

The TRIPLE Training Toolkit. From online training on Open Science to the design and delivery of Open Educational Resources: an example of FAIR-ification of digital training resources and workflows

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Abstract. This paper presents the work performed within the task dedicated to online training and guidelines on Open Science and the EOSC in the EU-funded project TRIPLE (Transforming Research through Innovative Practices for Linked Interdisciplinary Exploration, Grant Agreement n. 863420). In light of the need for a common understanding of recent European Open Science advancements and to spur the uptake and implementation of Open Science practices within SSH research and training communities, this task produced two kinds of outputs. The TRIPLE Open Science training series is a series of 12 open and reusable training events specifically designed to upskill researchers in FAIR and Open Science. The TRIPLE Training Toolkit is an open workflow for trainers to reproduce and adapt to organise training events following a FAIR-by-design method

dataKeywords. Open Science Training, Digital Training, Open Educational Resources, FAIR Data, Knowledge and skills transfer

Introduzione

At the heart of the TRIPLE project¹ is the development of an innovative multilingual and multicultural discovery platform for the social sciences and humanities (SSH), GoTriple². The aim of the project is to enable SSH research in Europe to gain visibility and efficiency, to improve its reuse within the SSH and beyond and to increase the economic and societal impact of SSH resources. In this paper, the work performed by Work Package 6 (WP6) Open Science and EOSC Integration under Task 6.3 EOSC guidelines training and advocacy on Open Science is presented as an innovative approach to tackle the issues related to FAIRifying research and training practices within SSH communities.

While the pandemic highlighted the need to upskill researchers in FAIR and Open Science practices, it has been widely noted that even training resources on the subject often lack FAIRness (Directorate-General for Research and Innovation, 2021). To address recurring challenges SSH researchers and trainers face when wishing to implement FAIR and Open Science principles in their practices, two reusable outputs were produced. Both were shared within the community to showcase good practice, enable reuse of the results and allow trainers within projects to replicate and adapt the process to their training activities³.

¹Transforming Research through Innovative Practices for Linked Interdisciplinary Exploration (Grant Agreement #863420) <https://project.gotriple.eu/>

²<https://www.gotriple.eu/>

³Please note that the reusable outputs presented in this paper were developed within an SSH project and therefore with SSH researchers and trainers' needs in mind. However, other domain-specific training communities can benefit from this work by reproducing and adapting it.

⁴<https://project.gotriple.eu/training/>

⁵This version was deposited as a draft on Zenodo on February 25, 2022. It will be updated into a final version before the end of the project

The first is the TRIPLE Open Science training series⁴, an openly accessible and reusable training specifically designed to provide skills and competencies to SSH researchers on Open Science practices. It is presented in section 1. The second output is the TRIPLE Training Toolkit⁵ (F. Di Donato et.al, 2022)., an open and reusable workflow representing the process implemented in the TRIPLE Open Science training series to organise and deliver FAIR-by design online training events. The Toolkit is showcased in section 2.

1. Open and reusable training for SSH researchers

From March 2021 to June 2022, a series of 12 online training events on Open Science and EOSC-related topics was held. The training was primarily targeted at TRIPLE project members in order to ensure they all gained competencies in Open Science practices and workflows. However, the topics being of high interest for researchers at all career stages, the events were opened to the whole SSH community which resulted in a total of 600 participants taking part in the Training series.

Following the needs of SSH research communities, the training events addressed a range of topics covering Open Science research practices, current EOSC developments and GoTriple Innovative Services and focused on providing researchers with the skills they need to implement Open Science in their research practices.

All the training materials were made into Open Educational Resources (OER)⁶. The information related to the past events of the TRIPLE Open Science training series is available on a dedicated page of the TRIPLE website which was regularly updated while the series was ongoing. In order to ensure the FAIRness of all training materials, they are stored in Zenodo under the OPERAS Community and can easily be accessed by filtering the search by grant number (863420) in the repository. For interoperability and reusability reasons, the preferred formats for the presentations are .pdf and .pptx. The video recordings are made available on the TRIPLE Youtube channel. To further disseminate the training series and increase their discoverability, the training materials are hosted on the DARIAH-Campus platform as learning resources to which training-specific metadata is added.

In addition, a set of guidelines were created and shared to facilitate the organisation of the training events and to ensure a consistent application of Open practices within the development of the task and among team members. The organisation of the training series led to a reflection on how the task could go beyond writing general guidelines on Open Science and instead practically contribute to overcoming recurring challenges trainers face in the organisation of FAIR-by-design training events.

This resulted in the production of the TRIPLE Training Toolkit, an open and reusable workflow mapping the entire process of organising training events which is specifically dedicated to trainers within projects to help them easily reproduce the experiment and manage training events and training materials sustainably.

2. An open reproducible workflow for trainers to manage training events

Initially, a repeatable workflow was implemented to facilitate the organisation of the TRIPLE training events and to ensure a consistent FAIR management of the related training

⁶Based on the paper "Ten simple rules for making training materials FAIR", we use a broad definition of training materials to include any digital object used in a training context. Following the Unesco definition of OER: "Open Educational Resources (OER) are teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open licence that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions"

materials. As part of this task, a set of 11 reference documents were produced with the purpose of creating a steady organisational process which is easily reproducible and adaptable for each event.

The workflow implemented for the TRIPLE training events was adapted into the TRIPLE Training Toolkit. The TRIPLE Training Toolkit provides practical guidance and reusable materials and templates for trainers to implement a FAIR-by-design method. It includes the files produced within the scope of Task 6.3 which are deposited in Zenodo in open access to serve as a reference for trainers wishing to organise training events.

Navigating the process of organising training events



Fig. 1
TRIPLE Training Toolkit - A process to organise training events with reusable reference documents to support trainers in their activities

Figure 1 helps users navigate the workflow. Each step corresponds to a phase of the process, they are numbered following a chronological order of implementation. For each step, reproducible files are indicated below as references. Their purpose is to enable trainers to organise training events implementing FAIR standards from the onset, all the while minimising the time spent carrying out this task. Following this FAIR-by-design process also helps maximise the impact of the training materials through enhanced discoverability and reusability possibilities. The five steps of the process are listed below.

1 Design

The design phase is intended as the preparatory phase in which the training needs of the

target group are assessed to define the most relevant training topics.

2 Organisation

The organisation phase includes the steps before and during the delivery of the event. Training organisers can rely on the internal guidelines and checklist instruments. The reference documents provided in this phase will also help trainers ensure the FAIR principles have been implemented consistently.

3 Promotion and Dissemination

The promotion and dissemination phase takes place before and after the event. A promotion campaign targeting specific groups or networks of interest is carried out beforehand to increase training outreach. The results of the training are then disseminated in collaboration with team members.

4 Assessment

The impact of the training is measured after the event through a survey instrument which collects participants feedback.

5 Reporting

The last step of the workflow covers the entire training and reports relevant information on past events.

TRIPLE TRAINING TOOLKIT
This page enables you to understand the purpose of the each reference document according to which task you want to accomplish.
Click on the links to access the files directly and start creating your training series now!

1 DESIGN THE SERIES
Survey - Needs
The methodology of the survey can be reproduced and shared with your community to better understand its needs and expectations in terms of training.
Learning Objectives - Learning Outcomes
This file is a reproducible example to ensure clear objectives have been developed by the trainer and learning outcomes are identifiable by the trainee. The use of strong verbs focuses the attention of participants on what they will gain after having taken part in the training.

2 ORGANISE THE EVENT
Guidelines to organise training events
These step-by-step guidelines support organisers, speakers and moderators in the organisational steps of each training event. They will help you ensure your training events and resources are FAIR (findable, accessible, interoperable and reusable). The guidelines follow a FAIR by-design workflow which should be repeated throughout the entire training series.
To-Do List
This template spreadsheet works as a planning of the activities. It helps organisers, moderators and speakers share the tasks related to the training event in a timely manner. It can be replicated for each training session to ensure the process is implemented consistently throughout the training series.

3 PROMOTE AND DISSEMINATE
Enlarged Audience Template
Use this template spreadsheet to contact wider networks of stakeholders and increase your audience numbers. The prospecting information contained in the template will help you plan an effective promotion strategy.
Promotion and Dissemination Template
Use this template spreadsheet to report the promotion and dissemination activities carried out by project partners for each training event. It will help you measure the estimated outreach, and identify relevant target groups and channels.

4 ASSESS IMPACT
Survey - Feedback
The methodology of this survey can be reproduced to collect attendees' feedback at the end of the training session. It will help you set KPIs and measure the relevance of the training sessions.

5 REPORT
List - Past Events
The list of past events enables you to gather relevant information on each training event in a single file. It serves as an example which can be adapted to your training series to gain time when carrying out reporting activities.

Fig. 2

TRIPLE Training Toolkit - Purpose of the reference documents for each phase of the process

Understanding the reference documents in each phase of the process

Figure 2 explains the purpose of the reference documents within the workflow and how to use them. These documents are made to be reproduced and adapted, Figure 2 should enable users to measure their relevance for their training activities. The purpose of each reference document as presented in the figure above is reported below.

- Survey - Needs. The methodology of this survey can be reproduced and shared with your community to better understand its needs and expectations in terms of training.
- Learning Objectives - Learning Outcomes. This file is a reproducible example to ensure clear objectives have been developed by the trainer and learning outcomes are identifiable by the trainee.
- Guidelines to organise training events. These step-by-step guidelines support organisers, speakers and moderators in the organisational steps of each training event, ensuring the training events and resources are FAIR by following a FAIR by-design workflow.
- To-Do List. This template helps organisers share the tasks related to the training event in a timely manner. It can be replicated for each training session to ensure the process is implemented consistently throughout the training series.
- Enlarged audience template. The prospecting information contained in the template enables to plan an effective promotion strategy and identify target segments to be approached and exploited.
- Promotion and Dissemination template. This template helps measuring the estimated outreach, and identifying relevant target groups and channels.
- Survey - Feedback. The survey will help setting KPIs and measuring the relevance of the training sessions.
- List - Past events. This list enables you to gather relevant information on past training events. It serves as an example which can be adapted to your training series to gain time when carrying out reporting activities.

Please note that the task is still ongoing and as such the present document and the files listed above will be followed by updated versions by the end of the project (2023).

3. Conclusions

The work presented above effectively supports researchers in the uptake of Open Science practices through the delivery of skill-oriented training events and by showcasing good practice in the management of training materials as OERs. Moreover, by openly sharing the training series and the reusable workflow implemented within the task, both researchers and trainers are provided with ready-to-reuse examples they can reproduce and adapt to organise training events and practically implement FAIR principles into their practices.

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