# Open science principles to comply with

NI4OS-Europe Open Call Training Event 14 April 2022 Online



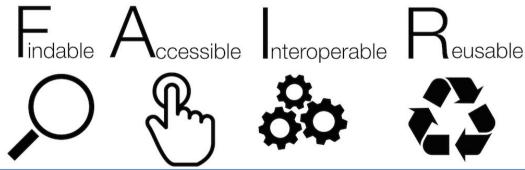
Branko Marović

NI4OS-Europe Open Call Training Event, 14 April 2022

# Challenges



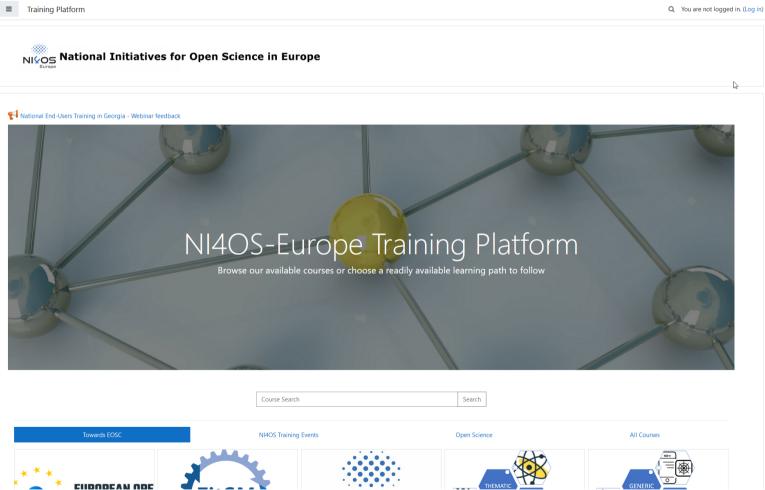
- As a researcher, I want to do my job and cut on all peripheral grunt work and ceremonies.
- Open Science is open, but not unregulated participation includes a learning curve and, worse, continuous readjustments.
- Requirements, practices, rules, policies, etc. are becoming increasingly difficult to track and comply with.
- □Tools do help, but how to find the right and simple means to your ends?



# NI4OS training portal



### ↗ <u>https://training.ni4os.eu/</u>



	Q You are not logged in. (Log in)
Home / Courses / Search / fair	Search courses fair Go
Search results: 8 * Assessing the FAIRness of Data	 
	<ul> <li>How to go about assessing the FAIRness of research data using freely accessible tools and resources.</li> <li>key terms and explain what they mean in a practical sense</li> <li>how data management planning can be used to make data FAIR from the very start of research projects</li> <li>how to use freely available tools to help assess the FAIRness of data</li> <li>The course has been imported from the FOSTER project.</li> </ul>
	Category: Open Science
	Essential information on EOSC and FAIR presented as promotion materials available in multiple languages.
EOSC/FAIR promotion	- € •)
	This learning path is the starting point for anyone who is interested to understand what EOSC is and how it can help researchers achieve their goals. It also provides all the necessary material for a better knowledge of FAIR principles.
	Category: Learning Paths
<ul> <li>FAIR data and principles</li> <li>たるしまで、</li> </ul>	۵ مر
P & &  Trainer: Judit Éva Fazekas-Paragh Trainer: Edit Gorogh Trainer: Cees Hof Trainer: Rene Horik, van Trainer: Anastas Mishev Trainer: Ádám Száldobágyi	FAIR data and principles The FAIR data principles are a set of guiding principles to make data findable, accessible, interoperable and reusable. The principles provide guidance for scientific data management and stewardship in order to facilitate open science, the approach to scientific progress based on sharing available knowledge using collaborative tools and digital technologies. The webinar will introduce and discuss the concepts of research data management and the FAIR data principles. Also, an overview of services and tools to support open science will be given. The webinar is aimed at data supporters working in universities and other scientific organizations. The aim of the webinar is that the participants can use the information provided in the webinar as a basis for further dissemination within their community.
	The trainers in the webinar are Cees Hof and René van Horik, active in the EOSC-hub (eosc-hub.eu) project and working at DANS, the Netherlands institute for permanent access to digital research resources (dans.knaw.nl/en/) The EOSC-hub project aims to bring together service providers to support data-driven research.

Training Platform	Q You are not logged in. (Log in)
FAIR Data and Software	<b>≙</b> →
E_ALR ₽ ₺ ₺ ₽	This course aims to train junior scientists in implementing the FAIR principles for research data & software management & development. It discusses ways to identify similarities and differences between these two scientific objects and apply respectively appropriate good practices in preparing, publishing and archiving research work.
	DOI 10.5281/zenodo.3707745 Leinweber, Katrin, Kraft, Angelina, Kuzak, Mateusz, Johnston, Luke, Hammitzsch, Martin, & Förstner, Konrad. (2018, July 16). FAIR Data and Software: A Carpentries-based workshop at TIB, Hannover. Carpentries-based "FAIR Data and Software" workshop (TIBFDS), Hannover, Germany. Zenodo. https://doi.org/10.5281/zenodo.3707745
	Category: Open Science
Managing and Sharing Research Data	£ +0
	Data-driven research is becoming increasingly common in a wide range of academic disciplines, from Archaeology to Zoology, and spanning Arts and Science subject areas alike.
	<ul> <li>which data can be open and which need to be protected</li> <li>how to go about writing a data management plan</li> <li>understand the FAIR principles</li> <li>select which data to keep and find an appropriate repository for them</li> </ul>
	• tips on how to get maximum impact from research data
	For a citable version or to use this course offline, please refer to the print version which is available from Zenodo. The course has been imported from the FOSTER project.
	Category: Open Science
National Capacity Building Training - Serbia	<b>≙</b> +9
<u>Serbi</u> a	This training event is part of a series of national capacity building training events organized under the NI4OS-Europe project. It is conceived as a two- hour session within the third edition of the Open Science Days, biannual two-day event dedicated to Open Science.
	The main goal of the capacity building training is to inform Open Science stakeholders in Serbia about the role, tasks, and outputs of the NI4OS- Europe project and to raise awareness of EOSC and highlight the importance of interoperable infrastructure and services, FAIR principles, Research Data Management and openness throughout the research lifecycle.
	Agenda of the Open Science Days: http://open.ac.rs/don2020
	All presentations will be in Serbian.
	Project partners who wish to join both the NI4OS capacity building training and other sessions within the Open Science Days are welcome.
	There is a single registration for Open Science Days and the NI4OS capacity building training session.
	Registration: https://bit.lv/3en&ING

 $\checkmark$ 

# NI4OS training portal



### **FAIR training materials**

https://training.ni4os.eu/course/search.php?q=fair&areaids=core\_course-course

### **EOSC training materials**

- EOSC Portal & Marketplace Official EOSC training materials that help end-users learn how to use the EOSC Portal & Marketplace: <u>https://training.ni4os.eu/course/view.php?id=97</u>
- □ **The Future of EOSC** Webinar discussing the current state and future efforts related to EOSC, <u>https://training.ni4os.eu/course/view.php?id=118</u>
- EOSC & FAIR Essential information on EOSC and FAIR presented as promotion materials available in multiple languages: <u>https://training.ni4os.eu/course/view.php?id=52</u>
- EOSC/FAIR promotion This learning path is the starting point for anyone interested to understand what EOSC is and how it can help researchers achieve their goals. It also provides all the necessary material for a better knowledge of FAIR principles: https://training.ni4os.eu/course/view.php?id=92

### Data Management Plans: https://training.ni4os.eu/mod/scorm/view.php?id=767

- This course introduces the concepts of data management and data management plans. After completing this course, participants will be able to:
- □ Understand the general rules of appropriate data management for responsible conduct of research.
- Be aware of good practice in managing research data in general and apply it within your work context.
- Use the information featured in the unit to draw up a data management plan and maintain it through the course of your research.

# **EOS Portal**



About Services & Resources Help Desk Policy Use Cases Media For providers Using the Portal Q

EOSC Portal - A gateway to information and resources in EOSC

Access the EOSC Portal Catalogue & Marketplace

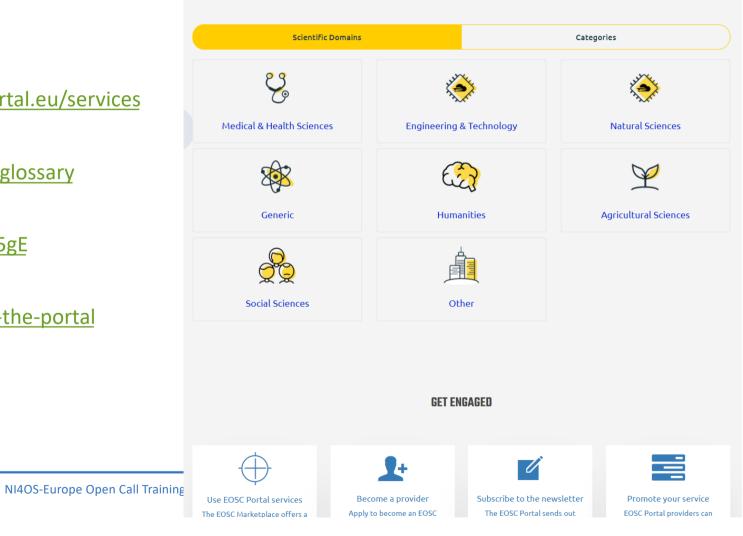
↗ <u>https://eosc-portal.eu/</u>

Catalogue and marketplace: <u>https://marketplace.eosc-portal.eu/services</u>

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

Video: https://youtu.be/oGEa10Rw5gE

Training materials: <u>https://eosc-portal.eu/using-the-portal</u>



# Services



分 → Resources

#### All Resources

#### 271 Resources

C A7		IEC
CA.	UR	

Compute	41
Data management	87
Networking	11
Processing & Analysis	65
Security & Operations	16
Sharing & Discovery	58
Storage	26
Training & Support	26

#### FILTERS

#### Scientific Domains

cientific Domains	^
Find or choose from the list below	
Generic	142
Generic	141
Natural Sciences	82
Earth & Related Environmental	42
Sciences	
Biological Sciences	29
Physical Sciences	5
Chemical Sciences	3

#### -1 - 10 of 271 results Sort by: by name A-Z 10 20 30 Items on page U ORDER REQUIRED 100 Percent IT Trusted Cloud Infrastructure as a Service (IaaS), secured by cutting edge cybersecurity software co-developed by the University of Oxford 100%IT Provided by: 100 Percent IT Trusted Cloud Scientific domain: Generic Dedicated for: Providers, Researchers, Businesses, Research Projects Add to comparison OPEN ACCESS

### **3DBIONOTES**

Provided by: World-wide E-infrastructure for structural biology Scientific domain: Biological Sciences Dedicated for: Other

Add to comparison

30BIONOTES-WS

Q

All resour... 🗸

My EOSC Marketplace

DEN ACCESS

# Service example

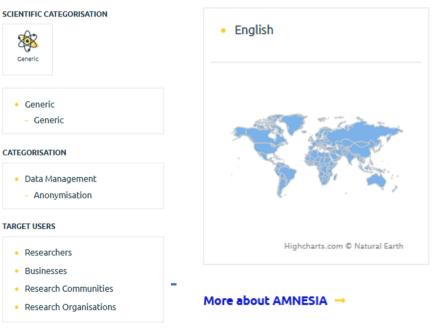


		AMNESIA	
Anonymize your datasets Provided by: OpenAIRE Anonymization 公公公公公(0.0/5) 0 reviews Add to comparison		Access the resource	
			OPEN ACCESS
		→ Webpage → Helpdesk → Helpdesk e-mail → Manual → Training information	Ask a question about this resource?
ABOUT	DETAILS	REVIEWS (0)	

#### TARGET USERS

- Researchers
- Businesses
- Research Communities
- Research Organisations

#### RESOURCE AVAILABILITY AND LANGUAGES



AMNESIA allows end users to anonymize sensitive data in order to share them with a broad audience. The service allows the user to guide the anonymization process and decide on a flexible trade-off between privacy guaranty and data utility. The service is offered through a web interface that allows users to explore the anonymized data visually. Moreover, the service detects duplicate anonymized files when they are uploaded to Zenodo. Reduce or eliminate the dangers to the privacy of the users that are associated with the data. Allow data owners or curators to safely share the data with other experts and to benefit from their processing on them.

# Service comparison

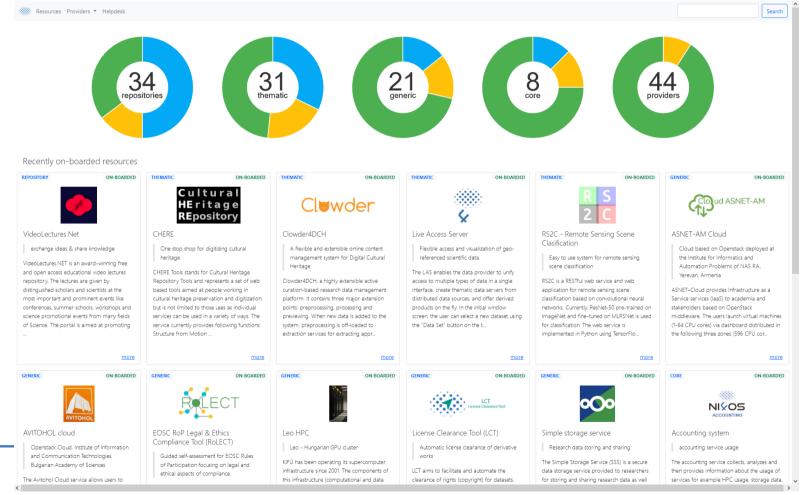


Comparison			CLEAR ALL
	EISCAT data access portal User portal for EISCAT data access and analysis. The EISCAT_3D Data Portal	DenAIRE Explore Portal The OpenAIRE Discovery portal provides access to Open Access research	CESSDA Data Catalogue The CESSDA Data Catalogue The CESSDA Data Catalogue contains the metadata of all data in the holdings
Providers	EISCAT Scientific Association	OpenAIRE	Consortium of European Social Science Data Archives ERIC
Resource order type	Order Required	Open Access	Fully Open Access
Scientific domain	Earth & Related Environmental Sciences	Generic	Other Social Sciences
Dedicated for	Researchers, Research Communities	Providers, Research Projects, Research Groups, Research Organisations	Researchers, Businesses, Research Communities, Research Organisations
Resource life cycle status	Beta	Production	Production
Geographical availabilities	World	World	World
Languages	English	English	Danish Dutch; Flemish English Finnish German Greek, Modern (1453-) Norwegian Slovenian Slovak
Tags		portal	data catalogue data discovery ddi metadata

# NI4OS Catalogue



### ↗ <u>https://catalogue.ni4os.eu/</u>



# Service example



Resources Providers	<ul> <li>Helpdesk</li> </ul>					crystallography	Se
Home > <u>Resources</u> > <u>Nano</u>	Crystal						Edit in A
NanoCrystal						THEMATIC	ON-BO
-	web-based crystallographic too	ol that creates nanoparticle o	coordinates from any materia	al crystal structure.		NanoCry	stal
Helpdesk	User manual	Terms of use	Privacy policy	Access policy	Monitoring	· ·	
orphology (crystal habit). User	ed crystallographic tool that creates na rs can upload a cif file, define the Miller nanoparticle is constructed and visualiz	indices and their corresponding m	inimum surface energies according			Website https://nanocrystal.vi-seem.eu/ Readiness	
Resource organizati	on		Resource providers			TRL9	
		ON-BOARDED			ON-BOARDED	Domain	
ACADEMY OF ATHENS	Biomedical Research Foundation, J		A arnet	National Infrastructures for Resea	5,	Engineering & Technology Subdomain	
	Soranou Ephesiou 4, 11527 Athens, Gree	ece (EL)	giner	7 Kifisias ave., 11523 Athens, Greece (El	.)	SUDGOMAIN Materials Engineering Nanotechnology	
ROULD WINNEL		more			more	Category	
						Software	
						Subcategory	
						Platform	
						Target users	
						Research Groups Businesses Innovators St Research Projects Researchers Research Org	
						Access type	
						Virtual	
						Access mode	
						Free	
						Tags	
						crystal equilibrium-shape surface-energy	nanoparticle



- RDM is a set of activities to collect and organize data most efficiently, and prepare it for future use and sharing with others.
- Funders', publishers' and scientific institutions' requirements for adequate data management and sharing are constantly becoming more frequent and rigorous.

### Advantages

- Reduced risk of duplication of already collected data
- Better protection against data loss
- Greater transparency and repeatability of research
- Higher citation
- Better cooperation with other researchers, etc.

# Data Management Plan (DMP)



DMP is a document that describes the procedures for managing and storing data derived from a scientific project.

- □ Serves as a framework for all project participants on how to manage and store data
- It is established at the beginning of the project and all participants should be familiar with it
- □ Revisions are allowed during the project
- □ The development of DMPs has been made mandatory for most research funders

"... the DMP is intended to be a **living document** in which information can be made available on a finer level of granularity through updates as the implementation of the project progresses and when significant changes occur."

<u>H2020 Online Manual</u> – Open access & Data management

# DMP structure and content

### NI **& OS** Europe

### Data creation and collection

- Format selection
- Organization of files and folders
- Naming
- Versions

### Documentation and metadata

- Questionnaires, program code, lab. notebooks, ...
- Metadata: standardized, human and machine-readable

### Data protection

- Backups
- Access control passwords, encryption
- Data sharing
  - □ "As open as possible, as closed as necessary" (H2020)
  - Licenses for later data usage
- Long-term storage
  - Selection of data for long-term storage
  - Data repositories

# DMPs are unavoidable!



DMPs have become mandatory for most research funders



Private funders: Wellcome trust, Gates foundation

Guidelines and templates (in line with FAIR principles)

□ Horizon 2020 DMP template

 Science Europe: Practical Guide to the International Alignment of Research Data Management (2018)

# DMP tools



"Traditional" DMP – human-readable (PDF, DOCX)

DMPOnline – DCC & Univ. of Edinburgh

DMP Tool – California Digital Library



Machine-actionable DMP – human readable (PDF, DOCX), machine readable (JSON, RDF/XML)

□ Argos (OpenAIRE and EUDAT)

Data Stewardship Wizard (Elixir CZ/ND)



# Argos DMP tool



↗ <u>https://argos.openaire.eu/</u>



https://training.ni4os.eu/pluginfile.php/5446/mod\_resource/content/0/05\_ARGOS.pdf

### □Argos is

More info at

- Tool for machine-actionable DMPs (RDA Common Standards for maDMP)
- □ Free and open-source
- Provides translation into languages other than English
- Allows creation of funders' forms

# Argos DMP tool

× argos		Start new DM	
A Home	Editing DMP Test new DMP		Save
My DMPs My Datasets Public DMPs	Guide steps 1. Main info (7)	A DMP in Argos consists of key information about research, such as purpor researchers involved, but also about documentation of research datasets followed and the means used across data management activities.	
Public Dataset Desc.	<ol> <li>2. Funding info (3)</li> <li>3. License info</li> <li>4. Dataset info</li> <li>5. Dataset: NWO Testing Dataset Desc ×</li> <li>+ Add Dataset</li> </ol>	1.1 Title of DMP* Test new DMP	
About Terms Of Service		<b>1.2 Description</b> Briefly describe the context and purpose of the DMP         Here is the description of the project	3.1.2 Is there sufficient storage capacity during the project?            • Yes         • No          Please Specify
Glossary User Guide Contact Support	Previous > Next		Provide additional information or justification about your selection 3.1.3 Will the data be backed up regularly during the project? Who is responsible for this? Ves No
	N	I4OS-Europe Open Call Training Event, 14 April 2022	Backup manager

# Argos DMP tool



	EN 🔻
Home     Editing Dataset     (unsaved changes)     Discard     Save     Save & Close     Save	& Add New
■ My DMPs	
My Datasets  Back to DMP	
Public DMPs	[
Public Dataset Desc. Guide steps Guide steps Title of Dataset Required	
0. Main info (5)       1.2 Description         1 General Information       A brief description of what the DMP is about it's scope and objectives.	
2 Description dataset 3 Data Storage Fill with description	
4 Standards and Metadata 5 Making data available	.at
About Terms Of Service	
Glossary User Guide   Contact Support     1.3 Tags	

# Argos DMPs



	<pre>[]</pre>
	<pre><description>This action will implement the new Plasma-Enhanced Chemical Solution Deposition</description></pre>
	and wood-based substrates. This technique synergistically employs plasma-chemistry in the gas
Datasets	chemistry in the liquid formulation, thus combining all benefits of conventional surface coats
	technologies. The implementation is divided into three main objectives:
	Objective I: Building the integrated device,
	Objective II: Optimization of the deposition parameters, and
Title: NewSiest_DMP	Objective III: Demonstrating the technique's capability and priming the industrial implementat
Femplate: Horizon 2020	These objectives will lead to the generation of data:
External References	<ul><li>(I) on the construction, setup, and ongoing improvements of the device,</li><li>(II) on the experimental protocols for film deposition and the properties of the resulting coating coating and the properties of the resulting coating coating coating and the properties of the resulting coating coa</li></ul>
Data Repositories	(III) on the effectiveness of the demonstrated applications towards commercialization.
External Datasets	-Various kinds and forms of data will be generated throughout the project. No previous works or
Registries	<pre><dmpname>DMP For Grant : Demonstration and implementation of an integrated process for the H <dmpprofile></dmpprofile></dmpname></pre>
	¢ <funder></funder>
Services	<label>European Commission  EC</label>
	<id>690c686d-e900-4772-a382-8d805af751a4</id>
	<pre></pre>
Dataset Description	<label>Demonstration and implementation of an integrated process for the Plasma-Enhanced O</label>
1 Data Summary	<id>80206f1f-0c80-4ded-b6ff-dbd596880dd1<!--/d--></id>
1 Data summary 1.1 What is the purpose of the data collection/generation and its relation to the objectives of the project?	imp" : {
of the project?	"contact" : { process for the Plasma-Enhanced (
Purpose of data collection/geenration: To study the optimal nanoparticle (NP)	"contact_id" : {
	"identifier" : "c22450b2-9999-4896-9ec6-f7c0af5bfa37",
concentration and thermal modification conditions to improve the UV stability of wood surfaces. Data	"type" : "other"
vill be useful for academic and scientific readers and also has construction, industrial importance.	},
Relation to objectives of project: The main research objectives of the action are: i) to introduce and	<pre>"mbox" : "obrad.vuckovac@gmail.com",</pre>
optimize envelope treatment of wood with UV protecting nanoparticles ii) to set up the process of heat	"name" : "Obrad Vuckovac"
reatment of wood with nanoparticles in the envelope iii) to evaluate UV and fungal resistance of the	},
	"contributor" : [ {
novel wood-based material for industrial/commercial application. The collected data will therefore	"contributor_id" : {
nclude: i) Experimental procedures and reaction conditions to achieve wood envelope treatment. Data	"identifier" : "http://orcid.org/0000-0001-5616-2680",
n basic liquid properties of NP dispersion, retention and depth of penetration of the nanomaterial onto	"type" : "orcid"
vood. ii) the generated data includes standard methodology of thermal modification of wood and data	},
	"name" : "Obrad Vučkovac"
on percent mass loss, mechanical properties, contact angle variations, colour and chemical changes. iii)	) ],
Data from evaluation of wood against light (UV) and fungal stability where change in wood properties	"cost" : [],
vill be accessed by weight loss, colour change, Scanning Electron Microscopy (SEM), and changes in	"created" : "2020-08-06T18:19:38Z",
hemical constituents using FTIR spectroscopy.	"dataset" : [ {
	"dataset_id" : {
1.2 What types and formats of data will the project generate/collect?	"identifier" : "62c5029c-2322-4eb7-ba52-bf808de1c615",
Types and formats of data generated: 1. Envelope treatment of wood using	"type" : "other"
	) <i>,</i>

NI4OS-Europe Open Call Training Event, 14 April 2022

# NI4OS-Europe developed tools



Address local issues with solutions for the wider EOSC community
In compliance with EOSC FAIR service requirements from the outset
Tools for researchers

LCT - facilitating IPR decisions
RoLECT - dealing with legal and ethical aspects

Tool for repository and service managers

RePol - drafting of repository policies

Will onboard to the EOSC Marketplace; currently in NI4OS-Europe Agora

# LCT – License Clearance Tool





LCT License Clearance Tool

↗ <u>https://lct.ni4os.eu/</u>

Wiki: <a href="https://wiki.ni4os.eu/index.php/License\_Clearance\_Tool\_-\_Description\_and\_Documentation">https://github.com/ni4os-europe/license-clearance-application</a> License: <a href="https://github.com/ni4os-europe/license-clearance-application">EUPL (European Union Public License 1.2+)</a> OSFair21 demo: <a href="https://youtu.be/LYo5FLnJYJI?t=668s">https://youtu.be/LYo5FLnJYJI?t=668s</a> Training portal: <a href="https://training.ni4os.eu/mod/scorm/view.php?id=1126">https://training.ni4os.eu/mod/scorm/view.php?id=1126</a>

### □An intuitive tool for resource **license clearance**

Automates the clearance of rights for derivative works

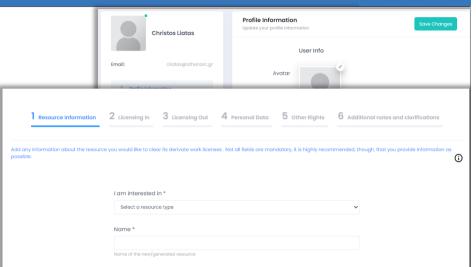
Facilitates FAIRness and reusability

Mitigates legal uncertainty and diminishes costs in the clearance of licensing issues

# LCT features



- Wizard-based form to guide you through the required fields
- Two distinct workflows for derivative works
  - Resource driven
  - License driven
- Available for registered and guest users
- Custom report generation with all clearance information
  - Personal & ethics information included if available
- □Clearance history for registered users





# RoLECT – Tool for EOSC Rules of Participation





↗ <u>https://rolect.ni4os.eu/</u>

Wiki: <a href="https://wiki.ni4os.eu/index.php/EOSC\_RoP\_Legal %26\_Ethics\_Compliance - Description and Documentation">https://github.com/ni4os-europe/rolect-application</a> Source: <a href="https://github.com/ni4os-europe/rolect-application">https://github.com/ni4os-europe/rolect-application</a> License: <a href="https://github.com/ni4os-europe/rolect-application">EUPL (European Union Public License 1.2+)</a> OSFair21 demo: <a href="https://github.com/ni4os-europe/rolect-application">https://github.com/ni4os-europe/rolect-application</a> License: <a href="https://github.com/ni4os-europe/rolect-application">https://github.com/ni4os-europe/rolect-application</a> License: <a href="https://github.com/ni4os-europe/rolect-application">https://github.com/ni4os-europe/rolect-application</a> License: <a href="https://github.com/ni4os-europe/rolect-application">https://github.com/ni4os-europe/rolect-application</a> License: <a href="https://github.com/ni4os-europe/rolect-application">https://github.com/ni4os-europe/rolect-application</a> DosFair21 demo: <a href="https://github.com/ni4os-europe/rolect-application">ht

□ Self-assessment tool against EOSC RoP focusing on Legal & Ethics aspect

Designed to **promote compliance with EOSC RoP** & raise awareness

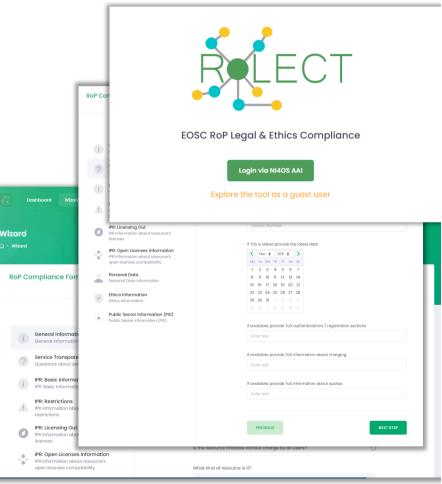
- □ Understand the main **priorities of EOSC RoP**
- Before starting the onboarding process, prospective resource providers can verify if the resources meet the legal & ethics standards of EOSC RoP

Quick look at the main priorities of RoP to

- □ Proceed to **corrective actions** for onboarding or
- Proactively integrate features ensuring compliance into the resource

# **RoLECT features**

- Guided compliance self-assessment for legal and ethics EOSC RoP
- Targets service providers, researchers and research organisations
- Mitigates legal uncertainty and ensures compliance with the key legal and ethical aspects
- Successfully reduces the time for compliance evaluations
- Mainstreams EOSC RoP compliance procedure, tracking changes, identifying and constructing a series of legal and ethical rules
- Will evolve aiming to become a standard assessment for EOSC RoP



National Initiatives for Open Science in Europe – H2020 Research and Innovation action – contract no. 857645



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