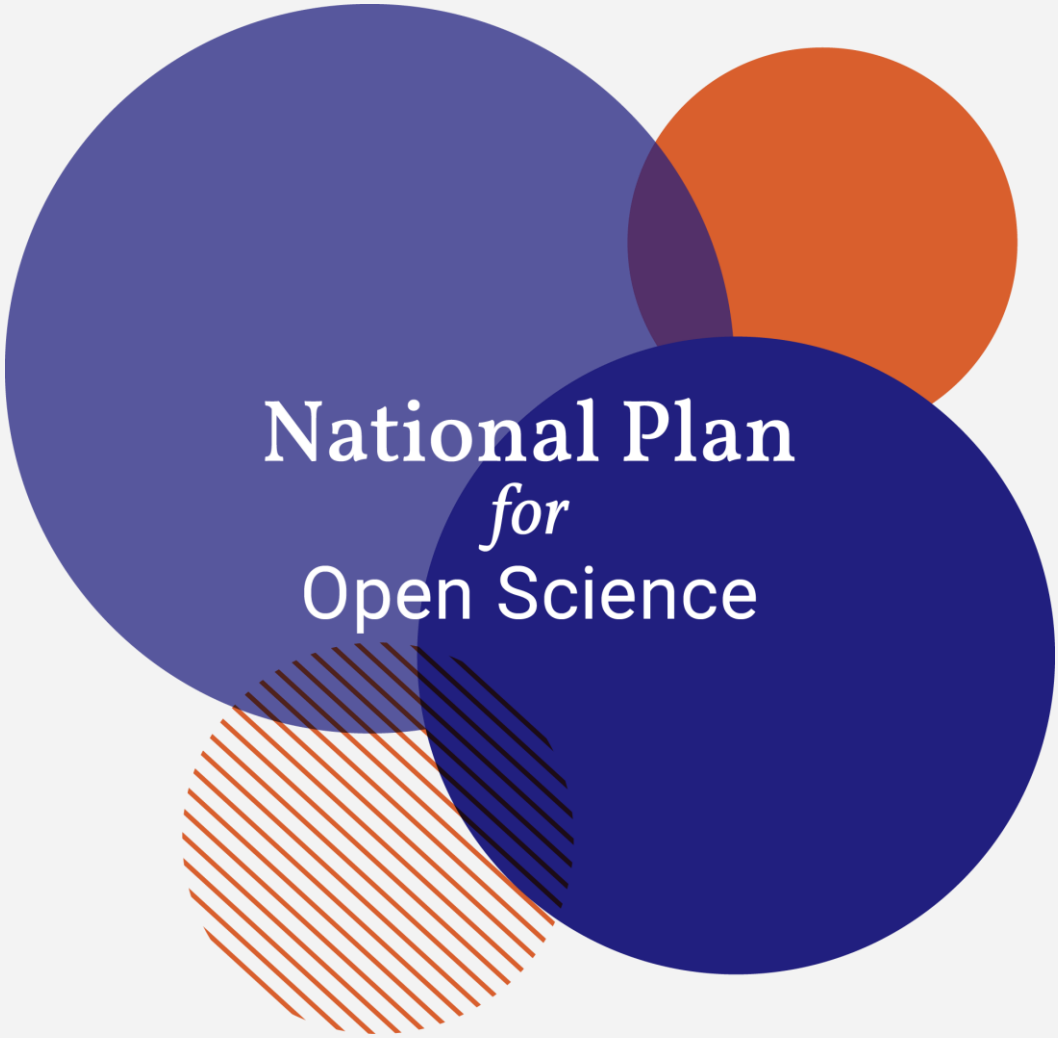

Open Science Task Force

June 2020

Open Science is the new standard of practices, means and collaboration for producing and distributing scientific output and research results, with a direct scientific, economic and societal impact

All men by nature desire to know

Aristotle

Introduction

Open Science is the new standard of practices, means and collaboration for producing and distributing scientific output and research results, with a direct scientific, economic, and societal impact. Open Science is a critical priority of the European Union (EU), contributing to our sustainable development, increased production and exploitation of research output, and democratization of knowledge.

Greece participates, develops, and leads this new model through the individual actions of its scientists and organisations. Although important, these actions are not sufficient for the substantial, economic, and developmental benefit of Greece. The country's alignment and harmonisation with the European Research Area (ERA) [1], especially in this critical period of transformation, will have a positive impact on the increase in competitiveness of national research and the industry. Possible divergence with the ERA is expected to be difficult to rectify.

In the EU, thirteen of the Member States already have implemented / adopted specific national policies for Open Science [2][3]. Faced with the prospect of the country lagging compared to the established acquis, representatives of eleven national academic and research organisations and twenty-six national infrastructures and initiatives have -as part of their common mission - collaborated closely to draft this text, a proposal to establish a **National Open Science Strategy for Greece**.

Our proposals describe the main policy and implementation axes for Open Science in Greece and are addressed to the political leadership, research funding organisations, as well as all the Research and Development (R&D) organisations of the country. In addition, they are in line with the EC requirements for Horizon Europe [4] and the ongoing European Open Science Cloud (EOSC) [5], the updated text of the EU Recommendation on access to and preservation of scientific information [6], the European Strategy for Data [7], the Amsterdam Call for Action on Open Science [8], while implementing the commitment for Open Access to publications up until 2025, as presented in the ERA National Strategy (2015-2020) [9].

We strive for our collective effort to be a benchmark for the rapid adoption of our proposals as a National Strategy, as well as a model for the adoption of the principles of Open Science by interested organisations in the country.

What is Open Science?

The term *Open Science* is multidimensional and refers to both research results and the procedures to achieve them. Open Science focuses on the Researcher and the Citizen, allowing free access to scientific results, promoting a participatory research process, supporting the verifiability of scientific results, well-documented decision-making, and innovation.

Open Science combines principles that characterise, inter alia, Open Access to (a) scientific publications, (b) research data, (c) research software, as well as (d) research infrastructures and services.

The integration of these principles into the national research ecosystem requires the cooperation of all the involved actors: scientists and researchers, Universities and Research Institutions, Research Funding Organisations, research infrastructures, libraries, scientific publishers, and enterprises.

Why Open Science?

Open Science is a pillar of the European ecosystem of Responsible Research and Innovation [10], as it:

- accelerates **scientific discoveries** through collaboration, reuse, and re-purpose of research results.
- allows **validation** of findings that eliminates fraud and misconduct.
- contributes to wider and quicker **exploitation and commercialisation** of research outputs that stimulates **innovation.**
- supports **capacity building** by promoting competitive skills in managing, analysing and using **data.**
- enhances knowledge **integrity**, contributes to **research excellence,** and leads to reliable collaborations.
- strengthens public **trust** in scientific knowledge.
- boosts **sustainable and informed policymaking** for the benefit of economy and society at large (e.g., health, climate, innovation).
- promotes research and funding organisations' **visibility** through scholarly communication channels.

The Vision

Open Science is the new model for the production of scientific knowledge and a necessary condition for the country's sustainable development and prosperity

Greece fully adopts the principles of Open Science and undertakes all necessary actions for its implementation

The Greek academic and research community is strengthened with infrastructures, skills and tools that raise its scientific capacity and the exploitation of its output by the national economy

Greece participates, develops and reinforces the efforts of the European research community through Open Science initiatives it leads in Southeast Europe and the Balkans

The current situation

Open Science is included in the strategies of the European Commission [11] [12], with a starting point the strategic target for Europe 2020 and the Innovation Union for new product development, GDP growth, and employment. The Digital Single Market [14] and the the European Research Area are the most important pathways through which policies and measures for Open Science are introduced, such as the *Recommendation on access to and preservation of scientific information* and the *European Open Science Cloud (EOSC)*. Finally, EU-funded competitive research programmes (H2020, Horizon Europe) fully endorse the principles of Open Science as a *precondition* for funding.

In Greece, we encounter a fragmented and incomplete institutional and operational framework for Open Science, with the absence of a National Strategy and a deficit compared to other EU Member-States. The minimum provisions of the current national framework stem from the transposition of complementary EC Directives into the Greek law and indirectly address the research process. National Research Infrastructures do not fully comply with the Open Science principles, except for those which are part of EU infrastructures or have been designed from the outset as open infrastructures. However, the Hellenic Academic Libraries Link (HEAL-Link) has endorsed the principles of Open Access [15], every academic library has an institutional repository aiming at streamlining availability and access, while there are two national data repositories [16] and thematic repositories in pilot operation, powered from research infrastructures of the National Roadmap for Research Infrastructures.

Moreover, the participation of Greek R&I organisations in the development and operation of pan-European Open Science actions (*EOSC Executive Board and Working Groups*) is extremely important. Among others, national R&I organisations lead the European infrastructure for Open Science OpenAIRE [17], participate in the international initiative RDA [18], in the European organisations EGI [19], EUDAT [20], GEANT [21], EuroHPC [22] and PRACE [23] which are contributors in EOSC's implementation, in thematic European infrastructures, as well as in several European ESFRI infrastructures (EMSO ERIC [24], EPOS ERIC [25], EURO-ARGO ERIC [26], LifeWatch ERIC [27], BBMRI ERIC [28], ELIXIR

[29], EMBRC ERIC [30] INFRAFRONTIER [31], INSTRUCT ERIC [32], CESSDA ERIC [33], CLARIN ERIC [34], ESS ERIC [35], DARIAH ERIC [36], SHARE ERIC [37], EU-SOLARIS [38], ACTRIS [39], DANUBIUS-RI [40], DiSSCo [41], eLTER [42], EU-IBISBA [43], METROFOOD [44], MIRRI [45], KM3NeT [46], E-RIHS [47]).

Objectives

Adopt the National Strategy for Open Science

- Support national participation in the European Open Science Cloud (EOSC)
- Implement the required legal framework by 2021
- Plan the implementation of infrastructures for Open Science by 2021
- Horizontal coordination and monitoring of the implementation of Open Science by the National Council for Research, Technology, and Innovation

Open Access to scientific publications supported by public funds

- Green Open Access by default from 2021
- Gold Open Access. Assess universal implementation and compliance with Plan S principles by 2024

Open Access and reuse of research data supported by public funds

- Open data by default from 2021
- FAIR data management Pilot from 2022

Development and management of Research Software

- Open source by default for research software produced with the support of public funds from 2021

Open Access to National Research Infrastructures and e-Infrastructures

- Access Policies to Research Infrastructures and e-Infrastructures from 2022
- Sustainable operation and enhancement of national Research Infrastructures and e-Infrastractures

Commitments

Open Access to Scientific Publications

MAIN PRINCIPLE

Free online access to scientific publications resulting from publicly funded research.

Scientific publications relate in particular to peer-reviewed publications, books and monographs, conference proceedings, doctoral dissertations, studies, as well as all grey literature. They are distributed in machine-readable format through scientific journals, books, repositories or platforms that allow the access and extraction of their content (text and data mining). Copies of publications are kept in public open access repositories.

Policy

The policy aims to improve access to and preservation of scientific information in the national research area, ensuring the retention of intellectual property rights by the authors of scientific publications and the availability of publications with standardised, public, open licenses.

- Selection of the **Green** or **Gold Open Access Route**:
    - **Green Open Access**
        - An **electronic copy of the publication** is archived in an institutional or thematic literature repository. The copy may be in the form of pre-print, post-print, or the final published version.
        - Immediate access to the **full text** upon publication and in any case no later than six months after the date of

publication or 12 months for social sciences and humanities.

- Immediate access to **bibliographic metadata**.
- The electronic copies must be distributed in **machine-readable** formats.
- Institutional or thematic repositories shall follow the OpenAIRE Guidelines for **metadata**.

- **Gold Open Access**
  - Publications are in scientific **Open Access journals**, including Diamond Open Access journals.
  - The cost for **publishing** in Gold Open Access Journals (e.g. Article Processing Charges [48]) is eligible expense in the context of R&D projects or it is covered by researchers' affiliated organisations.
  - An **electronic copy of the publication** is archived in an Open Access institutional or thematic repository. The copy may be in the form of pre-print, post-print, or the final published version.
  - The electronic copies must be distributed in **machine-readable** formats.
  - Institutional or thematic repositories shall be compliant with OpenAIRE Guidelines for **metadata**.

For more information, see Annex: National Plan Implementation Actions

MAIN PRINCIPLE

Research data shall be made openly available by definition, with predetermined exemption clauses for the application of the principle *'as open as possible as closed as necessary'* and shall be kept in appropriate repositories supporting the complete lifecycle of management, discovery and exploitation.

Research data relate to data generated in the context of publicly funded R&D actions. Among other things, they include data verifying the conclusions of scientific publications, raw data, as well as data generated in the broader course of the research process [49].

Policy

The policy aims to make research data openly available, emphasizing on their reuse, as well as on improving their management. **Open data by default** is mandatory, with specific and standardized exceptions applied so that the disposal is *"as open as possible, as closed as necessary"* and in accordance with the relevant national provisions and laws [50]. In addition, it is mandatory to manage the full life cycle and availability of research data in accordance with Data Management Plans (DMPs) [51].

- **Digital Object Identifiers (DOIs)** are assigned to research data.
- Research data are available under public, standard, machine-readable and **open licenses** (open data by default), preferably under attribution licenses. Exceptions include:
    - Compliance with restrictions pertaining specific types of data and/ or analysis (e.g. *personal data, statistical confidentiality*). To limit these restrictions, it is recommended that appropriate technical measures be taken prior to open secondary data sharing (e.g. anonymization, pseudonymization).

    - R&D projects and activities providing clear documentation for opting out upon acceptance by research funding organisations. This information is elaborated on respective DMPs.
- Research software is described with machine readable metadata that follow a **common, standard schema** (eg. OpenAIRE Guidelines, codemeta. json, schema.org), including additional metadata schemas according to predefined community standards (de jure) or practices (de facto).
- Research data are stored in **open formats** and described in **metadata schemas** according to community standards (de jure) or practices (de facto).
- Research data are **linked** to the corresponding scientific publications and where applicable, to the relevant research software.
- Research data are **deposited** in the national data repository HELIX Data [16] or, where applicable, in an institutional or thematic data repository which is compatible and interoperable with the national repository.
- **Data Management Plans (DMPs)** for projects, activities, organisations, scientific units or teams are created and kept up-to-date as living documents and following common standards.

For more information, see Annex: National Plan Implementation Actions

MAIN PRINCIPLE

Research software produced in the context of publicly funded R&D actions and programmes is available under a license that allows its modification, production and re-distribution.

Research software refers to software of any kind developed as part of publicly funded R&D actions. Indicatively, but not exclusively, it may concern software for the creation, processing or analysis of data that appear in a scientific publication, software libraries, or complete applications.

Policy

The policy aims to open up research software, emphasizing on improving its reuse, documentation and exploitation. Open source by default is mandatory, with specific and standardized exceptions so that the availability is *"as open as possible, as closed as necessary"*. In addition, it is mandatory to archive the source code together with its documentation in publicly accessible repositories.

- **Digital Object Identifiers (DOIs)** are assigned to research software.
- Research software is available under public, standard, machine-readable and **open licenses** (open source by default), preferably under permissive open source licenses. Exceptions include:
    - Compliance with identified underlying restrictions (e.g *intellectual property rights of third parties*).
    - R&D projects and activities providing clear documentation for opting out upon acceptance by research funding organisations. This information is elaborated in the grant proposal application.

- Research software is available through public source code repositories that contain: (a) a description of the scope and utility of the software, (b) code documentation (how to use, validate, install and manage), (c) any dependencies, (d) a description of formats used, input and output schemas and any standards supporting interoperability.
- Research software is described with machine readable **metadata** that follow **common, standard schemas** (e.g OpenAIRE Guidelines, codemeta, .json, schema.org), including additional metadata schemas according to predefined scientific community standards (de jure) or practices (de facto).
- Research software metadata are **deposited** in the national research software repository HELIX Lab [16] or, where applicable, in an institutional or thematic source code repository which is compatible and interoperable with the national repository.
- Research software **is linked** to the corresponding scientific publications and, where applicable, to the relevant research data.
- The following practices are **encouraged / recommended** for the development and management of research software:
    - Software is publicly developed and updated during its lifecycle (e.g. *history records, problem management, roadmap, team management*).
    - Best practices are followed in formatting, recording and problem solving as well as in producing automatic sanity checks.
    - Technical measures reducing the installation time required by potential end users (e.g. *executable files, test data, virtual machines, test environment*).
    - Dependencies with external software and libraries that are not freely available to all stakeholders and can not be fully exploited are avoided.
    - Full documentation of formats and data schemas that is not freely available to all stakeholders and can not be fully exploited is avoided.
    - Full documentation of interoperability protocols and standards that is not freely available to all stakeholders and can not be fully exploited is avoided.

For more information, see Annex: National Plan Implementation Actions

MAIN PRINCIPLE

Empowering the Greek R&D community with the necessary qualifications, digital skills, incentives and reward mechanisms for the adoption of Open Science.

The Greek Research and Development Community comprises all organisations, structures and individuals of the wider public and private sector of the country involved in the design, production, supervision, support, training, financing and exploitation of scientific work and research results.

Policy

The policy aims to strengthen the Greek R&D community with the necessary qualifications, digital skills, incentives and reward mechanisms for the smooth transition of the country to a sustainable Open Science environment, in accordance with the good practices of Responsible Research and Innovation.

- Establishment of a **National Open Science Support Office** to assist the Greek R&D community and providers of repositories/journals, as well as of a national **network of experts** for the coordination, exchange of know-how and optimal use of resources.
- Design and implementation of **training programmes** for the Greek R&D community on Open Access, Research Data Management and Sharing, Open Software Development and Management, as well as broader application of Open Science principles throughout the life cycle of scientific projects.
- Functional integration of principles, methods and collaborative practices of Open Science into **undergraduate** and **postgraduate** courses throughout Higher Education.
- Strengthening and expanding the role of existing **support structures** of academic and research organisations for the continuous support of research teams and infrastructures in the full life cycle of Open Science.

- Considering the adoption of new **qualitative criteria** for evaluation of research proposals/ programmes and competing positions of research and academic staff compatible with European and global guidelines (DORA Declaration [53] and Leiden Manifesto [54], Recommendation of the Open Science Policy Platform [55])

For more information, see Annex: National Plan Implementation Actions

MAIN PRINCIPLE

Enhancement of and single access to the national research infrastructures, e-infrastructures and digital research services for the implementation of Open Science.

It is necessary to adopt a long-term plan to ensure the successful and sustainable operation of national research infrastructures, e-infrastructures and digital research services, the maximisation of long-term national investments, the creation of added value and the maintenance of the country's leading position in SouthEast Europe.

Policy

The policy aims to strengthen, expand, upgrade, improve the availability and reliability of national research infrastructures, e-infrastructures, and digital research services for the implementation of Open Science at national level, as well as their convergence and harmonization with the respective European research infrastructures and e-infrastructures.

In addition, it aims at regulated, granted and supported access of the Greek R&D community to national research infrastructures, e-infrastractures and digital research services.

- Establishment of **access policies**, **intellectual property** management and code of **ethics** according to the national policy framework, laws and regulations for the national research infrastructures and digital research services.
- **Access policies** are clearly stipulated, documented and are publicly available to all without discrimination. They may include a combination of the following access modes:

    - **Excellence-driven access** solely depending on scientific excellence, originality and feasibility of research proposals evaluated by a scientific committee.
    - **Market-driven access** granting access through agreements between the User and the Infrastructure/ Service Provider. The agreements involve costs for using the infrastructure/ service and may be confidential.
    - **Wide access** offering open access to infrastructures/ services for all users.
- **Enhancment** of the national research infrastructures, e-infrastractures and services for research (*physical, computing, networking, and storage infrastructures*) in order to integrate and/or develop methods and mechanisms for Open Science, and to ensure their sustainable operation, maintenance, preservation and extension in support of Open Science.

For more information, see Annex: National Plan Implementation Actions

Interconnection with the European Open Science and Innovation Ecosystem

MAIN PRINCIPLE

Interconnection with European Open Science Infrastructures through the integration and implementation of services, standards and good practices that contribute to stimulating participatory activities, sustainability and enhancing the visibility and use of national research infrastructures, e-infrastructures, services and research outputs.

Policy

The policy aims at strengthening Greek research and academic excellence and making the best use of Greek research and development results in the European Open Science Framework (EOSC) and the European Research Area (ERA).

- Active support of the **European Open Science Cloud (EOSC)** as the European framework for Open Science services, scientific results and practices.
- Sustainable participation in European infrastructures for the implementation of the EOSC for Open Access (OpenAIRE), data management/research infrastructure services (including those that do not appear in the ESFRI roadmap), data network for the research and academic community (GEANT), computing services and virtual machines (EGI), high performance computers (PRACE and EuroHPC), and data infrastructure networks (EUDAT).
- Implement technological standards and solutions proposed by the EOSC to ensure interoperability between systems and services, to support open access to scientific publications, as well as to support the production and maintenance of open research data.
- Participation of national research infrastructures and digital research services in the EOSC Catalogue.
- Simplification and acceleration of research results **transfer** to the private sector and their **commercialization** through Open Science infrastructures, services and practices.

- Creation of **model policies** on access and exploitation of research results for R&D bodies.
- Adoption of **new business models** and value chains with the participation of the private sector and R&D organisations based on Open Science (open data, open software, infrastructures).

For more information, see Annex: National Plan Implementation Actions

Annex

National Plan Implementation Actions

Open Access to Scientific Publications

- Upgrade institutional repositories and electronic journal platforms to connect with OpenAIRE and EOSC.
- Develop national aggregator for publications.
- Develop national Open Access platform for pre-prints.
- Realize an institutional service for reporting publication costs (APCs) and connect with the OpenAPC initiative [56].
- Develop national Open Access monitor and indicators according to European standards (EU Open Science Monitor [57], OpenAIRE/EOSC). Integrate standards for citations and usage data [58] [59].
- Upgrade research funding organisations' information systems to improve management, monitoring and impact assessment of research outputs: (a) use common metadata schemas for grants and other entities (e.g researchers, publications), (b) integrate and provide standard open interfaces to achieve interoperability and automate harvesting from catalogues and repositories.
- Update the Greek Law on Research (N. 4310/2014) in line with the national principles and the EU's acquis for Open Science.
- Support transformative agreements with scientific publishers according to PlanS Implementation Guidelines [60].
- Build bibliodiversity programmes to support discovery and explore new models for Open Access journals and books [61] and new business models for Open Access (e.g OA2020 [62], SCOAP3 [63] και OLH [64]).
- Create and apply rewards and incentives for researchers and academics to comply with Open Access principles, at institutional and funding levels.

Research Data Management and Sharing

- Expand and enhance institutional and thematic data repositories and the national data repositories HELIX Data and HARDMIN [16][52] established in collaboration with ATHENA Research and Innovation Center (GSRT/ Ministry of Development and Investment), HEAL-Link (Ministry of Education and Religious Affairs) and GRNET (Ministry of Digital Governance).
- Connect institutional and thematic data repositories with HELIX Data.
- Certify data repositories on quality preservation criteria (e.g. CoreTrustSeal, Nestor, ISO).
- Integrate PID services for data and researchers (ORCID).
- Implement single and safe access mechanisms for closed data management and for personal data protection (e.g. ELIXIR Local/Federated EGA [65]).
- Promote a data monitoring system with indicators according to European and/or global standards [66].
- Harmonise valuable data [67] with international standards (e.g metadata schemas, vocabularies, ontologies, taxonomies, thesauri)
- Update and codify the Greek Intellectual Property Law (Law 2121/1993) to embed the EU Directive 2019/790 and to introduce exceptions regarding text and data mining for research purposes.
- Update Greek Laws on Research (Law 4310/2014) and on Open Data (Law 4305/2014) in line with EU's acquis for Open Science and Open Data.
- Data Management Plans are required in grant proposal submission and implementation stages of R&D projects.
- Create Data Management Plan templates and online services for creation and management of their lifecyle.
- Appoint Data Protection Officers (DPOs) and data librarians or data stewards in research organisations.
- Provide researchers and academics as well as research and technological organisations with rewards and incentives for open research data management and sharing.

Research Software Development and Management

- Enhance HELIX Lab [16] with services for managing the full lifecycle of research software development and distribution. Expand interactive computing and data science services in support of interdisciplinary research.
- Promote use cases on open research software development, distribution and exploitation best practices (research and commercial).
- Codify Greek Intellectual Property Law in relation to research software.

Strengthening the National Research Ecosystem

- Enhance academic and research organisations', libraries' and national research infrastructures' workforce to support Open Science.
- Develop services that guide researchers in responsible research conduct.
- Connect researchers' and academics' registry with national Open Science infrastructures by integrating PID services for scientific publications and researchers (e.g. ORCID) in publication platforms and research funders information systems.
- Provide open metrics and maximize use of initiatives such as Open Citations [58].
- Update undergraduate and post-graduate curricula and Higher Education regulations with Open Science principles and practices.
- Align Greek Academic Institutions' training activities and regulations with Open Science principles and practices of the European Open Science Cloud (EOSC) and according to the New Digitals Skills Europe objective.
- Adopt and apply best practices on citation of research data, research software, research infrastructures and digital services for research in literature bibliography.
- Embed HELIX Lab interactive computing services in undergraduate and post-graduate courses on artificial intelligence, data analysis, data processing and data visualization in support of the whole spectrum of scientific fields, studies and applications.
- Support training initiatives for professionals' capacity building with new skills on data science and data-intensive research, including data experts, technicians and managers.
- Develop/ Stimulate cross-boarder collaborations on research and innovation for the promotion of openness and global cooperation through staff exchange of Higher Education Institutions, Research Centers, Research Infrastructures and libraries.
- Support digital literacy seminars and skills on innovative training techniques and methods for research staff and users, including post-graduate students.
- Develop and/ or reuse open educational resources in support of Open Science. Support electronic textbooks through GUNet and Kallipos repository [69].

- Participate in Open Science training initiatives of the European Higher Education Area and European Research Area.
- Organise activities and events to inform Greek researchers about Open Science and to stimulate interactions with industry and the society.
- Support Citizen Science activities.
- Embed Open Science principles in audit and certification processes performed by the Hellenic Authority for Higher Education (HAHE), former Hellenic Quality Assurance and Accreditation Agency (HQA).
- Embed Open Science principles in assessment processes towards Research Centers and organisations under GSRT supervision.
- Introduce Open Science incentives in new R&D programmes/ calls (e.g. GSRT, H.F.R.I).

National Research Infrastructures, e-Infrastructures and Digital Research Services for Open Science

- Implement a national Open Science Monitoring Mechanism.
- Create national fund for Open Science.
- Develop national catalogue of national research infrastructures and digital services for research by applying EOSC standards that facilitate their discovery and use by the Greek and global R&D communities.
- Update the National Roadmap for Research Infrastructures.
- Establish a Strategic Plan on the development, operation, maintenance and support of national research infrastructures, e-enfrastructures and digital services for research. The Plan shall be proactive in confronting major scientific, industrial, and societal challenges.
- Establish a Strategic Plan on support, maintenance and update of network, computing and storage infrastructures and of their services, including physical infrastructures.
- Create a National Funding Framework for national research infrastructures, e-infrastrucures and digital services for research that is equivalent to European Frameworks. The National Funding Framework supports Open Science infrastructures and services' accessibilty, preservation, enhancement, and development.
- Maximize the use and exploitation of existing research infrastructures, e-Infrastructures and services, and improve resource exchange between Research Institutions and Universities, including computing and storage services.
- Upgrade/ enhance research infrastructures and e-infrastructures to successfully combat major societal challenges by using cross-sectoral and multidisciplinary approaches, tools and technologies based on Open Science.
- Develop virtual labs to ease openness/ remote users' access.
- Increase network capacity, expand cloud data centers and enhance high-performance computing infrastructure (HPC) for data intensive research.
- Design tools/ schemas that facilitate users' access (physical or virtual) to national research infrastructures, e-infrastructures and digital services for research, thus promoting Open Science [70].

- Persist in providing guidance on e-infrastructures development in South-East Europe to achieve sustainable development in the region and to enrich cross-boarder collaborations that promote Open Science.

Interconnection with the European Open Science and Innovation Ecosystem

- Collect, discover and access national research outputs, services and infrastructures provided by the Greek scientific community and the European Open Science Cloud - EOSC [5] from Hellenic Data Service – HELIX.
- Connect research funding organisations' infrastructures with the EOSC and particularly with OpenAIRE [17].
- Enhance Greek ESFRI infrastructures, connect with other national infrastructures and relevant ESFRI infrastructures and acknowledge membership fees as eligible costs.
- Enhance Greek thematic infrastructures, connect with other national infrastructures and relevant European thematic infrastructures and acknowledge membership fees as eligible costs.
- Develop a National Open Innovation Platform and connect it with Hellenic Data Service – HELIX for research results and outputs exploitation

Contributors

Authors

Spiros Athanasiou; Vasilis Amiridis; Maria Gavriilidou; Evangelos Gerasopoulos; Alexandros Dimopoulos; Georgina Kaklamani; Fotis Karagiannis; Iraklis Klampanos; Dimitra Kondyli; Kostas Koumantaros; Panos Konstantopoulos; Katerina Lenaki; Angelos Lykiardopoulos; Natalia Manola; Despoina Mitropoulou; Agiatis Benardou; Nikolaos Boukos; Alexandros Nousias; Maria Ntaountaki; Stella Oikouta; Lia Ollandezou; Elli Papadopoulou; Ilias Papastamatiou; Stelios Piperidis; Orestis Speyer; Prodromos Tsiavos; Evangelia Chrysina; Fotis Psomopoulos

Task Force Members

Organisations

ΑΘΗΝΑ Έρευνα & Καινοτομία Τεχνολογίες Πληροφορίας	**Athena - Research & Innovation Center in Information Communication & Knowledge Technologies**
"ALEXANDER FLEMING" Biomedical Sciences Research Center	**Biomedical Sciences Research Center “Alexander Fleming”**
ΕΚΕΤΑ ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΕΡΕΥΝΑΣ & ΤΕΧΝΟΛΟΓΙΚΗΣ ΑΝΑΠΤΥΞΗΣ	**Centre for Research and Technology-Hellas (CERTH)**
ITE ΙΔΡΥΜΑ ΤΕΧΝΟΛΟΓΙΑΣ ΚΑΙ ΕΡΕΥΝΑΣ	**Foundation for Research & Technology – Hellas (FORTH)**

	Hellenic Academic Libraries Link (HEAL-Link)
	Hellenic Centre for Marine Research (HCMR)
	Hellenic Group on Earth Observations
	National Centre for Social Research (EKKE)
	National Centre of Scientific Research "Demokritos"
	National Hellenic Research Foundation (N.H.R.F.)
	National Infrastructures for Research and Technology (GRNET)

Research Infrastructures and Initiatives

	**Cluster of Accelerator Laboratories for Ion-Beam Research and Applications**
	**European Data Services Network - EUDAT**
	**European Grid Computing Infrastructure Network – EGI Foundation**
	**European High-Performance Computing Joint Undertaking - EuroHPC**
	**European Social Survey – (ESS ERIC)**
	**Greek Infrastructure Network for Nanotechnology, Advanced Materials and Micro/Nanoelectronics (Innovation-EL)**
	**Greek Node of the European Infrastructure for the Life Sciences - ELIXIR (ELIXIR-GR)**
	**Greek Research Infrastructure for Social Sciences – SoDaNet**
	**Greek Research Infrastructure Network for the Humanities - ΔΥΑΣ / DARIAH-GR**

HELIX	**Hellenic Data Service - HELIX**
HIMIOFoTS Hellenic Integrated Marine Inland water Observing, Forecasting and offshore Technology System	**Hellenic Integrated Marine Inland water Observing Forecasting and offshore Technology System (HIMIOFoTS)**
is-enes INFRASTRUCTURE FOR THE EUROPEAN NETWORK FOR EARTH SYSTEM MODELLING	**Infrastructure for the European Network for Earth System Modelling- IS-ENES3**
ENIRISST	**Intelligent Research Infrastructure for Shipping, Supply chain, Transport and Logistics- EN.I.R.I.S.S.T.**
απολλωνίς	**National Infrastructure for the Digital Sciences and Humanities and for Language Research and Innovation APOLLONIS (DARIAH-GR και CLARIN:EL)**
clarin:el	**National Infrastructure for Language Resources and Technologies – CLARIN:EL**
inspired-RIs instruct ERIC	**National Node of the ESFRI-ERIC Integrated Structural Biology Infrastructure INSTRUCT-EL/ National Infrastructure INSPIRED**
RDA RESEARCH DATA ALLIANCE EUROPE GR NATIONAL NODE	**National Node of the Research Data Alliance - RDA (RDA-GR)**

	**National Research Infrastructure LifeWatchGreece**
	**Open Access Infrastructure for Research in Europe - OpenAIRE and Greek National Node (OpenAIRE-GR)**
	**Open Access Research Infrastructure of Chemical Biology, Target-based Screening and Lead Discovery for Human and Animal Health, Agriculture and the Environment**
	**Open Technologies Alliance - GFOSS**
	**PANhellenic infrastructure for Atmospheric Composition and climatE chAnge (PANACEA)**
	**Partnership for Advanced Computing in Europe – PRACE**
	**PROMETHEUS: A Research Infrastructure for the Integrated Energy Chain**
	**University data repositories – HARDMIN (by HEAL-Link)**
	**“National Initiatives for Open Science in Europe - NI4OS-Europe” European project**

References

1 European Commission, COM(2012) 392 final (2012). A Reinforced European Research Area Partnership for Excellence and Growth.

2 SPARC Europe, & Digital Curation Centre (2019). An Analysis of Open Science Policies in Europe v4.

3 OpenAIRE (2020). Open Science Overview in Europe

4 European Commission (2019). Horizon Europe – the next research and innovation framework programme

5 European Commission (2020). European Open Science Cloud.

6 European Commission, (2019). Recommendation (EU) 2018/790 of 25 April 2018 on access to and preservation of scientific information

7 European Commission COM (2020) 66 final (2012). A European Strategy for Data

8 Amsterdam Call for Action on Open Science (2016). The document is the outcome of the Amsterdam Conference «Open Science-From Vision to Action», hosted by the Netherlands' EU Presidency on 4 and 5 April 2016

9 General Secretariat for Research and Technology. National Strategy for the European Research Area (ERA) – National RoadMap (2015-2020) http://www.gsrt.gr/News/Files/New1234/Greek%20ERA%20Strategy%20EN.pdf

10 Network of National Contact Points for Science with and for Society in Horizon 2020. Responsible Research & Innovation.

11 P. Tsiavos, E. Papadopoulou (2018). Policy Landscape Review. Deliverable D3.1, EOSC Pilot.

12 European Commission, DG RTD (2016). Open Innovation, Open Science, Open to the world.

13 European Commission COM (2010) 2020. EUROPE 2020 – A Strategy for smart, sustainable and inclusive growth.

14 European Commission COM (2015) 192 final. A Digital Single Market Strategy for Europe.

15 Hellenic Academic Libraries Link. Declaration on Open access in Greece.

16 Hellenic Data Service (HELIX)

17 European Open Science e-Infrastructure, (OpenAIRE)

18 Research Data Allicance (RDA)

19 European Grid Computing Infrastructure Network (EGI)

20 European network of collaborative data infrastructures

21 Pan-European research and academic network (GEANT)

22 The European High Performance Computing (EuroHPC) joint undertaking (EuroHPC)

23 Partnership for Advanced Computing in Europeξη (PRACE)

24 European Multidisciplinary Seafloor and water column Observatory (EMSO ERIC)

25 European Research Infrastructure on Solid Earth (EPOS ERIC)

26 European Research Infrastructure for Observing the Ocean (EURO-ARGO ERIC)

27 LifeWatch E-Science European Infrastructure for Biodiversity and Ecosystem Research (LifeWatch ERIC)

28 Biobanking and BioMolecular Resources Research Infrastructure (BBMRI ERIC)

29 Distributed Infrastructure for Life-Science Information (ELIXIR)

30 European Marine Biological Resource Centre (EMBRC ERIC)

31 European Research Infrastructure for the generation, phenotyping, archiving and distribution of mouse disease models (INFRAFRONTIER)

32 Integrated Structural Biology Infrastructure (INSTRUCT ERIC)

33 Consortium for European Social Science Data Archives (CESSDA ERIC)

34 Common Language Resources and Technology Infrastructure (CLARIN ERIC)

35 European Social Survey ERIC (ESS ERIC)

36 Digital Research Infrastructure for the Arts and Humanities (DARIAH ERIC)

37 Survey of Health, Ageing and Retirement in Europe (SHARE ERIC)

38 European Solar Research Infrastructure for Concentrated Solar Power (EU-SOLARIS)

39 Aerosols, Clouds and Trace gases Research Infrastructure (ACTRIS)

40 International Centre for Advanced Studies on River-Sea Systems (DANUBIUS-RI)

41 Distributed System of Scientific Collections (DiSSCo)

42 Integrated European Long-Term Ecosystem, critical zone and socio-ecological system Research Infrastructure (eLTER)

43 European Industrial Biotechnology Innovation and Synthetic Biology Accelerator (EU-IBISBA)

44 Infrastructure for Promoting Metrology in Food and Nutrition (METROFOOD-RI)

45 Microbial Resource Research Infrastructure (MIRRI)

46 KM3 Neutrino Telescope 2.0 (KM3NeT 2.0)

47 European Research Infrastructure for Heritage Science (E-RIHS)

48 Article Processing Charges (APC)

49 European Commission. H2020 Open Access & Data Management Guidelines

50 General Data Protection Regulation, national regulation for Personal Data Protection (Law 4624/2019 (Government Gazette A 137 29.8.2019)), terms of Law 2121/1993 (Government Gazette A 25/4-3-1993) for intellectual property, provisions of Law 4305/2014 (Government Gazette A' 237/31/10/2014) for open distribution and further use of documents, information and data from the public sector, as well as Law 4310/2014 (Government Gazette A 258 8.12.2014) for research

51 Data Management Plans (DMP)

52 HARDMIN – HELIX (HEAL-Link)

53 The Declaration on Research Assessment (DORA)

54 Leiden Manifesto for Research Metrics

55 European Commission. WG on Rewards under Open Science (2017). Evaluation of Research Careers fully acknowledging Open Science Practices – Rewards, incentives and/or recognition for researchers practicing Open Science

56 OpenAPC Initiative

57 European Commission. Open Science Monitor

58 Initiative for Open Citations (I4OC)

59 OpenCitations

60 European Science Foundation. Addendum to the cOAlition S Guidance on the Implementation of Plan S

61 Jussieu Call for Open science and bibliodiversity

62 Open Access 2020

63 Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP3)

64 Open Library of Humanities (OLH)

65 Local EGA (source, documentation)

66 OpenAIRE, EOSC/RDA FAIR Data Maturity model

67 EDP 2020. High-value datasets: understanding the perspectiveof data providers.

68 Chesbrough, Henry (2006) "Open Innovation: A New Paradigm for Understanding Industrial Innovation" in Henry Chesbrough, Wim Vanhaverbeke, and Joel West, eds." Open Innovation: Researching a New Paradigm. Oxford: Oxford University Press

69 Hellenic Academic e-textbooks and learning objects (Kallipos Repository) (Αποθετήριο Κάλλιπος)

70 Equal to European Transnational and Virtual Access schemes