



Asnet

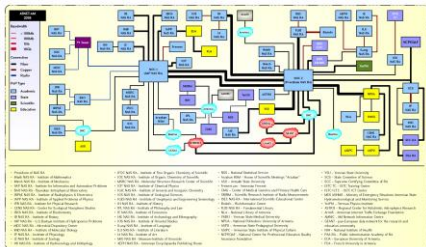
AM

Research Computing Ecosystem in Armenia

Academic Scientific Research Computer Network of Armenia
Institute for Informatics and Automation Problems,
National Academy of Sciences of the Republic of Armenia

Vision

High-speed network

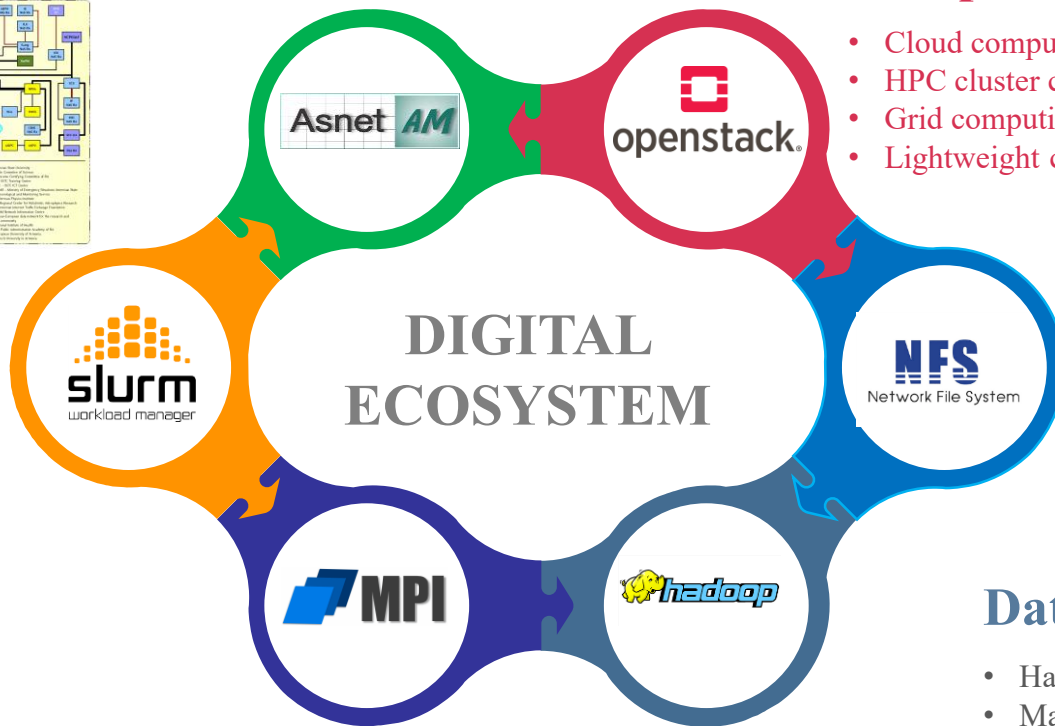


Software

- Libraries
- Packages
- Middlewares
- Queue systems
- Ticketing systems

Algorithms

- Distributed & parallel
- AI and machine learning
- Data analytics



Computing resources

- Cloud computing
- HPC cluster computing
- Grid computing
- Lightweight computing

Storage resources

- Cold
- NAS
- Hybrid
- All-flash

Data processing

- Hadoop/Spark
- MapReduce
- Archiving

Capacities

Networking (ASNET-AM)

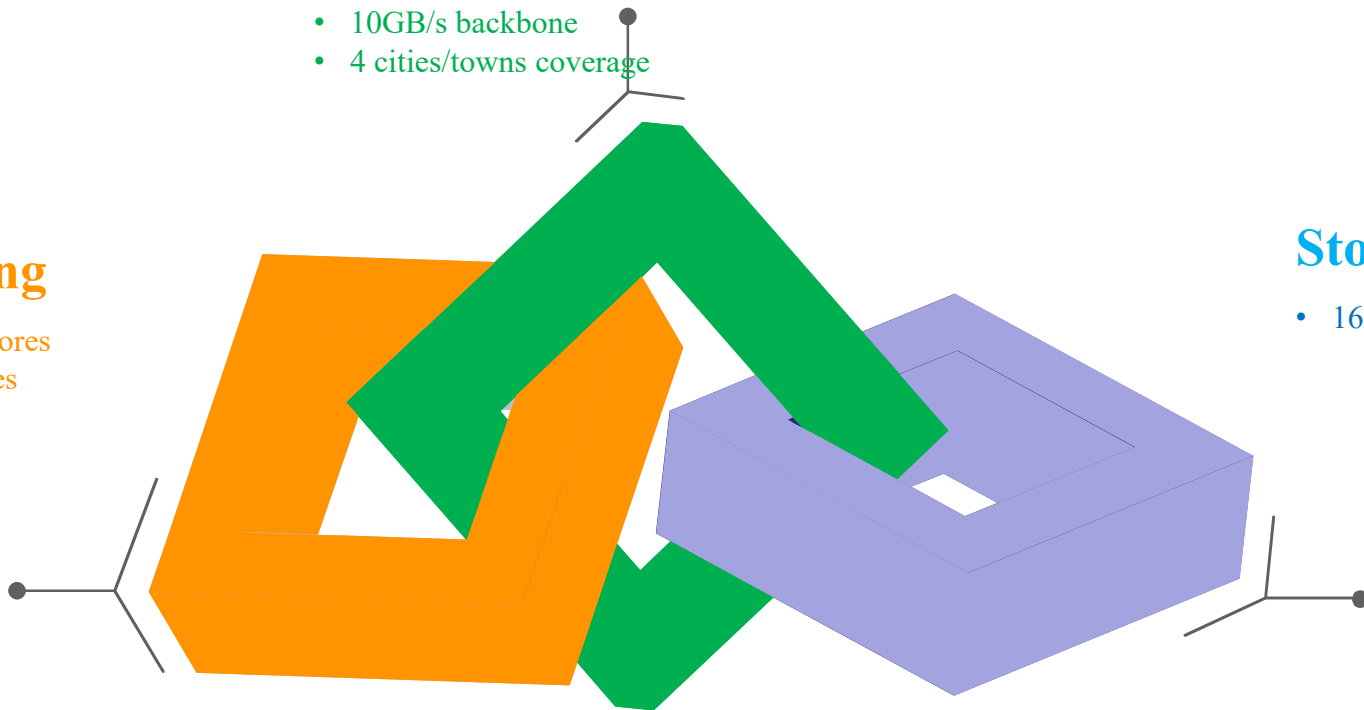
- 65 organizations
- 2 GB/s to GEANT
- 10GB/s backbone
- 4 cities/towns coverage

Computing

- 20480 GPU cores
- 616 CPU cores

Storage

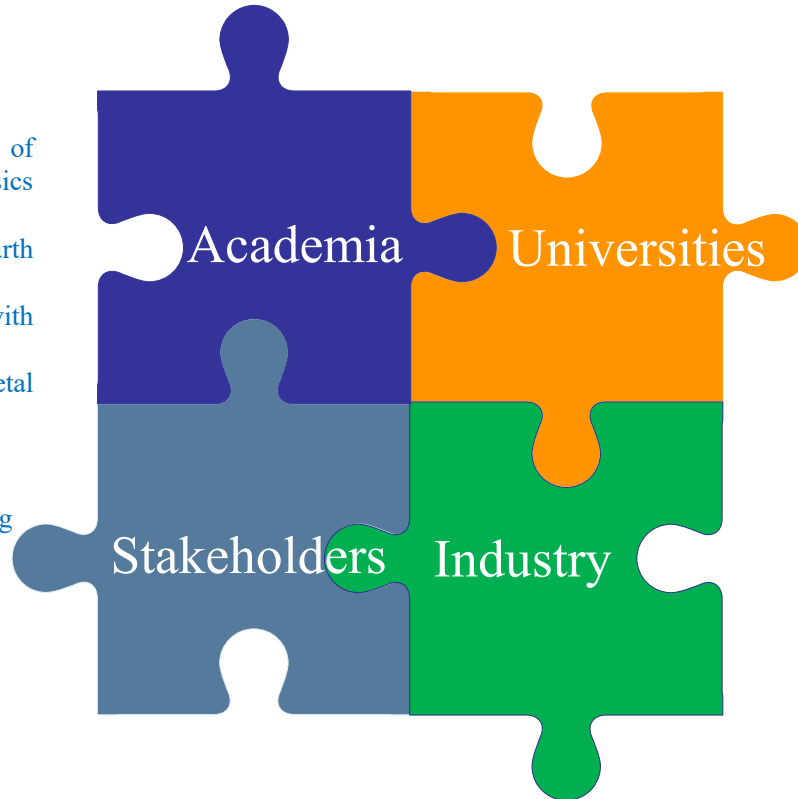
- 1620TB



Communities

NAS RA

- Supporting the multiwavelength monitoring of the bright Blazars (Relativistic Astrophysics Network)
- Monitoring the environment with Earth observation in Armenia (CENS)
- Empowering the Armenian Genome project with HPC resources (MolBio)
- Adsorption features of some molecules on metal surfaces (ISEC)
- Whole-genome-based phylogeny of ASF viruses (Molbio, IIAP)
- Boosting laser physics and quantum computing simulations (IPR)
- Preserving the past for the future for the Armenian cultural heritage: TIME MACHINE (FLIB)
- Armenian Virtual Observatory (BAO)



Ministries

- Supporting weather ‘nowcasting’ to prevent damage in Armenia (Ministry of Environment)

Universities

- Enabling computational materials discovery and atomic scale simulations (YSU)
- Estimation of metastable states of proteins with HPC resources for drug design (Slavonic)

Industry

- Supporting research and development on RINA, an emerging network architecture (RINA)

Services

01 INFRASTRUCTURE

1. Internet and GEANT access
2. IaaS Cloud (1-64 cores per VM), cloud.asnet.am
3. AI cloud on GPUs, cloud.asnet.am
4. Container cloud, cloud.asnet.am
5. DNS, Hosting

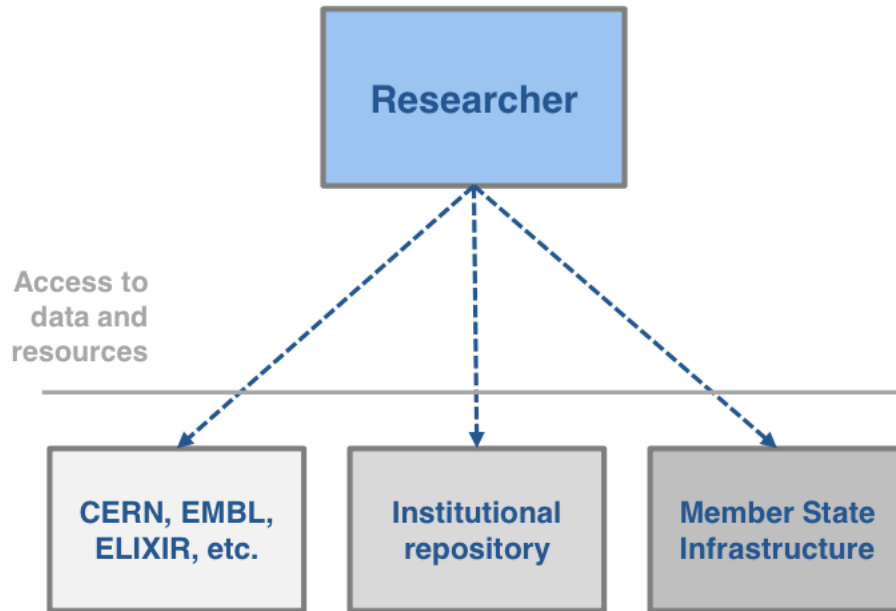
02 COLLABORATIVE

1. eduroam, eduroam.am
2. Distance learning, meet.asnet.am
3. Mail system, mail.asnet.am
4. Cloud storage, nextcloud.asnet.am
5. Music without border, Lola

03 DOMAIN SPECIFIC

1. Data preservation, noad.asnet.am
2. Earth Observation, datacube.sci.am
3. Repositories & mirroring, mirrors.asnet.am
4. SaaS and Jupyter notebooks

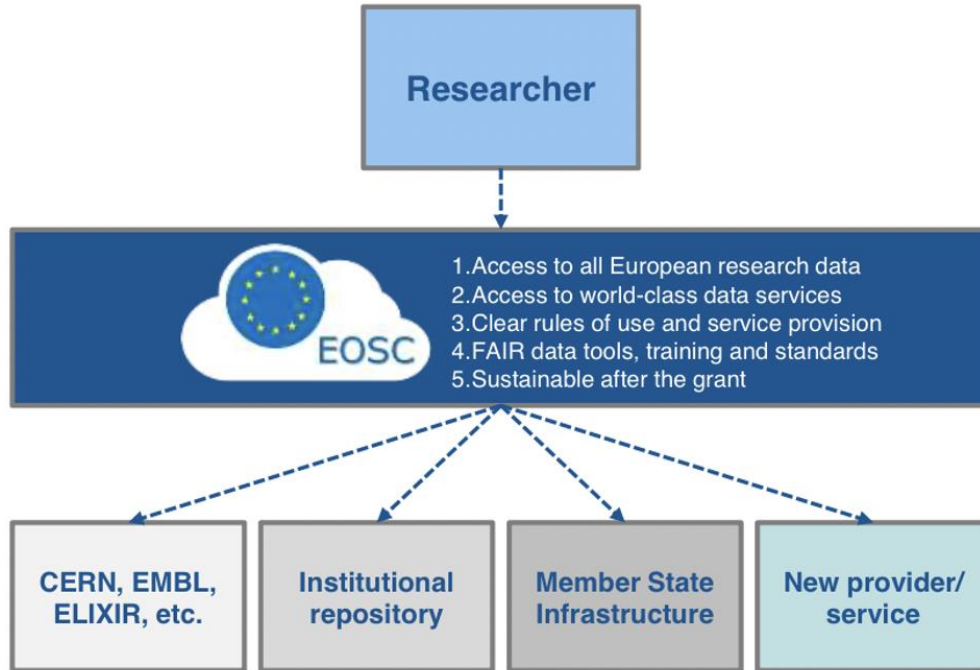
EOSC and Challenges



- Fragmented access (across scientific domains, countries and governance models; varying access policies)
- Limited cross-disciplinary access to data sets (i.e. interdisciplinary research)
- Non-interoperable services and data
- Closed data

Limited and limiting access for an ordinary European researcher

EOSC MISSION

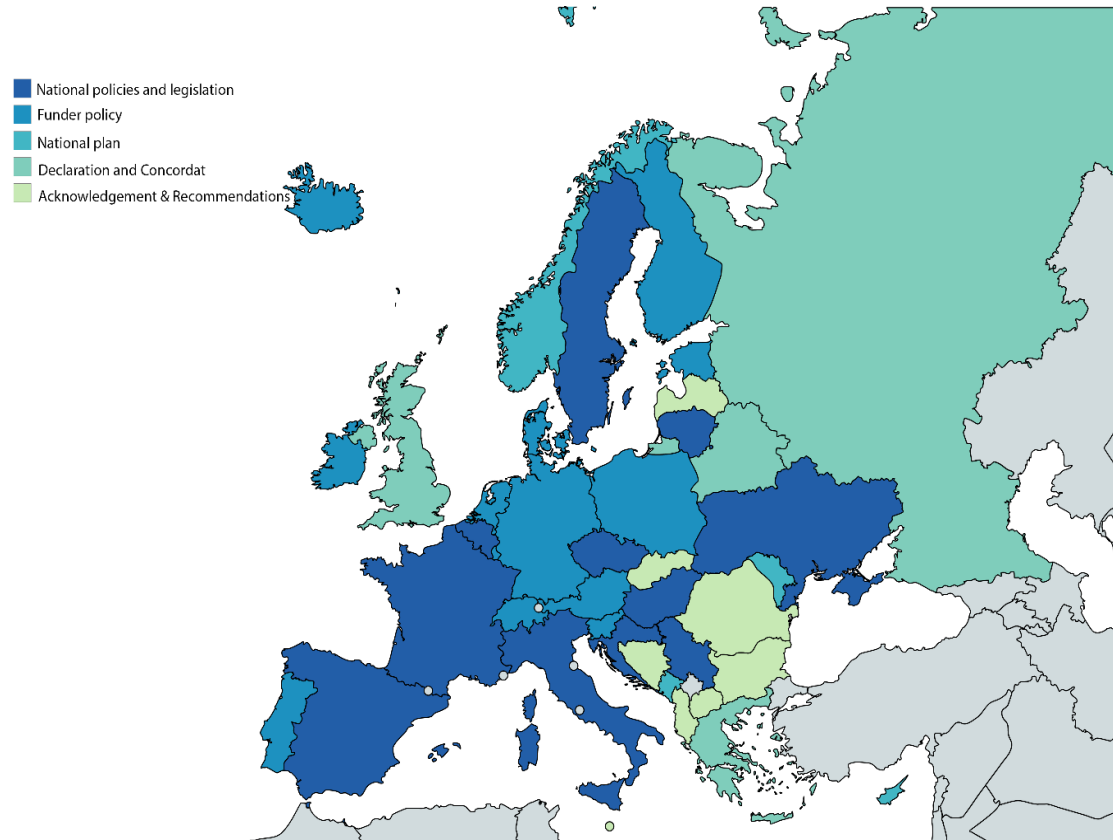


“We are creating a European Open Science Cloud now. It is a trusted space for researchers to store their data and to access data from researchers from all other disciplines. We will create a pool of interlinked information, a ‘web of research data’. Every researcher will be able to better use not only their own data, but also those of others. They will thus come to new insights, new findings and new solutions.”

Ursula von der Leyen,
European Commission President World
Economic Forum in Davos, January 2020

NOSCI (National Open Science Initiative)

- Current policy scenery for Open Data and Open Science for 40 EU countries
 - National policies and legislation
 - Funder policy in place
 - National plan drafted
 - Declaration and Concordat
 - Acknowledgement & Recommendations



Our Proposals

NOSCI

To establish a
National Open
Science Cloud
Initiative in
Armenia



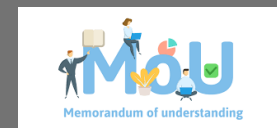
NOAD

Research outcomes
repository
(publications,
datasets, software,
etc)



MoU

Between IIAP &
SCS on
providing
computational,
data and
networking
services



OpenAIRE make research outputs and processes discoverable and reusable across Europe. 34 National Open Access Desk (NOAD) support the practical implementation and monitoring of open science policies, including open access to publications and research data.

Shota Rustaveli National Science Foundation of Georgia and GRENA signed a MoU (<http://mes.gov.ge/content.php?lang=eng&id=9338>).