



---

## Training Resources on Open Science

José Carvalho - [jcarvalho@sdum.uminho.pt](mailto:jcarvalho@sdum.uminho.pt)

The logo for EKT (National Documentation Centre) consists of the letters "EKT" in a bold, red, serif font, enclosed in a grey square.

ΕΘΝΙΚΟ ΚΕΝΤΡΟ  
ΤΕΚΜΗΡΙΩΣΗΣ  
NATIONAL  
DOCUMENTATION  
CENTRE

**Open Science: key issues and future prospects**  
EKT & OpenAIRE National Event



# VISION

Building upon the solid foundation provided by the previous FOSTER project, support individual researchers and research performing organisations to move beyond simply being aware of them to being able to apply Open Science (OS) approaches in their daily workflows.

# MOTIVATION / CONTEXT

The adoption of Open Science approaches has been quite limited to date

General awareness of OS approaches has greatly improved among EU researchers...

... but there is still a **lack of practical guidance and training** to help researchers learn how to open up their research processes and results.

**Spread the Seeds!**



# FOSTER Plus

In order to address this skills gap we will:

**Organise specific training** for researchers and academics focusing on key skills fostering the Open Science culture

targeting all **relevant stakeholders** with a view to permitting them and their organisations to fully implement the practical OS aspects.

targeting three **specific scientific disciplines** - life sciences, social sciences and humanities.

**Collaborate** with initiatives and projects (RIs, OpenAIRE, EUDAT, FIT4RRI, etc.) on the co-creation of materials and events

# FOSTER Plus

FOSTER plus project is building upon previous FOSTER work and results...

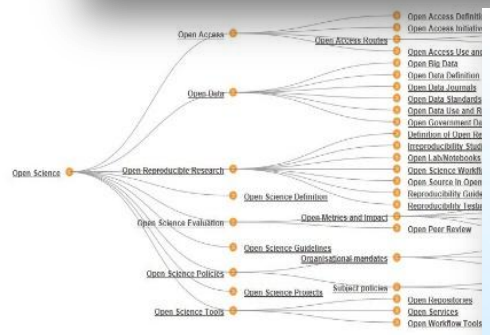
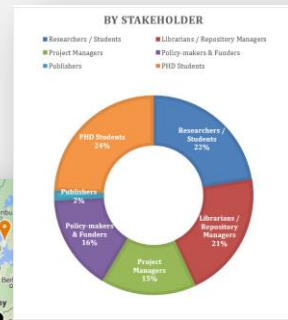


# 2000+ Training materials, categorized in the FOSTER Portal

## Open Science Taxonomy

### Learning Objectives for Target Groups/Stakeholders

TOPICS (following the Research Lifecycle)	CORE LEARNING ELEMENTS	LEARNING OBJECTIVES (as basis for a LEARNING PLAN)	STAKEHOLDER				
			Doctoral Students	Researchers	Research Project Managers	Knowledge Managers & Librarians	Funding Agencies
Open Science Definition	Define the concept of Open Science	Define relevance of OS tools to Reproducibility/Integrity of Research	o	o	o	o	o
		Identify OS tools for each step of the Research Lifecycle	o	o	o	o	o
		Apply OS concepts to your daily research processes	o	o	o	o	o
Open Reproducible Research	Define relevance to Reproducibility	Discuss OS & Reproducibility role in Innovation & Economic Growth	o	o	o	o	o
		Identify OS tools for each step of the Research Lifecycle	o	o	o	o	o
		Define relevance of OS tools to Reproducibility/Integrity of Research	o	o	o	o	o
		Apply OS concepts to your daily research processes	o	o	o	o	o
	Justify Openness as a Reproducibility Tool	Discuss OS role in Peer-Review Process	o	o	o	o	o
		Discuss OS & Reproducibility role in Innovation &	o	o	o	o	o
			o	o	o	o	o



More than **100** face2face training events in **28** countries and **25** online courses, totalling more than **6300** participants

<http://fosteropenscience.eu>



# The FOSTER Portal

About Resources Events Courses News Contact [Sign in](#) [Register](#)

**FOSTER**  
FACILITATE OPEN SCIENCE TRANSITION FOR EUROPEAN RESEARCH

Go to the project website

What to do:

Search

[Advanced search](#)

[Take Courses](#) [Create Courses](#) [See upcoming events](#)

Featured Topics in Open Science

- Open Access
- Open Science
- Open Data
- Research Data Management
- Open Science Policies
- Funders policies
- Legal issues
- Open Access policies

openMIN7ED featured topics in Text and Data Mining

- Relation Extraction
- Knowledge Representation
- Knowledge Discovery
- Co-reference/anaphora Resolution



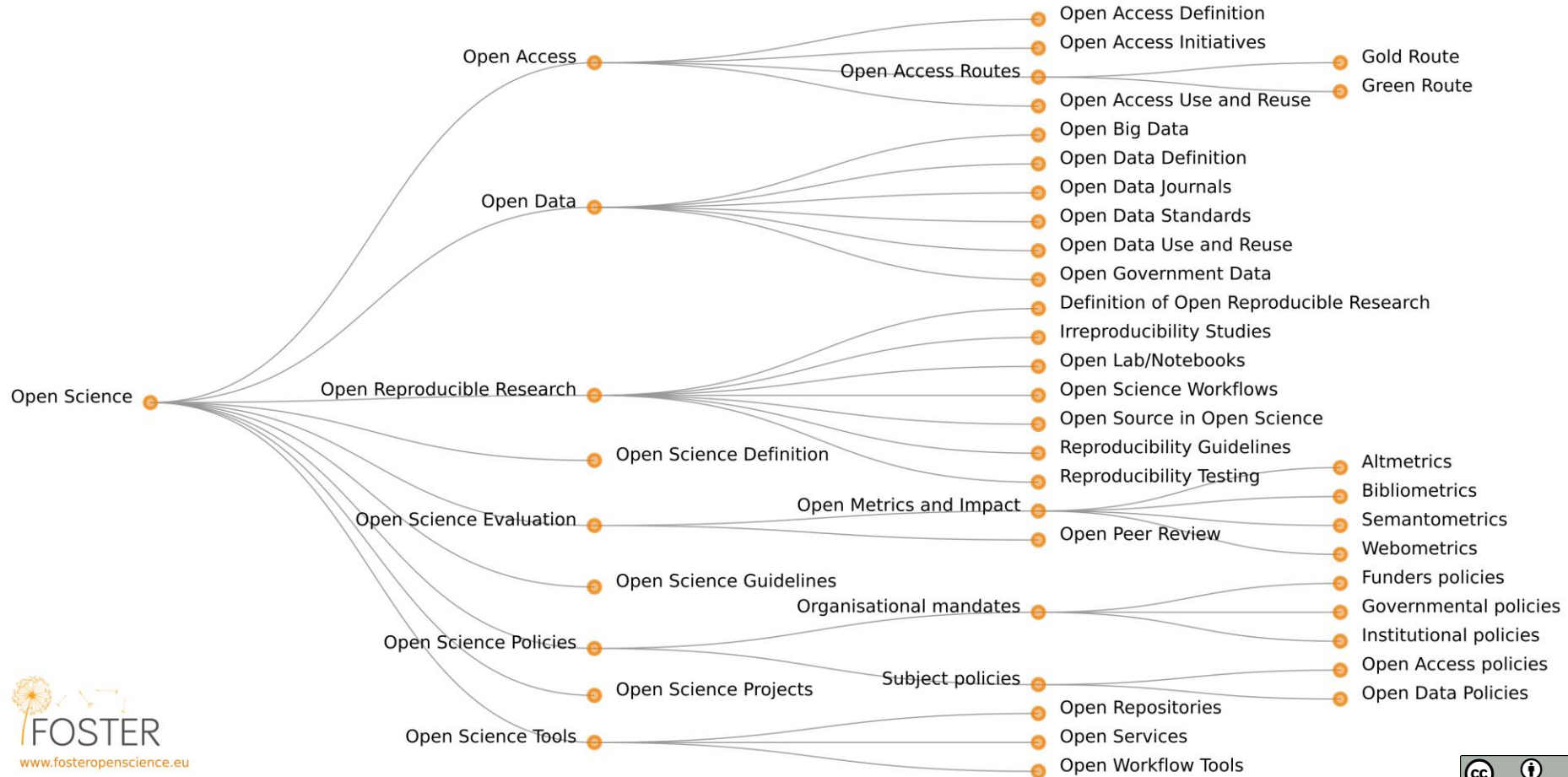
# The FOSTER Portal

Organized according with the Open Science Taxonomy

For each Topic the Portal presents the associated:

- Resources
- Events
- Courses

# Open Science Taxonomy



# Learning Objectives

By choosing a topic by stakeholder, then the the objectives, the course creator needs just to define the learning activities to be done by learners.



# Learning Objectives - <https://goo.gl/XAk00v>

TOPICS (following the Research Lifecycle)		CORE LEARNING ELEMENTS	LEARNING OBJECTIVES (as basis for a LEARNING PLAN)	STAKEHOLDER				
				Graduate Students	Researchers	Research Project Managers	Knowledge Managers & Librarians	Funding Agencies
Open Science	Open Science Definition	Define the concept of Open Science	Define relevance of OS tools to Reproducibility/Integrity of Research	o	o	o	o	o
			Identify OS tools for each step of the Research Lifecycle	o	o	o	o	
			Apply OS concepts to your daily research processes	o	o			
			Discuss OS & Reproducibility role in Innovation & Economic Growth		o	o	o	o
	Open Reproducible Research	Define relevance to Reproducibility	Identify OS tools for each step of the Research Lifecycle	o	o	o	o	
			Define relevance of OS tools to Reproducibility/Integrity of Research	o	o	o	o	o
		Justify Openness as a Reproducibility Tool	Apply OS concepts to your daily research processes	o	o			
			Discuss OS role in Peer-Review Process	o	o			
			Discuss OS & Reproducibility role in Innovation & Economic Growth		o	o	o	o
	Open Research Data (ORD)	Open Big Data	Define Open Big Data concept			o	o	o
			Identify services based on Open Big Data			o	o	o
		Open Data Definition	Define Open Data	o	o	o	o	o
			Demonstrate the advantages of Open Data	o	o	o	o	o
		Open Data Journals	Identify existing Open Data Journals	o	o		o	
			Prepare a publication for an Open Data Journal	o	o			
		Open Data Standards	Identify existing Open Data Standards	o	o	o	o	o
			Use Identifiers for archiving & citing research data	o	o	o	o	
Open Data use and reuse		Understand of linked data	o	o	o	o	o	
		Select & Use licences (e.g. CC) for datasets	o	o	o	o		
	Comply with Horizon2020 Open Research Data Pilot		o	o	o			

# FOSTER Training Content

Presentations

Guides

Publications

Videos

•••••

The screenshot shows the FOSTER Project Website interface. At the top, there is a navigation menu with links for 'Project Website', 'About', 'Events', 'Courses', 'News', and 'Contact'. On the right side, there are buttons for 'Sign in' and 'Register'. The main content area features a video player with a play button icon. Below the video player, the title 'Open for all – the benefits of open data in a digital age' is displayed, followed by the author's name 'Mark Thorley, NERC, CODATA' and a brief description of the presentation. The video player shows a man standing at a podium in a lecture hall, with a large screen behind him displaying a presentation slide. The slide content is partially visible, showing a grid of icons and text related to open data. To the right of the video player, there is a metadata section with fields for 'Authors', 'Publication year', 'Language', 'Level of knowledge', and 'Usage rights'. Below this, there is a Creative Commons Attribution (CC BY) license icon. Further down, there is a 'Topics' section with four thumbnail images representing different topics: 'Open Data', 'Open Science Policies', 'Research Data Management', and 'Open Data Use and Release'. At the bottom, there is an 'Audience' section with three buttons: 'PHD Students', 'Project Managers', and 'Researchers and Students'.

FOSTER Project Website About Events Courses News Contact

Sign in Register

## Open for all – the benefits of open data in a digital age

Mark Thorley, NERC, CODATA. "Open Research Data: Implications for Science and Society", Warsaw, Poland, May 28–29, 2015, conference organized by the Open Science Platform – an initiative of the Interdisciplinary Centre for Mathematical and Computational Modelling at the University of Warsaw. pon.edu.pl @OpenSciPlatform #ORD2015

Authors: Mark Thorley  
Publication year: 2015  
Language: English (EN)  
Level of knowledge: Intermediate: able to  
Usage rights:

CC BY

### Video

"Open for all – the benefits of open data in a digital age" - Mark ...

### Topics

- Open Data
- Open Science Policies
- Research Data Management
- Open Data Use and Release

### Audience

- PHD Students
- Project Managers
- Researchers and Students

# Training

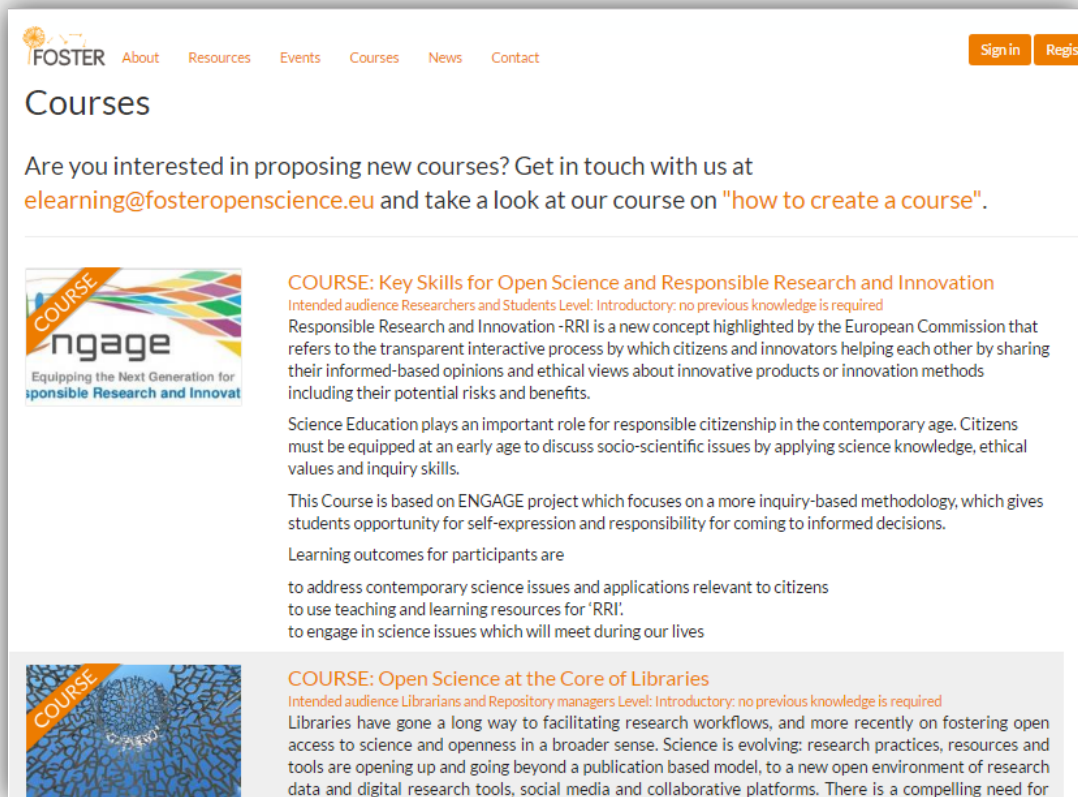
More than 100  
face2face training  
events in 28  
countries and 25  
online courses,  
totalling more than  
6300 participants





# Elearning courses

Self-learning  
or  
Moderated

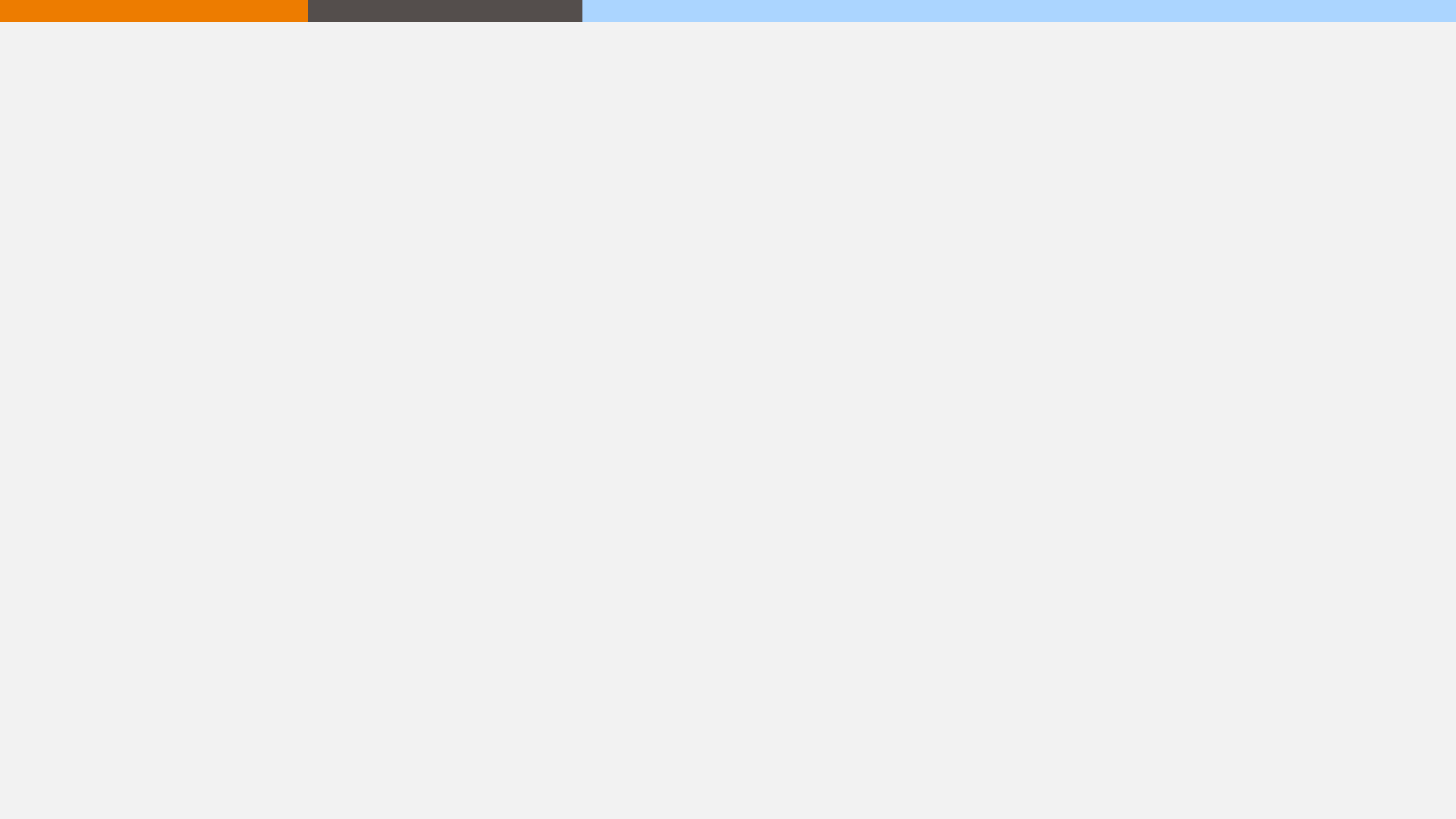


The screenshot shows the 'Courses' page on the FOSTER website. The header includes the FOSTER logo and navigation links for About, Resources, Events, Courses, News, and Contact. There are 'Sign in' and 'Register' buttons in the top right corner. The main heading is 'Courses', followed by a call to action: 'Are you interested in proposing new courses? Get in touch with us at [elearning@fosteropenscience.eu](mailto:elearning@fosteropenscience.eu) and take a look at our course on "how to create a course".'

The page features two course listings. The first is 'COURSE: Key Skills for Open Science and Responsible Research and Innovation'. It includes an 'ngage' logo with the tagline 'Equipping the Next Generation for Responsible Research and Innovation'. The text describes the course as introductory for researchers and students, focusing on the European Commission's concept of Responsible Research and Innovation (RRI). It mentions that the course is based on the ENGAGE project and lists learning outcomes related to addressing contemporary science issues and using teaching resources for RRI.

The second listing is 'COURSE: Open Science at the Core of Libraries', which is partially visible. It is also introductory and intended for librarians and repository managers, discussing the evolution of libraries in an open science environment.

<https://www.fosteropenscience.eu/courses>





# Overview

Building on the partners' experience and relevant results from the previous FOSTER project, we will:

- conduct a wide-ranging training programme, facilitating self-directed online learning using the Open Science Toolkit, blended and moderated e-learning courses through the FOSTER Portal, and a variety of face-to-face events;
- provide discipline/community specific training, addressing actual knowledge and skills gaps, and building capacity for the practical adoption of OS culture;
- work in collaboration with associated partners, Research Infrastructures and related projects such as EUDAT, OpenAIRE, FIT4RRI, OpenUP, LEARN, OpenMinted, ...;
- support a trainers network by delivering train-the-trainer sessions and incentivizing OS ambassadors through gamification tools on the FOSTER portal;
- assign digital badges and certificates to reward learners and further foster the culture change.

# General Objectives

Contribute to a real and lasting shift in the **behavior of European researchers** to ensure that OS becomes the norm in Horizon 2020 and beyond

Provide **high quality training materials and events**, addressing the current skills and content gaps, both at community/discipline and institutional levels

Reach **all relevant stakeholders in the European Research Area (ERA)**, with a focus on researchers, in particular young scientists and students. They will be targeted directly and via intermediaries (e.g. research support staff including librarians, research administrators, lab technicians)

## Intermediaries

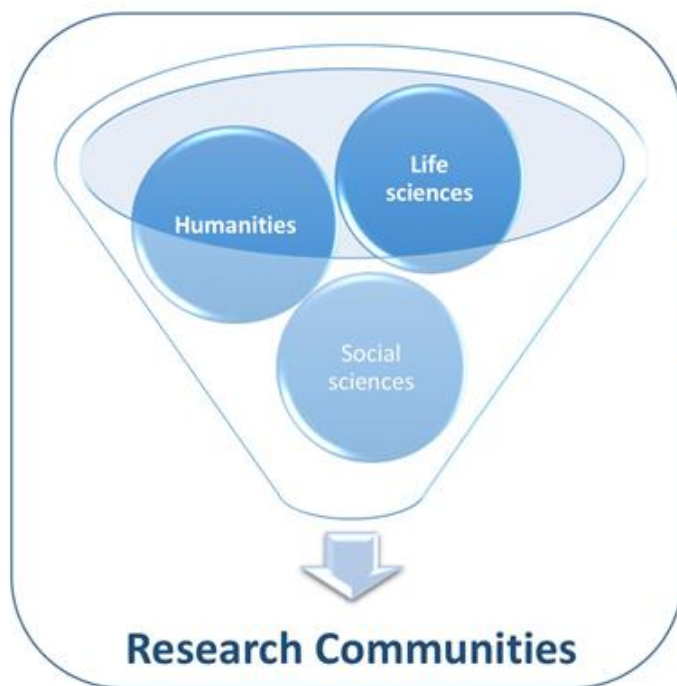
IT staff

Lab  
Technicians

Librarians

Research office  
administrators

Project  
managers



Research Communities



Research  
Infrastructure

Funders, policymakers



# Specific Objectives

1. To support a culture change, whereby the practical aspects of Open Science are fully implemented and ultimately rewarded, by providing an advanced-level, outcome-oriented training programme based on courses and activities for which participants can attain digital badges.
2. To consolidate and sustain a training support network comprised of Open Science ambassadors from a range of research performing organisations and research infrastructures.
3. Strengthen the training capacity by addressing the current skills and content gaps, both at community/discipline and institutional levels, on the practical implementation of Open Science.

# Specific Objectives

1. To support a culture change, whereby the practical aspects of Open Science are fully implemented and ultimately rewarded.

- **50 face-to-face training events** will be organised, reaching over 1,500 participants being not only aware of OS but able to implement it in their daily workflows;
- **20 e-learning courses**, reaching over 3,000 participants, will be conducted, from which a third (at least 7) will be moderated courses;
- Training materials and events will focus on providing practical, outcome-orientated lessons to engage participants and assist them to adopt new practices;
- **The FOSTER+ trainers network** will equip members with the materials needed to be effective OS ambassadors and encourage others to adopt new ways of working;
- **Advocacy material and campaigns** will promote the uptake of Open Science and be distributed at least 100 events (including the above), through various social media channels and a newsletter reaching at least 4,000 participants and subscribers

# Specific Objectives

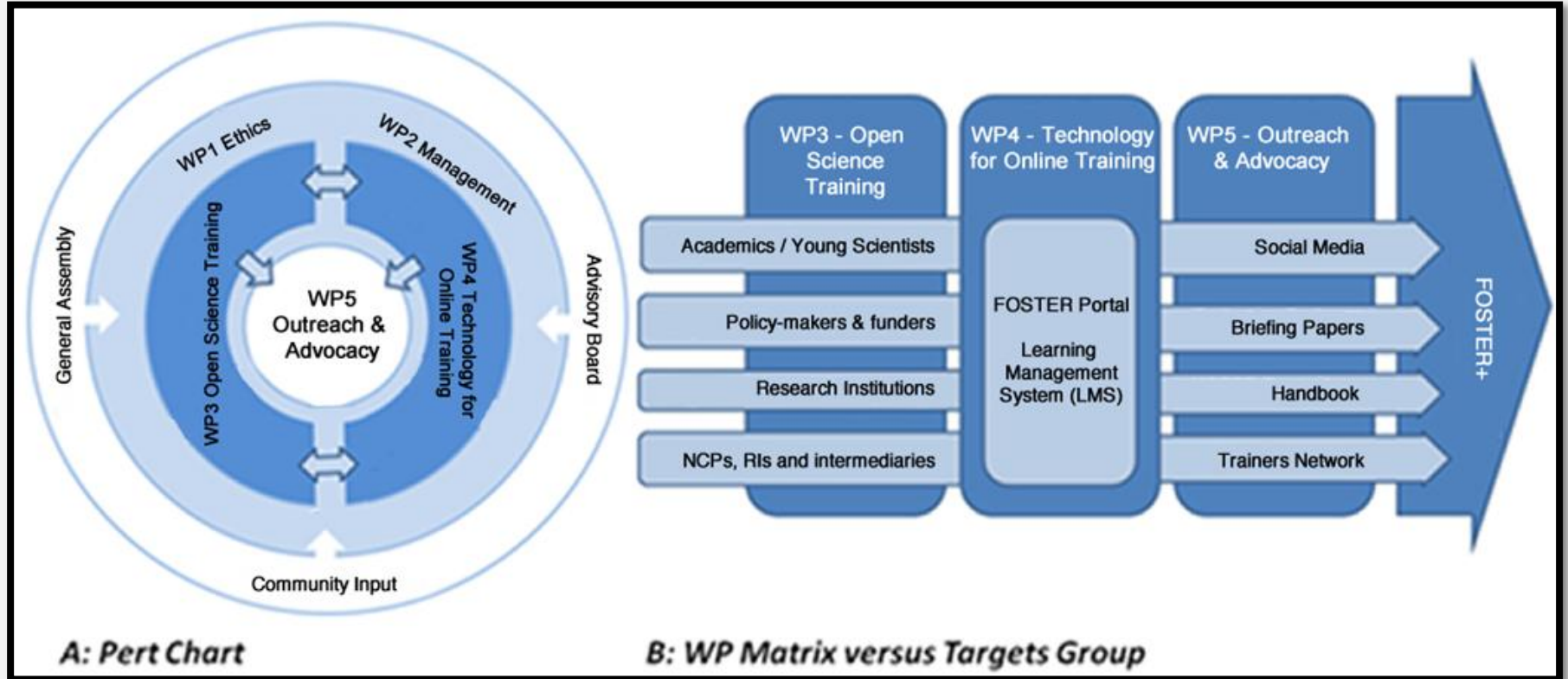
## 2. To consolidate and sustain a training support network

- A consolidated and extended network of trainers will bring together at least 50 trainers which cover Open Science training topics from various perspectives, and involving at least three disciplinary communities (humanities, social sciences, and life sciences).
- **6 train the trainers events, including an Open Science Trainer Bootcamp**, reaching 150 participants will be organised; and in their follow-up training events they will assist in reaching out to 4,500 participants;
- **1 book sprint creating a living Open Science Training Handbook** engaging with at least 15-20 trainers, combined with a series of 7-10 topical video lectures reaching out to at least 300 participants (targeting trainers and early-career researchers).

# Specific Objectives

3. Strengthen the training capacity (...) both at community/discipline and institutional levels, on the practical implementation of Open Science
  - A **multi-module Open Science Toolkit** will be created that explains Open Science concepts and provides practical, outcome-oriented lessons to increase the uptake of OS in practice;
  - A minimum of **20 e-learning courses** will be created comprising engaging, interactive content to support self- and blended learning;
  - **150 new intermediate and advanced level training resources** will be created and deposited in the FOSTER Portal.

# Project Structure & Management



# Strategy and Workplan

**Year 1 (May 2017 - April 2018)** will focus on developing the OS Toolkit, update the FOSTER Portal to support moderated learning, badging and gaming, run the Open Science Bootcamp and initial face to face training.

**Year 2 (May 2018 - April 2019)** we will develop/support the FOSTER Trainer Network, run an intense training calendar, including moderated learning in the FOSTER Portal, release the Open Science training handbook.





More details

# Stakeholders



# Stakeholders

- Academic staff; young scientists; policy-makers; funding bodies
- SME's
- National Contact Points
- Young Scientist associations and groups

# Disciplines

- **GESIS (CESSDA) - Social Sciences**
  - New data protection regulation (tutorial)
  - Data reuse (tutorial)
- **CRG - Life Sciences**
  - Open Data and Method Management (course)
  - Reproducible data (course)
- **UGOE (DARIAH-EU) - Humanities**
  - Humanities Publishing (module)
  - Data Management (module)

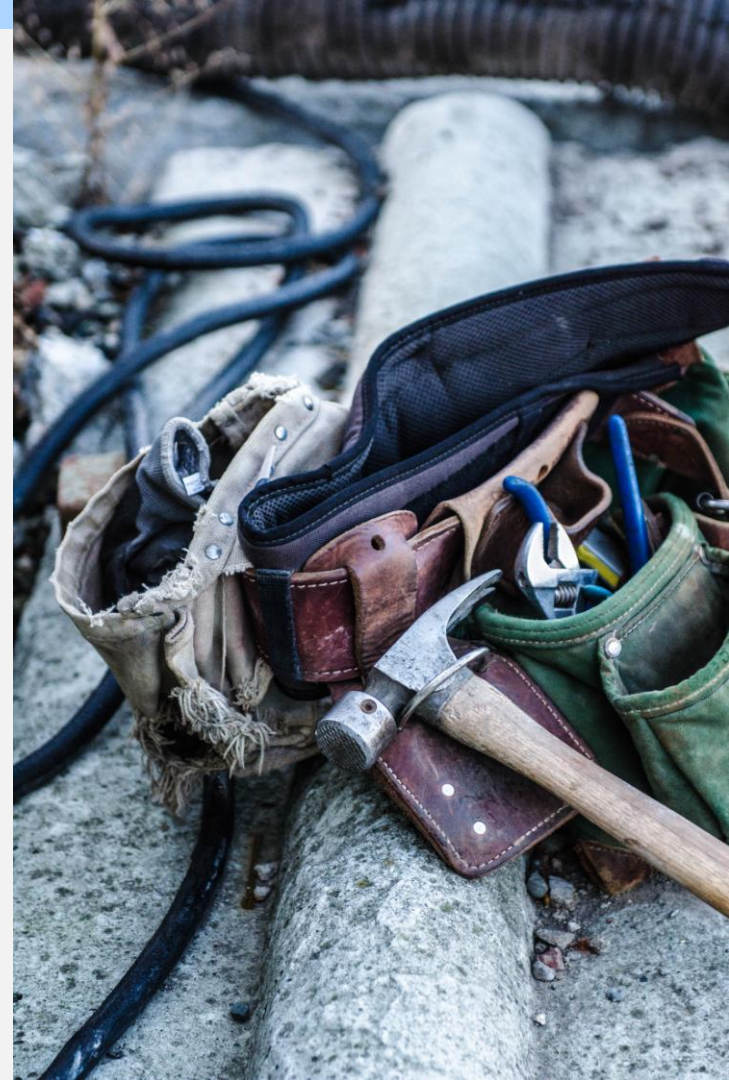
# Open Science Trainer Bootcamp

- Trainers with high multiplier potential
- Focus on researchers & intermediaries
- Multiple days
- Call to choose 20-30 participants (**very soon !**)
- Promote a network of “FOSTER plus” trainers



# Open Science Toolkit

- Multi-module (Open science; responsible research & innovation; text and data mining; reproducible research; RDM; ...)
- Practical examples & use cases
- Disciplinary skins (CRG; GESIS; DARIAH)
- Other languages



# Open Science Handbook

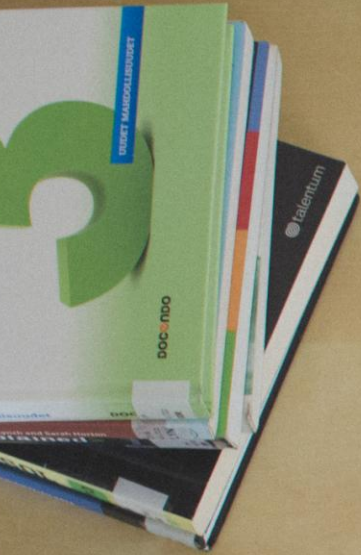


# Open Science Training Handbook

- Methods, background information and examples of training outlines.
- Live document - updated during the project (based on writing plan)
- Include Video Lectures
- Collaboration with TIB - German National Library of Science and Technology



# eLearning



# eLearning Courses

- With a new Learning Management System (Moodle)
- eLearning or blended learning
- Materials available in open standards for reuse
- Open Licenses for the courses/contents
- 20 eLearning courses

# Concept of Specializations/Learning Paths



# Concept of Specializations/Learning Paths

- Creation of specific curriculum
  - compilation of specific courses and modules for a specific specialization
- Recommendation of learning paths / courses

# More on FOSTER plus

- Badging (rewards)
- Gamification
- Update of Content Map
- Update of Learning Objectives
- Update of FOSTER Portal
- Disciplinary views (contents, courses,... )
- Learning Analytics



# Associated Partners

Communities that support FOSTER help to create the network!







**FOSTER NETWORK**



# FOSTER Network & Directory

## Update of Directory of Speakers and Trainers

Select speakers by:

Topics: [Copyright and IPR](#) [Data Management](#) [Funder Compliance](#) [Impact and Metrics](#) [Open Access](#) [Open Data](#) [Open Science](#) [Policy development and implementation](#)

Audience: [Funders \(decision makers and staff\)](#) [Institutional decision makers and staff](#) [Librarians and repository managers](#) [Project Managers](#) [Researchers and postgraduate students](#)

[Back to speaker directory](#)



Joy Davidson

University of Glasgow

Languages: English

Country: United Kingdom



Categories: [Data Management](#) [Open Data](#) [Open Science](#) [Policy development and implementation](#)

Target groups: [Funders \(decision makers and staff\)](#) [Institutional decision makers and staff](#) [Librarians and repository managers](#) [Project Managers](#) [Researchers and postgraduate students](#)

Websites:

[Research Gate](#)

[Digital Curation Center](#)

[HATTII Research](#)

[Add to Address Book.](#)

# Webinars with OpenAIRE

Series of webinars integrated with OpenAIRE



## Webinar: Open Science Training for NCP Network IDEAL-IST

Sylvia Ilieva (BAN & Ideal-IST Training Lead), Ivo Grigorov (FOSTER Project)  
webinar

Check more at: <https://www.fosteropenscience.eu/events>

# Project Partners

<b>UNIVERSIDADE DO MINHO</b>	UMINHO	Portugal
<b>GEORG-AUGUST-UNIVERSITAT GOTTINGENSTIFTUNG OFFENTLICHEN RECHTS</b>	UGOE	Germany
<b>THE OPEN UNIVERSITY</b>	OU	United Kingdom
<b>STICHTING EIFL.NET</b>	EIFL	Netherlands
<b>THE UNIVERSITY OF EDINBURGH</b>	UEDIN	United Kingdom
<b>UNIVERSITY OF GLASGOW</b>	UGLA	United Kingdom
<b>DANMARKS TEKNISKE UNIVERSITET</b>	DTU	Denmark
<b>STICHTING LIBER</b>	LIBER	Netherlands
<b>AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS</b>	CSIC	Spain
<b>GESIS - LEIBNIZ INSTITUT FUR SOZIALWISSENSCHAFTEN e.V.</b>	GESIS	Germany
<b>FUNDACIO CENTRE DE REGULACIO GENOMICA</b>	CRG	Spain



# Follow us !

**Twitter:** <https://twitter.com/fosterscience>

**Facebook:** <https://www.facebook.com/fosteropenscience/>

**Website:** <http://fosteropenscience.eu>



A wide-angle photograph of a field of dandelions in full seed. The sun is low on the horizon, creating a warm, golden glow and long shadows. The sky is filled with soft, wispy clouds. The dandelions are in sharp focus in the foreground, with some showing their white, fluffy seeds. The background shows a line of trees and distant hills under a vast sky.

Become a FOSTER Seeder!

Thanks!

José Carvalho

