EOSC-Life: Building a digital space for the life sciences

D9.2 – Review of EOSC-Life training activities, their impact and potential adaptations

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Executive Summary

This document will outline the training activities that have been completed since the beginning of the grant, their impact and potential adaptations. The EOSC-Life training programme is built on the training needs analysis, which was presented in D9.1 Final report of analysis of the training needs of different EOSC-Life users in month 12. EOSC-Life training is aimed at two target communities that have distinct needs and different roles towards establishing a European Open Science Cloud (EOSC): (i) the BMS Research Infrastructures (data) staff and (ii) the end-user of the (data) services offered.

The deliverable gives an overview on the wide range of training offers completed, which highlight that EOSC-Life managed extremely well to adapt the training to remote offers as a response to the pandemic restrictions and to ensure cross WP involvement.

Training in EOSC-Life has been organised in a top-down as well as bottom-up approach, top-down training activities have been organised by the technical work packages in EOSC-Life as well as the training work package, while the Training Open Call process allows for training activities organised by the EOSC-Life community to receive EOSC-Life support. All training activities relate to the needs analysis. Two separate rounds of the Training Open Call have been completed, in total we received 15 applications and 8 proposals received funding. In this document we explain the procedure of the Training Open Call and any modifications that have been made based on the experience of the first two rounds.

This deliverable describes what makes a successful training event for EOSC-Life and how Quality and Impact is defined and measured in this context. We outline the process to enable data capture and reporting for training providers, training work-package leads and EOSC-Life leads.

In conclusion, the document describes future work along the main strands of EOSC-Life training activities.

Project Objectives and Introduction

The objectives of WP9 are to develop and deliver training to enable effective data access and preservation for immediate and future sharing, and re-use, of data in the Biological and Medical Sciences. The training will address two target communities that have distinct needs and different roles towards establishing a European Open Science Cloud (EOSC): (i) the BMS Research Infrastructures (data) staff and (ii) the end-user of the (data) services offered.

(i) For LS RI staff it will provide skills training in:

- Deployment of data resources in selected EOSC-Life cloud environment
- Workflow composition, deployment and execution in selected EOSC-Life cloud environments
- Data stewardship, architecture and operation of data services within EOSC-Life
- How to support cloud deployment and long-term FAIR data management for the cluster RIs

(ii) For EOSC-Life end-users, WP9 will provide hands-on training and expertise in:

- Using EOSC-Life data resources, analytical workflows and other services developed in the project
- Effective re-use of publicly available data
- Best practices that users should adopt in managing their own data

Training needs analysis for EOSC-Life was delivered in D9.1 – Final report of analysis of the training needs of different EOSC-Life users (M12).

Detailed Report on the Deliverable

1. Training Open Call

1.1. About the Call

The EOSC-Life Training team offers funding to support training activities and provides expertise and guidance to help organise successful and impactful training through the EOSC-Life Training Open Call.

This call is for training on topics relevant for EOSC-Life. Proposals can be submitted for funding to support the following activities (not mutually exclusive):

- **Development of new courses or other training activities**

This would typically provide funding for personnel developing new training activities or adapting existing training to the needs of EOSC-Life; this could include face-to-face courses, e-learning courses or stand-alone content such as video/podcast.

- **Delivery of courses or other training activities**

This would typically provide funding for venue related costs such as catering and room rent or some support for the travel of trainers.

- **Capacity building**

This would typically provide funding for any activity that supports the reach of existing courses, shares best practice and knowledge exchange, coordinates activities with other EOSC-related projects. This could include training new trainers or staff visits between Research Infrastructures. This could provide funding for venue related costs such as catering and room rent or some support for the travel.

Considering the COVID-19 pandemic, applicants were specifically encouraged to consider the EOSC-Life Training Open Call as an opportunity to either develop training content related to COVID-19 or to use the Training Open Call funding as a support mechanism to transfer face-to-face training to a remote setting. Funded projects were asked to consider a remote option as a backup plan if their preferred mode of delivery was face-to-face.

1.2.   Submission Criteria

With the Training Open Call EOSC-Life offers support without any restriction with respect to the training modality. Training courses can be face-to-face, online or blended courses. Courses may be organised in collaboration with non-EOSC Life partners given that the rationale and added value can be demonstrated.

EOSC-Life aims to address topics relevant across RIs and foster close collaboration and exchange among RIs. Therefore, proposals should have at least two Research Infrastructures as partners in the application. Contributions do not have to be equal, e.g. one RI could provide expertise and the other RI the use case and event organisation. RI applicants do not need to be part of EOSC-Life, but strong rationale as to what additional value/expertise they provide to EOSC-Life must be given. As an additional measure to foster collaboration & exchange across RIs, successful applicants are requested to allow shadowing of trainers if of interest i.e. allow trainers from other RIs as observers to the course and if feasible during the preparation.

The application team needs to indicate who will be the lead applicant. If the proposal is successful the lead applicant will be responsible to distribute the funding granted among the applicant team according to the agreed budget. In case no applicant is an EOSC-Life beneficiary, a contract will be concluded between the lead applicant's legal entity and the legal entity of a WP9 lead.

1.3.   Terms of Submission and Privacy Policy

Below is a link to the second version used during the second Training Open Call, reflecting minor changes from the first round.

EOSC-Life Training Open Call Privacy Policy[1]

1.4.   Application process

The EOSC-Life Open Call submission uses an ARIA web form with templates provided to structure the application.

An expression of interest stage was added to the process to encourage applicants to email the WP9 co-leaders with a draft proposal to discuss and request feedback. This additional step is meant to allow the WP leaders to provide help to optimise proposals and facilitate synergies with other expected proposals or existing EOSC-Life activities.

Budget[2] and proposal[3] templates are provided to help structure the applications according to the ARIA web submission form.

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[1] https://instruct-eric.eu/network/eosc-life/eosclife-training-call-privacy-policy?t=eosclife
[2] http://www.eosc-life.eu/wp-content/uploads/2020/09/Template-Training-OpenCall-version2.ods
[3] http://www.eosc-life.eu/wp-content/uploads/2020/09/EOSC-Life_Training_Call_Template_version2.odt

1.5. Advertisement of the Training Open Call

The EOSC-Life Training Open Call was advertised in collaboration with WP10 through the following channels (Figure 1):

- EOSC-Life website
  - Round 1: 403 pageviews
  - Round 2: 902 pageviews
- Newsletter
  - Round 1: 179 opens
  - Round 2: 179 opens
- Internal newsflash to all Consortium members
- EOSC-Life RIs asked to distribute among their Nodes/members
- Twitter:
  - Round 1: 7170 total impressions, 185 engagements across multiple tweets
  - Round 2: nearly 3000 impressions, 153 engagements on single tweet

Subsequently the announcement of winners and the resulting upcoming training was advertised online and on social media channels (Figure 1).
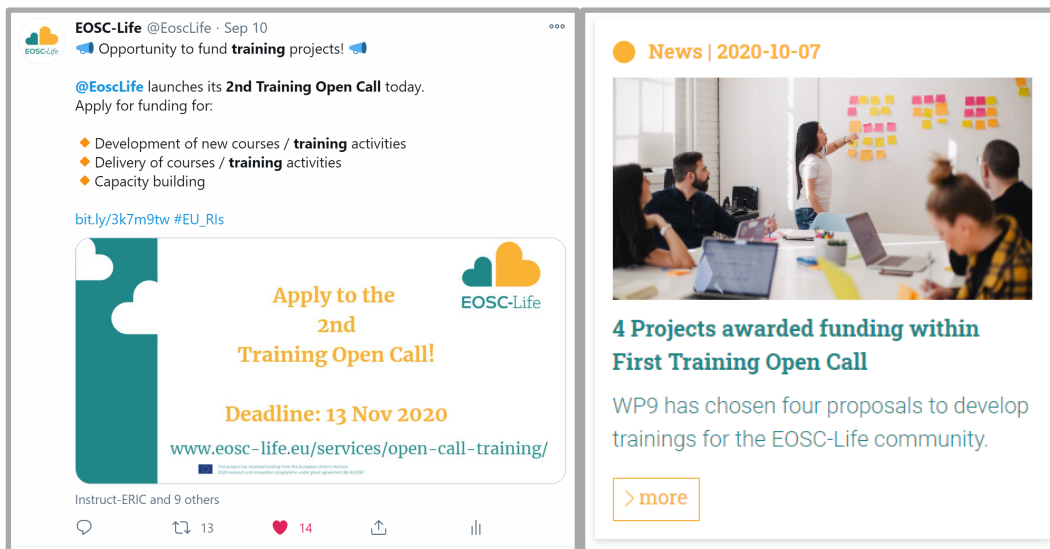

Figure 1: Examples of tweet (left image) advertising the EOSC-Life Open Call and website news announcement (right image) of the successful projects from round 1 of the EOSC Life Open Call.

1.6. Training Open Call review process

Reviewers from different EOSC-Life RIs were asked to contribute to the Training Open Call review process. Reviewers were primarily selected for their training expertise. When deemed necessary additional technical reviews (e.g. feasibility) could be requested.

Reviewers were asked to score each application using the criteria listed below according to the following scores:

1. Poor, criteria not convincingly addressed
2. Fair, main aspects need further revision/clarification
3. Good but details might need revision/clarification
4. Excellent

Training Open Call criteria:

- Training needs clearly defined and justified
- Target audience defined, relevant across EOSC-Life RIs
- Training design addressing training need
- Training designed to enable transfer of learning
- RI responsibilities and synergies clearly defined
- Budget justified and reasonable
- Maturity of planning process
- Potential for impact on the EOSC life community *

*This criteria was added explicitly after round one of the Open Call

For each criteria the reviewer could add a comment as well as a score. A review panel was chaired by the WP9 co-leaders to make a final decision.

1.7. Results from the Training Open Call

Table 1 provides a summary overview of the outcome of the first two rounds of the EOSC-Life Training Open Call. For each round of the call the indicative budget was €45,000.

	Training Open Call 1	Training Open Call 2
Number of submitted proposals	4	11
Number of funded projects	4	4
EOSC-Life RIs participating	4*	6*
Number of organisations participating	15	>57
Funding requested	€46,020.00	€101,636.80

Table 1: High level summary of the Training Open Call. reported for completed projects only*

The following projects were funded during the first and second round of the EOSC-Life Training Open Call (Table 2).

Title of funded project	Participating EOSC-Life RIs	Status
Climate Science Workflows and Training on EOSC-Life Infrastructure[1]	ELIXIR	Complete
Learning to make one's own model of COVID-19 epidemics[1]	ISBE, ELIXIR	Complete
Training Open Science Community Ambassadors with Open Life Science Principles[1]	ELIXIR	Ongoing
Teaching researchers and clinicians how to share COVID-19-related data and software: a series of dedicated webinars and tutorials[1]	ELIXIR (EATRIS*, ERINHA*)	Ongoing
Defragmentation: bringing BioImage Analysts to the cloud[2]	EuroBioImaging, ELIXIR, Emphasis, ISBE	Pending
Exchange of experience workshop to develop remote access, virtual teaching and remote training in research infrastructures[2]	Instruct-ERIC, EuroBioImaging	Pending
Galaxy Admin Training on EOSC-Life infrastructure[2]	ELIXIR	Complete
Training Infrastructure as a Service (TIaaS)[2]	ELIXIR	Pending

*Table 2: list of funded EOSC-Life Training Open Call projects. [1] Training Open Call round 1, [2] Training Open Call round 2; *EOSC-Life RIs who expressed an interest in joining the proposal after the summary was published.*

1.8. Process improvements from the first two rounds of the Training Open Call

A number of lessons were learned after each iteration of the EOSC-Life Open Call, these were used to improve the process and associated documentation. Below is a short overview of the lessons learned grouped by category, and indicating whether changes were implemented after the first or second round.

General observations:

- [After review of round 1] Publish summary of successful projects and ask for contributions from additional RIs
- [After round 1 & 2] Still getting too many RI internal projects
- Application might involve multiple nodes of an RI
- [After round 2] Reach out to EOSC-Life RIs not represented in round 1 & 2 proposals (5 RIs)
- [After round 2] Consider running preparation surgery and/or collaborative writing sessions to stimulate cross-RI collaboration during the proposal writing stage.

Training Open Call Text improvements

- [After round 1] Guidance on overall available budget for the call
  - A decision was made not to give an explicit maximum budget per proposal to avoid applicants using the number as a target budget to aim for.
  - Instead the total call budget (per round) €45,000 was published in the call text with the message that multiple projects would be funded from that amount. As all proposals are encouraged to get in contact with the WP9 leaders before submission that provides an additional opportunity to give feedback on the budget.
- [After round 1]: Add the option of other RI trainers shadowing the event specifically in the call text as an option for cross-RI collaboration.

Application process & application template:

- [After round 1]: Specify there should be 1 main organiser, who will be the primary contact for EOSC-Life WP9 liaison.
- [After round 1] Make the need to openly share material a compulsory question in the application form.
  - Previously this was mentioned in the call text only.
- [After round 1] Add additional prompts to clarify in the proposal which partner is responsible for what
- [After round 2] Add "Why should EOSC-Life fund this project versus your RI?"
  - We are still receiving too many proposals that do not sufficiently promote cross-RI collaboration, the hope is that this question will make applicants consider if they have met the call criteria.

Review process:

- For round one the review process was handled outside ARIA, but for round 2 the review took place in the ARIA system. Before gaining access to the Reviewers were asked to agree to the confidentiality Term and conditions in ARIA.

2. Training completed

Based on the training topics described in the GA and complemented by topics identified during the training needs analysis or identified by EOSC-Life Work Packages, 16 training activities have been executed by the time this deliverable was written. Table 3 lists those training activities and provides information on the dates, Work Packages involved, number of participants as well as the target audience. A significant number of completed training activities have been targeted to both EOSC-Life RI (data) staff and EOSC-Life service end users. This is a direct outcome from the training need analysis (D9.1) in that these audiences are overlapping and not mutually exclusive (see Figure 2). An individual can be employed by a LS RI as a specialist for e.g. cloud deployment and at the same time can be an end user and/or trainee for another topic such as sensitive data.
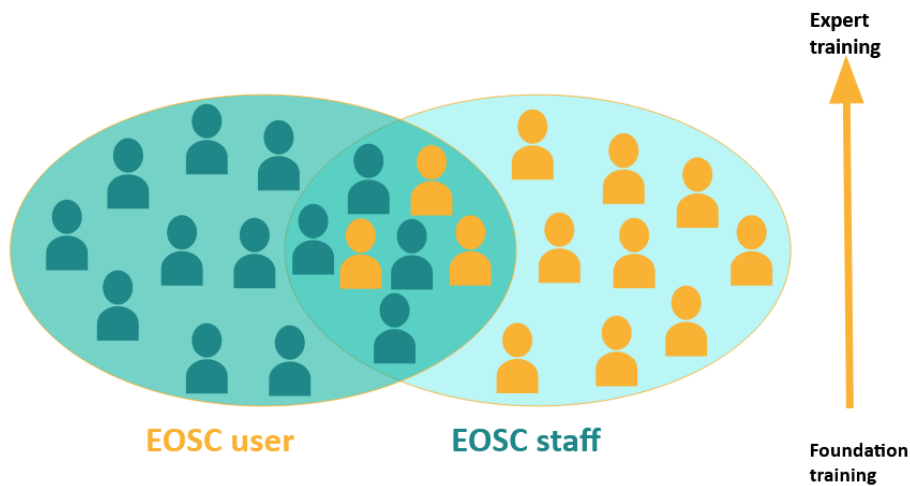

Figure 2: Graphic representation of EOSC-Life training target audience

Training activities	Date	Involved WPs	# Participants	Target audience
Cloud deployment	11/2019	**WP1,** 2, 3, 7	46	Staff
Translator workshop	01/2020	**WP9**, all WPs	22	Staff
Pseudo/Anonymised health data	01/2020	**WP4,** 1, 2 3, 6, 7	30	Staff
Guidance & tips: impactful training	03/2020	**WP9,** 10, 11	55	Staff & User

Practical Tips: Science Communications	03/2020	**WP10**, 11	100	Staff & User
Best practice in training & communication	04/2020	**WP9, WP10**, 11	29	Staff & User
Workflow platforms	04/2020	WP2	40-50	Staff
How to adapt training to remote setting	07/2020	**WP9**, all WPs	60	Staff & User
Tools packaging workshop	07/2020	WP2	20	Staff
User experience design	09/2020	**WP9**,4	15	Staff
ResOps (e-learning)	n/a	WP7		Staff
EOSC-Life LifeScience Login (2 events)	11/2020	WP5, WP10	42+10	Staff
COVID modelling	12/2020	WP9	15	Staff & User
Galaxy Admin Training	01/2021	**WP2,** WP9	59	Staff & User
Image data: sharing in cloud & repositories	01/2021	WP1, WP2	48	Staff & User
Open Life Science training & mentoring	02/2021	WP9	65+32	Staff & User

*Table 3: list of funded EOSC-Life Training Open Call projects. 1 Training Open Call round 1, 2 Training Open Call round 2; *EOSC-Life RIs who expressed an interest in joining the proposal after the summary was published.*

The dates of the training activities were well spread across the period, showing that the project managed to transform training activity to remote offers extremely fast. The overview also shows that EOSC-Life has a strong involvement in training across WPs, demonstrating the impact of training in bringing different WPs and RIs together.

2.1. Translators

Bringing the different WPs and RIs together is the objective of a dedicated training initiative called the "Translator group". This group of LS RI Staff translates between the needs or the involved RIs and the activities implemented within the WPs. The first activity took place on 16 January 2020 in Utrecht and looked at the challenges EOSC-Life WPs are addressing and the solutions they offer as a service to the RIs. As a follow-up, the translators organised an interactive workshop, the "world café" during the AGM. Seven topics such as "Why is the cloud valuable for my RI" or "Tools & workflow collaboratory for dummies" were identified that would profit most from an exchange with non-specialists from the involved RIs. Each topic was assigned a WP expert and a facilitator as café host, the discussions were documented to be used in the preparation of outreach material. Analysing the feedback form of the translator event in Utrecht confirmed the value of this activity as all respondents confirmed that they had a better understanding of the project. 31% of participants rated the Utrecht workshop as excellent, 62% as very good and 7% as good. The translator activities will be continuing in a virtual setting in 2021, with a meeting in January 2021, followed by a retreat in Q2 together with the WP leads and RI directors.

2.2. Remote training

To support the project and RIs to transfer face to face courses to a remote offer, WP9 in July 2020 hosted an exchange of experience workshop on how to adapt training to a remote setting. The workshop was particularly successful both with respect to attendance (60 participants from 13 RIs) and impact. Feedback was extremely positive, with 24% rating the workshop as excellent, 65 as very good and 6% as good. WP9 also received direct feedback e.g. from Belen Míguez, EMBRC who said "I had to organise my first virtual training and the tips from the workshop were super useful - we put in practice many of them". Due to the high demand and positive feedback, this event was transformed into a monthly "Optimising your remote training" series, creating a community of practice around remote learning.

The monthly series were organized as an informal setting where the main goal is to exchange knowledge, questions and opinions about different tools. The series is ongoing and open to EOSC-Life and RI partners. The first session of the series took place on the 20th of November 2020 and was attended by approximately 20 participants. The following two sessions were attended by a similar number, indicating that there was indeed interest in the community to continue the series.

Since February 2021, the upcoming sessions are announced through the internal newsletter, and through a mailing list for those not receiving the newsletter.

One of the topics of higher interest for the community is the organization of hybrid events, i.e. combining face to face and remote attendance and thus a format that will probably be more frequently used in the upcoming years. Therefore, it was decided to organize a one-day workshop, as part of the remote training series, to address the organization of hybrid events and the main needs for trainers and coordinators.

Other topics of interest suggested by the participants were:

- What does a course handbook look like?
- How to improve accessibility in remote settings
- Panopto & captioning videos

- How to increase human interaction in remote settings
- How to best use Zoom (as this will be available via the EOSC-Life license) and breakout rooms
- Showcasing how trainers support hands-on activities

Date	Title	Description	Duration (including Q&A)
07/07/2020	Transferring face-to-face courses to remote delivery	Informal Exchange of Experience workshop	1 day
20/11/2020	A Virtual course for PhD and postdocs	A one week (40 hours) virtual course: not just an interim solution but a fun and interactive event promoting equal access	0,5 hours
20/11/2020	A virtual General Assembly	A virtual General Assembly that contributed to Community building - from virtual coffee breaks and community building activities.	0,5 hours
11/12/2020	Live demo of Gather	Gather: spatial networking tool, demo and feedback from the BioExcel Winter school. Followed by mini EOSC-Life social activity in GatherTown	1 hour
15/01/2021	Using PowerPoint for pre-recording lectures		0,5 hours
15/01/2021	Experience from "Modelling COVID-19 epidemics" workshop		0,5 hours
12/02/2021	How to host online events using Remo		1 hour
12/03/2021	Pre-mortem session: what do you want to know about hybrid events?	Brainstorming session for the preparation of a one day workshop	1 hour

Table 4: Overview of events of the "Optimising your remote training" series

3. Assessing training impact & quality

An important dimension in any training provision is the ability to report on the "success" of the training delivered. A successful training event for EOSC-Life is one that is of high quality in the way it is organized and delivered; and is of high impact for both the project and the individual trainees. The impact and quality task therefore sets out measures for assessing these two dimensions, and importantly sets up a process to enable easy data capture and reporting for training providers, training work-package leads and EOSC-Life leads.

Three main data sources are used to provide a measure of quality and impact across all aspects of the training (see Figure 3):
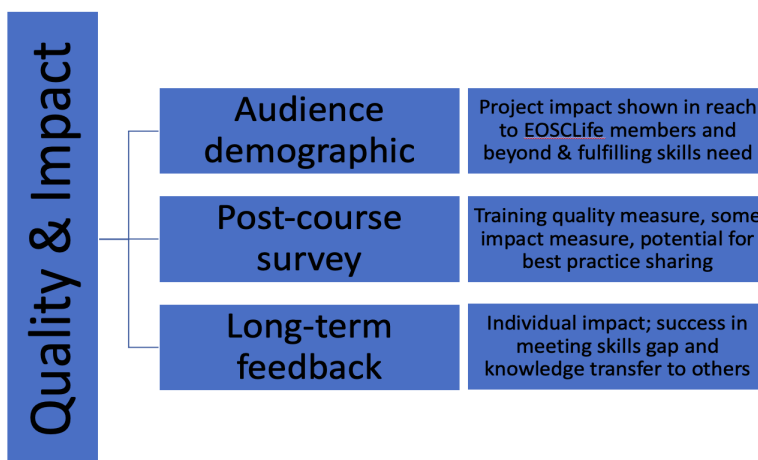

Figure 3: Data sources for collection of EOSC-Life Quality and Impact.

- **Audience demographic data:** Assessing the impact of the training in terms of reach by capturing details of the final audience who attended the workshop (country of employment, career level & sector, RI involvement). Comparing this to the intended audience of the training and EOSC-Life as a whole provides a measure of how findable & accessible the training is. Additionally monitoring application numbers confirms skills need and may help in seeking further course funding.
- **Post course survey:** All participants are requested to complete a survey immediately post course which provides an indication of quality of provision; topics covered include overall course and individual sessions ratings, balance of delivery, organisation rating and whether participants would recommend the course. An initial measure of impact is possible where participants are asked if they have been introduced to new topics and will re-use that new knowledge.
- **Long term feedback survey:** 6 months post course participants are asked to complete a further survey to determine what individuals have been enabled to do with their new skills/knowledge since attending the course. This is a measure of training impact upon the individual participants, but provides an indication that the training as a whole is filling in key skills/knowledge gaps and therefore meeting its intended aims.

3.1. Methodology

To ensure consistent collection and recording of quality and impact data, template post-course and long-term feedback surveys were created. The templates contain the key core questions required from all courses, but course providers are able to add questions to tailor the survey specifically to their event.

For demographic data, total numbers of attendees are provided by the course providers, but additional data on individual participants is either provided directly by the course providers (collected via a registration system set up by the course provider) or through additions to the post-course survey.

This data is collected centrally using an inventory table for all EOSC-Life training events, and curated by an impact and quality coordinator based at the University of Cambridge.

To enable all course providers to fully engage with the Q&I process, especially those accessing funding via the open calls, a checklist and guidance docs have been written which details the requirements for data collection and the process by which it should take place.

3.2. Impact and quality measures to date

Detailed impact and quality measures are collected for EOSC-Life face-to-face courses as well as for remote courses, hackathons and workshops. Of the events tracked so far, four were in-person/face-to-face events, whilst all others have taken place online due to the current pandemic.

We have recorded involvement in delivery of a training event from all work-packages across the EOSC-Life project and representation in terms of attendance from more than one RI in all events.

The events have attracted 314 participants (larger numbers were seen for a number of the shorter online events, compared to the longer courses, as would be expected) and has involved 42 trainers.

Post course (quality) surveys were conducted in 10 events, using a modified version in the webinar setting where appropriate. Additionally, 2 events have been surveyed for impact – more will follow as we reach the 6 month post-event period.

A detailed analysis of the quality and impact measures collected so far to provide a picture of the success levels of the training being delivered will be performed once we have a broader set of data. Currently the training events are too diverse with respect to delivery mode and/or audience to perform a comparative analysis.

In the future we plan to expand the methodology to assess training impact by liaising with Research Infrastructures (RI) currently implementing an independent impact assessment strategy (these RIs were identified by Task 9.1 with the "training needs survey") and we additionally need to define our methods for assessment of online tutorial impact.

4. Future work

4.1. Courses & e-learning

We will continue to build upon the work undertaken so far, in continuing to offer a wide variety of training activities. Most courses in 2021 will continue to be organised as remote events and we will continue our successful work in ensuring that remote training activities can be as interactive as face-to-face events by providing guidance to the course organisers. This will also apply to the Translator activities which will continue throughout the year.

To complement the existing e-learning "Resops: Cloud-native tools and technology for researchers" WP9 will launch several e-learning courses in 2021. A core offer will be an introductory e-learning "EOSC-Life for dummies", an entry level course for researchers not yet at home in the world of FAIR data, open science and cloud technology. To match the low threshold format, the course is foreseen to be accessible in Q2 2021 via the EMBL-EBI online tutorial platform, which is an openly accessible platform. Another introductory course is planned for Q2 2021, with the aim of enabling researchers from a range of backgrounds to make full use of the COVID-19 Portal which launched in April 2020 and brings together relevant datasets for sharing and analysis. For the second half of 2021 we plan to launch a course on FAIR data for EOSC-Life in cooperation with WP6.

We will continue collecting data on Quality and Impact measures and will report results of the Quality and Impact in D9.3 Final report on EOSC-Life training activities and their impact (M48).

4.2. Remote training series

Increasing EOSC-Life community expertise in the organization of successful virtual training activities is highly relevant. One of the Training Open Call funded activities will tackle this topic. Additionally, EOSC-Life Remote training series will continue taking place regularly. Future sessions will potentially discuss how to prepare a course handbook, how to improve accessibility in remote settings, adding captions in virtual training material or how to increase human interaction in remote settings.

Additionally, a one day workshop will be organized around the topic of hybrid events, i.e. combining face to face and remote attendance. As a first step, a brainstorming session with the EOSC-Life community will take place to understand their training needs regarding successful organization and delivery of hybrid events.

4.3. Training Open Call

We anticipate running at least two more rounds of the Training Open Call, however, there has been a delay in the contract administration and therefore the final ratification of the Training Open Call. A decision was made not to run another Training Open Call until the funded projects from round one and round two have been fully processed and closed. We anticipate the current round of funded projects to run through 2021. Several suggestions for improvement, especially to

encourage cross-RI collaborations have been suggested for the next round of the Training Open Call.

Delivery and Schedule

The delivery is delayed:

No delays

Adjustments

Adjustments made:

None