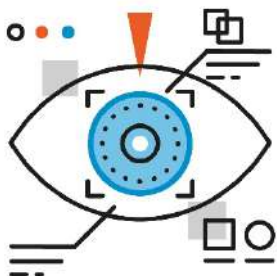




FAIR ερευνητικά δεδομένα και υπηρεσίες *μια υπό εξέλιξη συζήτηση*

Έλλη Παπαδοπούλου
Ερευνητικό Κέντρο «Αθηνά» /
OpenAIRE

Επισκόπηση



Ανοικτή Επιστήμη
και FAIR αρχές



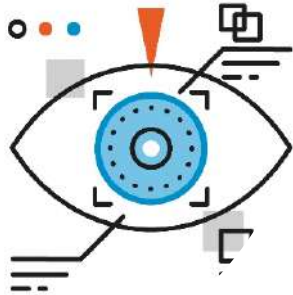
Το τοπίο
σήμερα



Πρακτική
εφαρμογή



OpenAIRE &
NI4OS-Europe



Ανοικτή Επιστήμη και FAIR αρχές

Responsible Research & Innovation

Responsible Research and Innovation (RRI) is an approach which implies that societal actors, such as researchers, citizens, policy makers, companies and civil society organisations) work together in the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society.



In practice, Responsible Research and Innovation¹² is implemented as a package that includes multi-actor and public engagement in research and innovation, enabling easier access to scientific results, the take up of gender and ethics in the research and innovation content and process, and formal and informal science education.

Responsible Research and Innovation¹² is the key action of the Science with and for Society objective. The following five RRI actions will be promoted via the Science with and for Society programme¹² of Horizon 2020¹²:

- Ethics
- Gender
- Open Science
- Public Engagement
- Science Education

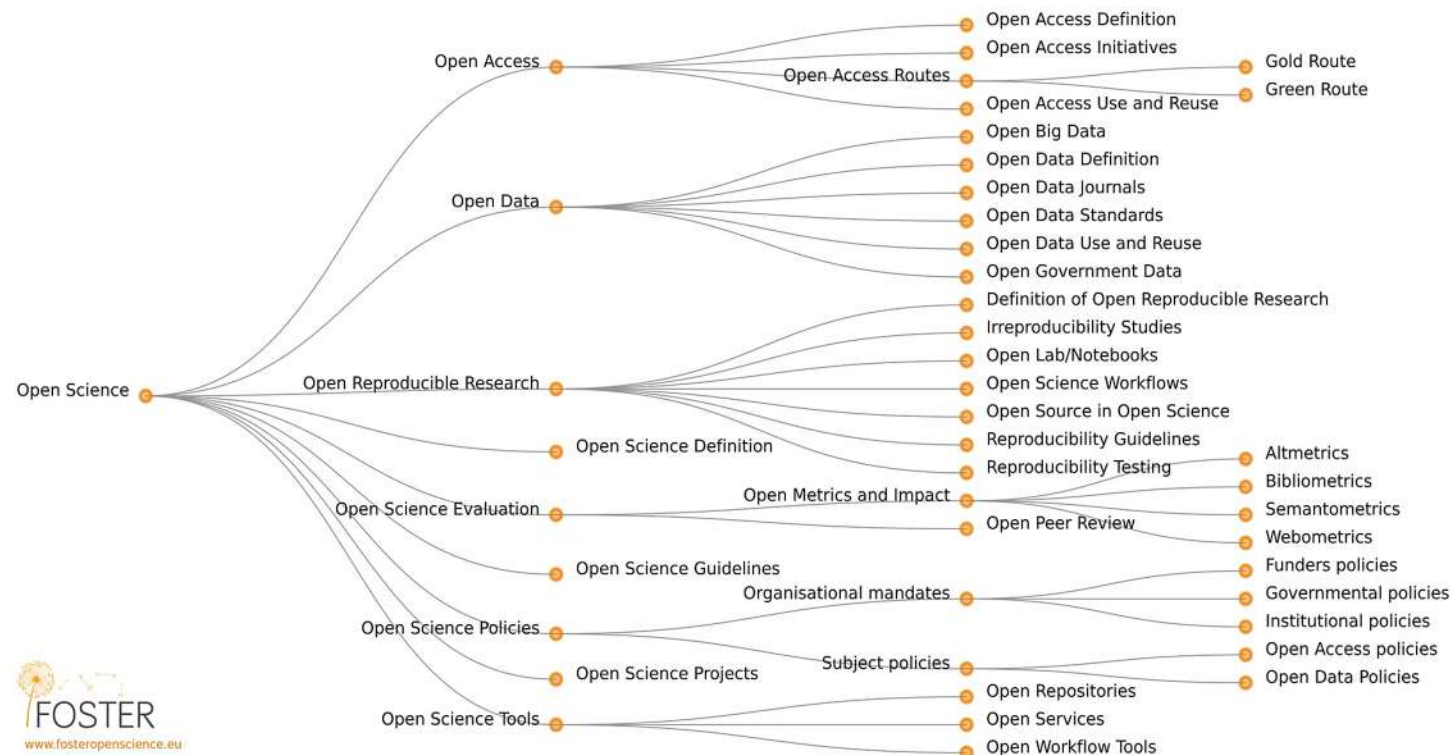
Ethics



◦ Υπεύθυνη Έρευνα

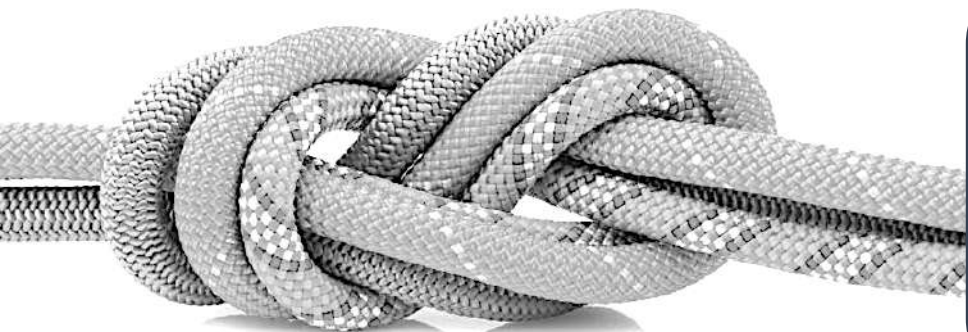


Open Science Taxonomy



<https://www.fosteropenscience.eu/foster-taxonomy/open-science-definition#:~:text=Open%20Science%20is%20the%20practice,its%20underlying%20data%20and%20methods.>

Ανοικτή Επιστήμη



Spiros Athanasiou et al, 2020. National Plan for Open Science.

Η Ανοικτή Επιστήμη είναι το νέο πρότυπο πρακτικών, μέσων και συνεργασίας για την παραγωγή και διάθεση επιστημονικού έργου και αποτελεσμάτων της έρευνας, με άμεσο επιστημονικό, οικονομικό και κοινωνικό αντίκτυπο

Βασικές αρχές

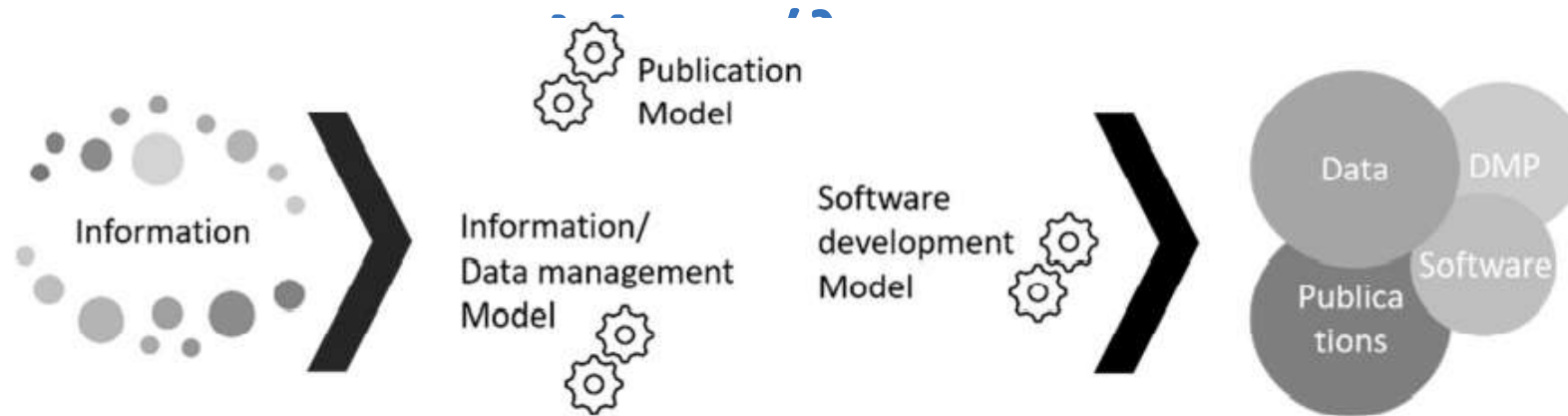
1. Συνεργατικότητα
2. Ανοικτή Πρόσβαση
Ανάγνωση και προσπέλαση επιστημονικής πληροφορίας
3. FAIR* αρχές
Εξερεύνηση, διασύνδεση, επανάχρηση
4. Τεκμηρίωση διαδικασιών
Διαφάνεια, ακρίβεια

Περιοχές δράσης

Ερευνητικά αποτελέσματα

Υποδομές και υπηρεσίες έρευνας

Εκπαίδευση και νέες δεξιότητες



<https://zenodo.org/record/4061801#.X9dNJ9gzY2x>

Λογισμικό



1980's, GNU Manifesto

Ανοικτή Πρόσβαση



2002, Budapest Open Access Initiative

2003, Berlin Declaration

Διαχείριση Ερευνητικών Δεδομένων



2013, Open Access Data Pilot

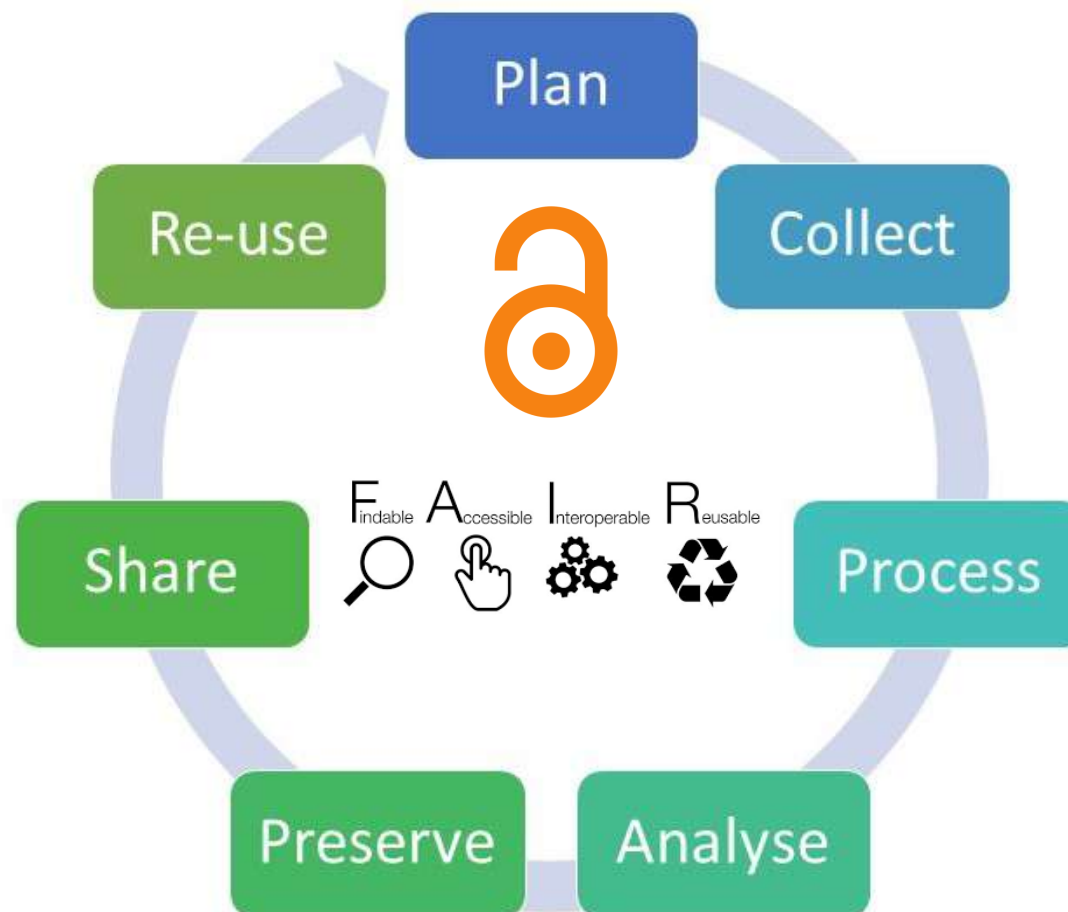
Κύκλος ζωής διαχείρισης δεδομένων



Σχεδιασμός
Συλλογή
Επεξεργασία
Ανάλυση



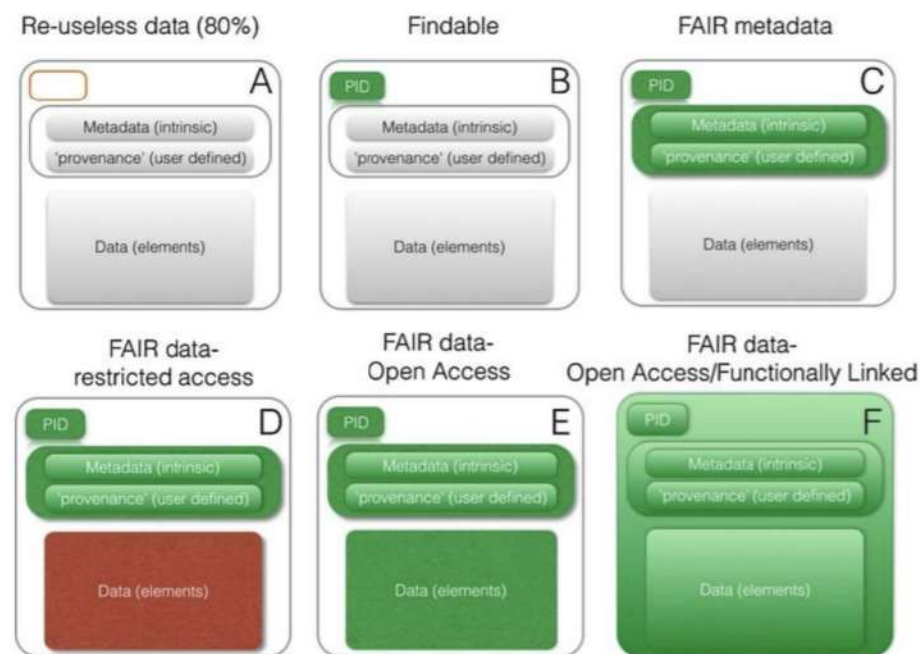
Διατήρηση
Διαμοιρασμός
Επανά-χρηση



Οι FAIR αρχές



Data as increasingly FAIR Digital Objects



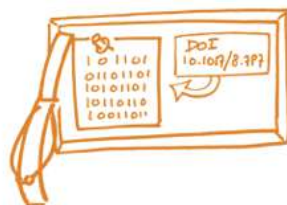
<https://www.nature.com/articles/sdata201618>

<https://www.ands.org.au/working-with-data/fairdata/training>

FAIR $\neq$ Open



FAIR DATA PRINCIPLES



- Τα FAIR δεδομένα δεν είναι απαραίτητα Open

Τα FAIR δεν ασχολούνται με ηθικής και νομικής φύσεως ζητήματα, π.χ. IPR, copyright

τυχές στις FAIR αρχές

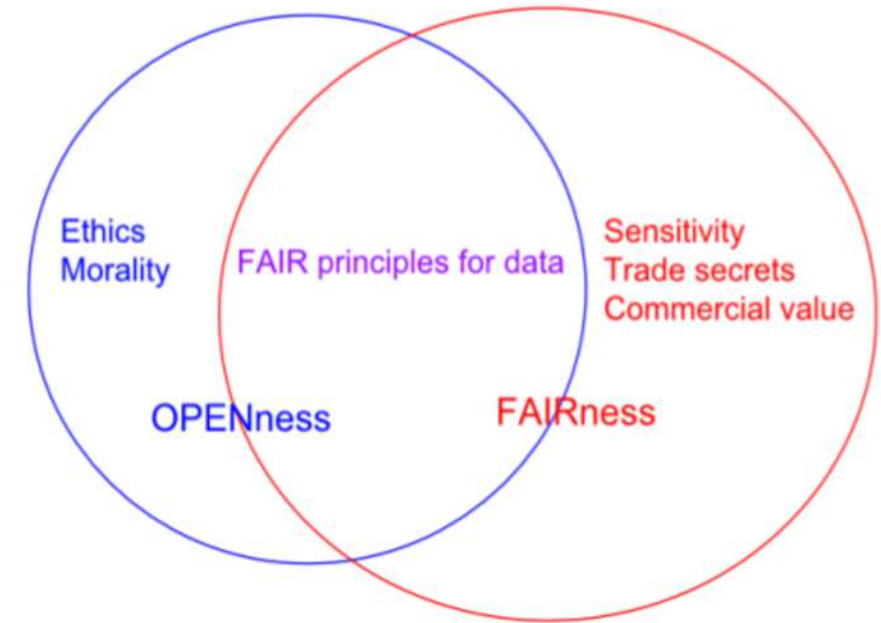
η = σαφήνεια και διαφάνεια
τους όρους πρόσβασης
χρησιμοποίησης.

- Διαθεσιμότητα = σωστή και πλήρη αναγνώριση και παραπομπή

Open $\neq$ FAIR



- Ανοικτά δεδομένα δεν σημαίνει άμεσα και FAIR δεδομένα.
- Δεδομένα που δεν είναι FAIR, π.χ., χωρίς κατάλληλα μεταδεδομένα ή λογισμικό για πρόσβαση, είναι άχρηστα για τους προοριζόμενους χρήστες τους.
 - Π.χ. επεξεργασία ήδη διαθέσιμων δεδομένων



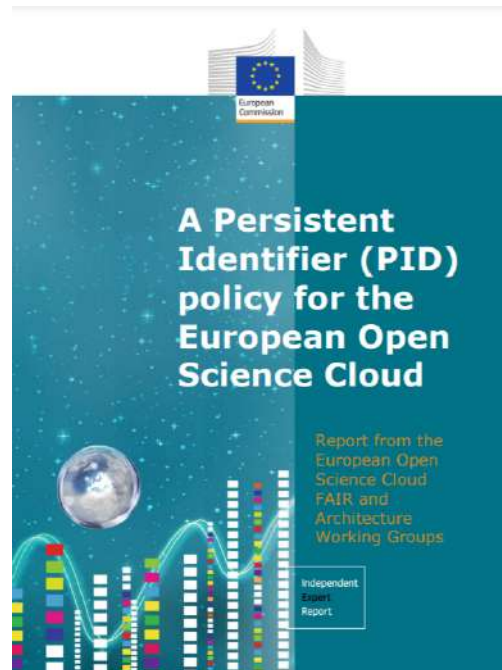
<https://eoscpilot.eu/content/d32-eosc-open-science-monitor-specifications>





Το τοπίο σήμερα

- Αποτελέσματα και διεξαγωγή έρευνας
 - Διαχείριση Ερευνητικών Δεδομένων
- Υποδομές
- Διαδικασίες
 - Αναγνωριστικά



5. Open Access to Research Data

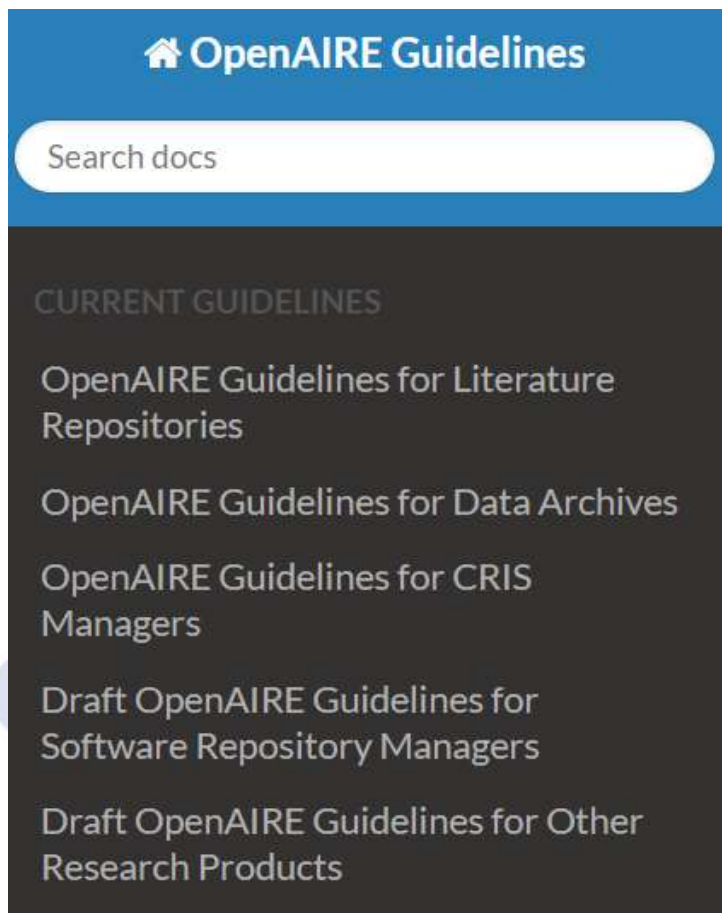
[The **[Name of RPO]**

1. Requires researchers to deposit the data needed to validate the results presented in scientific publications in a suitable repository such as **[Name of Repository]**. Data should be provided with persistent identifiers and must be linked with publications where possible.
2. Requires that data and services are handled according to [open and FAIR principles](#) (i.e. Findable, Accessible, Interoperable and Re-usable). Data should also be traceable and whenever possible available for subsequent use.



European Charter for Access to Research Infrastructures

Principles and Guidelines for Access and Related Services



OpenAIRE Guidelines

Search docs

CURRENT GUIDELINES

- OpenAIRE Guidelines for Literature Repositories
- OpenAIRE Guidelines for Data Archives
- OpenAIRE Guidelines for CRIS Managers
- Draft OpenAIRE Guidelines for Software Repository Managers
- Draft OpenAIRE Guidelines for Other Research Products

Metadata Standards Catalog

Search Sign in

Metadata Standards Catalog

The RDA Metadata Standards Catalog is a collaborative, open directory of metadata standards applicable to research data. It is offered to the international academic community to help address infrastructure challenges.

- [Read more details about the scope of the Catalog](#)
- [Read terms of use](#)
- [Read accessibility statement](#)

Metadata standards, profiles and schemes

- [Browse by scheme name](#)
- [Browse by subject](#)
- [Search](#)

Metadata-related entities

- [Browse mappings between schemes](#)
- [Browse metadata-related tools](#)
- [Browse organizations](#)



Ψηφιακά Αντικείμενα



ARK

Ερευνητές & Οργανισμοί

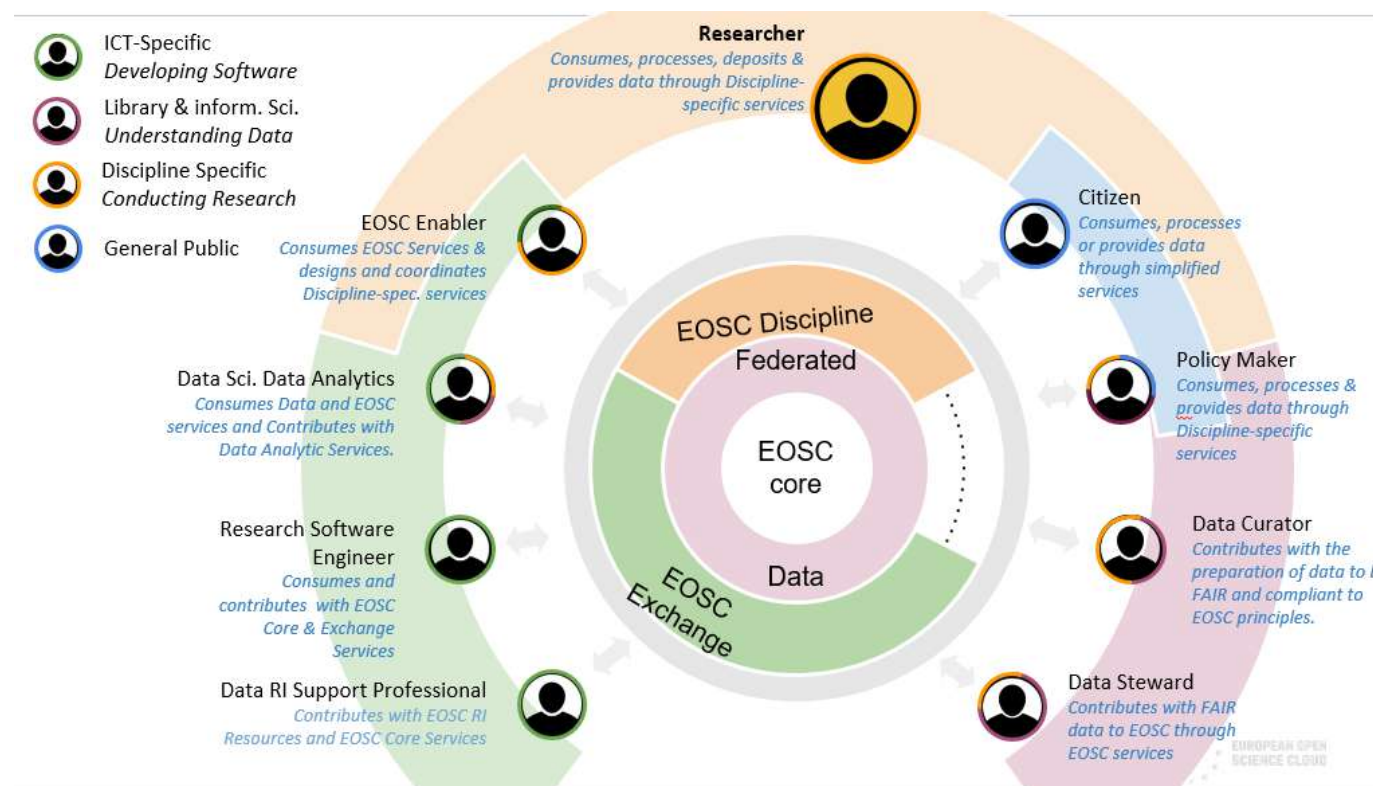


Άλλο



Δεξιότητες

- Οργανωσιακές
- Επικοινωνιακές
- Δεδομενοκεντρικές
- Τεχνικές



<https://bit.ly/3eK2QHp>

Guides for Researchers

How to make your data FAIR

INTRODUCTION

WHAT IS FAIR DATA?

FAIR - IN DEPTH

HOW FAIR ARE YOUR DATA?

MORE RESOURCES

TRAINING MATERIALS

Introduction

Are you at the start of your project and planning to create research data? Read on to find out how to make it more findable, accessible, interoperable and reusable via the FAIR principles.

Why are the FAIR principles needed? The increasing availability of online resources means that data need to be created with longevity in mind. Providing other researchers with access to your data facilitates knowledge discovery and improves research transparency.

Top 10 FAIR Data & Software Things

about github repository download/cite license #top10fair

The Top 10 FAIR Data & Software Things are brief guides (stand alone, self paced training materials), called "Things", that can be used by the research community to understand how they can make their research (data and software) more [FAIR](#) (Findable, Accessible, Interoperable and Reusable). Each discipline/topic has its own specific list:

Nanotechnology

Astronomy

Linked Open Data

Imaging

Music

FAIR Data Maturity Model: specification and guidelines

[Home](#) » [Data Management](#) » FAIR Data Maturity Model: Specification And Guidelines

Priority	Principle				
	Findable	Accessible	Interoperable	Reusable	Grand Total
Essential	7	8	0	5	20
Important	0	3	7	4	14
Useful	0	1	5	1	7
Grand Total	7	12	12	10	41

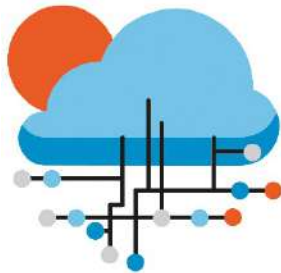
B2FIND / Findable				
FAIR: Findable	reduce	respect	enable	comment
F1. (meta)data are assigned a <u>globally unique and eternally persistent identifier</u> .		F1		B2FIND relies on the harvested repositories to attach a PID to its records and expose that as part of the metadata. If the provided metadata contains a PID B2FIND represents this PID and uses it to link the harvested metadata to the original data object in the repository.
F2. data are described with <u>rich metadata</u> .			F2	B2FIND relies on the provided metadata by the harvested repositories. B2FIND does not further enrich metadata. enhances F2 with citation metadata
F3. (meta)data are <u>registered or indexed in a searchable resource</u> .			F3	By being on B2FIND the (meta)data is registered and indexed and can be found through search.
F4. metadata <u>specify</u> the data identifier.			F4	In the current data infrastructure landscape B2FIND takes the position of a metadata registry and indexer. It extends



F-UJI

Automated FAIR Data Assessment Tool

<https://zenodo.org/record/3688762#.XrE4FagzY2y>

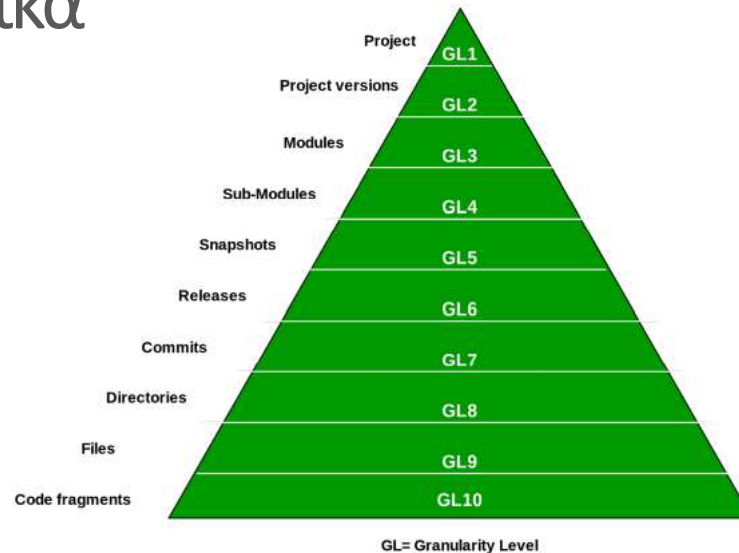


Πρακτική Εφαρμογή

- Επιλογή αξιόπιστου αποθετηρίου
- Μεταδεδομένα (έμφαση: επιστημονικό πεδίο)
- Μορφότυπα
- Άδειες χρήσης
- Διασυνδέσεις μεταξύ αποτελεσμάτων

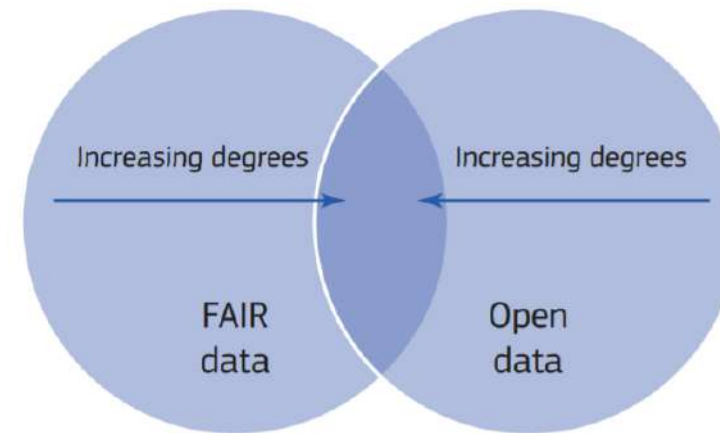
FAIR για λογισμικό

- Αρχαιοθήκη
- Μεταδεδομένα και λεξικά
- Άδειες
- Αναγνωριστικά



Recommendation n°1	FAIR principles for research software outcomes MUST be produced by taking into account the specific nature of software and not as just a simple adaptation of the FAIR guiding principles for data.
Recommendation n°2	Applying principles and recommendations to software demands effort, time and skill. The realistic nature of these principles MUST be considered.
Recommendation n°3	A large community forum MUST be consulted when writing the principles. This community forum MUST include stakeholders from different disciplines and with different roles, looking at software in all its aspects: as a tool, as a research outcome and as the object of research.
Recommendation n°4	Existing infrastructures that already provide solutions for software artifacts SHOULD be asked to review the FAIR principles for research software.
Recommendation n°5	Each principle MUST be relevant for software source code.
Recommendation n°6	Each principle MUST be achievable for software source code.
Recommendation n°7	Each principle SHOULD be measurable for software source code; detailed explanations of how a measurable principle is measured MUST be available.
Recommendation n°8	Each principle SHOULD contribute to software recognition in scholarly communication.
Recommendation n°9	Each principle SHOULD contribute to the curation quality of the software resource.
Recommendation n°10	Each principle MAY solve one or more research software challenges (e.g credit, reproducibility, sustainability & management, documentation, quality control, quality metadata, licensing and more).

Οικοσυστήματα που ευνοούν FAIR αποτελέσματα



“highly distributed ecosystem requiring technical mechanisms linking resources, and social mechanisms to define specifications, standards and protocols”

https://ec.europa.eu/info/sites/info/files/turning_fair_into_reality_1.pdf

”



“More work is needed to extend the FAIR data principles for application to a wide range of data services, including registries, Data Management Planning tools, metadata standards and vocabulary bodies, identifier providers, software libraries and other cloud services. Such extensions must take into account good management practice and sustainability. In doing so, the example of CoreTrustSeal and recommendations about business models and sustainability are good places to start”

FAIRsFAIR report

Πάροχοι υποδομών /υπηρεσιών



- Είδος υπηρεσίας (πού βρίσκεται στον κύκλο ζωής του RDM);
- Βασικά στοιχεία της υπηρεσίας
- Πού ενεργεί η υπηρεσία στο ψηφιακό αντικείμενο: bitstream, μεταδεδομένα, PID;
 - Λογισμικό ως ψηφιακό αντικείμενο
 - Ως εργαλείο - Ως ερευνητικό αποτέλεσμα ή αποτέλεσμα - Ως αντικείμενο έρευνας.
- Πιστοποίηση CoreTrustSeal , ISO κλπ- απαιτούμενες λειτουργικές πτυχές
 - Αναγνωριστικά, μεταδεδομένα (περιγραφικά, διαχειριστικά, τεχνικά κλπ), προέλευση, κλπ



OpenAIRE & NI4OS

Κορμός δράσεων



Συμβολή



OpenAIRE releases model templates and checklists for policy makers



As a part of the Toolkit for policy makers on Open Science and Open Access, OpenAIRE has released a set of model policy templates and checklists for Research Performing Organisations and for Research Funders.

The OpenAIRE Toolkit for policymakers has been designed to assist the design and adoption of Open Science policies aligned with EU developments in the field. It therefore targets stakeholders at national, institutional or funder level with a key role in the adoption of Open Science/ Open Access policies (university rectors, directors of research centres, directors of funding agencies, rectors' summit, ministries etc.). The Toolkit can

also be used by other stakeholders seeking to learn, adopt or align their Open Science policies and this is why all related material and resources are public.



Ευχαριστώ!

Έλλη Παπαδοπούλου

 elli.p@athenarc.gr

ORCID 0000-0002-0893-8509

 @elli_lib