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Training report

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Abstract: Deliverable D6.6 – Training report – provides a summary report of the training activities in the project including national and project-wide training events, development and maintenance of the training platform and catalogue, development of asynchronous training materials, as well as gathering and analysing trainees’ feedback. The report also provides information on liaison activities with other projects and workings groups regarding training as well as common description and publication of training materials.

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- [1] Project NI4OS-Europe-857645 - Annex I - Description of the Action
- [2] [NI4OS-Europe Deliverable D6.2 Training Plan, January 2020](#)
- [3] [NI4OS-Europe Calendar](#)
- [4] [NI4OS-Europe Events System](#)
- [5] [NI4OS-Europe Training Platform](#)
- [6] [OntoCommons H2020 CSA project](#)
- [7] [Big Blue Button, Open Source Virtual Classroom Software](#)
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- [12] [Gnosis Institutional Repository](#)
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List of Acronyms

API	Application Programming Interface
BBB	Big Blue Button
COVID-19	Coronavirus Disease 2019
DANS	Data Archiving and Networked Services
DEI	Days of e-Infrastructure
EOSC	European Open Science Cloud
FAIR	Findability, Accessibility, Interoperability and Reusability
FitSM	Federated IT Service Management
GDPR	General Data Protection Regulation
ITSM	Information Technology Service Management
KPI	Key Performance Indicator
LMS	Learning Management System
LCT	Licence Clearance Tool
NOAD	National Open Access Desk
ORDM	Open Research Data Management
OS	Open Science
RePol	Repository Policy Generator
RoLECT	EOSC RoP Legal & Ethics Compliance
SCORM	Shareable Content Object Reference Model
SME	Small to Medium Enterprise
WP	Work Package

Executive summary

What is the focus of this Deliverable?

The D6.6 – Training report – provides information about all training materials and activities that were developed and organised within the NI4OS-Europe project. This report is delivered after all training events have been concluded and provides a brief summary and analysis of the training outcomes. It also describes the training possibilities offered on the NI4OS-Europe training platform where all produced training material is hosted, including asynchronous self-paced courses on topics related to the NI4OS-Europe project activities. The training feedback analysis provides a view on how trainees have perceived the training activities done within the project.

What is next in the process to deliver the NI4OS-Europe results?

With the conclusion of the training events, the NI4OS-Europe training team will focus on the development of new training materials and the efforts to align the training materials and training platform with the latest recommendations from the relevant working groups.

What are the deliverable contents?

The report starts with a brief overview of the training organisation and collaboration with other projects and activities, and then continues describing the changes made to the training platform to better support the training activities. The main outcomes of the organised training events are discussed together with a statistical and quantitative analysis of the training organisation and obtained feedback from the training participants. The training materials available on the platform are presented according to class and category, and their usage is discussed. Finally, the action points that will be addressed until the end of the project lifetime and beyond, aiming to ensure the training platform interoperability and reusability, are presented.

Conclusions and recommendations

The NI4OS-Europe training platform has gradually become the focal point for all the training-related actions in the project, with the transition to the fully online environment due to COVID-19 pandemic. Therefore, it is imperative that all materials and lessons learnt are available for further use after the project lifetime by ensuring the training platform continuity.

1. Introduction

The main goal of the Training task of the “User engagement, training and demonstrators” Work Package (WP) is to provide a comprehensive training programme and train the widest possible community regarding the federated services that are to be on-boarded to the European Open Science Cloud (EOSC), interoperability, Open Research Data Management (ORDM) principles, repository certification, Findability, Accessibility, Interoperability and Reusability (FAIR) and related topics.

For these purposes the task has surveyed the requirements for training among the NI4OS-Europe partners and prepared a training plan [2] together with a training platform and all necessary tools for the organisation of project-level and national training events. All training events have been announced on the training event calendar [3] with the call, description and agenda of the training available on the events planning system [4] and the training materials available on the training platform [5].

The key performance indicators (KPIs) related to the project training activities have envisioned 30 national training events targeting 450 persons and 5 train-the-trainer project-level events as described in the project description of work [1]. These training events have been focusing on different important aspects of EOSC implementation from both the service provider and the end-user perspective including topics such as: service on-boarding, Information Technology Service Management (ITSM), interoperability and federation, Open Science (OS), technical, organisational and legal aspects of ORDM, FAIR principles and repositories, and similar. Due to the COVID-19 outbreak soon after the start of the project, almost all of these activities have been conducted online in the form of training webinars. To augment the training experience and support their interests in various topics related to EOSC, an additional set of training materials has been offered in the form of self-paced asynchronous courses that can be followed on the training platform aimed at different stakeholders such as service providers, end-users, policy makers, repository managers, librarians, etc.

Whenever possible the training activities have been conducted in collaboration with other related projects in order to draw on the existing experience and knowledge created in these projects. The training collaboration activities have been supported by several related task forces and workgroups such as the INFRAEOSC5b regional projects Training & Skills task force, as well as the Skills and Training EOSC working group.

This training report aims to provide an overview of the results from all training related activities within the NI4OS-Europe project, including the training organisation, training platform, training events feedback analysis and additionally developed asynchronous training materials. The provided statistics and qualitative analysis show how well the project has performed compared to the initially defined KPIs and how the training participants have experienced the organised training events and the related training materials. The report also discusses the on-going training task activities to align the training platform and materials with the newest EOSC guidelines regarding training materials and catalogue aiming to ensure that the NI4OS-Europe training platform host easily findable and referenceable training material.

2. Training organisation

The Training Plan [2] has been defined during the first months of the project outlining the training objectives and activities together with the target KPIs and the analysis of the results of the regional survey from a training requirements point of view. The training requirements analysis have provided insight in the familiarity with EOSC and FAIR concepts among the different training target groups including researchers, academic staff, students, librarians, research infrastructure providers, SMEs and their training level.

To fill in the gaps and provide a strong foundation in OS, EOSC and FAIR for all target stakeholders, the Training Plan has envisioned that the main training events should be conducted in two waves starting with the project-wide train-the-trainer events that will help bolster the number of available trainers on the EOSC and FAIR topics among the project partners and then continue with national training events that will focus on the specific training requirements of each NI4OS-Europe partner.

Regarding the management of the training events, the logistical information related to the organisation of the training event, call for participation, description, agenda and objectives are all published on the project events system [4] for each training event separately. To increase visibility all scheduled training events have also been announced via the project calendar [3]. The training materials for each training event are hosted on the training platform [5].

Internally, a training event organisation procedure has been developed to help guide the training event organisers through all of the steps necessary to successfully organise an online training webinar or face-to-face training workshop including the activities before, during and after the training event. Each organiser of the training event has been given administrative rights to manage the content of the event pages and the corresponding course on the training platform with continuous support of the training task team during all training related activities. All active presenters on the training events have been given the role of trainer in the training course so that they can manage the training materials, but also receive any questions or discussions that might be posted on the course forum. The trainers contact information is also made available to all course participants which provides means for direct contact in case of any questions or doubts.

The organisation procedure has been updated and enhanced over time as the training events have progressed so that training organisers can learn from their past experience. Experience gathered from the first organised events has shown that the organisation of online webinar events requires more pre-event logistical support for both trainers and users to ensure that they will feel comfortable in the virtual environment. Together with the training organisation procedure, a trainers' directory has also been maintained so that partners can easily find people with the required expertise for the organisation of the national training events. The trainers' directory has been regularly updated with the information on who attended the train-the-trainer events.

According to the initially planned training events timeline, the training events have started in M05 by organising most of the train-the-trainer events as online webinars using the webinar extension of the training platform. The national capacity building and end-user trainings were envisioned as face-to-face workshops. All training event activities were supposed to be completed by April 2022.

However, due to COVID-19 the initial training events timeline has been changed several times, and after receiving the project extension, the deadline for all training activities has been prolonged to July 2022. The outbreak has had little effect on the first wave of train-the-trainer events except that all had to be organised online. The national training events have first been postponed for a few months in the hope that the outbreak will be controlled, and the events will be organised face-to-face as planned. After it has become clear that this is not the case, the training events timeline has been revised and most of the national training events have taken place as online webinars. One of the measures taken to alleviate this switch to online webinars have been the decision to organise an extra train-the-train event on the topic of “How to host a successful a virtual event?”. The event sessions have provided helpful guidelines and strategies for the project partners to be able to take the advantages a virtual environment offers and mitigate any problems regarding the organisation of both training and dissemination events online. Almost all of the online training webinars have been recorded and made available for the registered participants. Eventually, only a handful events have been organised as face-to-face workshops, most of them in the last few months of the training timeline.

With the COVID-19 pushing to online training, the NI4OS-Europe training task has recognised the need for additional support to gathering and developing asynchronous training materials that will help users learn about EOSC and FAIR in their own pace. Thus, in parallel to the organisation of the training events, an effort has been made to provide open self-paced courses on the training platform.

2.1. Collaboration with other projects and working groups

Many activities in the NI4OS-Europe training task have been conducted in collaboration with other EOSC related projects whenever synergies have been identified and knowledge and experience could be exchanged on training related topics.

Once of the main sources for collaboration has been the INFRAEOSC5b Training & Skills Task Force that has enabled direct communication other regional projects such as EOSC Synergy and EOSC Pillar as well as with FAIRsFAIR. The calendar, materials and training expertise exchanged within the INFRAEOSC5b Training & Skills task force have enabled the projects to coordinate their training activities, but also share experience on how projects have coped with the newly developed situation and the move to the fully online environment. This interaction has played a vital part in the organisation of the train-the-trainer events in NI4OS-Europe with the support of trainers from a number of different EOSC projects. The Task Force has also been very helpful in the exchange of best practices when it comes to organisation of online events, as well as definition of learning paths. With the help of the Task Force, members of the training task have participated in workshops organised on the topic of training catalogues interoperability and training metadata such as:

- Workshop on Harmonising Training Resource Metadata for EOSC Communities, April 14th, 2021, organised by FAIRsFAIR and Training & Skills Task Force;
- Workshop on Training Resource Metadata Testbed, January 19th, 2022, organised by FAIRsFAIR.

Training task members have also attended additional workshops organised by EOSC projects related to training activities such as:

- Workshop on Training in EOSC, 26-28 Feb 2020, organised by DANS in cooperation with the organisations EUDAT, EGI and OpenAIRE;
- Workshop on Designing EOSC training programmes for institutions, January 26th, 2022, organised by EOSC Future.

Regarding the topic of FAIR implementation, the NI4OS-Europe semantic experts' group is closely collaborating with the OntoCommons project [6]. An example is the FAIR implementation for NI4OS-Europe service providers workshop that took place on April 29th, 2022. Any output of this collaboration in the form of ontologies or other relevant outputs that can be implemented for enabling FAIR training events and materials is picked up by the training task members.

A presentation of the NI4OS-Europe training strategy for the development of future EOSC skills in the new European Research Area has been given on the e-IRG Workshop, 25-26 May 2020, organised within the framework of Croatia's Presidency of the Council of the European Union by the e-IRG secretariat and the University of Zagreb, the University Computing Centre (SRCE) with the support of the Croatian Ministry of Science and Education.

To further connect with the community and learn and share experience regarding training, members of the training task have been part of the training related EOSC working groups, first the Skills & Training Working Group supported by EOSC Secretariat, and then the Upskilling countries to engage in EOSC Task Force under the EOSC Association. The activities in the Community of Practice for Training supported by OpenAIRE are also being closely followed.

3. Training platform

To support the organisation of the training events the NI4OS-Europe Training Platform [5] has been setup in the form of a learning management system (LMS) based on Moodle with a customised front-end for user interaction. The training materials on the platform are organised in separate courses and categories, and additional metadata in the form of tags enables users to search the repository for any specific training material.

The organisation of online webinar training events has been supported with a webinar extension of the Training Platform based on the freely available open-source Big Blue Button (BBB) [7]. The initial implementation of the webinar system has been fully integrated into the platform and available only to platform registered users. With the move to fully online webinar training events for the national training it has become clear that an open access needs to be provided to the BBB webinar system in order to facilitate the ease of use for end users. Thus, the training platform BBB has been upgraded to the NI4OS-Europe Webinar System [8] where the training task administrators could create training rooms and share the room links with the organisers and participants in a similar manner to Zoom. All online training events have been conducted with the logistics support from the members of the training task, the administrators of the webinar system, in order to ensure smooth experience. The stability and high capacity of the webinar system (supporting rooms with over 100 participants) has made it a tool of choice for interactive online gatherings of other WPs as well.

Increasing the openness and ease of use for end-users has unfortunately diminished the possibility to track the user activity on the platform, mostly emphasized by the fact that only the GDPR sensitive content (video recordings) still requires a user login to be viewed. The rest of the materials hosted on the training platform are completely open to all users including guest users who do not need to have an account on the platform to follow the courses or access any training materials. The only difference to access between a registered user and a guest user account, except for the GDPR sensitive content, is that for guest users the system cannot track the user activity, remembering what actions were done in previous sessions and cannot issue any badges as certificates of completed courses and learning paths. Furthermore, the direct experience with participants during the organisation of the project-level and national events has shown that they prefer an anonymous access to the training content showing very little interest in badges or certificates of attendance.

In Figure 1 the high-level most important statistics regarding the training platform are presented. Note that the number of users represents registered active users, since guest activity cannot be tracked. The total number of courses includes self-paced courses, training events courses and learning paths, while the total number of learning resources represents the number of all resource types including quizzes and feedback forms, etc. A more detailed breakdown of this information can be found in the section on [Training materials](#) in this deliverable. The total number of hits on any learning resources on the platform is over 163500, measured only from the activity of registered users.

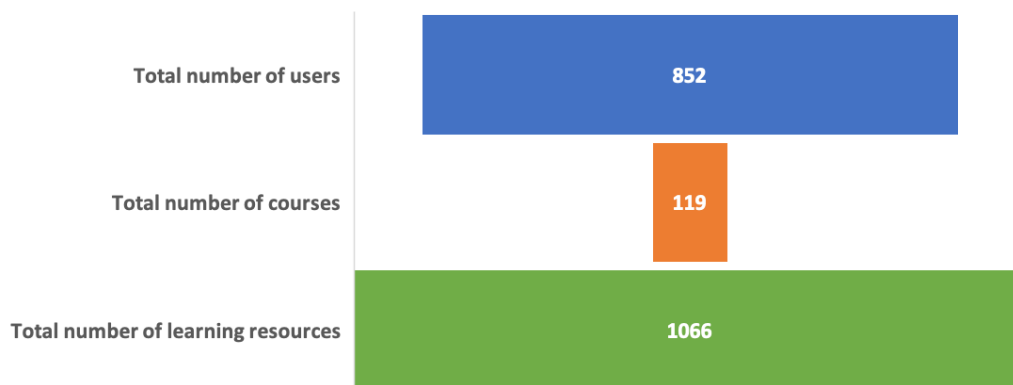


Figure 1: Training Platform high-level statistical information (20.07.2022)

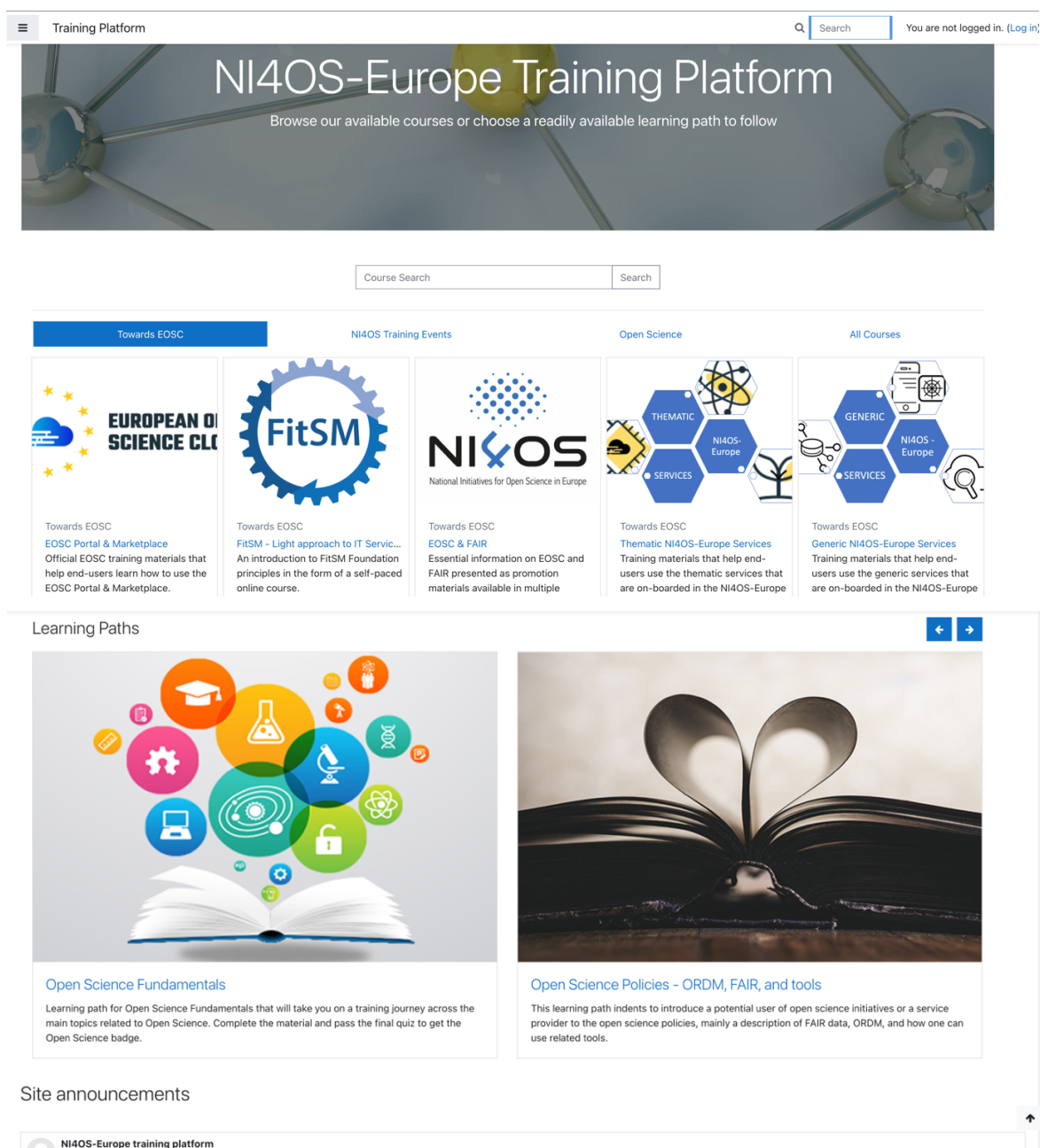


Figure 2: New layout of the NI4OS-Europe Training Platform home page

The move to the almost fully online organisation of all training activities within the project has had a great impact on the NI4OS-Europe training platform development in areas other than the supporting webinar system. The training platform has gradually advanced from a simple training repository of training events materials to a focal point of all project training activities. The training task has managed to gather a great number of existing training materials regarding EOSC and FAIR and link it to the training platform in order to enable users find any specific training using the platform as their only tool. A number of NI4OS-Europe specific asynchronous materials have also been developed to help users with the use of NI4OS-Europe specific services or on-boarding procedures.

To help organise the increasing amount of training materials better, a number of upgrades have been implemented in the training platform such as using different layout for courses and the development of learning paths user-interface. In Figure 2 the updated homepage of the training platform is presented with the main categories and assortment of learning paths.

4. Training events

The foremost training activity within the NI4OS-Europe project is the organisation of a number of training events focusing on a wide group of stakeholders that are related to the implementation of EOSC and FAIR from legal, technical, academic, practical use and policy making aspects.

4.1. Train-the-Trainer events

There were 10 project-wide train-the-trainer events organised, doubling the initially targeted KPI of 5 train-the-trainer events. In Figure 3 the timeline of the train-the-trainer events is presented, while in Table 1, the main information regarding each of the events can be found including links to the event pages and the course training materials (including event recordings) for each of the events.

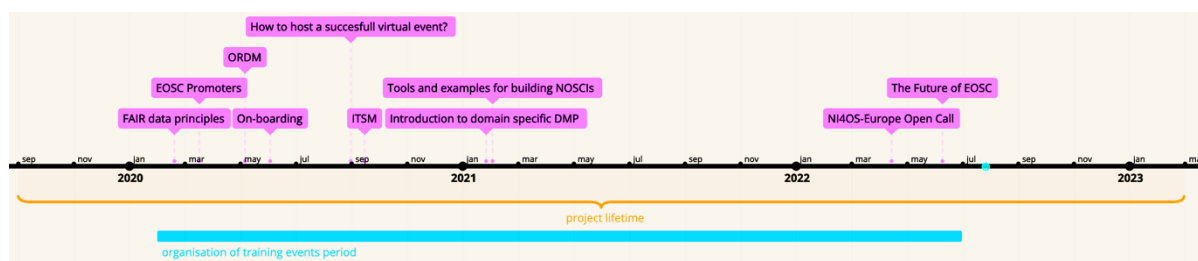


Figure 3: Train-the-Trainer events timeline

No	Train-the-Trainer event topic	Organising partner	Date	Event Link	Course link
1	FAIR data principles	DE	19-20.02.2020	link	link
2	EOSC Promoters	UCY	16-17.03.2020	link	link
3	ORDM	ATHENA RC	05-06.05.2020	link	link
4	On-boarding	IPB	03-04.06.2020	link	link
5	How to host a successful virtual event?	DE	31.08.2020	link	link
6	ITSM	UKIM	15-16.09.2020	link	link
7	Introduction to domain specific DMP	UOB	27.01.2021	link	link
8	Tools and examples for building NOSCs	ATHENA RC	03.02.2021	link	link
9	NI4OS-Europe Open Call	CYI	14.04.2022	link	link
10	The Future of EOSC	UKIM & GRNET	09.06.2022	link	link

Table 1: Train-the-Trainer events general information

For the organisation of the train-the-trainer events a number of trainers have been invited from collaborating EOSC projects and institutions including FAIRsFAIR, EOSC-Hub, EOSC-Synergy, EOSC Future, EGI, DANS, etc.

The participants on the train-the-trainer events were mainly from the NI4OS-Europe region, with the exception of the last event “The Future of EOSC” where a large number

of participants from Africa (invitation being extended to ASREN, UbuntuNet and WACREN regions) have also joined the event which has led to the increased number of participants on this particular event. The statistics showing the number of participants (males and females, there were no non-binary identifications on all project events) for each of the events is presented in Figure 4. The total number of participants on all train-the-trainer events is 664 which alone exceeds the targeted KPI of 450 participants on the training events. The average representation of male participants over all events is 51%, with average female of 49%, leading to a very well-balanced inclusion. It is notable that in half of the events the female percentage exceeds 50%. This is very common for events that are more focused on FAIR, ORDM and related principles, while on more technical sessions such as On-boarding, the number of male participants has prevailed.

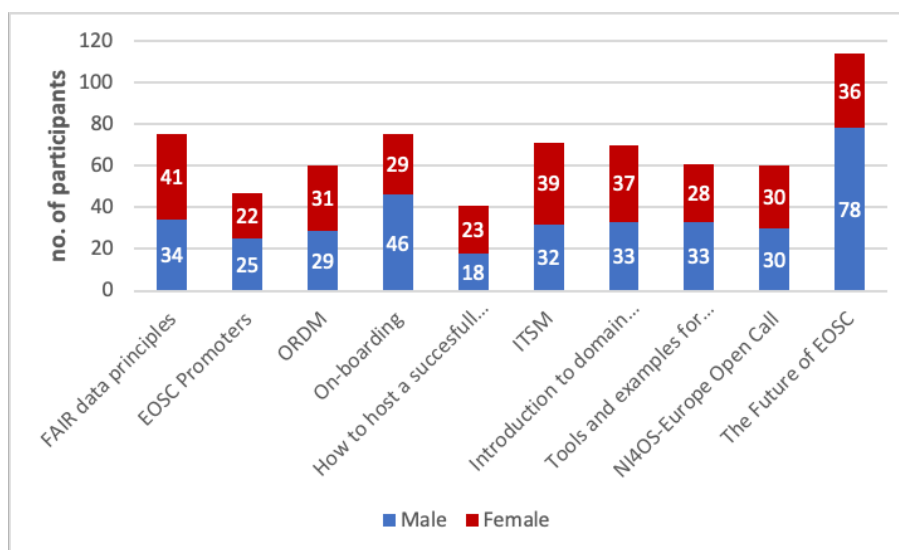


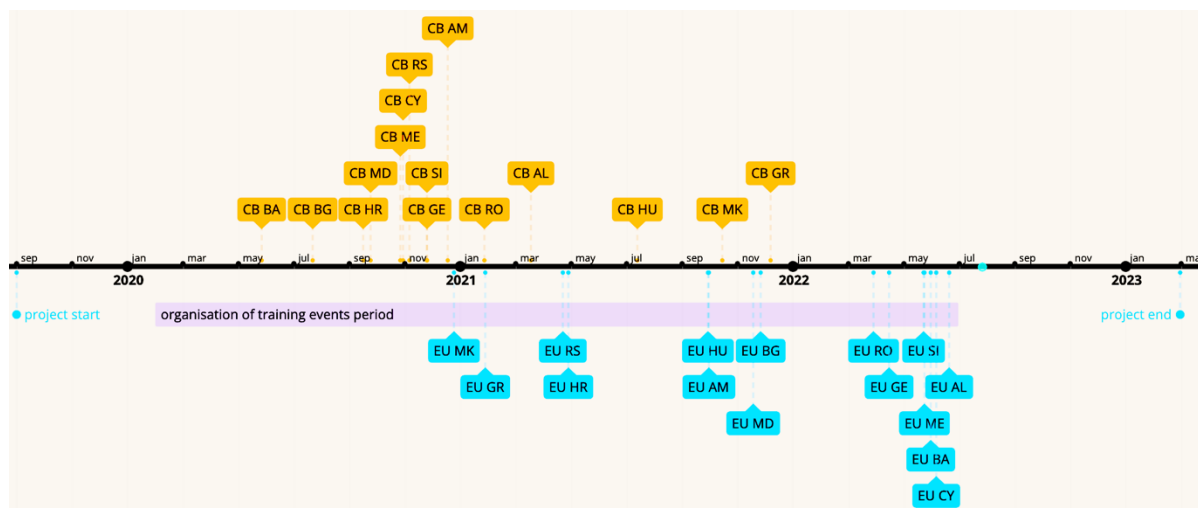
Figure 4: Number of participants on the Train-the-Trainer events

4.2. National training events

The second wave of training events has been focusing on the national training with two national training events per partner:

- Capacity building training event aiming at service providers, e-Infrastructure experts and data repository managers, and
- End-users training event reaching out to academia, research groups and libraries.

In Figure 5 the timeline of the organised national training events is presented, while the summary information about the 30 national training events, 1 capacity building and 1 end-user per partner as defined in the project description of work [1] is presented in Table 2. As it can be noted only a handful of events have been organised as face-to-face workshops (3 in total) with additional 2 hybrid events that had both online and in place participants. Some of the events (4 in total) have been organised as satellite workshops that are part of a bigger conference event that is related to the topics of the training in order to attract more attention from the targeted stakeholders.



**Figure 5: National training events timeline
(CB – capacity building or EU – end-users + country code)**

No	Type	Country	Date	Event link	Course link	Organisation details
1	Capacity Building	BA	27.05.2020	link	link	online
2	Capacity Building	BG	22.07.2020	link	link	online
3	Capacity Building	HR	16.09.2020	link	link	online, part of PUBMET2020 conference
4	Capacity Building	MD	24.09.2020	link	link	online
5	Capacity Building	ME	27.10.2020	link	link	online
6	Capacity Building	CY	29-30.10.2020	link	link	online
7	Capacity Building	RS	26.11.2020	link	link	online, part of Open Science Days
8	Capacity Building	SI	25.11.2020	link	link	online, part of Mreza Znanja 2020 conference
9	Capacity Building	GE	25.11.2020	link	link	online
10	Capacity Building	AM	18.12.2020	link	link	online
11	End-Users	MK	24-25.12.2020	link	link	online
12	Capacity Building	RO	28.01.2021	link	link	online
13	End-Users	GR	28-29.01.2021	link	link	online
14	Capacity Building	AL	18.03-02.06.2021	link	link	online
15	End-Users	RS	22.04.2021	link	link	online
16	End-Users	HR	28.04.2021	link	link	online, part of SRCE DEI 2021 conference
17	Capacity Building	HU	13.07.2021	link	link	online

18	End-Users	HU	29.09.2021	link	link	face-to-face
19	End-Users	AM	30.09.2021	link	link	hybrid
20	Capacity Building	MK	15.10.2021	link	link	online
21	End-Users	MD	18.11.2021	link	link	online
22	End-Users	BG	26.11.2021	link	link	online
23	Capacity Building	GR	06-07.12.2021	link	link	online
24	End-Users	RO	29.03.2022	link	link	online
25	End-Users	GE	15.04.2022	link	link	online
26	End-Users	SI	23.05.2022	link	link	online
27	End-Users	ME	24.05.2022	link	link	face-to-face
28	End-Users	BA	31.05.2022	link	link	face-to-face
29	End-Users	CY	06.06.2022	link	link	hybrid
30	End-Users	AL	20.06.2022	link	link	online

Table 2: National training events general information

The national training events have been organised by drawing on the required expertise from the project trainers directory where in many of the events there have been trainers from other project partner countries, but also trainers from other collaborating EOSC projects, especially in the case when there are more than one active EOSC project in the country.

In Figure 7 and Figure 7 the information about the number of participants per training event is presented for all national training events (there were no non-binary identifications on all national project events). It can be noticed that in some cases, particularly when the event is collocated with another conference, the number of participants is very high reaching over 200 participants for the capacity building events in Serbia and Slovenia. The total number of participants on all training is 2128, with 1259 on capacity building and 869 on end-user training events, outperforming the initially setup KPI of 450 participants almost 5 times. The gender balance between the attending participants is also quite high with 45% male participants on average for end-user trainings, and 41% of male participants on average for capacity building trainings. Examples of interest are Moldova with only 13% of male participants on the end-user training, and Albania with 69% male participants on their capacity building training.

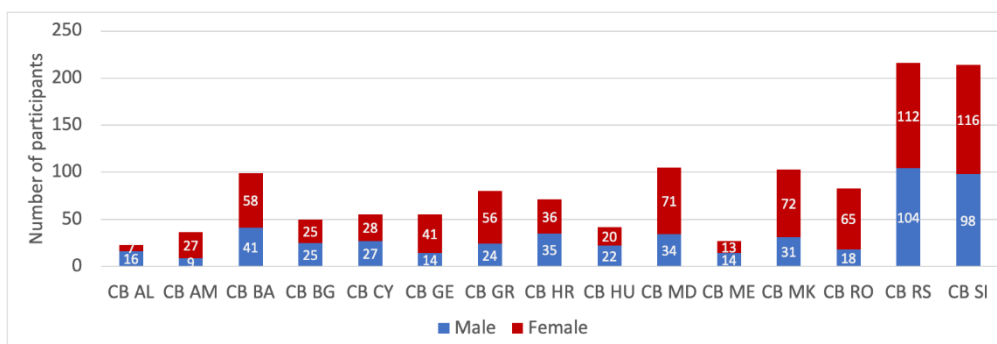


Figure 6: Number of participants on the capacity building national events

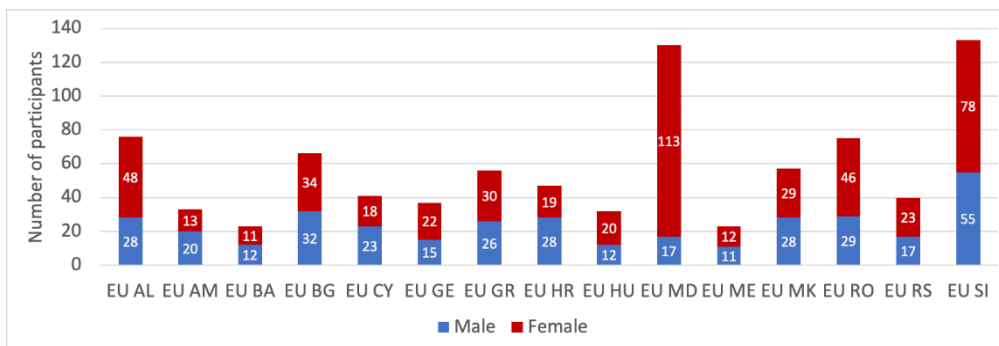


Figure 7: Number of participants on the end-users national events

4.3. Training quality assurance

To ensure high quality training events and continuous improvement of the training capabilities and organisation, as a part of the training organisation procedure, a feedback form has been generated for each training event and the participants have been asked to fill it out after the end of the event. The original feedback form questions in English are provided in Figure 8. In Figure 9 the admin view of the feedback form setup is presented with an overview of the welcome and completion message that are seen by the participants.

NIXOS Training Platform

The Future of EOSC Webinar

Overview | Edit questions | Templates | Mapped courses | Analysis | Show responses

Add question: Choose...

Overall, how would you rate this webinar? Poor Fair Good Very Good Excellent

How would you rate the effectiveness of the presenters in delivering the presentations? Poor Fair Good Very Good Excellent

How would you rate the scope and depth of the presentations? Poor Fair Good Very Good Excellent

How would you rate the usefulness of the webinar to your work? Not useful Somewhat useful Very useful

How would you rate the usefulness of the presentation's accompanying materials? Did not use them Not useful Somewhat useful Very useful

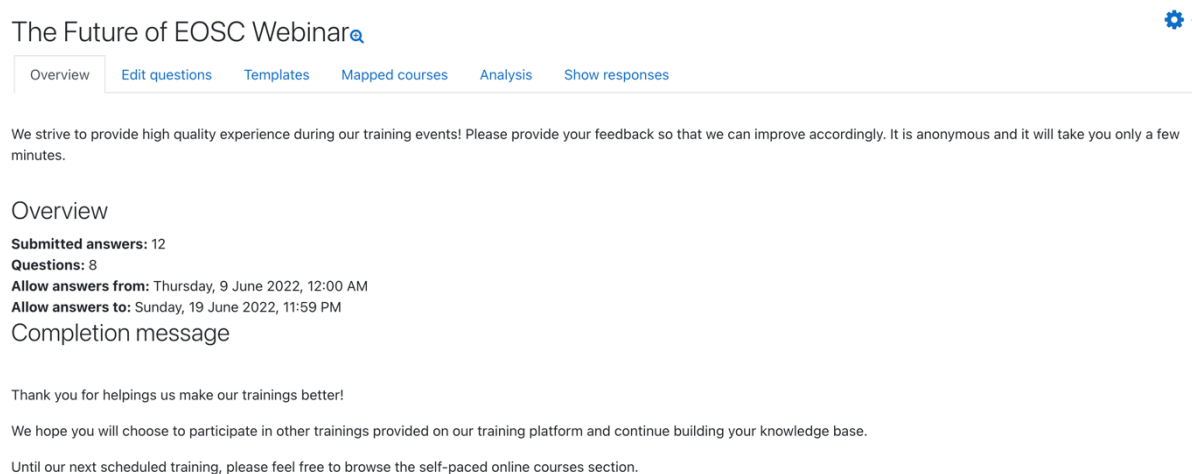
Would you be interested in additional training on this topic? Yes No


How would you rate the technical quality of the webinar? had lots of problems connecting and participating it was freezing and hard to hear from time to time all was ok with the exception of a few glitches no problems whatsoever

If you have any other comments, suggestions, or ideas please provide them in the text box

Figure 8: Feedback form questions

Each feedback form has been opened on the day of the training event and a period of around ten days has been provided for the participants to be able to provide their responses. The feedback form has been devised as a very short list of choice selection question with one free text input in the end in order to ensure that it is quite straightforward and easy to complete, since experience from past project has been that responders usually gave up from providing feedback if the list of questions it too long and a lot of textual input is required. For the purposes of each training event some of the organisers have decided to translate the questions to their native language and add additional questions that are relevant in their national scope of EOSC related activities. All feedback responses have been gathered anonymously via the training platform feedback activity. The training event organisers and training task members have access to the feedback form responses in order to analyse them and learn how to improve.



The Future of EOSC Webinar 

Overview Edit questions Templates Mapped courses Analysis Show responses

We strive to provide high quality experience during our training events! Please provide your feedback so that we can improve accordingly. It is anonymous and it will take you only a few minutes.

Overview

Submitted answers: 12
Questions: 8
Allow answers from: Thursday, 9 June 2022, 12:00 AM
Allow answers to: Sunday, 19 June 2022, 11:59 PM

Completion message

Thank you for helping us make our trainings better!

We hope you will choose to participate in other trainings provided on our training platform and continue building your knowledge base.

Until our next scheduled training, please feel free to browse the self-paced online courses section.

Figure 9: Feedback form setup example with welcome and completion messages

The overall average feedback response rate for all project training events is 20% which is a very good response rate considering the typically high reluctance to provide feedback, especially in an online environment. The feedback response rate per event is presented in Figure 10. It can be noted that the feedback response rate is highly variable across different project partners with Albania having the smallest rate response and Montenegro the highest.

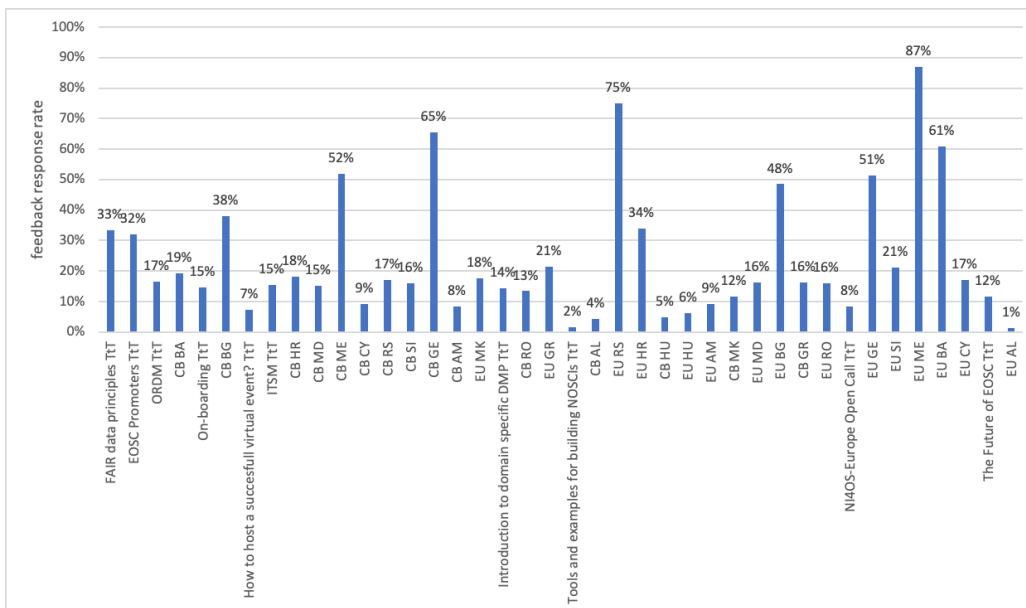


Figure 10: Feedback response rate per training event

In this report we provide the average analysis of the feedback responses per event type so that the overall quality of the provided training can be quantified from the participants perspective. In order to ensure unambiguous quantitative analysis of the provided responses, all multiple-choice questions have been transformed into numerical weights ranging from 1 to 5. The yes/no question on need for additional training has been transformed to 0 for no and 5 for yes.

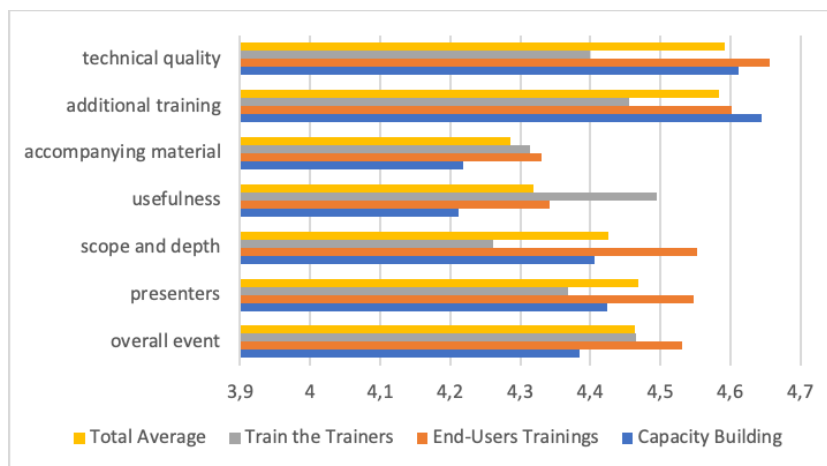


Figure 11: Average feedback responses per event type

In Figure 11 the average feedback responses are presented per question and per event type together with the overall average across all training events. The obtained feedback from the participants has been very positive for all event types with an overall average for the events of 4,46 out of 5. It is interesting to note that the results for end-user training is somewhat better compared to the capacity building national training, which implies that the partners have managed to improve in their training organisation and delivery since in most of the cases the end-user trainings were organised after the capacity building ones. The best score per event type achieved is 4,65 (not considering additional training) rated for the technical quality of the end-user trainings, while the worst is 4,21 for the usefulness

of the event for the capacity building events. It is worth noting that as the training events progressed the rating of the technical quality of the event has improved as the trainings progressed starting from 4,4 for train-the-trainer. Another important remark that can be concluded from these results is the continuous high demand for additional training, where the highest demand is seen for the capacity building trainings related to the lower usefulness. This demand has in part been the trigger for the organisation of additional train-the-trainer events and self-paced courses that can be followed on the training platform.

In Figure 12 the average feedback form responses per country are provided for the first four questions to increase readability. The usefulness of the training and bringing it closer to the target community has received a bit lower scores in some cases such as Slovenia (3,93) and Hungary (4,0), while the effectiveness of the presenters has the average best score of 4,55. Considering that the highest response rate has been received from Montenegro, it can be seen that the participants responses in these training events has been very positive with grades above 4,5 on all questions.

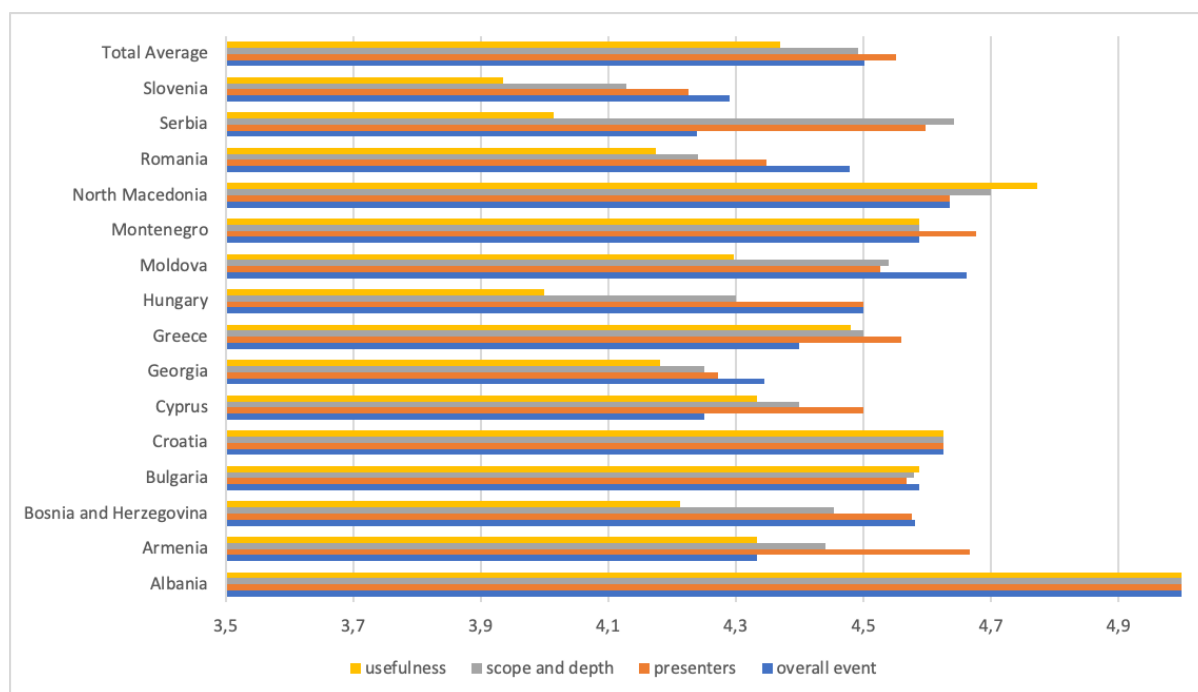


Figure 12: Average feedback responses per country

The last question that allowed for free text entry where additional comments and suggestions could be sent with the feedback form was filled out by 95 (or 17%) of the gathered responses, excluding responses that are variations of “no comment”. In Figure 13 the responses shorter than 100 characters are presented, which covers 60% of the total number of responses, as some of them were quite long. Please note that some of the responses are in the participants native language. The detailed analysis of this feedback has shown that in 80% of the cases the provided qualitative feedback was very positive praise for the event, while in 20% of the cases there were constructive remarks regarding the organisation, webinar system and the content of the presentations. Some of the received criticism was on the level of interaction on online events, the need for a wider spectrum of practical examples that stem for different scientific fields, or the lack of a full-blown step by step example. Wherever possible, the training task members and the

training teams for organising events have aimed to ensure that there will be no similar issues in the following training events.



Figure 13: An excerpt of the free text comments and remarks from training participants

4.4. Related training events/activities

Several additional events have been organised by the partners aiming to respond to the high requirements for training in different EOSC and FAIR aspects as recognised in the survey results [2]. In this report the summary information regarding each of these events is provided:

- Bosnia and Herzegovina, February 28th, 2020, face-to-face, Open Science

The training titled "Open Science and the NI4OS-Europe project" has targeted employees of scientific institutions working or intending to work on scientific research projects, as

well as representatives of relevant ministries dealing with legal frameworks and regulations in the field of open science. The content of the training was focused on Open Science, FAIR principles, Data Management Plans, Open Data Platforms and Open Licensing. It has been attended by 18 participants from different research institutions in Bosnia and Herzegovina.



Figure 14: Open Science and the NI4OS-Europe project training in Bosnia and Herzegovina

- Romania, March 10th, 2020, hybrid, part of the national series of mutual learning workshops

The “Open Science and landscaping and strategic development in Romania” has been organised by UEFISCDI via the Open Science Hub Romania with the aim to discuss the development of the Open Science strategic framework. With around 40 participants the training has focused on OS in the national context, success stories and best practices. Thematic sessions aimed at discussing the national view of topics such as article processing charges, RDM, open access and OS metrics. The speakers' list included representatives of the Ministry of Higher Education, Research and Innovation from France, TU Delft, EIFL-OpenAIRE, and Trinity College Library.



Figure 15: Open Science training in Romania

- Croatia, April 6th and 7th 2022, hybrid, NI4OS-Europe @ SRCE DEI 2022

NI4OS-Europe project was part of the thematic block Croatian Open Science Cloud Initiative as part of the Conference SRCE DEI 2022 in Zagreb on 6th and 7th April 2022. The conference was attended by more than 400 participants who participated face to face or online. During the thematic block focusing on the Croatian Open Science Cloud Initiative the results of the work of both task forces of the Initiative were presented, as well as several examples of the onboarding process of thematic and generic services and repositories in the European Open Science Cloud (EOSC). The NI4OS-Europe onboarding procedures for thematic and generic service and repositories were also presented during the sessions.

- North Macedonia, February 10th, 2022, Open Access PhD webinar

Recognising the need to spread awareness of EOSC and promote the use of the Open Science principles among young researchers, UKIM has made strategic changes to the PhD studies curricula on the university level under the guidance of the NI4OS-Europe national activities. As a part of these changes a webinar series has been organised aiming to provide additional training on the topic of Open Science and EOSC for all university PhD students. One of the webinars in these series was given by NI4OS-Europe on the topic of Open Licences & Publishing. The webinar was followed by more than 180 participants.

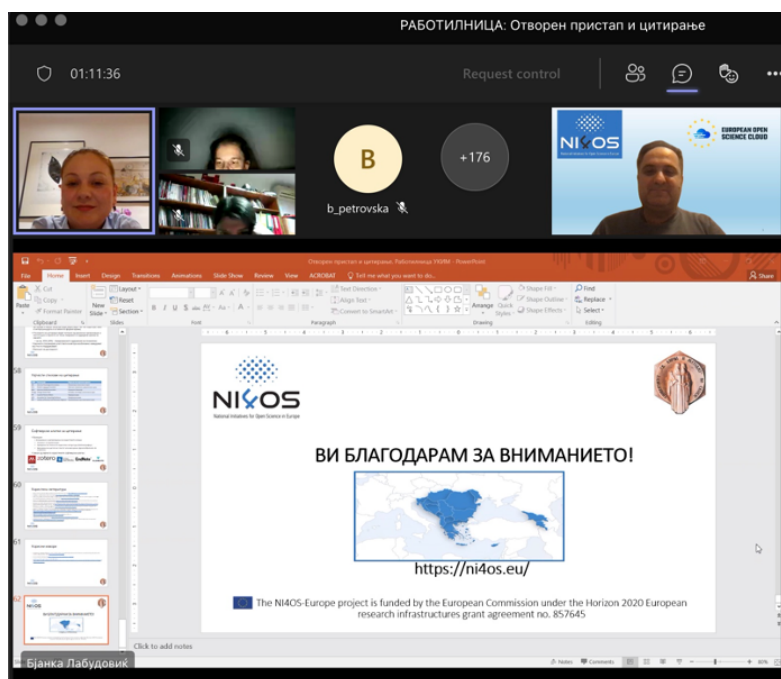


Figure 16: Open Licences and Publishing webinar in North Macedonia

- Cyprus, OpenAIRE and NI4OS-Europe webinar series on Open Science

NI4OS-Europe UCY and Athena RC partners have joined the OpenAIRE GR and CY NOADs in a series of webinars for the growing Open Science community aiming to further promote relevant issues and tools related to NI4OS-Europe. 5 webinars have been organised in total in the period from June 2020 till March 2022 with an average of 90 participants per webinar. The topics covered include Interoperability with EOSC, Interactions and contribution to Open Science, License Clearance Tool (LCT), RoP Legal & Ethics Compliance

Tool (RoLECT), Designing privacy and repository policies with RePol. All slides and recordings are made available on the UCY repository [12].

- Republic of Moldova, May 20th, 2021, “Open Science Tools for Researchers” Workshop

In the context of the Europe Days 2021 in Moldova, the Moldova State University (MSU) and RENAM Association with support of NI4OS-Europe project organized the workshop “Open Science Tools for Researchers” on May 20th, 2021. The event, which took place online, was attended by 55 researchers, PhD students, stakeholders from Moldovan R&E institutions: universities, research institutes, libraries, etc. The event was focused on the promotion of Open Science Tools use by the national research and educational community and raising awareness about EOSC. Among other topics discussed contribution of the NI4OS-Europe and other international and national projects to the forming of OS ecosystem in Moldova and the role of National Open Science Cloud Initiatives.



Figure 17: Workshop “Open Science Tools for Researchers” in Moldova

- Greece, October 21th and 22th 2021, Open Science Days in Greece

The NI4OS-Europe project contributed to the hybrid event ‘Open Science Days in Greece’ with presentations on both days. The event hosted colleagues and exceptional personalities from Greece and the European region, presented case studies from other countries on designing and implementing Open Science, and proposals to strengthen communication and cooperation with local policy communities. More specifically, the Greek audience informed about the NI4OS-Europe developed License Clearance Tool (LCT) [13], the EOSC Rules of Participation Legal and Ethics Compliance Tool (RoLECT) [14], and the Repository Policy Generator (RePol) [15] tools.



Figure 18: Open Science Days in Greece

- Greece, March 16th-23th -30th 2022, NI4OS-Europe webinars in March

This event presented to the Greek scientific community the tools that are the outcome of the NI4OS-Europe project. Universities, Research Infrastructures, and Research Services were informed on how to prepare for the application of Open Science and for its implementation through the European Cloud of Open Science – EOSC. Researchers learned methods and procedures to support the Optimal Research Data Management, with an emphasis on legal issues pertaining to various types of copyright in data, multimedia, software, and derivative content.



Figure 19: NI4OS-Europe webinars in Greece

- Romania, July 7th, 2021, online, "FAIR tools and services, guidelines and best practices"

The webinar presented FAIR tools and services, guidelines, and best practices from the EOSC-related projects FAIRsFAIR and NI4OS-Europe. The target audience included data support staff, data stewards, researchers, and data policymakers. The event was included in the FAIRsFAIR National Roadshow Series and organized in collaboration with the Open Science Knowledge Hub România, UEFISCDI.

More information about these and other related events can be found in the news section on the NI4OS-Europe website [9].

5. Training materials

All training materials are hosted on the LMS system of the NI4OS-Europe training platform. According to their purpose and use, each set of training materials belongs to one of the main broad training materials classes:

- Training event courses – all training materials from each training event are combined in a course that describes the type of training event;
- Self-paced courses – training materials in an asynchronous form on a given EOSC/FAIR topic that is offered to training platform visitors to go through in their own time and pace;
- Learning paths – a specialised type of course that represents a grouping of training materials, activities and courses on a related topic, guiding learners on how to move through the training platform courses in order to get the most of their invested time and effort;
- Miscellaneous – additional courses related to training organisation and templates that are used for the generation of new training content, visible to admins and trainers only.

As a part of the training platform upgrade and home page redesign, the training material has been reorganised using a more elaborate hierarchical scheme that helps users find the course they are interested in more easily. The current high-level course categories (see Figure 2) include:

- Towards EOSC – containing training information related to the EOSC Portal, FitSM, EOSC & FAIR promotion, and the NI4OS-Europe specific services (generic, thematic and repositories);
- NI4OS-Europe Training Events – overarching category that leads to the train-the-trainers, capacity building and end-users training categories that host the materials for each organised training event;
- Open Science – grouping a number of different courses on different topics related to Open Science such as file formats, research data management, data protection, open peer review, etc.;
- Learning Paths – containing all specialised learning path courses that provide a guided walk through selected training materials.

In Figure 20 the current number of courses per each category (and subcategory) is presented. Currently there are 118 courses available on the training platform, and this number is expected to rise as other training materials in the form of self-paced course and learning path may be added until the end of the project.

In Figure 21 the total number of training materials on the platform is presented categorised per type of training material. As it can be seen from the figure, many of the self-paced courses and learning paths are also augmented with quizzes (27 in total). For 33 of the training events have used the integrated BBB webinar system, for the others the partners have opted to use their own webinar system resources, or, in the rare cases, the event was held as a face-to-face workshop. The highest number of training materials are available as file resources (370, mostly PDFs and PPTs), there is also a vast number of URL external links (225) and additional textual content with rich formatting capabilities (148). Most of the self-paced courses are defined in the Shareable Content Object Reference Model (SCORM) format (56). Please note that not all of the presented content

has been generated within the NI4OS-Europe project. The training task members continuously add links and open reusable materials that are made available from other projects, such as self-paced courses created in the FOSTER project, links to the training on how to use the EOSC Portal and Marketplace updated by EOSC-Future, the Open Research Toolkit for Trainers, etc. Whenever the material has been reused, the source and licensing is clearly explained within the course (see Figure 22 for an example).

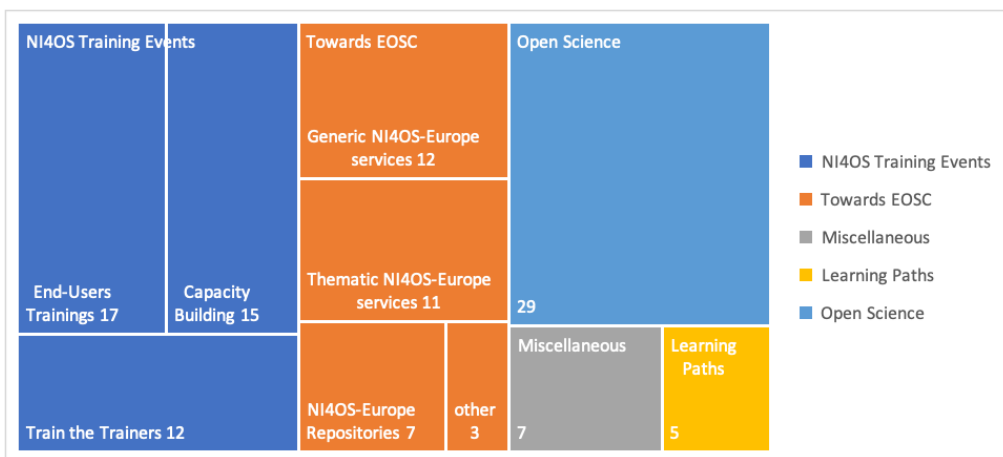


Figure 20: Number of training courses per (sub)category available on the training platform (20.07.2022)

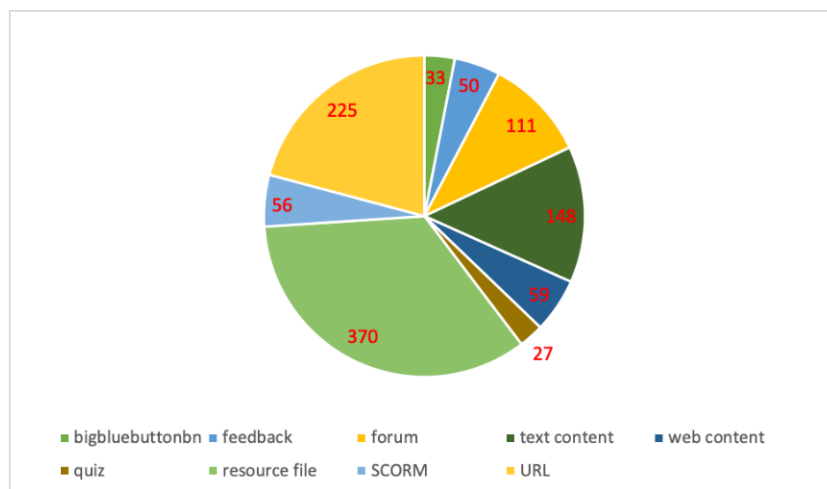


Figure 21: Number of training resources per type (20.07.2022)

[Open Research Toolkit for Trainers](#)



Open Research Toolkit for Librarians

Created by Christopher Eaker Associate Professor, University of Tennessee, Knoxville Data Curation Librarian

While this toolkit was designed for librarians to learn about open research concepts and skills and teach them at their institutions, it would be useful for anyone interested in learning more about open research. Any questions related to this content can be directed to the author at OpenResearch@utk.edu.

The Open Research Toolkit is an open education resource and is available under Creative Commons Attribution 4.0 International (CC BY 4.0) license.

Figure 22: Example of an imported training content

In Figure 23 the top 10 most popular courses or learning paths are presented based on the number of hits. The FAIR data and principles and IT Service Management train-the-trainer courses are the most popular both with over 11000 hits, followed by other train-the-trainer or national trainings. EOSC & FAIR is closely behind, which is a course that provides the promotional materials regarding EOSC & FAIR that were developed within the project and are available in all partners native languages. It must be noted that the last in the top 10, NI4OS-Europe Core Services is a learning path focused on the main services that make up the NI4OS-Europe pre-production environment, which has been quite recently created compared to the other top entries and has managed to get over 4500 hits already.

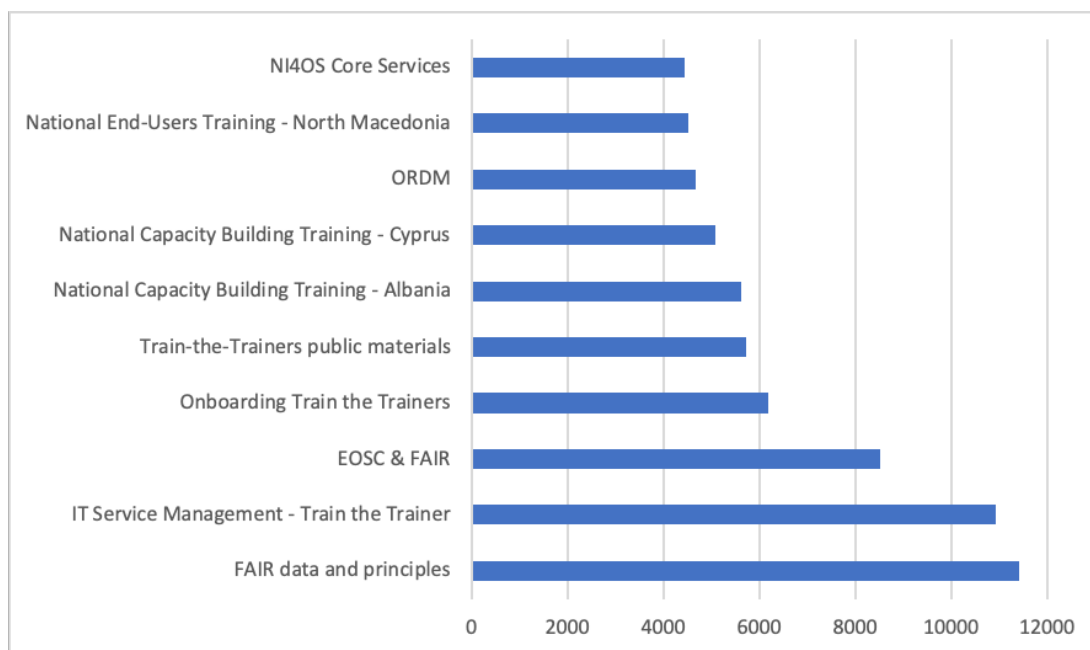


Figure 23: Top 10 training platform courses based on number of hits (20.07.2022)

5.1. Training events materials

Regarding the train-the-trainer and national training courses, all used training materials, any accompanying documentation and additional links and information for each training event have been uploaded on the training platform together with the webinar recording (were available). In Figure 24 an example is presented for the Capacity building training event held in Serbia. All these materials are publicly available for all registered and guest platform users with the exception of the recordings which are available to registered participants on the event in accordance with GDPR.



Author: Milica Ševkušić
 Introductory presentation at the NI4OS-Europe capacity building event in Serbia




[NI4OS u EOSC-u](#)

Author: Biljana Kosanovic
 Involvement of NI4OS-Europe partners in EOSC bodies




[Alati za otvorenu nauku – NI4OS katalog; demonstracija alata; NI4OS i COVID-19](#)

Author: Branko Marović
 Open Science Tools – NI4OS Catalogue; tools demonstration; NI4OS & COVID-19

Figure 24: Example content of the National capacity building training event in Serbia

To increase the possibility for interaction between the training participants and the trainers, for each course there is

- an announcement activity that can be used by the trainers to send messages to all course participants;
- a forum activity that can be used by trainers or trainees to start a discussion, raise a question or send a comment to all training participants.

On separate occasions partners have added additional features to some of their national training courses, such as an automated issuing of certificate of attendance for the participants.

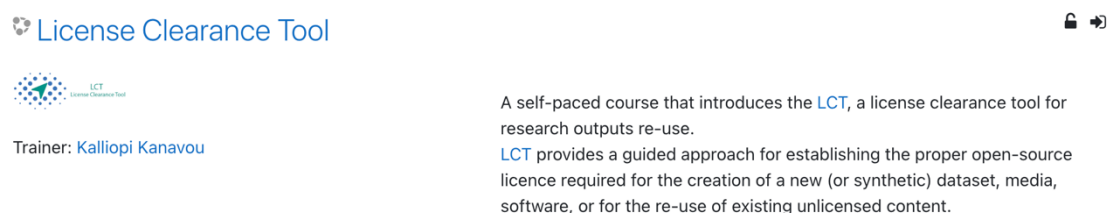
5.2. Training materials for NI4OS-Europe services

In addition to the self-paced courses that have been created by importing a readily available content created by other EOSC projects or other parties invested in the

promotion of OS, FAIR and EOSC, the NI4OS-Europe training team has been generating additional asynchronous learning content focusing on the specific activities related to the project in order to help training platform users further extend their skills.

The main focus on the development of the asynchronous courses has been put on the NI4OS-Europe pre-production environment, the on-boarding process and the NI4OS-Europe specific services as these aspects together with the NOSCI and the EOSC promoters are very specific for the project. Thus, it was considered that in this way valuable learning content can be created and offered to the community available for reuse via the CC-BY licence.

All of the newly developed asynchronous courses are created as SCORM packages aiming to ensure high user interaction when compared to static content. Whenever necessary additional notes that accompany the main material are part of the package. Each SCORM package comes with a quiz at the end that should help learners test if they have managed to understand the main points of the content. Also, for each course there is at least one designated manager (trainer) that oversees keeping the content up to date and answering any questions raised by the learners.



The screenshot shows a course card for 'License Clearance Tool'. On the left, there is a circular logo with a green and blue pattern and the text 'LCT License Clearance Tool'. Below the logo, it says 'Trainer: Kalliopi Kanavou'. To the right of the logo, the course title 'License Clearance Tool' is displayed in blue. In the top right corner of the card, there is a lock icon and a right-pointing arrow icon. Below the title, there is a short description: 'A self-paced course that introduces the LCT, a license clearance tool for research outputs re-use. LCT provides a guided approach for establishing the proper open-source licence required for the creation of a new (or synthetic) dataset, media, software, or for the re-use of existing unlicensed content.'

Figure 25: Example of main information about a NI4OS-Europe service course

In Figure 25 the general information about these types of courses is presented as seen by a guest user. Note the course name, logo, trainer information and short introduction with a possibility to enrol and track the progress. In Figure 26 the main view of the course content is presented with the project branding in the upper right corner.

Figure 26: Example NI4OS-Europe service course layout

At the moment there are 62 asynchronous courses available on the training platform, 31 of which are developed within the project. All NI4OS-Europe developed courses are in the Towards EOSC main category, with the self-paced course on FitSM directly under the category, while the rest are grouped into several subcategories:

- NI4OS-Europe thematic services - 11
- NI4OS-Europe generic services - 12
- NI4OS-Europe repositories and tolos – 7

The course development activity of the training task is still ongoing, and more courses are expected to be added to the training platform until the end of the project. It is important to note that for all courses that are providing training for a NI4OS-Europe on-boarded service, the link to the training course is also provided in the NI4OS-Europe service catalogue (see Figure 27 for an example). This means that the training information will also be available in the EOSC catalogue once the service is onboarded to EOSC.

Figure 27: NI4OS-Europe service training material linked in service catalogue

5.3. Learning paths

The most recent addition to the training platform training materials is the development of learning paths that aim to offer a guided tour of the most important training materials on a given topic. The development of the learning path has started in the last year of the project lifetime and at the moment there are 5 learning paths available:

- Open Science Fundamentals
- ITSM & Service On-boarding
- EOSC/FAIR promotion
- NI4OS-Europe Core Services
- Open Science Policies – ORDM, FAIR and tools

The screenshot displays the NI4OS Training Platform interface. At the top, it shows the NI4OS logo and 'Training Platform' text, along with a search icon and a message: 'You are currently using guest access (Log in)'. Below this, five learning paths are listed, each with a title, an icon, and a brief description:

- Open Science Policies - ORDM, FAIR, and tools:** This learning path intends to introduce a potential user of open science initiatives or a service provider to the open science policies, mainly a description of FAIR data, ORDM, and how one can use related tools.
- NI4OS Core Services:** Learning path for the pre-production core services that will take you on a training journey across the main components of the NI4OS-Europe pre-production environment. Complete the material and pass the final quiz to get the NI4OS Core Services badge.
- 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.
- ITSM & Service On-boarding:** Learning path that takes you through all the necessary information and topics related to IT Service Management and the process of service on-boarding so that you are able to understand how to successfully prepare for the on-boarding procedure in the NI4OS pre-production environment, and then on-board your service to EOSC. Complete the material and pass the final quiz to get the Service On-boarding badge.
- Open Science Fundamentals:** Learning path for Open Science Fundamentals that will take you on a training journey across the main topics related to Open Science. Complete the material and pass the final quiz to get the Open Science badge.

Figure 28: Learning paths summary information

The topics of this initial set of learning paths has been chosen so as to help users navigate the most popular content on the training platform, help them with the capacity building process as it was demanded in the national trainings and provide further support for the NI4OS-Europe specific services and on-boarding process.

All learning paths have been built using a common template to ensure smooth user experience when following multiple paths. Each learning path consists of the following mandatory elements as shown in Figure 29:

- Short introduction,
- Objectives,
- User guides,
- Q & A forum,

- Multiple cards each of which is a learning unit on the path and can consist of one or more courses or other types of training materials with a very short quiz in the end,
- Main learning path quiz that covers all learning units,
- Feedback form.

Open Science Fundamentals

[Home](#) / [Courses](#) / [Learning Paths](#) / [OS](#)

Open Science Fundamentals Learning Path

A diverse group of training materials will help you get acquainted with important topics related to Open Science and its implementation. This learning path is the starting point for anyone who is interested to understand what Open Science is and how it can help researchers achieve their goals.

How to proceed:

1. Follow the cards that will take you on a journey of different Open Science topics in several courses provided.
2. Complete each card by answering the short questions.
3. Take the quiz to complete the learning path and test your knowledge. If you pass the quiz successfully you will gain the Open Science badge.

Objectives

1. Understand [open access publishing](#)
2. Understand the fundamentals of data management and open data
3. Be informed about data policies legal aspects
4. Understand the concept of citizen science
5. Know how researchers can enhance the impact of science and research

Info To save your progress and earn your badge you need to first log in and then self-enroll.


CC BY All learning content and linked materials are available under the CC-BY licence.


Progress


2 Pages 1 Forum 6 URLs 7 Quizzes 1 Feedback

[Resume](#)

Activities


[How to create a user and login on the platform?](#)
 User guide


[Q & A](#)
 Having any trouble or doubts? Find an answer to your question, or post a new one.


[How to enroll and navigate the learning path?](#)
 User guide

What is Open Science?

Understand what open science is and why it is something you should care about. Learn about expectations of research funders and how practising aspects of open science can benefit career progression.

Open Principles

To innovate in a field frequently implies moving against prevailing trends and cultural inertia. Open Science is no different. No matter how convinced you are, you will come across resistance from peers and colleagues, and the best defence is strong personal conviction that what you are doing may not be perfect now, but is the right

Open Access Publishing

Take a dive into Open Access (OA) publishing in the context of Open Science. Learn about advantages of open publication, how to find an OA publisher and a suitable repository to provide OA and archive

Figure 29: Some of the learning path elements

Once all activities are completed, all quizzes are successfully passed, and the feedback is submitted the user can receive the learning path specially designed badge. However, this is only available for registered users that have actively enrolled themselves on the learning path. Thus, there is a user guide attached to each learning path that explains how to register and enrol. The experience and statistics so far are showing that users prefer to view and follow the learning path as guest users in which case their activity is not tracked and not remembered and thus it cannot be measured, and no badges can be issued. However, as it was presented in Figure 23, the learning paths (although very new, have been available for about 3-4 months) are attracting attention among the training platform users.

6. Next steps towards EOSC training

Interoperability, metadata and machine-readable access are very important issues when striving to implement the FAIR principles for training materials. To ensure that the training platform hosts training materials in a form that is easily imported in the future EOSC training catalogues and can be easily reused by interested trainers from external communities, a plan has been made for additional action points in the training task and their implementation has just started. In the last 6 months of the NI4OS-Europe project the task members will undertake a number of activities aligning the training platform and materials with the latest developments in the EOSC training community. These efforts should also help solidify the sustainability of the training platform after the project lifetime.

6.1. FAIR-ification of training materials

When focusing on training on the topics of FAIR and EOSC, the training itself should lead by example by ensuring that the digital objects used for the training material are made Findable, Accessible, Interoperable and Reusable following the principle of “as open as possible, as close as necessary”. The decision to open the access to training materials to all guest training platform users has been partially done to follow this philosophy together with the use of the CC-BY licence on all newly created asynchronous learning content. However, to fully make the training materials FAIR, care must be taken that all existing recommendations and rules such as [10] are analysed and implemented for the materials hosted on the training platform. These include ensuring that each object is: properly licensed, properly described, up to date, in an interoperable format, usable for trainees, and reusable for trainers.

While the chosen LMS for the training platform natively supports some of the recommendations and rules, the training task members will make an effort to implement the whole set of the FAIR rules for training materials, in order to support higher visibility and findability of the hosted training materials. These actions will be conducted with the aim to enable both registered users and guest users to easily find and access the training contents they seek and get information on its up-to-date status. Trainers, on the other hand, should be able to reuse and repurpose the available training material in an easy and efficient way with clear licensing guidelines.

6.2. Aligning with the minimum training metadata description

All training materials and courses on the training platform are composed of a set of digital objects described using a typical learning-oriented metadata model that is available in the LMS by default. Recently, there has been an effort in the EOSC training community to define a specific metadata model that will be used to describe training resources in a common way understandable by the EOSC training catalogues. The current recommendation for the minimal metadata set for training materials is recommended by the RDA Education and Training on Handling of Research Data IG [11] and adopted by EOSC Future to be used as the basis for the definition of their EOSC training catalogue.

The NI4OS-Europe training task will strive to implement the minimal metadata set on the training platform by extending the LMS schema for the different digital objects and supplying appropriate data for all mandatory metadata. This effort has now started with a few selected courses in collaboration with the EOSC Future project training work package. Describing these training materials using RDA compliant metadata will ensure that they can be then advertised in an EOSC training materials catalogue. Once the harmonisation on the pilot training materials is fully completed, the training task members will aim to continue the effort, as much as possible, with the rest of the hosted training materials during the project lifetime. These actions will enhance the platform interoperability with other training materials catalogues and make the process of export and import of new materials easier and standardised. Training platform users will also benefit from the implemented dataset extension as they will be able to search across all available metadata.

6.3. EOSC training catalogue integration workflow

Using the adopted minimal metadata set for describing training resources is the first step towards interoperability with EOSC training catalogues. However, to fully support integration with the catalogues and future harvesters that might be employed, the metadata information needs to be available in a machine-readable format. In other words, using an Application Programming Interface (API) an external system should be able to access the NI4OS-Europe Training Platform and obtain training resources description, select a training resource and then obtain that resources. This greatly increases the findability and accessibility of the training material available on the platform.

After implementing the minimal metadata set, until the end of the project lifetime, the training task members will investigate the use of an API access to the training platform. A rudimentary API access is natively supported by the underlying LMS, but it will need to be extended with the defined minimal metadata set so that it provides all necessary information in a machine-readable format. There is no defined recommendation or definition of an API for accessing training repositories at the moment, so further work might be needed to ensure full compatibility once the harvesting aspects of the EOSC training catalogue are described in detail.

6.4. Training platform sustainability

By closely following the latest developments regarding harmonisation of training materials metadata and design and development of EOSC training catalogues, the NI4OS-Europe project is improving the findability and interoperability of the training platform on the long term, beyond the project lifetime. As the platform currently represents a vast repository of FAIR/EOSC relevant training material it is important that it can continue serving the NI4OS-Europe community and beyond even after the project is officially finished.

UKIM, as the partner hosting and managing the training platform administratively, will continue with activities in order to ensure that the training materials are available for search, download and use after the end of the project according to the sustainability plan. In this period active trainers will continue having access to maintain their owned training

materials. New materials and courses may be added to the training platform on a best effort basis. UKIM and rest of the partners of the NI4OS-Europe consortium will actively search means to ensure additional funding that will help not only maintain the existing training materials, but also continue the active work on the training platform whether it is adding and developing new training materials or working on the FAIR features, metadata and API access to the training platform.

7. Conclusions

Spreading awareness and training are cornerstones of building strong community support for the implementation of the FAIR principles and EOSC vision. The NI4OS-Europe partners have been working diligently on both upskilling their internal capacity for training via the train-the-trainer events and supporting training materials and training a wide range of different stakeholders in their respective countries with the national capacity building and end-users training events.

The training platform augmented with a webinar system, a training calendar and training events management system have created a virtual environment that welcomes all interested in learning about the different aspects of OS and FAIR, promoting EOSC and showcasing its potential via the NI4OS-Europe pre-production environment and the on-boarded services. In addition to the training events which have managed to successfully cope with the move to the online webinar execution due to COVID-19, the training platform offers a variety of self-paced imported and project developed courses, together with learning paths that help guide the user through the most important aspects of these topics. The analysis of the training materials and events shows that the initially set KPIs have been exceeded in terms of number of participants and available training content.

Many training activities have been organised in collaboration with different experts and knowledge exchange from many other EOSC projects, and the interaction that was prominent in the Training & Skills related task forces and working groups have ensured that the NI4OS-Europe training activities are disseminated and aligned with the wider EOSC community. This extensive collaboration has helped produce high-quality training events and materials and obtain very useful knowledge on how to address challenging issues regarding the organisation of online training events and selecting training topics that will ensure an interactive training experience.

With the training platform becoming a prominent place to host important training and promotional information regarding many activities in the project, its continuous upgrade and improvement has become one of the major goals for the training task of the project early on. The latest activities that are planned to be performed during the project lifetime are focusing on ensuring that the training platform is being aligned with the most recent recommendations and guidelines regarding the harmonisation of training materials in EOSC. In this way the platform interoperability and training materials reusability can be supported, as one of the major aspects needed for its successful sustainability.