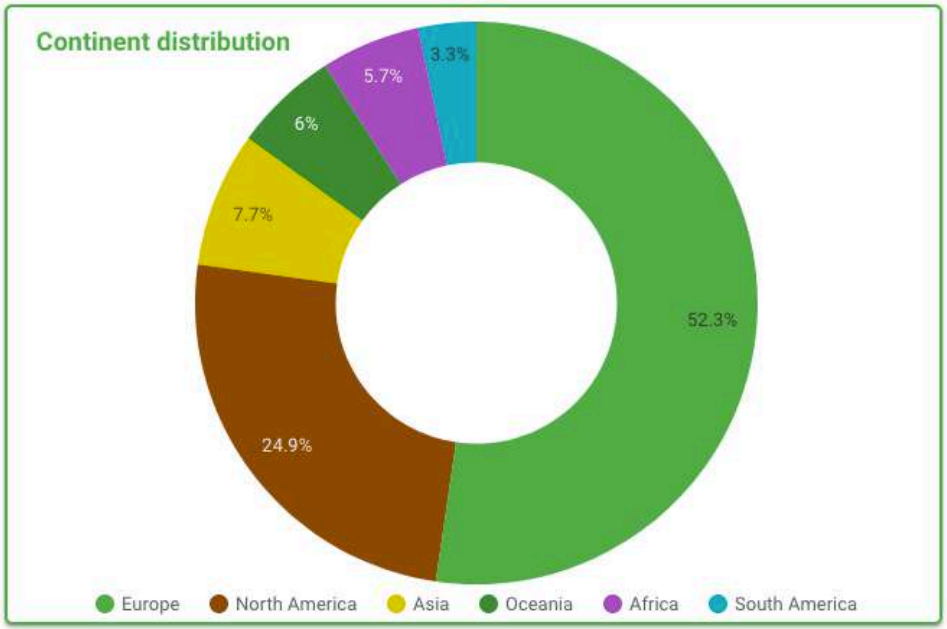
1 - 8 / 8

Who is RDA – Professional Title

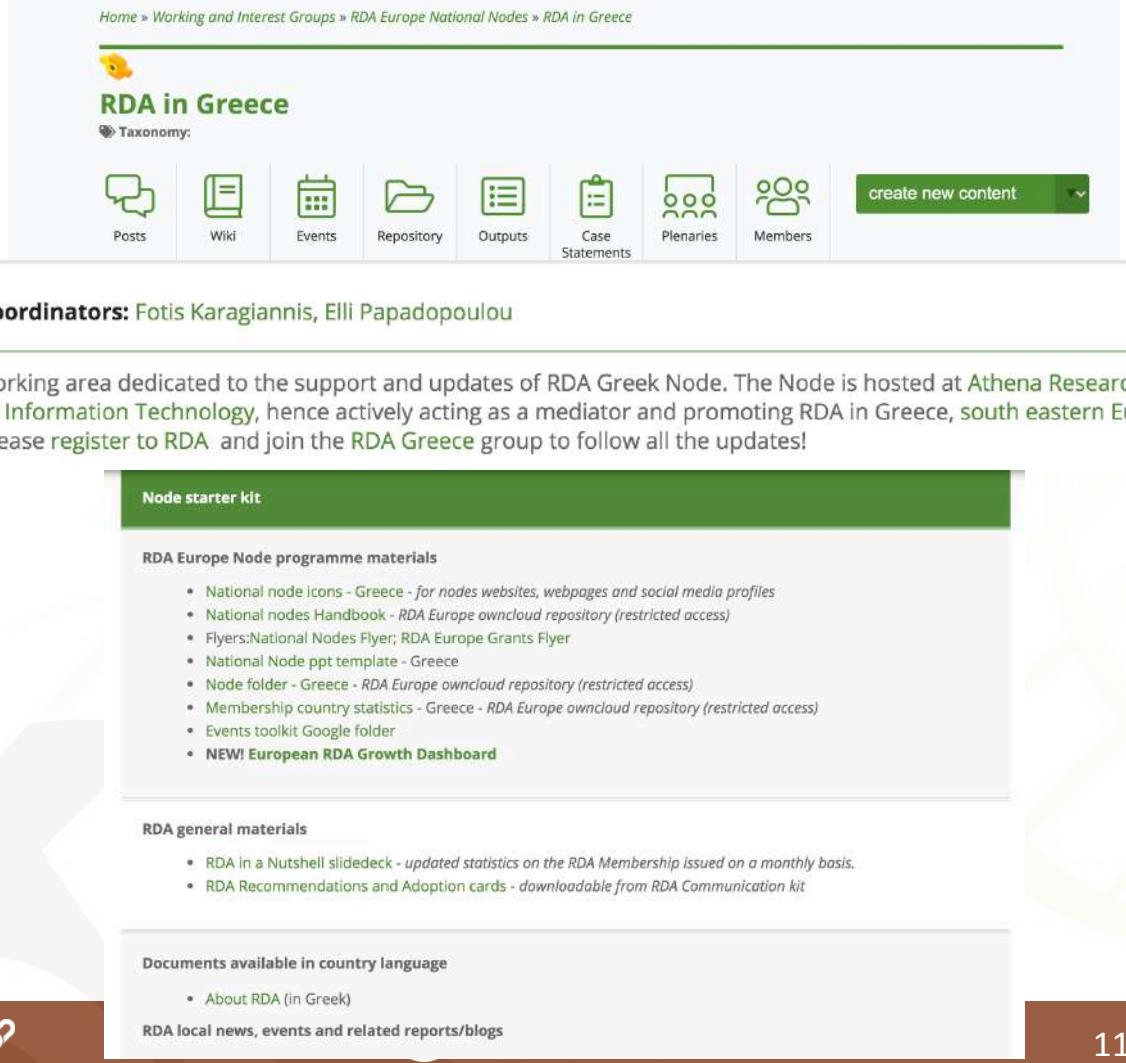


Who is RDA – Geographical Distribution





11,154 RDA members from 146 different countries



https://www.rd-alliance.org/groups/rda-greece

RDA Recommendations & Outputs

CATEGORIES OF RECOMMENDATIONS & OUTPUTS

1. **Data Management**
2. **Data Collection**
3. **Data Description**
4. **Identity, Store & Preserve**
5. **Disseminate, Link & Find**
6. **Policy, Legal Compliance & Capacity**

Search for Recommendations & Outputs

21 RDA Recommendations - ***of which 8 ICT Technical Specifications*** - **& 23 Supporting Outputs currently in the RDA Catalogue:**
https://www.rd-alliance.org/recommendations-and-outputs/catalogue

RDA active Interest Groups (IG) & Working Groups (WG):
Discipline-focused and Partnerships

Total 94 groups:
37 Working Groups & 57 Interest Groups

Discipline focus

Working Groups

- Agrisemantics WG
- Capacity Development for Agriculture Data WG
- Rice Data Interoperability WG
- Reproducible Health Data Services WG
- Preserving Scientific Annotation WG
- Blockchain Applications in Health WG
- InteroperAble Descriptions of Observable Property Terminology WG (I-ADOPT WG)
- RDA-COVID19-Legal-Ethical
- RDA-COVID19-Software
- RDA-COVID19-Clinical WG
- RDA-COVID19-Community-participation WG
- RDA-COVID19-Epidemiology WG
- RDA-COVID19-Omics WG
- RDA-COVID19-Social-Sciences WG
- RDA-COVID19 WG
- Raising FAIRness in health data and health research performing organisations (HRPOs) WG
- Empirical Humanities Metadata Working Group

Interest Groups

- Agricultural Data IG (IGAD)
- Biodiversity Data Integration IG
- Chemistry Research Data IG
- Digital Practices in History and Ethnography IG
- ESIP/RDA Earth, Space, and Environmental Sciences IG
- Geospatial IG
- Global Water Information IG
- Health Data IG
- Linguistics Data IG
- RDA/CODATA Materials Data, Infrastructure & Interoperability IG
- Research data needs of the Photon and Neutron Science community IG
- Small Unmanned Aircraft Systems' Data IG
- Social Sciences Research Data IG
- Research Data Management in Engineering IG
- RDA for the Sustainable Development Goals IG

Partnerships

Working Groups

- RDA/TDWG Metadata Standards for attribution of physical and digital collections stewardship WG
- RDA/World Data System (WDS) Scholarly Link Exchange WG

Interest Groups

- ELIXIR Bridging Force IG
- RDA/National Information Standards Organization (NISO) Privacy Implications of Research Data Sets IG

RDA COVID19 Working group aims

- to clearly define detailed **guidelines on data sharing under the present COVID-19 circumstances** to help stakeholders follow best practices to maximize the efficiency of their work, and to act as a blueprint for future emergencies;
- to develop **recommendations for policymakers** to maximise timely, quality data sharing and appropriate responses in such health emergencies;
- to address the interests of **researchers, policy makers, funders, publishers**, and providers of **data sharing infrastructures**.

RESEARCH DATA ALLIANCE

RDA COVID-19 Guidelines and Recommendations

Community Participation for Data Sharing under COVID-19

Indigenous Data under COVID-19

Legal and Ethical Considerations under COVID-19

Research Software for Data Sharing under COVID-19

WG outputs

- Best practice guidelines per sub-group and overall
- Recommendations for researchers and policymakers to help maximise data sharing
- Catalogue of key resources to inform guidelines (e.g. key datasets, standards, tools, repositories etc)
- A decision tree tool to facilitate navigation to specific resources by different stakeholders

Omics COVID-19 WG

https://www.rd-alliance.org/groups/rda-covid19-omics

Sub-groups/cross cutting themes	Challenges	Guidelines for researchers	Recommendations for funders/policymakers
Omics	An increased need of rapid openness for omics data to gain early insights into molecular biology of the processes at cellular level	Omics research should be a collaborative effort to learn the genetic determinants of COVID-19 susceptibility, severity and outcomes	Promote use of domain-specific repositories to enable standardisation of terms and enforce metadata standards

Data Sharing in Omics

- Focus and Description
- Scope
- Policy Recommendations
  - Researchers Producing Data
  - Policymakers & Funders

- Guidelines
  - Virus Genomics Data
  - Host Genomics Data
  - Structural Data
  - Metabolomics
  - Lipidomics

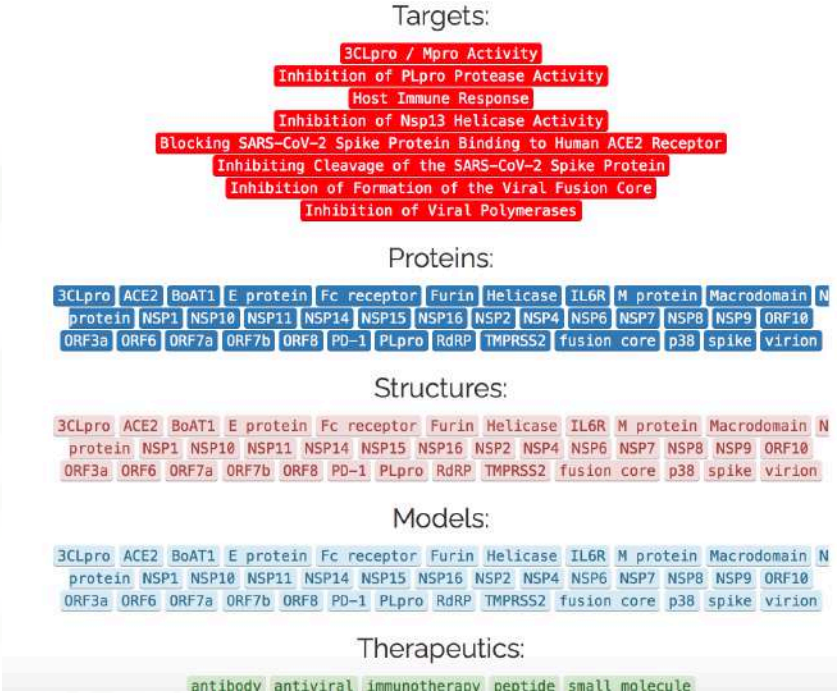
Omics COVID-19 WG

https://www.rd-alliance.org/groups/rda-covid19-omics

https://covid.molssi.org

Example: For Structural Data

- Repositories
  - Protein Structures: wwPDB, EBI PDBe, EMDB for Europe, RCSB PDB for USA, PDBj for Japan
  - GDHHI of China
- Locating Existing Data
  - COVID-19 Molecular Structure and Therapeutics Hub by MOLSSI and BioExcel
- Data and Metadata Standards
  - X-ray diffraction
  - Electron Microscopy
  - NMR
  - Neutron Scattering
  - Molecular Dynamics simulations
  - Computer-aided Drug Design data



Timeline

24 April	1st draft release
1 May	2nd draft release
8 May	3rd draft release
15 May	4th draft release
28 May	5th / Final draft release
8 June	Close of community comment and feedback (after 10 days)
15 June	Final document sent to RDA governance for endorsement
22 June	Deadline for RDA endorsement (Council, OAB, TAB)
29 June	Internal deadline for incorporation of RDA governance feedback, graphic design
30 June	Final endorsed document available

RDA-COVID19 Omics sub-group

RDA COVID19 UMBRELLA GROUP WEB PAGES	https://www.rd-alliance.org/groups/rda-covid19
RDA COVID19 CASE STATEMENT	https://www.rd-alliance.org/node/68704/case-statement
RDA COVID19 EVENTS (WEBINAR DETAILS)	https://www.rd-alliance.org/node/68704/events
RDA COVID19 WORKING & SUB-GROUP ORGANIZATION	https://www.rd-alliance.org/group/rda-covid19/wiki/working-sub-group-organization
RDA COVID19 OMICS SUBGROUP WEB PAGES	https://www.rd-alliance.org/groups/rda-covid19-omics
RDA COVID19 OMICS SUBGROUP GOOGLE FOLDER	https://drive.google.com/open?id=1bHzfxQLIMdsJtrbl_ZeoSeNZUnY0r2o1

Juan Bicarregui
STFC

Omics Sub-group Co-chair

Omics Sub-group Moderators

Omics
Rob Hooft, DTL &
Natalie Meyers, Uni of Notre Dame

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Natalie Meyers: natalie.meyers@nd.edu | @nkmeyers

RDA-COVID19 Omics sub-group

Members

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Eric Piver
Galia Weidl
Hilary Hanahoe
Isabelle PERSEIL
Juliane Fluck
Korbinian Bösl
Lynn Schriml
Marta Teperek
Paolo Manghi
Pieter Heyvaert
Ram Gouripeddi
Rodrigo Sara
Stéphanie Rennes
Thomas Duflot
Vivien Bonazzi

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Andrew Harrison
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Caterina Tomulescu
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Fanny Sébire
George Papastefanatos
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Yasemin Turkyilmaz-van der Velden

Alexander Bernier
Artur Rocha
Bridget Walker
Christian Busse
Daniel Mietchen
Emmanuelle Rial-Sebbag
Fotis Psomopoulos
helene blasco
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Natalie Meyers
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Rajini Nagrani
Robert Quick
Sophie Limou
Susheel Varma
Victor Greiff
Zoe Cournia

National Initiatives for Open Science in Europe

NI4OS-EU vs COVID-19

International COVID19 HPC Knowledge Exchange Group

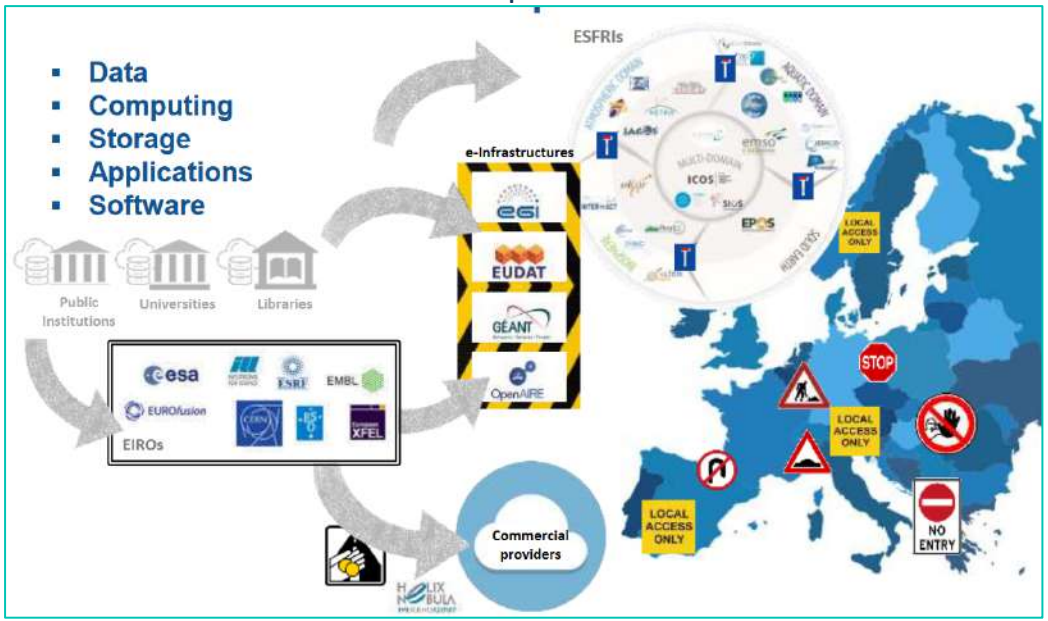
4 June 2020

Zoe Cournia, BRFAA
Life Sciences Scientific Community Leader

EOSC vision

EUROPEAN OPEN SCIENCE CLOUD

Current model of European data infrastructures



Source: EOSC Strategic Implementation Roadmap 2018-2020, May 2018, European Commission

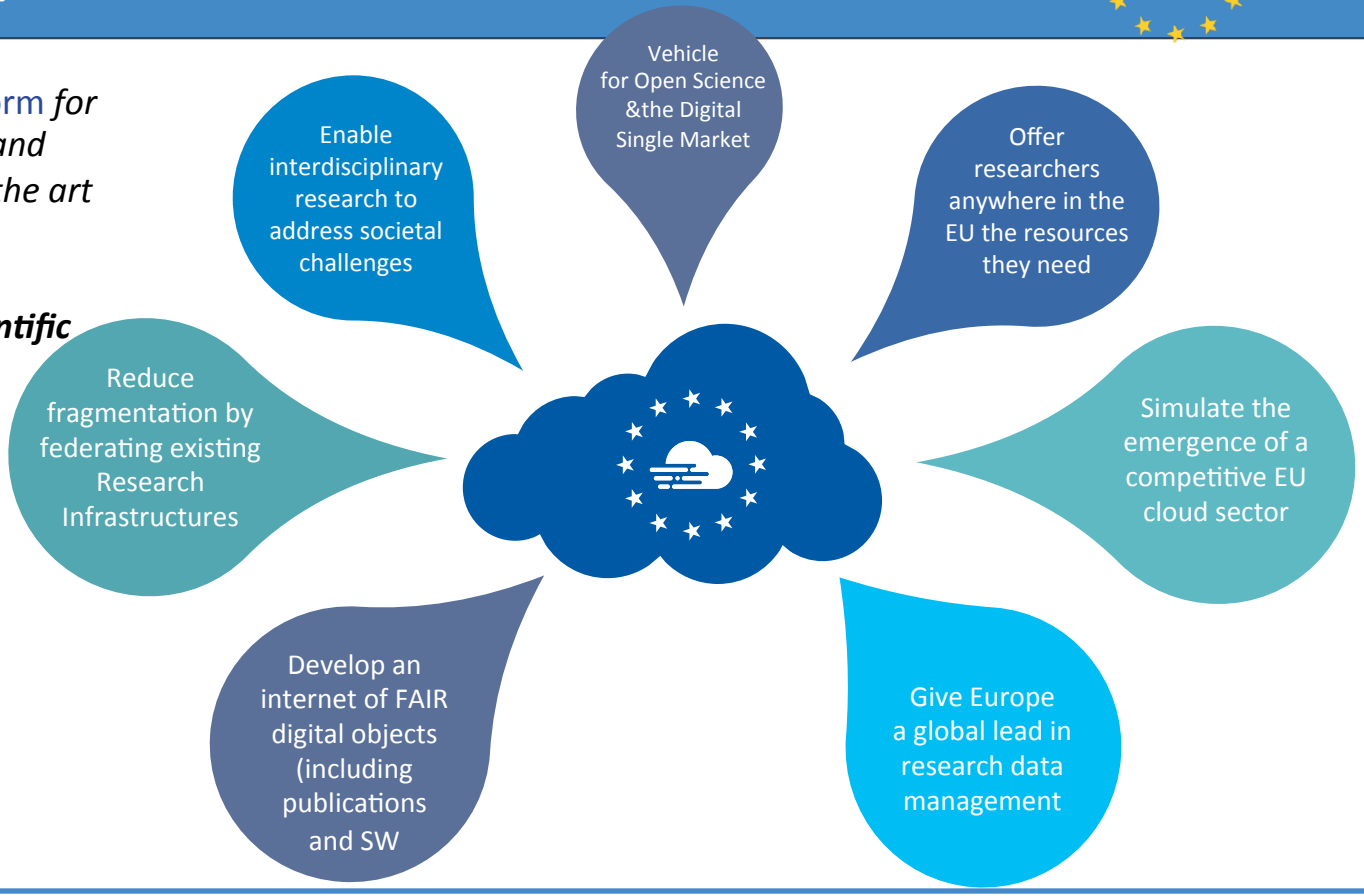
From fragmentation and uneven access to information to a federated model, where access to data would be universal, building on a strong legacy

Future EOSC model: federation of data infrastructures

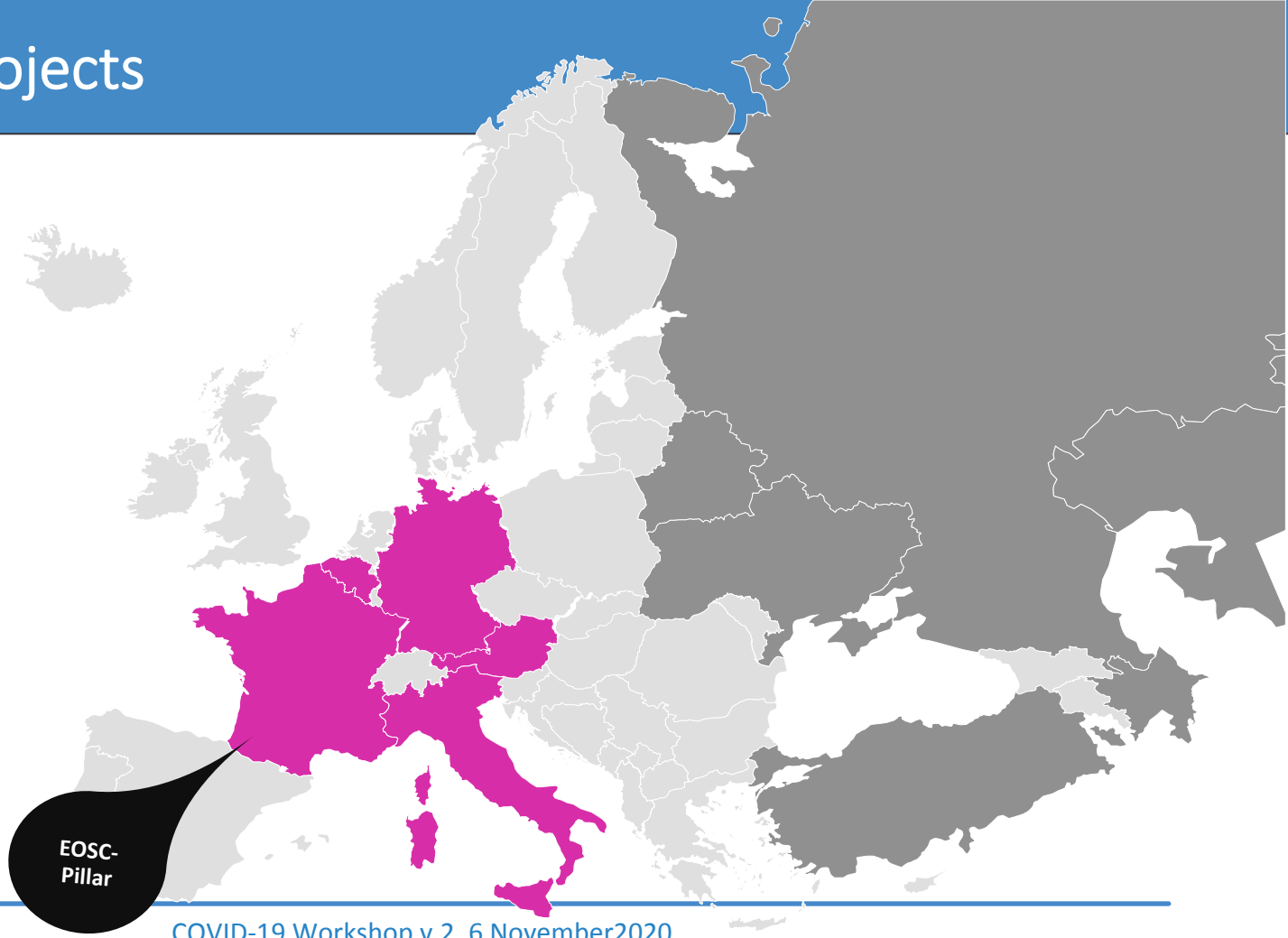
European Open Science Cloud

EUROPEAN OPEN SCIENCE CLOUD

One federated platform *for producing, curating and distributing state of the art* ***Findable, Accessible, Interoperable and Reusable (FAIR) scientific data.***

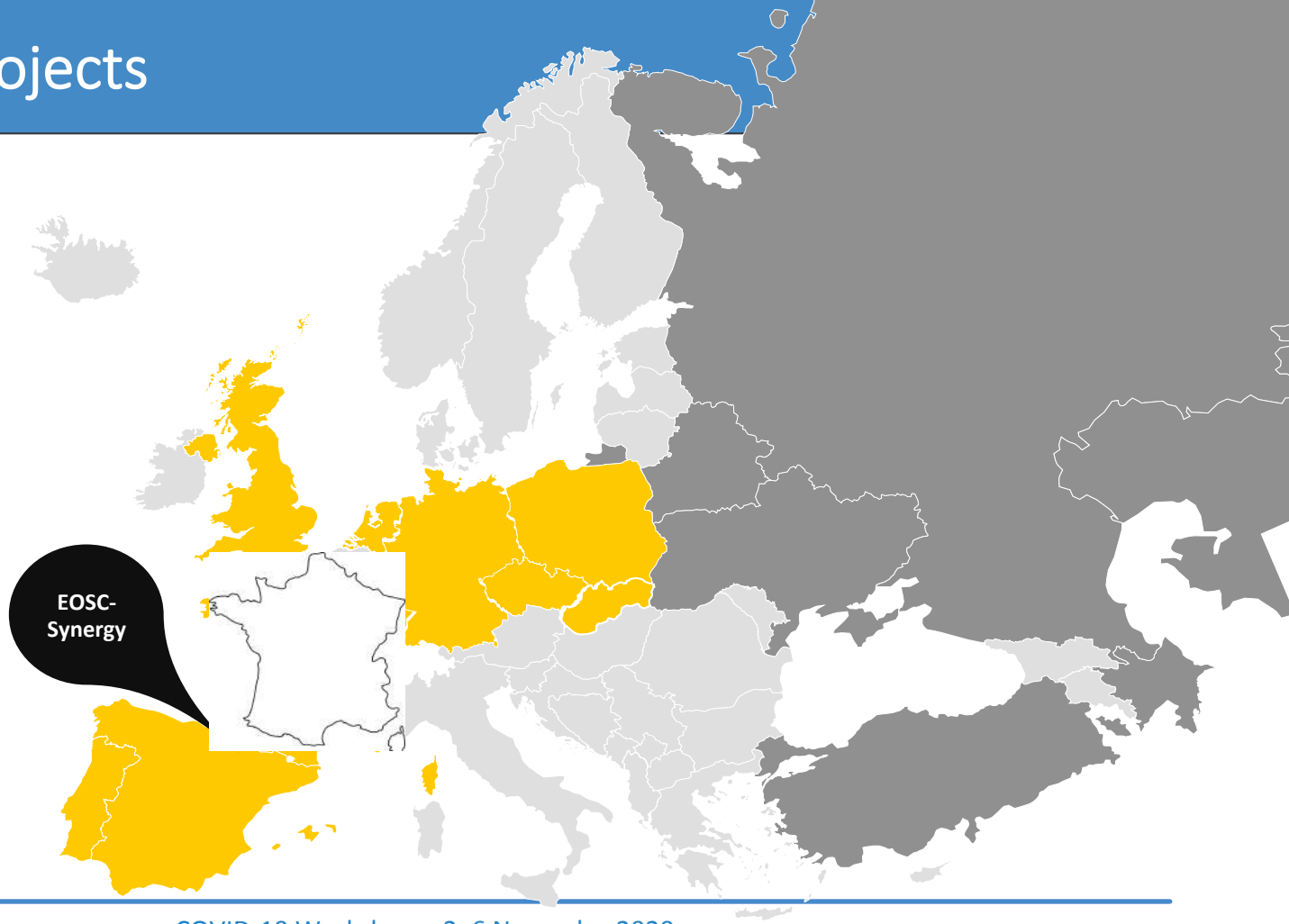


Regional projects



Credits: Federica Tanlongo – GARR
federica.tanlongo@garr.it - EOSC-Pillar

Regional projects



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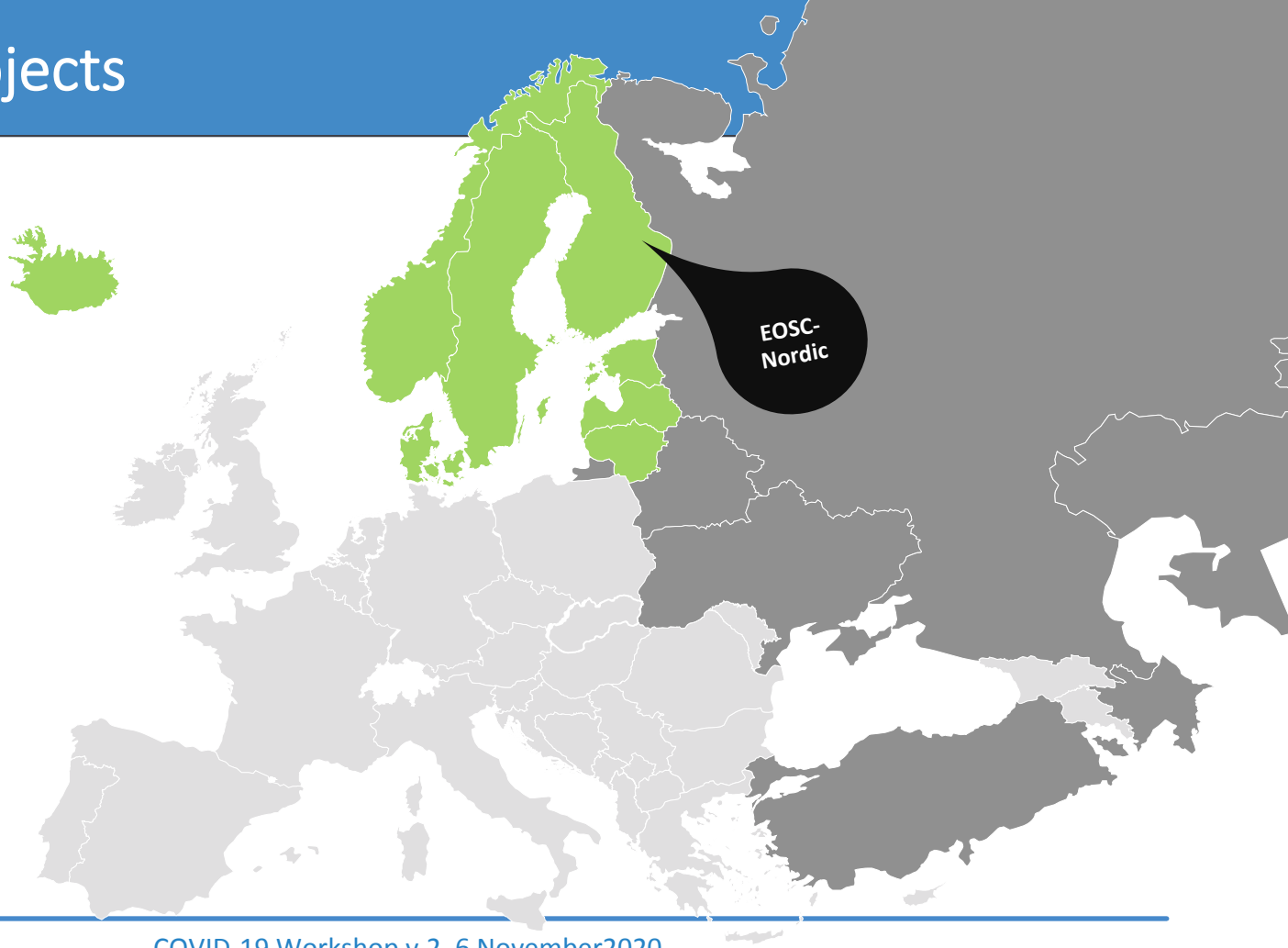
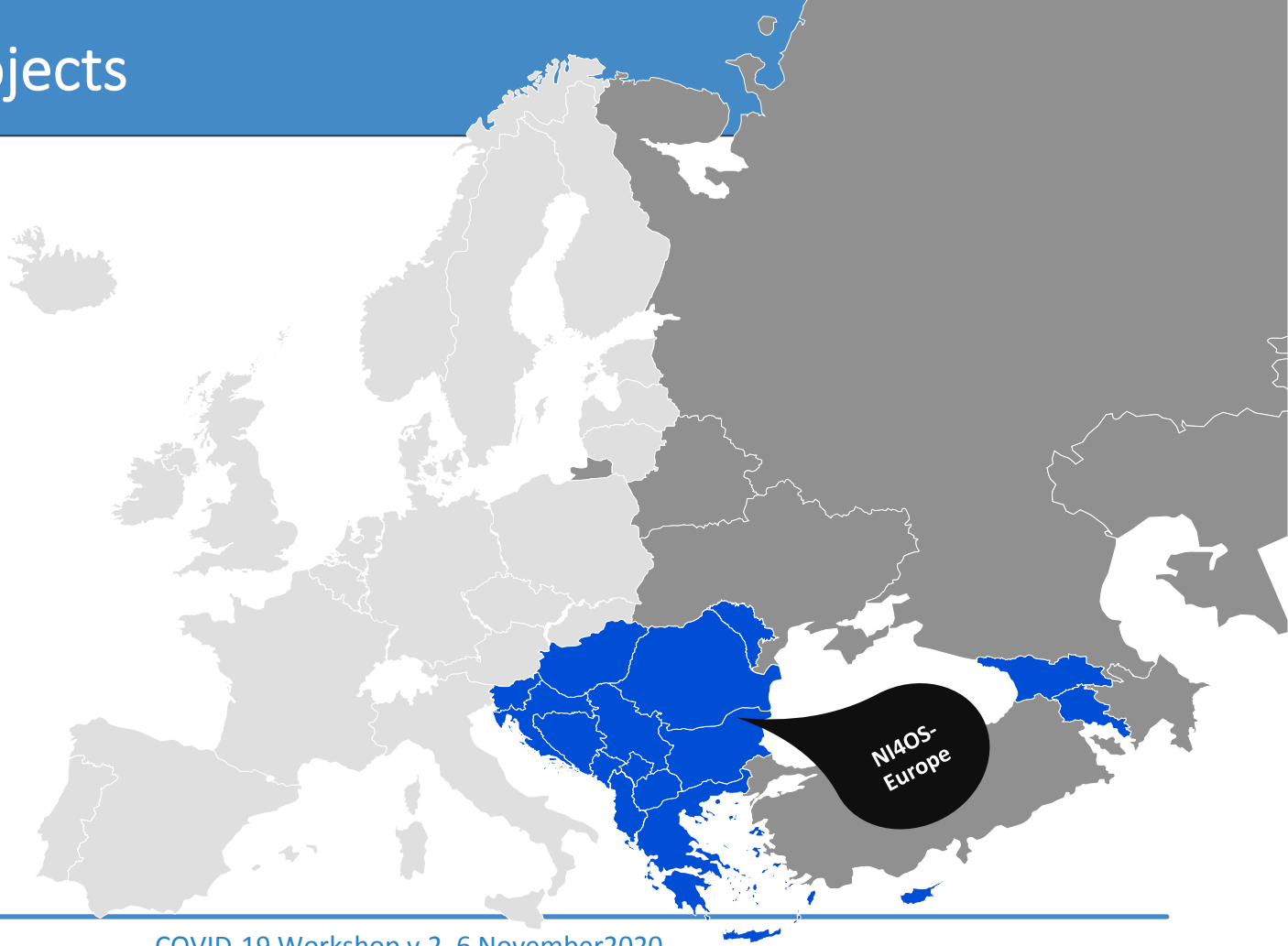
Regional projects



Credits: Federica Tanlongo – GARR
federica.tanlongo@garr.it - EOSC-Pillar

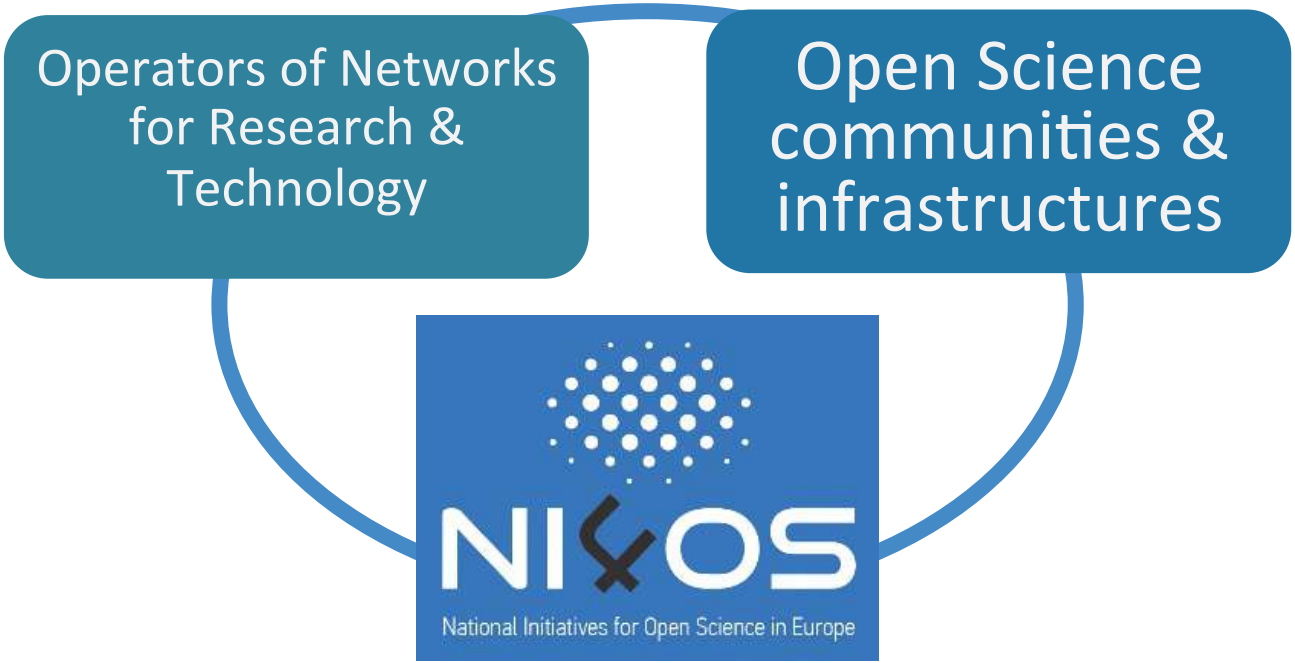
Regional projects

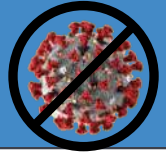
Greece
Cyprus
Bulgaria
Croatia
Serbia
Slovenia
Hungary
Romania
Albania
Bosnia-Herzegovina
North Macedonia
Montenegro
Moldova
Armenia
Georgia



Credits: Federica Tanlongo – GARR
federica.tanlongo@garr.it - EOSC-Pillar

Partnership building blocks





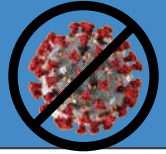
NI4OS-Europe Covid-19 Fast Access Channel

NI4OS-Europe takes action in the fight against COVID-19:

- NI4OS-Europe opens a fast track access channel to its
  - Generic services -computational (HPC, Cloud)
  - Data Analyzing tools
  - Storage services
  - Thematic Services related to covid-19
  - For scientific communities that perform extensive research to tackle the COVID-19.

APPLY and gain Fast Track Access to NI4OS-Europe resources:

- Are you a researcher, contributing in the fight against COVID-19?
- Seize the opportunity and make use of NI4OS Fast Access Channel!
- Contact us at: ni4os-europe-covid19@ni4os-europe.eu



NI4OS-Europe Covid-19 Fast Access Channel

The initiation procedure to the fast access channel is as follows:

- Contact NI4OS-Europe fast access channel at ni4os-europe-covid19@ni4os-europe.eu and express your need by briefly describing:
  - Area of research,
  - Estimated overall computational load and usage pattern in the near future,
  - Execution environment (programming language, libraries),
  - Parallelization requirements, if any,
  - Data exchange, etc.
- Needs will be matched against the available resources and you we will responded soon.
- An online meeting might be arranged so that the needs of the project are discussed.
- You will be provided details on how to access the resources.

- **CPUs, GPUs, Phi-cards available.**

Computational Resources Available

- **Computational resources have already been allocated to:**
  - The Bioinformatics European Research Era Chair and the Bioinformatics Group at the Cyprus Institute of Neurology and Genetics.
  - **"Network-based multiomics integration boosts drug respurposing against COVID-19."**

Our in-house drug discovery software tools

ChemBioServer

http://chembioserver.vi-seem.eu/

Filtering, clustering & visualization of compounds for drug discovery

FEPrepare

http://feprepare.vi-seem.eu

Automates lead optimization

AFMM

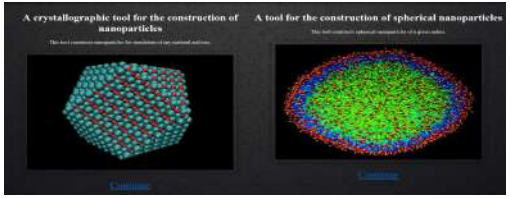
http://afmm.vi-seem.eu/

Automatic parameterization for small molecules

Nano-Crystal

http://nanocrystal.vi-seem.eu/

Creates nanoparticles for simulations



Subtract

http://subtract.vi-seem.eu/

Calculates the volume of protein cavities

EUROPEAN OPEN SCIENCE CLOUD

https://www.eosc-portal.eu/

NETWORKING

COMPUTE

STORAGE

SHARING & DISCOVERY

DATA MANAGEMENT

PROCESSING & ANALYSIS

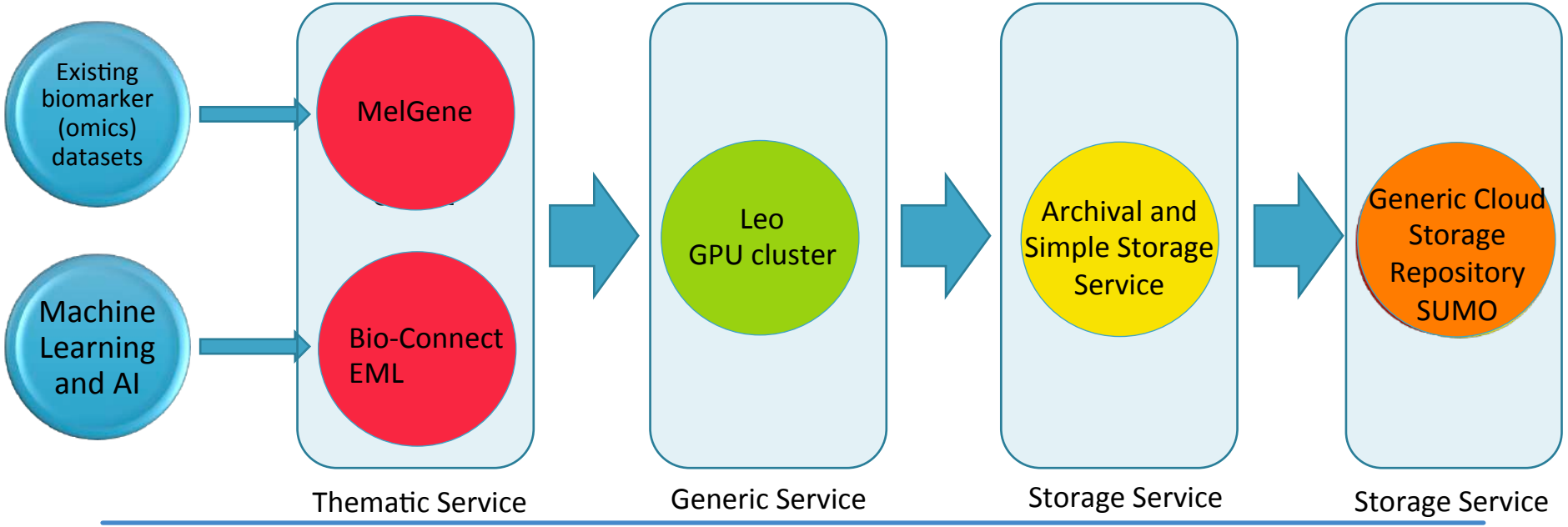
SECURITY & OPERATIONS

TRAINING & SUPPORT

Use Case Example: Extracting correlations for patient stratification using machine learning

Extracting correlations for patient stratification using machine learning

- Stratifying patients for COVID-19 response based on existing data



Vision

Global Open Science as a driver for enabling a new paradigm of transparent, data-driven science as well as accelerating innovation

Thanks!

https://ni4os.eu/ni4os-europe-vs-covid19/

https://twitter.com/NI4OS_eu

https://www.facebook.com/NI4OS/

zcournia@bioacademy.gr