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## **NI4OS-Europe**

National Initiatives for Open Science in Europe

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# Deliverable D6.2

## Training plan

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**Abstract:** Deliverable D6.2 - Training plan - outlines the plan of training events and training modules to be developed during the project, which is based on the survey of the training needs and requirements in the region. The deliverable also describes the project policies for training events organization including evaluation of events, cooperation with other projects concerning training activities, the training calendar, and training platform that will be used for the training purposes.

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## References

- [1] Project NI4OS-Europe-857645 - Annex I - Description of the Action
- [2] NI4OS-Europe, D2.1 Stakeholder map, inventory, policy matrix
- [3] NI4OS-Europe, D7.1 Internal and external communication platform
- [4] FAIRsFAIR, D3.1 FAIR Policy Landscape Analysis
- [5] FAIRsFAIR, D6.1 Overview of Needs for Competence Centres
- [6] [Moodle open-source learning platform](#)
- [7] [BigBlueButton web conferencing system](#)
- [8] FOSTER project, [The Open Science Training Handbook](#)
- [9] [Open Science MOOC](#)
- [10] [SCORM - Sharable Content Object Reference Model](#)
- [11] Service/Resource Description Templates & Classifications for the EOSC, v2.00, August 2019
- [12] [OpenAIRE Community of Practice](#)
- [13] [Indico Event Management System developed at CERN](#)

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## List of Acronyms

<b>AAI</b>	Authentication and Authorization Infrastructure
<b>API</b>	Application Program Interface
<b>DANS</b>	Data Archiving and Networked Services
<b>DEI</b>	Days of E-Infrastructure 2020
<b>DPO</b>	Data Protection Officer
<b>EOSC</b>	European Open Science Cloud
<b>FAIR</b>	Findability, Accessibility, Interoperability, Reusability
<b>FitSM</b>	Federated IT Service Management
<b>IPR</b>	Intellectual Property Rights
<b>ITSM</b>	IT Service Management
<b>LMS</b>	Learning Management System
<b>MOOC</b>	Massive Open Online Course
<b>ORDM</b>	Open Research Data Management
<b>OS</b>	Open Science
<b>REST</b>	Representational State Transfer
<b>SCORM</b>	Sharable Content Object Reference Model
<b>SDT</b>	Service Description Template

## Executive summary

### **What is the focus of this Deliverable?**

The focus of this deliverable is to define the objectives of the project's training activities, present the initial plans for the organization of the training activities, and describe the materials, tools and infrastructure which will be provided and used for these activities. In particular, the deliverable provides details on the planning of training events, the survey results related to training needs, the development of a training platform, and the organization of a training agenda system. It also defines the training organization procedure including evaluation for quality assurance of the training events.

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

The deliverable and progress are described in the project Annex-I – Description of the Action [1]. The presented plan is expected to be refined during the project's lifetime thus adapting to any new project developments that might occur. The landscaping survey which provides input into the training requirements analysis is based on D2.1, in collaboration with WP2 [2], and the management of the training agenda system and platform is organized in collaboration with WP7 [3]. Specific training materials will be made available on the training platform in collaboration with the other work packages and the related EOSC projects. The results from the training activities will be reported in D6.6 - Training report, due in M34.

### **What are the deliverable contents?**

The deliverable describes in detail the tentative training plan together with the training objectives, training material, training platform as well as the training agenda. The provided information includes an analysis of the training requirements based on the landscape survey raw data collected by WP2. An initial customized agenda for regional and national level training events targeting various stakeholders is defined. The training event organization and evaluation procedures are also provided.

### **Conclusions and recommendations**

The presented plan for the organization of training events is to be implemented by all NI4OS-Europe partners, in-line with the Annex-I - Description of Action [1]. Based on the landscaping survey results, recommendations on the topics that need to be covered on the national training events are provided. The outlined procedures aim to help the organization of different types of training events. Different stakeholders are targeted with capacity building and end-user training events. The project-wide training events are focusing on specialized train-the-trainer events and webinars covering the topics of federated service management, FAIR principles, ORDM, generic and thematic service onboarding. All training materials will be provided using the training platform, wherein additional material in the form of self-paced online courses will also be offered. The results from the training activities will be continuously revised, in order to ensure high-quality training and adaptation of future events according to the trainees' feedback.



# 1. Introduction

This deliverable defines the initial plan, organization and setup for the training activities within WP6 – User engagement, training and demonstrators of the NI4OS-Europe project.

The training activities of the project present an essential type of support for all stakeholders involved in the project including service providers, e-Infrastructure experts and data repository managers for which capacity building training is provided, but also academia, research communities, and libraries targeted with specific end-user type trainings. Other types of stakeholders such as the ones who work in industry and SMEs can receive capacity building or end-user training depending on their requirements. In order to enable harmonization with other similar activities, coordination with EOSC-Hub, FAIRsFAIR and OpenAIRE is established for the purposes of sharing training materials and information about scheduled events. In addition, close collaboration regarding training events is established with the rest of the INFRAEOSC5b regional projects.

Two waves of training events are planned to take place during the project lifetime. First, the project-wide train-the-trainer events will be organized in order to boost the number of available trainers on the topics related to EOSC and FAIR principles. The second wave will follow with national capacity building training events and end-users training which will be based on the experience gathered from the train-the-trainer events. The capacity building training events will focus on service onboarding and the related topics. With the help of the training events, the stakeholders will be able to acquire knowledge about different aspects that are relevant within the EOSC and OpenAIRE landscape such as service management, FAIR principles, certification and open research data management (ORDM). Additionally, the training events will also aim to provide guidance on using the generic and thematic services and data repositories provided by the project partners. The training activities within the NI4OS-Europe project will be based on the solid trainer community which was created within the previous initiatives in the region or with the specialized train-the-trainer events. The collaboration with other related projects will also enable an extended list of trainers that can be called upon if necessary.

The initial analysis of the landscaping survey results conducted by WP2 is to be used to provide insight into the current status of familiarity with EOSC and FAIR principles and the training needs expressed by the respondents. The results will be used as guidelines for developing the content of the national training events. The identified topics will be used as input for the development of training material, but also for the population of the specifically developed training platform with already existing training material.

The main goal of the training platform is to represent a single location where all training material is going to be gathered and provided to the trainees. Anyone interested in a particular topic should be able to easily find the available resources. Each training event organized will use the platform as a repository for all training materials. The training platform will provide access to online self-paced courses including training material shared by other INFRAEOSC5a-b-c related projects. In collaboration with WP 2, 3, 4 and 5, additional training resources will be developed targeting NI4OS-Europe specific activities, such as service onboarding guides and end-user training for the onboarded services.

The training agenda system will be used for the organization purposes of the training events. All necessary information on how to register and become part of the training will be published on the agenda system including information on how to access and use the training platform. For each type of training event (train-the-trainer, webinar, hands-on, etc) a specifically developed organization procedure will ensure that all logistics and organizational aspects of the training are covered, thus helping the organizers to provide a high-quality event to the trainers. The overall quality of trainings is to be assured by constant monitoring of the success of the training events using training feedback forms. The training organization procedures will be adapted based on the received feedback from trainees.

## 2. Training related objectives and activities

The main goal of the training activities within NI4OS-Europe is to enable all relevant stakeholders to gain the skills necessary to participate in the EOSC vision as service providers and/or end-users. Having in mind the European region covered by the consortium, with a number of non-EU members and high diversity in the level of knowledge and use of Open Science and FAIR principles and practices, it is of great importance that the relevant training is delivered not just in terms of stakeholders, but also in terms of knowledge and practices relevant in the national context.

To achieve this goal two initial activities have been envisioned within the project:

- analyze the needs and requirements for specific training in the region (based on the initial data collected from the WP2 landscaping survey), and
- organize train-the-trainer project-wide training events.

The landscaping survey analysis will be used to decide the discussed topics in subsequent training events, while the initial train-the-trainer events will be used as a kickstart capacity building activity aiming to create or expand the base of trainers in each partner country in the region, so that the knowledge and skills obtained on the project level can be effectively disseminated within each project partner country targeting the specific national key topics.

Once these two initial activities are completed, the focus will be moved to the organization of national training events for the relevant stakeholders that have been identified during the landscaping phase. On the national level two separate lines of actions are targeted: capacity building training events aimed at potential service providers, and end-user training events aimed at all stakeholders that would be the NI4OS-Europe, and subsequently EOSC, service users.

In parallel to this two-phased approach to training events, a training platform is needed so that the targeted stakeholders can have access to training materials and additional resources that will help them during the training process. The same material can be also used as reference material afterwards. The training platform should serve as a single repository for all project related training material, but also provide additional training opportunities via online self-paced courses that will further boost knowledge transfer and skill development.

Since NI4OS-Europe is part of a larger group of projects which work together towards the implementation of the EOSC vision, it is essential that work that has already been done in other relevant projects is reused and that future activities are aligned among the projects, taking into account their common goals and specific objectives. In terms of training this entails a close collaboration between the training teams so that existing training materials are shared.

In order to make sure that all of these activities are synchronized and that all relevant organization procedures are provided to the project partners, the following action points have been identified:

- prepare a training plan that will provide a timeline for all training events which will be organized;
- keep an up-to-date calendar of training events;
- set up a training agenda management system for training events;
- define internal project policies and templates that will support the training event organizers and the trainers;
- develop a training platform that will host the training materials and resources;
- prepare relevant project-specific training materials;
- establish collaboration with other relevant projects for the purpose of training materials and calendar sharing.

## 2.1. *Target indicators*

The effectiveness of the defined project activities related to training will be measured using a number of target indicators.

The minimum number of training events that will be organized during the project lifetime is 35. In particular, the training plan presented in the following sections includes:

- 5 project-wide regional train-the-trainer events;
- 30 (2 x 15) national training events with the total of 450 participants.

The two national training events per country must target all relevant stakeholders. Thus, one of the events is planned to be a capacity building event for service providers, while the other one should be focused on the services end-users.

The training events can be organized as hands-on workshops or webinar events, depending on the training topic and target audience. At least 3 webinar type training events with a total of 100 participants should be organized. Both types of events are to be supported by the developed training platform with the webinar recordings accessible for the registered participants.

The training platform will host all the relevant training material and resources. For some of the training topics which are common with other related INFRAEOSC5a-b-c projects, the training materials will be imported if available. Additional training materials will also be developed within NI4OS-Europe. At least 1 set of training materials in the form of online self-paced course will be developed covering the topic of IT service management.

The defined target indicators will be continuously monitored in order to measure and evaluate the impact of the training events. In addition, to ensure that the training is conducted efficiently and that the organized events meet the expectations of the trainees, feedback will be collected about all training events using feedback forms.

Improvements in the training policies and materials will be implemented if necessary, based on the gathered feedback.

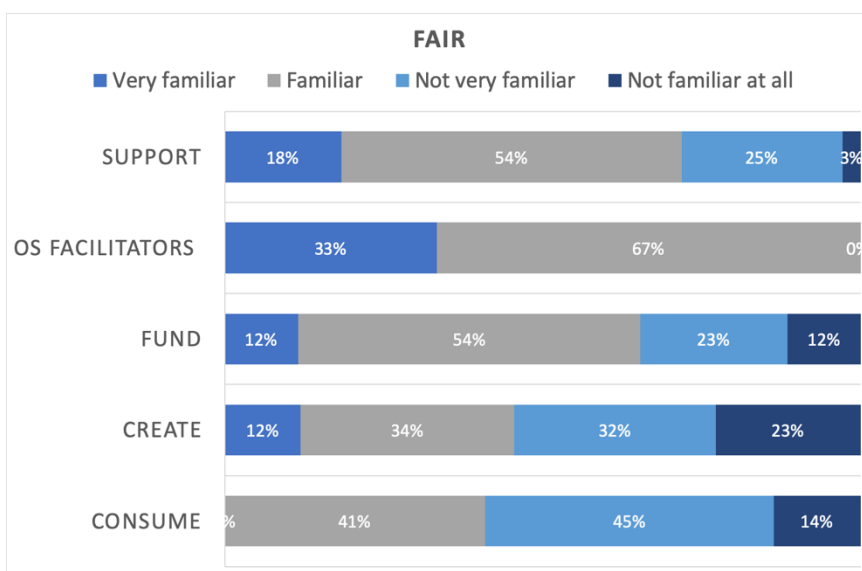
The D6.6 Training report deliverable will provide the measured impact of the training events by comparing the achieved with the defined target indicators.

### 3. Training requirements analysis

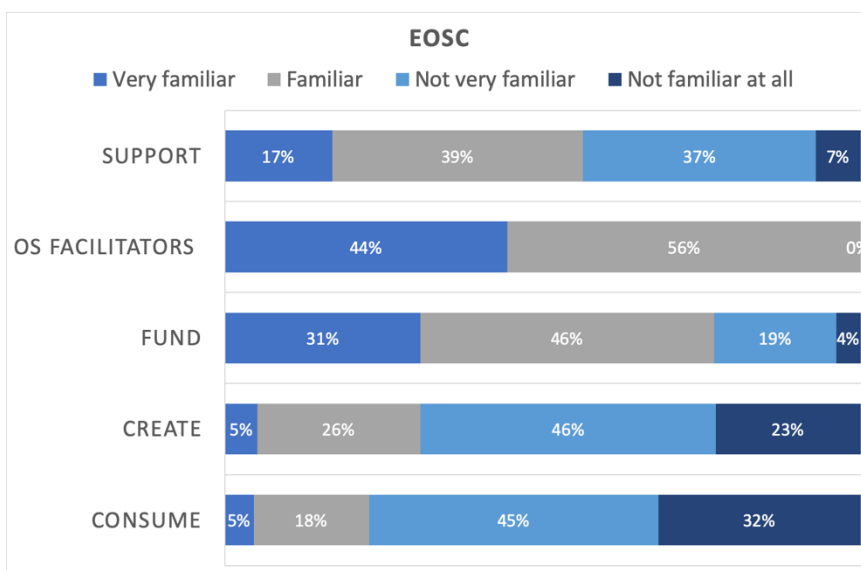
The initial set of results gathered by the landscaping survey, which was conducted under task T2.1 in WP2, has been used to analyze the responses of the stakeholders on both the project level and on the national level. The results discussed in this section are based on survey questions related to training activities. For a more detailed analysis of the gathered results regarding other aspects of the survey please refer to deliverable D2.1 [2].

Within the landscaping survey, the main profiles of the targeted stakeholders are defined as: creators (ex. universities or research institutes), consumers of research (ex. SMEs), supporters of research (ex. research infrastructures), funders of research (policymakers), and OS facilitators. Based on the first set of preliminary responses, out of the 440 that consented to participate in the survey at the time when this analysis was made, 71% are creators, 16% are supporters, 6% are funders, 5% are consumers and 2% are OS facilitators.

When analyzing how the respondents evaluated their familiarity with the concepts of EOSC and FAIR principles, see Fig. 1 and Fig. 2, it is interesting to note that the respondents show less knowledge about EOSC than FAIR, with the exception of OS facilitators and funders, which is expected because of their involvement in Open Science initiatives. Overall, over 50% of the respondents are either very familiar or familiar with FAIR, while only 39% provided similar answers for EOSC. In addition, it is evident that a large body of “creators” and “consumers” are not familiar with FAIR, and even less so with EOSC.

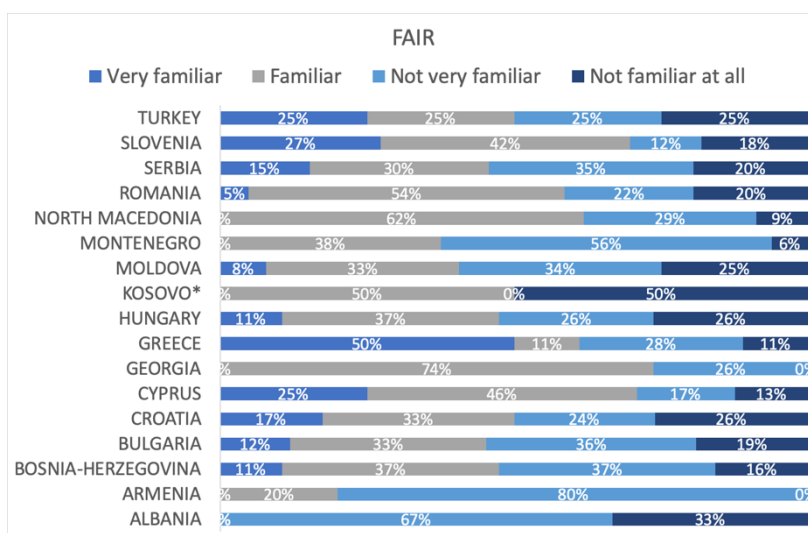


**Figure 1: Overall responses to “how familiar are you with FAIR?”**



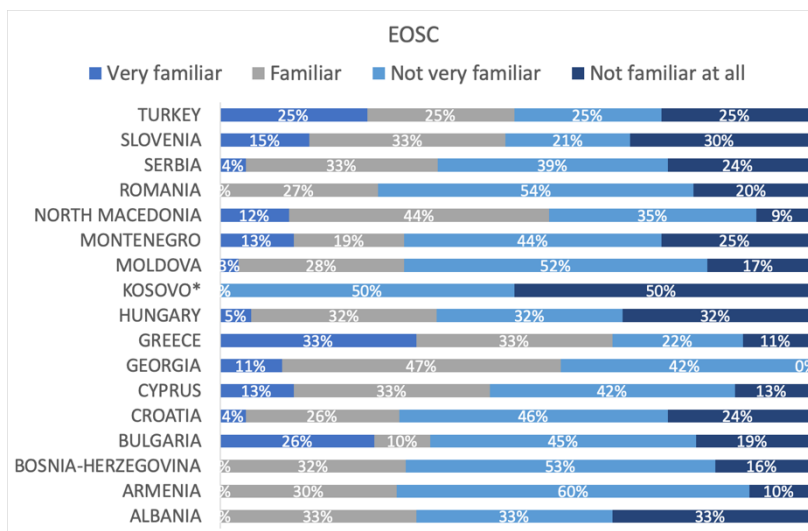
**Figure 2: Overall responses to “how familiar are you with EOSC?”**

Broken down per country, see Fig. 3 and Fig. 4, the inequality between the participants in the project is evident. Most of the EU countries have higher familiarity with EOSC and FAIR principles than non-EU countries, with Greece leading for both FAIR and EOSC principles. On the other end of the spectrum, there are countries such as Albania with no familiarity of FAIR and Kosovo\* with no familiarity with EOSC. While the landscaping survey has been extended to include countries in the region that are outside the NI4OS-Europe consortium, the NI4OS-Europe training events will be organized and funded primarily for the project member countries. Participants from other countries are welcomed to all NI4OS-Europe training events. However, their attendance to training events will be not funded by the project.



**Figure 3: Country-wise responses to “how familiar are you with FAIR?”**

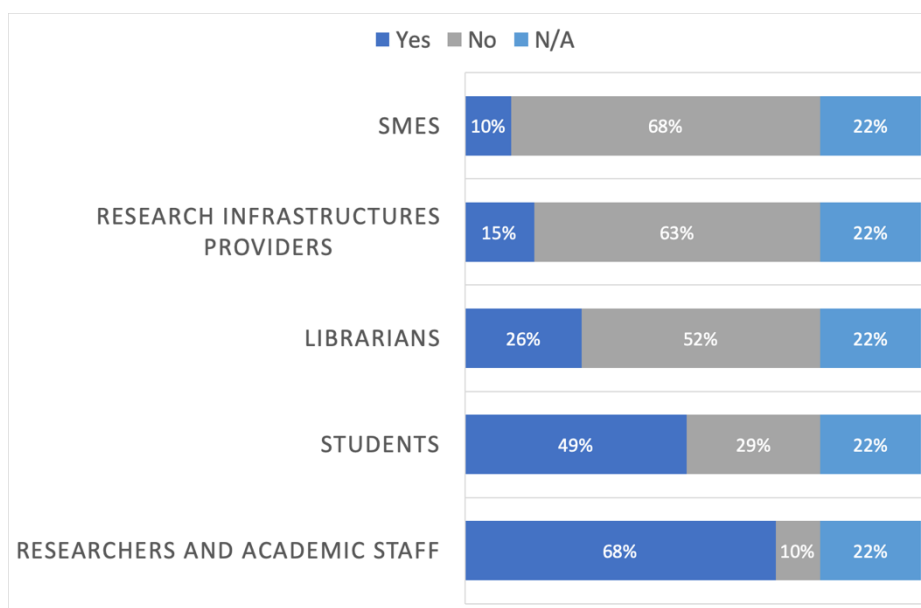
\* All references to Kosovo, whether the territory, institutions or population, in this text shall be understood in full compliance with United Nation's Security Council Resolution 1244 and without prejudice to the status of Kosovo.



**Figure 4: Country-wise responses to “how familiar are you with EOSC?”**

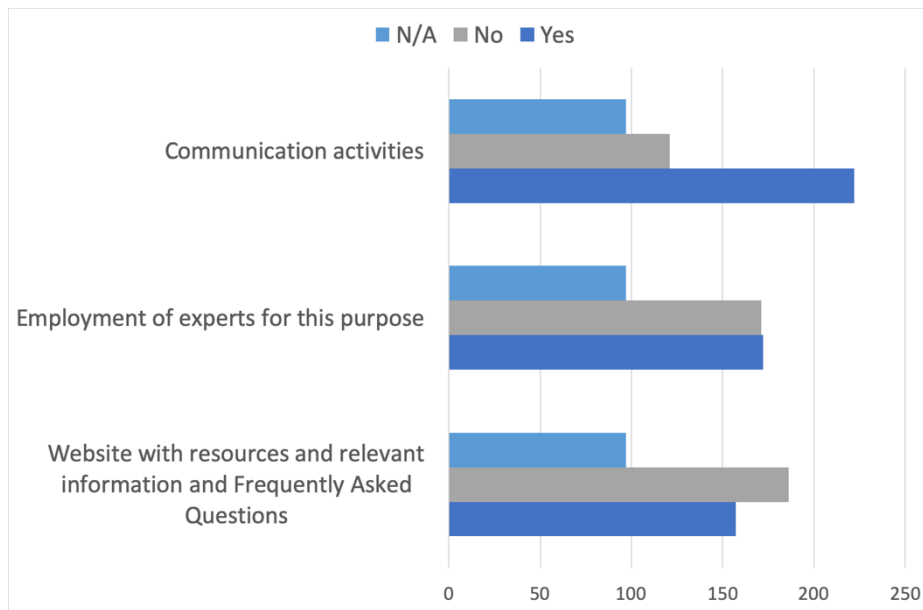
Based on the results it can be concluded that the FAIR principles have already spread more widely in the research related communities when compared to the familiarity with EOSC principles. However, there is still significant need for training to be provided on both concepts, especially in the smaller non-EU countries in the region.

Based on the responses to the questions related to the existing training organization, over 60% of the respondents answered that they do provide training for their services, with their target groups being mostly researchers and students, which are targeted mainly via communication activities, see Fig. 5 and Fig. 6. The topics of the provided training include IPR, repositories, open practices, and open education resources (see Fig. 7).

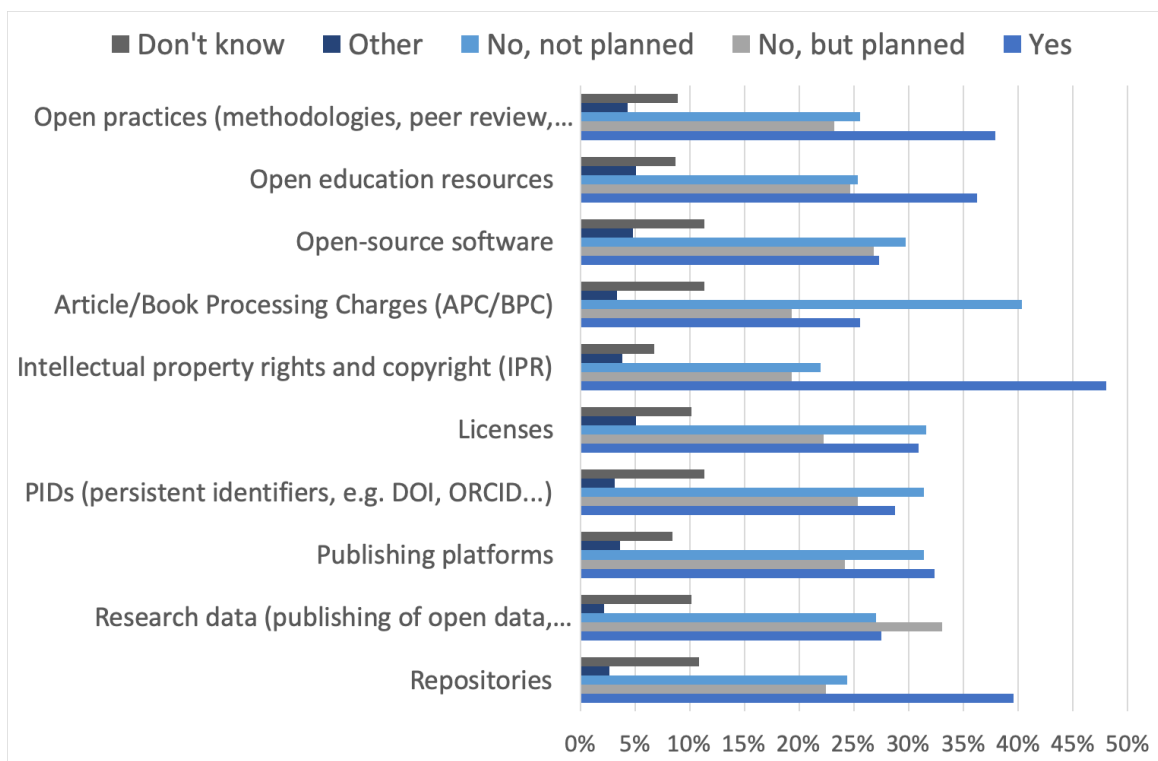


**Figure 5: Target groups for training**





**Figure 6: How existing training is being provided**



**Figure 7: Areas in which training is provided**

Based on the responses to the question “what particular areas of training, support or advice, researchers and support staff need in relation to making data FAIR?” the most immediate needs per country have been identified. The presented table in Fig. 8 is obtained by averaging the responses of the question country-wise and then picking the topics that had the highest values. Although there were significant discrepancies among

the countries with respect to familiarity with FAIR and EOSC, the table points out that for most of the partners, training concerning FAIR topics should focus on “training others, including PhD students”. In the cases when there were several maximum valued topics for training, all of them are presented in the matrix, as it is the case for Albania for an example. Having in mind that 70% of the respondents have the “create” profile, then these results show that when organizing FAIR data related training, students and non-researchers must be targeted. However, it must be noted that with exception of three options that do not focus on any of the countries, the rest of the options have over 50% of responses that training and support are much needed on that particular topic. Another important observation is that the need for raising awareness about FAIR principles is rated second after training others.

	Training others (including PhD students)	Data analytics and statistical techniques	Finding and reusing data	Raising awareness about FAIR principles	Documenting data or code to make it FAIR	Costing and resourcing RDM in proposals	Data wrangling	Citing and acknowledging contributions	Using or developing tools/services	Sharing data (ethics, data protection)
AL	AL	AL		AL					AL	
			AM							
										BA
BG										
HR			HR							
CY										
			GE							
EL		EL								
HU										
MD										
		ME	ME							
MK										
			RO							
RS										
			SI							

**Figure 8: Most important topic for FAIR training per country**

Based on the requirements for training expressed via the landscaping survey results, an effort has been made to find relevant training material and resources and import them into the training platform. In addition, these results have also been incorporated into the decision on the topics of the train-the-trainer project-wide events.

In addition, the outcomes of a similar landscape survey made by the FAIRsFAIR project have been analyzed by reviewing the relevant draft deliverables that include information about training, namely D3.1 FAIR Policy Landscape Analysis [4] and D6.1 Overview of needs for Competence Centre [5] results comparison. Since, according to the FAIRsFAIR survey results, 68% of the respondents provide in-house support to researchers for putting FAIR into practice, NI4OS-Europe has already established collaboration with the FAIRsFAIR project when it comes to training support and training materials about FAIR data and principles in order to provide support to the partners and improve the use of FAIR in the partner countries. The project will closely follow the developments in the FAIRsFAIR project in terms of development of training materials on FAIR data stewardship topics which are currently not covered, as it is one of the defined goals of its Competence Centre.

The main recommendations provided in the FAIRsFAIR deliverables stress the need to develop a set of discipline specific guidance and training resources that can be easily found and reused. Within the NI4OS-Europe project, these identified needs in the research community will be addressed by creating training materials for the services that will be onboarded. In collaboration with WP3 and WP5, one of the requirements for the onboarding of new services through NI4OS-Europe will be the production and access to high quality training materials.

In parallel to the efforts regarding FAIR, training that focuses on the EOSC principles and the complete EOSC onboarding process are of great importance for the NI4OS-Europe project. The training requirement analysis does not focus in detail in the EOSC training requirements because the landscaping survey did not define many questions on these topics. This is because the definition of the onboarding process and the design of the federated core are still underdevelopment. Thus, service providers, by default, do not have any experience with onboarding and integration with the federated core.

However, it has been acknowledged from the beginning of the project that training related to EOSC concepts needs to be provided to support service providers with the activities related with onboarding and integration. Thus, the training provided in the project should also cover the topics of integration of common and federated services and IT service management system training concerning service providers. Concerning end users, the EOSC related trainings should include topics on how to use the onboarded services, including thematic services onboarded with the help of the project.

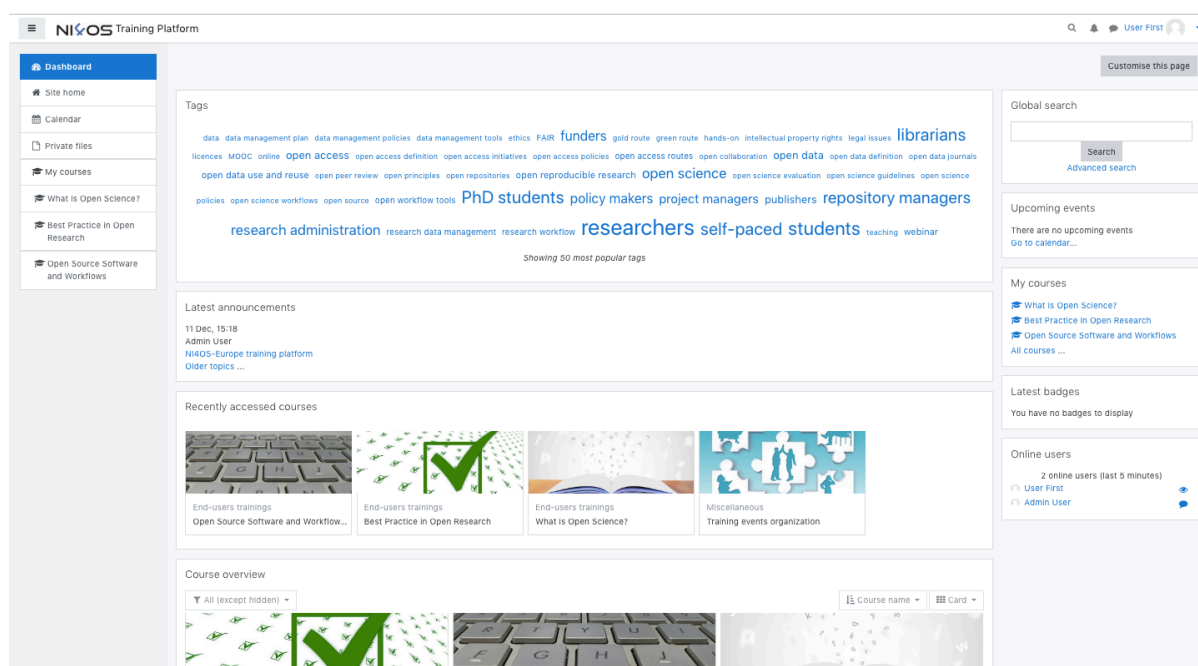
## 4. Training platform and material

For the purposes of gathering and offering all training materials and resources in one single location, a dedicated training platform for all NI4OS-Europe related training resources has been developed. The platform acts as a training repository for the project official training events, but also offers additional training material to the project stakeholders in the form of self-paced online courses and materials. The organization of the training materials is defined in a standardized way, with the goal to provide a consistent user experience across all topics and training courses.

### 4.1. NI4OS-Europe training platform

The NI4OS-Europe training platform is based on the free open-source learning management system (LMS) Moodle [6] with a customized front-end. The training platform is available at <https://training.ni4os.eu/> and can also be accessed from the NI4OS-Europe main web site. A specialized plug-in, free open-source BigBlueButton [7] is added to Moodle to support the organization of webinar training events. The access to the training platform is provided via the NI4OS-Europe AAI, so that there is no need for the trainees to create new user profiles to use the platform. Guest access is also enabled for any content that is open to be accessible outside the consortium.

After login, the training platform takes the user to the dashboard page that has been arranged to provide the most relevant information to the user and provide easy access to the training material, see Fig. 9.



**Figure 9: NI4OS-Europe training platform dashboard**

All training material available on the platform is organized into training courses based on the topic. The courses are organized into categories: train-the-trainer, capacity building, end-users training, and miscellaneous courses. The categorization provides a first order grouping of the courses and is created according to the types of training events that are going to be provided by the project.

However, in order to increase the usability of the platform, especially for stakeholders that are not well informed about the NI4OS-Europe training offerings, all courses and other relevant materials will be tagged with keywords. Two types of keywords will be used for tagging the training material: keywords that describe the content of the training material, and keywords that describe the target stakeholders. In order to control the use of tags and avoid using synonyms or obscure tagging, all tags are predefined in the system and the creators of training materials only need to choose the appropriate tags from a drop-down list. They can also make a request for adding a new tag to the list, but also report an inappropriate tag.

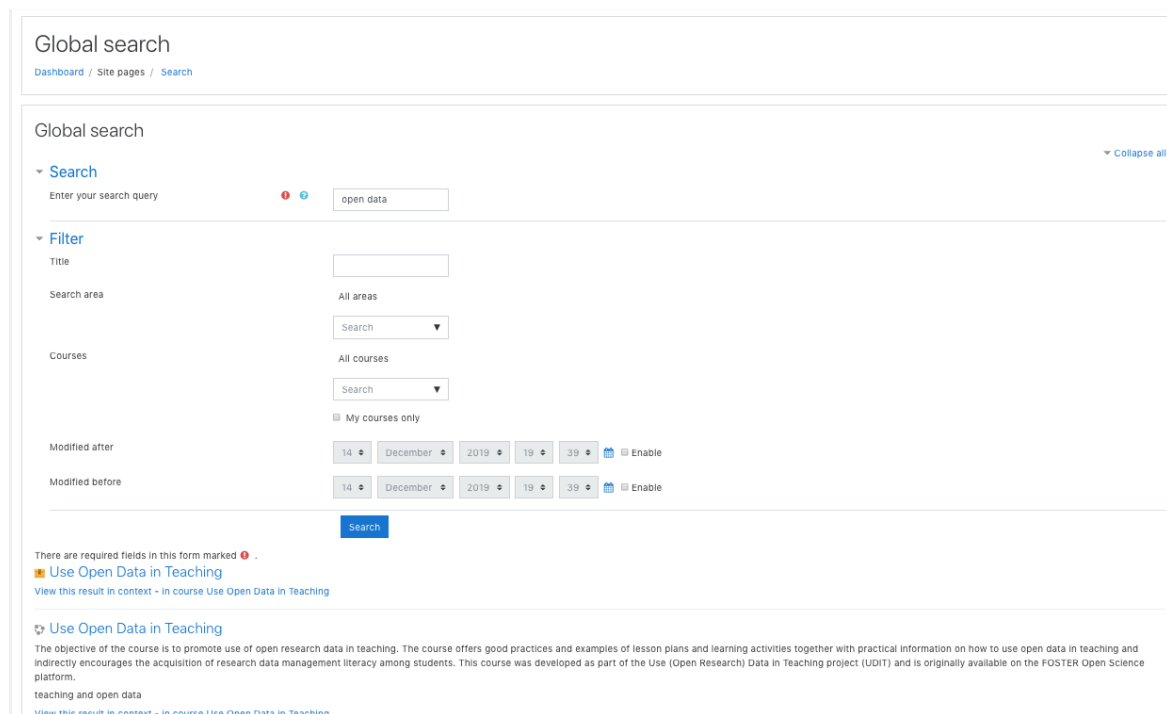
The way the tags are used to help the training platform users easily find training material is presented in the top central block on Fig. 9. Based on all the tags used on the platform, the block creates a word cloud where the size of each phrase corresponds to the amount of information tagged with that specific phrase. In this way, when looking for training material, the user can click on any phrase in the tag cloud and will be presented with the list of training materials that have been tagged with that particular tag, see Fig. 10.

The screenshot displays the NI4OS Training Platform interface. At the top, the title 'NI4OS Training Platform' is visible, along with a breadcrumb trail: 'Dashboard / Site pages / Tags / open science'. A 'Manage tags' button is located in the top right corner. Below the title, the tag 'open science' is highlighted, with options to '+ Add "open science" to my interests', 'Flag as inappropriate', and 'Edit this tag'. A list of related tags is shown, including 'funders', 'librarians', 'researchers', 'open access', 'self-paced', 'students', 'PhD students', 'open reproducible research', 'repository managers', and 'project managers'. Below the tags, there are two main sections: 'COURSES' and 'ACTIVITIES AND RESOURCES'. The 'COURSES' section lists several items, such as 'Use Open Data in Teaching' (Category: Capacity building), 'Open Science MOOC courses on Ellademy' (Category: End-users trainings), 'What is Open Science?' (Category: End-users trainings), 'Best Practice in Open Research' (Category: End-users trainings), and 'Open Source Software and Workflows' (Category: End-users trainings). The 'ACTIVITIES AND RESOURCES' section lists 'Open Educational Resources', 'Open Science MOOC courses on Ellademy', and 'Open Advocacy'. At the bottom of the page, there is a footer with 'Moodle Docs for this page', user login information ('You are logged in as Admin User (Log out)'), and a link to 'NI4OS-Europe is funded by the European Commission under the Horizon 2020 European research infrastructures grant agreement no. 857645'.

**Figure 10: Searching training resources using tags**

In addition to the use of tags for quick search, users can also use the global search text box, see left top block on Fig. 9. Using the global search functionality, the user can

search for any keywords appearing in the course title, course description and any course materials and their description. The advanced filter provided with the global search, see Fig. 11, provides additional possibilities to narrow down the search to a more specific resource, by searching only course titles for an example, or by searching only for modified training resources. The results of the search, see bottom of Fig. 11, are listed with links to the course that contains the found training material.



The screenshot displays the 'Global search' interface. At the top, there is a breadcrumb trail: 'Dashboard / Site pages / Search'. Below this, the main search area is titled 'Global search' and includes a 'Search' section with a text input field containing 'open data' and a search button. A 'Filter' section follows, with several options: 'Title' (input field), 'Search area' (dropdown menu set to 'All areas'), 'Courses' (dropdown menu set to 'All courses' and a checkbox for 'My courses only'), 'Modified after' (date range selector from 14 December 2019 to 19 December 2019), and 'Modified before' (date range selector from 14 December 2019 to 19 December 2019). A 'Search' button is located below the filters. At the bottom, there is a message: 'There are required fields in this form marked . Use Open Data in Teaching' with a link to 'View this result in context - In course Use Open Data in Teaching'. Below this, another entry for 'Use Open Data in Teaching' is shown with a brief description: 'The objective of the course is to promote use of open research data in teaching. The course offers good practices and examples of lesson plans and learning activities together with practical information on how to use open data in teaching and indirectly encourages the acquisition of research data management literacy among students. This course was developed as part of the Use (Open Research) Data in Teaching project (UDIT) and is originally available on the FOSTER Open Science platform.' and a link to 'View this result in context - In course Use Open Data in Teaching'.

**Figure 11: Global search of training materials**

The lower part of the dashboard page, see Fig. 9, also contains the announcements block wherein all new training events will be announced to the platform users. There is also a platform calendar where the user can see all scheduled events, or any events with deadline for the already enrolled courses. The platform also provides the use of badges that can be awarded to trainees after completing a course, or a specific assignment in a given course. They can be used as incentives for users to complete the online self-paced courses. In the bottom part of the dashboard the list of recently accessed courses is provided, together with the list of links to enrolled courses that is accessible in the menu on the left. Using the "Site home" link in the left menu, the user can also go to a page that lists all available courses on the platform and view the course description, see Fig. 12.

Users that have registered for any of the official training events organized by NI4OS-Europe (train-the-trainers or national training events) will be automatically enrolled to the corresponding course that has been created specifically for the training event. For the online self-paced courses, the users can enroll themselves using the self-enrollment method, or they can visit the courses as guest users in which case their progress will not be tracked by the platform.

**My courses**

[What is Open Science?](#)

Understand what [open science](#) is and why it is something you should care about. Expectations of research funders and how practising aspects of [open science](#) can benefit career progression.

- why [open science](#) is an issue that you can't afford to ignore
- how to go about making your own research more open
- what funders expect to see about open access and data sharing when applying for new grants
- how to progress your career through practicing [open science](#)

For a citable version or to use this course offline, please refer to the print version which is available from [Zenodo](#).

This course has been imported from the [FOSTER](#) project.

[All courses](#)

**Available courses**

[FAIR data and principles](#)

train the trainers course on FAIR data and principles

Trainer: [Judith Fazekas-Paragh](#)  
Trainer: [Edit Gorogh](#)

[Use Open Data in Teaching](#)

The objective of the course is to promote use of open research data in teaching.

The course offers good practices and examples of lesson plans and learning activities together with practical information on how to [use open data in teaching](#) and indirectly encourages the acquisition of research data management literacy among students.

This course was developed as part of the [Use \(Open Research\) Data in Teaching project \(UDIT\)](#) and is originally available on the [FOSTER Open Science platform](#).

[Open Science MOOC courses on Eliademy](#)

Freely available courses on Open Science from Open Science MOOC.

**Figure 12: List of courses**

The complete platform, including the BigBlueButton webinar system, is GDPR compliant. The complete information about licensing, personal data usage, and data retention is described in the Terms of Use, Privacy Policy, Cookie Policy and Data retention summary documents providing information about the personal data processing from the trainer and trainee perspective. All users of the training platform are required to accept the policies before using the system. The platform also provides the ability for each user to explicitly ask for his user profile to be removed from the system, and the system forwards this request to the assigned Data Protection Officer.

## 4.2. *Identified training types and modules*

As previously mentioned, the training provided in the NI4OS-Europe can be categorized into four main categories: project-wide train-the-trainer events, national capacity building training, national end-user training and online self-paced courses. The topics of the trainings and the training modules offered on the training platform need to be aligned with the objectives of the project and the landscaping survey.

Based on the results of the initial landscaping survey analysis it has become apparent that the topics of the train-the-trainer events need to be aligned with the requirements for raising awareness and providing training for all stakeholders about the main ideas of EOSC and FAIR. In addition to these requirements, when deciding on the topics of the train-the-trainer events the specifics of the project goals must be taken into account, leading to training requirements for service and data management for service providers, as well as training for the service onboarding rules and processes.

In summary, there will be five train-the-trainers events organized around the following topics aiming to address all identified requirements:

- FAIR data and principles.
- National EOSC promotion.
- Open Research Data Management.
- IT Service Management.
- Service Onboarding.

The train-the-trainer topics do not include training for specific services because the services offered and requested by stakeholders vary between the countries. These topics, hence, need to be covered within the national training events.

The national capacity building events will build upon the train-the-trainer events and expand the training, additionally tailoring them to include topics which are relevant for the national service providers.

For the national end-users training events the goals are twofold. On one hand, these trainings need to increase the familiarity with FAIR and EOSC, building upon the train-the-trainer event and incorporating the specific topics identified in the landscaping survey analysis presented in the previous section. On the other hand, the trainings will also focus on the use of the onboarded services adapted to the set of services that are of interest on the national level.

In addition to the specifically organized training events, the training platform will also offer the possibility to follow online courses on related topics. As a response to the requirements for training found in the survey results, the first group of online self-paced courses imported in the training platform from the FOSTER project [8] is targeting the requested topics such as open science, open data, FAIR principles, etc. In addition, the available courses from the Open Science MOOC [9] platform have also been imported into the NI4OS-Europe training platform. As new sources of relevant training material are found, they will also be added to the training platform. Given that most of the already available training material targets end-users, and as already identified by FAIRsFAIR landscape analysis [4] specific training material for service providers is also needed, within the project, the partners will also develop additional training material that will be available via self-paced courses. The first material that is going to be produced is related to milestone M6.1 and is due in the project month M07. This is going to be an online self-paced course on IT service management (a precursor to the train-the-trainers event) and will be provided as a SCORM package [10] that will be made available with a creative commons license so that it can be reused by other projects.

In collaboration with the other project work packages, additional training material focused on the project services to be onboarded will be prepared. For these purposes the training task will closely collaborate with WP3 and WP5 so that the rules for participation include the requirement for preparing training material from a service management and end-user perspective. All training material produced by the other work packages will be added to the training platform with appropriate tagging.



For all new courses that are going to be created on the NI4OS-Europe training platform, template courses have been prepared so that the course layout is standardized thus providing consistent user experience on all courses, see Fig. 13. In addition, a specialized “Training events organization” course is created targeting all training organizers and trainers. The course contains all procedures and organizational information related to the training events, as well as manuals, user guides and other supporting documentation that is needed for the use of the training platform and the webinar system.

**Figure 13: Template course for webinar training events**

### 4.3. Training catalogue

One of the activities within the NI4OS-Europe project is the creation and maintenance of a catalogue of services and resources offered by the project. The design of this catalogue should be aligned with the parallel activities on the definition of the EOSC catalogue so that they can share a common service description based on a chosen Service Description Template (SDT). The catalogue will be accessible via a RESTful API, enabling other entities to query metadata about the listed catalogue entries.

Following the EOSC activities, wherein the training resources are also to be listed in the global EOSC catalogue, the same approach will be taken by NI4OS-Europe. The currently considered SDT and classification v2.0 [11] include the possibility to add information about training available for the service or resource use within the support

information part of the service/resource description where a link to the corresponding training platform course can be provided. In addition, the category classification includes a separate category "Education & Training" which should be used for the description of services and resources related to courses. The currently defined subcategories in this category include online courses, open registration courses, in-house courses, training tools, training platform, and others. Based on this information, within NI4OS-Europe activities will be taken to describe the training platform and courses within the platform in the NI4OS-Europe catalogue providing metadata information about the access to the relevant courses.

#### *4.4. Collaboration with other projects*

It is essential that the training activities within NI4OS-Europe are aligned with similar activities in the rest of the EOSC and FAIR related projects. The collaboration between projects can facilitate access to the relevant trainers for the events, help with the discovery and exchange of relevant training material, and can set the grounds for the possible organization of coordinated joint training events.

The currently established collaboration includes the INFRAEOSC5a-b-c projects Task Force on Training and Skills, the OpenAIRE Community of Practice network [12], and the coordination with EURAXESS for national events. The activities in the INFRAEOSC5b task force on training and skills include creation of a shared training events calendar, organization of joint training events based on the shared calendar, exchange of information about training resources and trainers. The task force will also investigate the standardized description of training resources for the purposes of creation of a training catalogue. Similar activities are also considered in the Community of Practice network, while the collaboration with EURAXESS is based on organization of joint training events on topics of interest to NI4OS-Europe.

## 5. Training events organization

The organization of the NI4OS-Europe train-the-trainer and national capacity building and end-user events will be made according to a developed training plan that defines the timeline for the events organization and provides the step-by-step procedures that outline the use of an events management system and the training platform. Additional parts of the organization process are the directory of trainers and the implementation of the quality assurance for the training events.

### 5.1. *Training events management*

For the purposes of organizing the NI4OS-Europe training events, in addition to the training platform, the free open-source INDICO event management system setup by WP7 [13] will be used. The NI4OS-Europe event management system instance is a single location for managing all project related events, with a special category defined for the Training events, located at <https://events.ni4os.eu/category/2/>. The location will list all past and upcoming training events organized by the project.

All NI4OS-Europe training events will have their separate pages created within the system. These include the project wide train-the-trainer events and all national training events, as well as any additional training events that might be organized in collaboration with other related projects, or organized as a supplement to the initial project training events timeline. In order to have a consistent look-and-feel for all training events, a training event template has been created, which will be used as the basis for the preparation of each training event.

The event pages contain information about the event, timing, location, organizing institution, summary of the training and intended audience, see Fig. 14. It will also provide an outline of the event timetable and links to the training platform and training materials used for the training. If the training event is organized as a webinar, then the information provided on the pages will link to the webinar room created on the training platform. If the training event is organized as a hands-on workshop, all of the logistics information will be provided on the training event pages together with links to the relevant training course on the training platform.

All training events, created on the training events management system, will be announced on the main project web site, in the announcements system on the training platform, in the project-level calendar, and in the shared calendar with the other collaboration projects. The events will also be announced using the social networking and other communication channels.

The screenshot shows a webpage for a training event. At the top, there is a header with the NI4OS logo (National Initiatives for Open Science in Europe) and the event title 'FAIR data and principles - Train the trainers event'. Below the header, the dates '19-20 February 2020' and 'Europe/Budapest timezone' are listed. A navigation menu on the left includes 'Overview', 'Timetable', 'Registration', 'Photos', and 'Contact'. The 'Contact' section shows an email address 'jparagh@lib.unideb.hu'. The main content area contains three paragraphs of text describing the event's purpose, the topics to be discussed, and the trainers involved. At the bottom, there is a section for event details including start and end times, location, and organizers. A note indicates that there are no materials yet.

**FAIR data and principles - Train the trainers event**

NI4OS  
National Initiatives for Open Science in Europe

19-20 February 2020  
Europe/Budapest timezone

**Overview**  
Timetable  
Registration  
Photos  
**Contact**  
✉ [jparagh@lib.unideb.hu](mailto:jparagh@lib.unideb.hu)

The FAIR data principles are a set of guiding principles to make data findable, accessible, interoperable and reusable. The principles provide guidance for scientific data management and stewardship in order to facilitate open science, the approach to scientific progress based on sharing available knowledge using collaborative tools and digital technologies.

The webinar will introduce and discuss the concepts of research data management and the FAIR data principles. Also, an overview of services and tools to support open science will be given. The webinar is aimed at data supporters working in universities and other scientific organizations. The aim of the webinar is that the participants can use the information provided in the webinar as a basis for further dissemination within their community.

The trainers in the webinar are Cees Hof and René van Horik, active in the EOSC-hub ([eosc-hub.eu](http://eosc-hub.eu)) project and working at DANS, the Netherlands institute for permanent access to digital research resources ([dans.knaw.nl/en/](http://dans.knaw.nl/en/)) The EOSC-hub project aims to bring together service providers to support data-driven research.

**Starts** 19 Feb 2020, 10:00  
**Ends** 20 Feb 2020, 13:00  
Europe/Budapest

**Edit Klára Görögh**  
**Judit Fazekas-Paragh**

There are no materials yet.

**Figure 14: Training event pages example**

All trainees that would like to attend the offered training will need to register for the event. For these purposes a template registration form is created on the training events management system accompanied with a suitable Privacy notice that informs the trainees that their data will be collected to provide access to the training platform and will be used only for statistical analysis needed for the training reports. Based on the supplied information during registration, a user profile will be automatically created for each trainee on the training platform, or the registered participant will be linked to an existing profile. All registered participants will be automatically enrolled in the training course that is related to the organized training event, so that they can have access to all training materials and training tools provided on the platform.

Using the training event management system, the trainees can be reminded about the upcoming training event or asked to test their access to the webinar room. All trainees can use the open forum in the corresponding training course on the training platform to contact the event organizers, trainers or other participants. The access to all resources and tools provided on the training platform will continue after the training event has ended. If the training event has been organized in the form of a webinar, the recording of the webinar will be accessible to all training participants for their future reference.

## 5.2. Training events timeline

The initial training events timeline has been roughly organized in three stages.

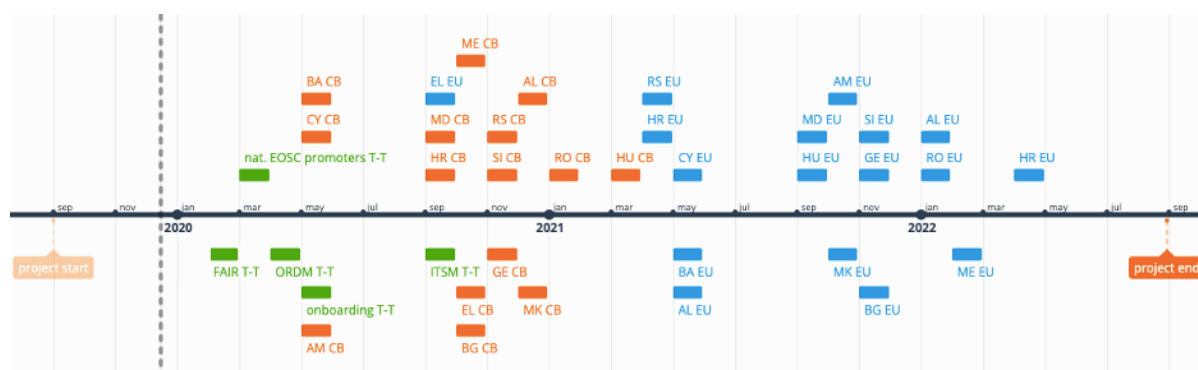
Initially the train-the-trainer events will act as capacity building boosters for the trainers' directory. The timeline for these events is given in Fig. 15. Although according to the

DoA [1] the training events should start from M07, the actual start of training has been jumpstarted to M05. By organizing all train-the-trainer events as early as possible, the national training events will be able to be coordinated better and organized using the prepared trainers and training materials. The appointed organizers of the train-the-trainers event will strive to exploit the collaboration with other projects where necessary to ensure high quality training. For an example, the first train-the-trainers event scheduled for February 2020 is organized by the University of Debrecen, Hungary, and the organizers have established collaboration with trainers from DANS (the Netherlands institute for permanent access to digital research resources) that also provide training for the FAIRsFAIR project.



**Figure 15: Train-the-trainers events timeline**

The second stage of training events focuses on national capacity building events. All partner countries plan to organize at least one capacity building event that will focus on the activities that need to be taken by service providers to join the EOSC community. The topics of these events will be a mix of general guidance to joining EOSC and specialized examples with national services identified with landscaping survey. The timeline for the national capacity building events is presented in Fig. 16, where all capacity building events are presented in orange.



**Figure 16: National capacity building and end-user training events timeline**

The end-user training events are the last stage of training. Most of these events are scheduled following the corresponding capacity building events, see Fig. 16, wherein the end-user training events are presented in blue. All scheduled events are aligned with the timelines in other project work packages where the service onboarding processes will be implemented, so that the end-user training events can show the users how to use the

onboarded services in addition to the requirements about general EOSC and FAIR knowledge transfer based on the landscaping survey.

In total, the training plan contains 37 planned training events: 5 train-the-trainers, 15 capacity building, and 17 end-user training events. The timeline will be reviewed and adapted as the project progresses. More events might be organized depending on the stakeholders' needs and the collaboration between the projects. In addition, the project partners will also take part in other training events that are jointly organized with NI4OS-Europe or are organized by other entities such as the Open Science training co-organized with EURAXESS in June 2020 and the presentations at workshops and training events organized at the yearly DEI conferences held in Croatia.

### *5.3. Training event organization procedure*

To help all partners with the process of organization of training events and use of the training event management system and the training platform, a set of procedures has been developed meant to be used as step-by-step guidelines.

Based on the types of trainings which require different approach to organization, there are three sets of training organization procedures:

- Self-paced online training organization procedure – targeting project partners that will be developing training courses on the training platform offered as online self-paced courses.
- Hands-on workshop organization procedure – for all training events that will be held in the form of face-to-face workshops.
- Webinar organization procedure – for all training events that will be held in the form of webinar events using the BigBlueButton webinar system.

All procedures are available within the specialized open course “Training events organization” that is hosted on the training platform. In addition to the training procedures, the course also contains the training timeline and manuals and user guides for the training platform. The initially developed procedures are also provided in the Appendix of this document. Their content will be adjusted and refined based on the gathered experience.

In addition to the training procedures, a trainers' directory has been established on the project level and has been made available as an internal project document on Box at <https://app.box.com/folder/92204790644>. The directory serves as a pool of experts that contains a list of trainers, their home institution and contact, together with a list of their expertise and can be used for reference during the organization of training events. This directory will be extended over time, adding information to it after each train-the-trainer event has concluded. All registered participants from project partners that have attended the train-the-trainers event will be added to the directory by the training task team. The INFRAEOSC5b projects task force on training and skills plans to create a shared pool of experts on the level of all projects, wherein the content of this directory

will be added. The extended pool can then be used for the purposes of selecting trainers or consultants for the future organization of training events.

## 5.4. Training quality assurance

To ensure high quality training experience for all trainees, at the end of each organized training event the trainees will be requested to fill out an anonymous feedback form. Using the responses from the feedback form the training organizers can gauge the trainees' satisfaction with the training, trainers and training materials, but also the organizational logistics or webinar technical quality, depending on the type of the event.

The feedback collected from the events will be closely monitored, so that corrective actions can be taken if necessary, by adjusting the future training materials developed, restructuring the training organization procedure and adapting the topics of the future scheduled training events.

For the purposes of collecting feedback responses, a specialized feedback module offered by the training platform will be used. All courses related to training events will contain a templated feedback form which will be made available at the course creation, see Fig. 17. According to the defined training organization procedure, the feedback form will be reviewed and set to activate after the event, when request and reminder to provide feedback will be sent to the enrolled trainees via the training platform.

The Training report deliverable D6.6 will contain reports on the completed training events based on the feedback gathered using these forms.

**Feedback**  
Mode: Anonymous

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

How would you rate the effectiveness of the presenter in delivering the presentation? ❗  Poor  Fair  Good  Very Good  Excellent

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

How would you rate the usefulness of the presentation 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

There are required fields in this form marked ❗.

**Figure 17: Template of feedback form for webinar training events**

## 6. Conclusions

The goal of this deliverable is to analyze the current status and requirements for FAIR principles and EOSC service related training in the region covered by the NI4OS-Europe project, and prepare the initial training plan and training tools that are going to be used for the project-wide train-the-trainers and national training events, both capacity building and end-user oriented.

All training events are supported by a specialized training platform that will offer the official and standardized training materials for the training events and other additional training resources and courses on topics of interest to the project. In addition, for the purposes of the organization of the training events an agenda management system and calendar will be used. The activities related to the training events and resources will be aligned whenever possible with the other INFRAEOSC5b projects using a shared calendar and shared pool of experts.

The results from the landscaping survey combined with the specific project objectives have been used as input to decide on the main topics of the train-the-trainer events. A set of country-level results has also been provided to help project partners tailor the national capacity building and end-user training events according to the current status in their countries. All training events will be organized as either hands-on workshops or webinars, using the tools available on the training platform. In addition, the training platform will be offering online self-paced courses for the trainees that wish to expand their knowledge in project related areas.

This deliverable also provides the internal NI4OS-Europe policies concerning training event organization, including templates for training event pages, training courses and surveys for collecting feedback about the events, which will be used in order to measure and evaluate the impact of the training events.

In order to ensure high quality training, detailed training organization procedures are developed targeting all types of training: online courses, webinars and workshops. The results obtained from the training evaluation analysis for each event will be used as input for improved organization and preparation that will increase the quality of the future training events.



## 7. Appendix: Training organization procedures

### 7.1. *Self-paced online training organization procedure*

1. Request a new training course from the training task leader.
2. Change the training course settings if needed:
  - make sure the course is of type self-enrolled;
  - make sure the course has no end date;
  - refer to provided manuals for course management in Moodle;
  - contact training task leader in case you need help or admin support.
3. Add other trainers to the course if needed.
4. Develop the training courses content by adding files, web links and pages, SCORM packages, etc.
5. Create at least one quiz that needs to be passed by trainees to successfully complete the training
  - define badges or other types of reward for trainees that have successfully completed parts or the full course.
6. Review and update the provided template feedback form.
7. Enable the feedback form to be completed by trainees that are enrolled in the course.
8. Once the course is ready, open the course for trainees.
9. Announce the course on the training platform.
10. Training task leader will propagate this announcement to the NI4OS-Europe web site and mailing lists.
11. In case of updated content of the course or any other similar events, use the announcement module to inform trainees about course changes.

### 7.2. *Hands-on workshop organization procedure*

#### **Plan the event**

1. Setting up training workshop agenda and registration:
  - request an account and new training event on events platform (INDICO agenda system) from the training task leader;
  - add other event managers as necessary;
  - follow the provided template in order to preserve layout consistency for all events;
  - contact trainers and define training schedule;
  - provide trainers with access to training platform (see next section);
  - provide agenda and other necessary info in the agenda system;
  - reserve training room and infrastructure if necessary;
  - open registration for trainees and set registration close date;
  - change visibility of event to public (protection tab);
  - inform training task leader so that the information about the new event can be announced on the NI4OS-Europe website;

- advertise event to all relevant stakeholders.
2. Preparing training material on training platform:
    - request a new training course on the training platform from the training task leader;
    - change the training course settings if needed (manual enrolment, no end date);
    - refer to provided manuals for course management in Moodle;
    - contact training task leader in case you need help or support;
    - add other trainers to the course if needed;
    - put the training courses content by adding files, web links and pages, SCORM packages, etc. (training materials can be added during and/or after the event as needed);
    - enable feedback form to be completed by trainees after the event has finished (the feedback form should become active at the end of the event and remain open for the following 2-3 weeks).

### **Just before event**

1. Make sure the training platform is complete with all training materials necessary.
2. Inform training task leader when the registration is closed so that all registered trainees get access to the training platform.
3. Welcome the trainees to the course using the announcements module in the course.
4. Prepare the venue.

### **During the event**

1. Add/change course content as needed.
2. Add photos from event section to the course where photos will be uploaded.

### **After the event**

1. Using announcements module kindly request trainees to fill out the now active feedback form in the next 2-3 weeks.
2. In case of updated content of the course after the event has finished, use the announcement module to inform trainees about course changes.
3. Using announcements module send a reminder for feedback form to enrolled trainees.

## **7.3. *Webinar organization procedure***

### **Plan the event**

1. Setting up webinar agenda and registration:
  - request an account and new training event on events platform (INDICO agenda system) from the training task leader;
  - add other event managers as necessary;
  - follow the provided template in order to preserve layout consistency for all events;

- contact trainers and define training schedule;
  - provide trainers with access to training platform (see next section);
  - provide agenda and other necessary info in the agenda system;
  - provide link to interested trainees for registration to the webinar source on the training platform using key (see next section);
  - change visibility of event to public (protection tab);
  - inform training task leader so that the information about the new event can be announced on the NI4OS-Europe website;
  - advertise event to all relevant stakeholders;
2. Preparing training material and webinar on training platform:
- request a new training course on the training platform from the training task leader;
  - change the training course settings if needed (self-enrollment with key, no end date);
  - refer to provided manuals for course management in Moodle;
  - refer to provided manuals for webinar setup in BigBlueButton;
  - contact training task leader in case you need help or support;
  - add other trainers to the course if needed;
  - in the course add the information on min requirements for following the webinar for users (see manuals section);
  - define additional training content by adding files, web links and pages, SCORM packages, etc., if necessary;
  - after the webinar is completed the recorded video will be added to the course materials automatically (training materials can be added during and/or after the event as needed);
  - setup the webinar option using BigBlueButton (use the option for uploading presentation beforehand if necessary and test internally);
  - review and update the provided template feedback form;
  - enable the feedback form to be completed by trainees that are enrolled in the course (the feedback form should become active at the end of the event and remain open for the following 2-3 weeks);
  - once the course is all setup, make the course visible and open for registration;
  - update the training events site with this information;
  - announce the course on the training platform and the event platform;
  - training task leader will propagate this announcement to the NI4OS-Europe web site and mailing lists.

### **Just before event**

1. Make sure the training platform is complete with all training materials necessary.
2. Retest the webinar system.
3. Welcome the trainees to the course using the announcements module in the course.
4. Refer them to the minimal requirements and send manual on how to connect if necessary.

### **During the event**

1. Add/change course content as needed.

**After the event**

1. Check if the video from the webinar is available in the course materials.
2. Using announcements module kindly request trainees to fill out the now active feedback form within the next 2-3 weeks,
3. In case of updated content of the course after the event has finished, use the announcement module to inform trainees about course changes.
4. Using announcements module send a reminder for feedback form to enrolled trainees.