Deliverable 5.2: Report on tests of RI operations at NFs and recommendations for improvements

Authors: Lucia Mona, Niku Kivekäs, Ulla Wandinger, Doina Nicolae

Work package no	WP5
Deliverable no.	D5.2
Lead beneficiary	CNR
Deliverable type	X R (Document, report) ☐ DEC (Websites, patent filings, videos, etc.) ☐ OTHER: please specify .....
Dissemination level	X PU (public) ☐ CO (confidential, only for members of the Consortium, incl. Commission)
Estimated delivery date	M36
Actual delivery date	31/07/2023
Version	Final
Reviewed by	Véronique Riffault
Accepted by	Eija Juurola
Comments	

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1. Purpose of the document

The present document collects suggestions and recommendations for improvements of the ACTRIS National Facility (NF) labelling process.

Having reached the ERIC status in April 2023, ACTRIS is now completing its implementation phase and will move towards operation. To guarantee the efficiency in ACTRIS operations, it is fundamental to test them and learn from the first experiences. One of the key operations in bringing ACTRIS to the operational phase is the labelling of National Facilities confirming their high quality of data and service provision. This process involves people at the National Facilities, Head Office (HO), Central Facilities (CF; that is to say Topical Centres (TCs), and Data Centre (DC)), and also at the RI Committee (RI Com). Only a good coordination of all these bodies will ensure the success of the process.

This is the reason why in the framework of the ACTRIS IMP project and for the aim of improving ACTRIS efficiency and avoiding troubles in the next phase of ACTRIS life, feedbacks and suggestions were collected in the form of questionnaires from all parties participating in the labelling pilot phase.

This document is based on two questionnaires under the ACTRIS IMP project, one targeted to the 15 experienced observational NFs participating in the labelling pilot and the other one to the TCs, DC, HO and RI Com. At the time when this document was compiled, the Step 1a of the labelling pilot had been completed by 12 of the 15 participating NFs for at least one component. The aim of the questionnaires was to verify the good implementation of the labelling process and to identify weaknesses and potential improvements to be undertaken.

Section 2 of this document shortly summarizes the labelling process. Section 3 lists the NFs participating in the labelling pilot and the status of the activity as a whole. Section 4 describes the process of establishing the NF questionnaire and the main results from that questionnaire. Section 5 describes the same for the CF and RI Com questionnaire. Section 6 presents the main conclusions from the feedback received. Finally, the questionnaires and a more detailed analysis of the answers are provided in Annexes 1 and 2.

2. Labelling process

ACTRIS is a very large and highly distributed RI with 110 foreseen NFs hosted by research performing organizations (RPOs) from 17 countries. The NFs are different in terms of instruments and observational components involved. ACTRIS encompasses six different observational components: aerosol in-situ measurements, aerosol remote sensing, cloud in-situ measurements, cloud remote sensing, reactive trace gases in-situ measurements, and reactive trace gases remote sensing. The atmospheric constituents can be measured at Observational Platforms but also with Mobile Platforms, at Atmospheric Simulation Chambers, or at a specified laboratory for experiments in controlled environments. The latter three types are together called Exploratory Platforms.

Because of the large number and large variety in type, combination, and needs of the NFs, the labelling process must be well defined, efficient, and tailored, while management procedures should be

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streamlined for keeping the managerial and administrative efforts at a reasonable level for all partners. The process is described in ACTRIS IMP Deliverable 5.1 and is supported by web tools, databases, and a detailed workflow structured in subsequent steps. The first phase of the labelling, namely Step 1, aiming at granting the original label, and its procedure is summarized in Fig. 1.

Step 1 consists of three sub-steps. Step 1a is the procedure for achieving the initial acceptance of an NF for a specific component, and it is based mainly on the description of the site, its characteristics, instrumentation, and implementation plan. Not everything needs to be ready for the facility to be initially accepted. Step 1b corresponds to the technical implementation of the NF and related QA/QC procedures done with TC/DC support. First observations and regular data submission are done in this phase to demonstrate the operability of the NF. Step 1c leads to the acceptance of the NF as an official ACTRIS facility approved by the ACTRIS ERIC General Assembly.

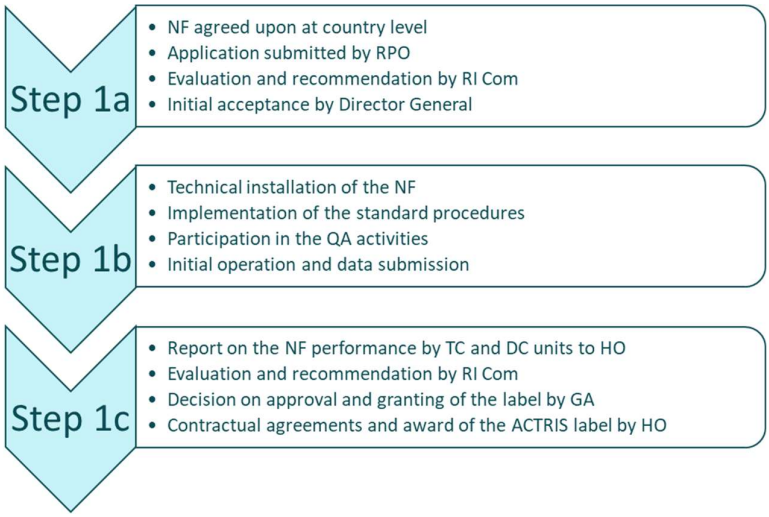

Fig. 1: Overview of the major actions of Step 1 of the labelling process of the NF.

After the conclusion of Step 1, Step 2 of the labelling process facilitates the continuous monitoring and regular performance assessment of the NF, which will be part of the overall research infrastructure operative monitoring and evaluation. The regular performance assessment of the NFs will be based on objective assessment criteria and related Key Performance Indicators (KPIs). Preliminary assessment criteria, KPIs, and scores to be used in the NF performance assessment have been proposed in ACTRIS PPP D.5.4, Annex A.

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3. Pilot labelling activity

Under the ACTRIS IMP project, a labelling pilot was carried out for testing the workflows of the labelling procedures. A web interface for NFs and CFs to insert and receive information requested by the HO for handling the procedure was centrally organized and used for these purposes. Additionally, each TC/DC had its specific tools and workflows for gathering the more detailed technical information needed for the initial acceptance of the NF regarding the respective component.

Fifteen experienced NFs from the different ACTRIS components participated in the labelling pilot to test all the branches of the labelling process. The exception to this was the cloud in-situ measurements, for which the respective Topical Centre was not yet ready for the activity. The list of experienced NFs was agreed on a voluntary basis considering the level of readiness for starting officially the NF activities (measurements and QA/QC procedures). The following table presents the NFs selected for the pilot labelling activity and the observational components covered by these NFs.

Table 1: List of Observational Platforms participating in the labelling pilot. Dark green indicates components that have been initially accepted by 30.6.2023, and pale green components those still in the evaluation process at that time.

OBSERVATIONAL PLATFORM	AIS	CIS	RTGIS	ARS	CRS	RTGRS
BARCELONA						
BIRKENES						
BREMEN						
POTENZA						
JÜLICH						
JUNGFRAUJOCH						
LINDENBERG						
KOSETICE						
OPAR LA REUNION						
PALLAS						
BUCHAREST						
SIRTA						
SMEAR II HYYTIÄLÄ						
WARSAW						
ZEPPELIN						

The labelling pilot activity allowed testing the performance and efficiency of the workflows, identifying shortcomings and bottlenecks, and planning of potential improvements in the procedures. According to the description of the labelling process in D5.1, the exercises during the pilot activity are intended to prove the clarity of criteria for the evaluation of NFs and the functionalities of the system used for the interaction between the NFs, HO, TCs, and DC units. For the time being, Step 1a has been tested only for Observational

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Platforms and not for access provision, and therefore only the following procedures and the related workflows (with major topics indicated in blue) were tested.

Step 1a: Initial acceptance as NF

1) Submission of the application by the NF
   a) HO: functionality of the online submission system (web interface, data base)
   b) TC + DC: clear requirements and criteria to initially certify the NFs

2) Evaluation of the application by TC, DC
   a) TC + DC: objective evaluation and scoring (arguments and recommendations included)

3) Decision making
   a) TC + DC: agreement on the general assessment
   b) HO: promptitude and completeness of the communication with the NFs

4. Feedback from NFs

4.1. Set up of the questionnaire

The questionnaire was prepared as a collaborative effort between team members of ACTRIS IMP Work Package 5 and the leaders of the Central Facilities involved in the pilot labelling.

The aim of the questionnaire was to collect feedback on the pilot labelling process as a whole in terms of communication flow, understanding of the process, bottlenecks in the general procedure handled by the HO, but also on specific issues for each ACTRIS component. In this sense, each NF was asked to fill in a general part made up of 5 general questions and 7 questions about the labelling, and in addition a specific questionnaire section about the components for which Step 1a was done. For the specific component section, 12 general questions about NF-TC-DC workflow and communication inside and outside ACTRIS were asked, and 8 questions were specifically about the labelling process.

The time estimated to complete the questionnaire (including the component-specific part) was around 20 minutes , but that number has not been verified. The small numbers of NFs concerned by this pilot phase cannot make the survey statistically representative, but that it is rather carried out to identify misunderstandings/inaccuracies/bottlenecks in the process and make it smoother for the next stage. Any of these issues mentioned by experienced NFs would make it quite certain that less experienced NFs would encounter difficulties in the implementation. The outcome of the questionnaire is precious for getting recommendations for improvements. The questionnaire was set up as a Google form and distributed via email to the representatives of the National Facilities participating in the labelling pilot. The questionnaire was completely anonymous for guaranteeing the highest possible freedom in the NF replies. Less than two weeks were needed for getting back the filled questionnaire from 11 (out of 15) participating NFs, demonstrating the high level of commitment of the NFs.

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4.2. Outcomes

Most of the experienced NFs participating in the labelling pilot and therefore answering to the questionnaire were aerosol in-situ (about 54%) and aerosol (about 45%) or cloud (about 54%) remote sensing facilities, representing the actual distribution of foreseen NFs operating such components. All NFs submitted the Step 1a application for only one component, except one NF for two and another one for three components.

In the following, a summary of the outcome of the NF questionnaire is reported. A detailed question-by-question analysis is provided in Annex 1.

In summary, the communication and roles of the TCs and DC units with NFs were well received, however there was a certain feeling that some issues lacked clarity for NF principal investigators (PIs) answering the questionnaire. There is a clear need to enhance the level of confidence toward ACTRIS workflow and rules. The communication toward externals was also seen as an aspect to be improved.

These are the main points on which some improvements/relevant comments were reported:

- **Identifying and involving directly reference persons at the NF for each component is important.** This is a clear message coming from the NF audience through the questionnaire. Many National Facilities comprise several ACTRIS components, and technical knowledge and expertise are needed for some specific questions in the labelling process. The direct communication between TC/DC and specific component reference persons at each NF would foster efficiency in the labelling process itself and minimize the risk of losing information.
- **Emails are still considered as the most efficient communication channel.** It is acknowledged that a great effort is done in the ACTRIS community to organize meetings, webinars, and workshops to strengthen community cohesion and to facilitate information sharing. However, the NF replies clearly indicate that direct communication with the NF PIs is still the preferred channel of communication when an action is required. This is relevant and to be taken into consideration in developing the workflow for the labelling process and beyond.
- **The way in which documents are archived and made available should be improved.** Some of the participating NFs consider Standard Operating Procedure (SOP) documentation difficult to find. Keeping in mind that experienced NFs participated in the pilot labelling, it should be considered as essential to improve the accessibility of SOPs on the ACTRIS webpage and its subpages.
- **Requirements for observational sites to be eligible as NF Observation Platforms are seen sometimes as too strict.** It was suggested to adopt a compromise between the high quality of measurements and feasibility. In addition, some NFs reported that modifications to requirements over time pose severe problems at stations and should be avoided.

The participating NFs did not experience any trouble in providing information about Step 1a and needed typically less than one week to complete the task. Overall, the feedback from the participating NFs was very positive and encouraging for the next phase of NF labelling, which ACTRIS will start in the near future.

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5. Feedback from CFs and RI Committee

5.1. Set up of the questionnaire

The questionnaire to the Central Facility leaders and Unit Heads and to the RI Committee members was prepared by the ACTRIS Interim Head Office and distributed online at the end of April 2023, with a two-week response time that was later extended to three weeks. The questionnaire was shorter than the one targeting the NFs and included general questions on the respondent's role and open questions on the clarity of the roles, the labelling workflow, and the labelling interface. In all cases respondents were also encouraged to provide suggestions for improvements. In addition, there were specific questions about the duration of the labelling process from the respondent's perspective and whether the NFs should nominate a specific PI for each component to facilitate direct communication thus improving process speed and accuracy.

5.2. Outcomes

The feedback received from this questionnaire was in many parts similar to that received from the NFs. Some of the answers to the open questions were more related to other questions or to issues outside the actual pilot labelling process, yet still linked to labelling in general. These answers are considered in the analysis of the questionnaire in Annex 2 and in the summary of the feedback provided here.

In total, 12 answers to this questionnaire have been received. The answers were anonymous but can be grouped here based on the information the persons provided. The answers originated from all CFs, except DC and CIS, and from RI Com members not affiliated to any CF. More than half (7/12) of the answers came from CF Unit Heads, one from a CF leader, one from a CF project manager, and two from NF representatives at RI Com. One respondent could be linked to a specific CF Unit, but his/her role within the Unit could not be derived from the questionnaire answers. Some of the respondents had participated in the labelling of only one facility, whereas in the other extreme others had been involved in the labelling of all facilities and components participating in the labelling pilot. This is due to the different roles in the process (TC representative vs RI Com member for instance) and is also linked to the average duration it had taken the respondent to fulfil his/her tasks. The RI Com members involved in the labelling process of all facilities and components needed only about one hour or less per component, whereas some TC representatives involved in physical audits of the facilities spent up to one week or more per component.

The roles and responsibilities of the different actors were perceived as clear. The only unclarity was raised about the role of RI Com, which seemed to be to just put an official stamp for work done by others (mainly the TC and NF). On the other hand, if the role of RI Com was to be extended, it would create a lot of work for the RI Com members as they are involved in the labelling of every facility and component. It was suggested that the NF representatives of the RI Com would be somehow more involved in the labelling of their respective components.

The workflow was considered a bit less clear, even though still more on the clear than unclear side. The suggestions included participation of the respective TC at the very beginning of the process to avoid

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misunderstandings from the NF side. There were also concerns and suggestions related to labelling Step 1b, which has not been established yet.

The interface was considered clear, but it also received the largest number of suggestions for improvement. There were several comments asking to make the interface more flexible by allowing edits and corrections after document submission, granting permissions for removing incorrect documents to individuals other than just the admins, and providing more rights for accessing the data. On the other hand, also more automatic push of information to other systems and automatic notifications were asked for. One specific case concerned the confusion created by a facility that appeared as two in the process, due to multiple hosting countries. Although not about the interface itself, this issue pertains to how facilities are handled in the NF database.

Finally, the component-specific PIs were clearly seen as something to be added, despite acknowledging that keeping their information up to date is a burden. Besides, unique identifiers such as Persistent Identifiers (PIDs) for the identification of NFs and their connections to instruments were deemed necessary. In general, the labelling pilot was considered as a highly valuable and beneficial exercise.

6. Summary and conclusions

The feedback received from all parties involved in the pilot labelling has highlighted some common issues that need to be considered. Some of these issues were related to misunderstandings and lack of information regarding the appropriate actions, timing and location. These problems can be solved by providing clear instructions in a guiding document, improve the instructions and the logical sequencing in the labelling interface, and potentially offer a tutorial video or similar resources. Even though communication was considered to be good, it can be improved. As this was the pilot phase for testing the workflows and tools, it is clear that not all information and tools are in place yet.

Increased flexibility for modifying or replacing documents within the interface was wished for. However, one has to keep in mind that the process needs to be transparent as well. For instance, if document B is a response to document A, it must be clear which version of document A is referred to. Additional access rights to view information were asked for by several persons for different reasons.

The process itself was considered to be clear and not too demanding in terms of providing and analysing the information, as well as obtaining the commitment letter. The commitment letter process varies a lot between countries, as each country has its own procedures for such commitments.

Some important individual remarks were brought up during the feedback process. Adding a contact person or PI for each component within the NF was seen as beneficial in both questionnaires to improve the exchange of information. Additionally, concerns were expressed in both questionnaire results regarding the changes in requirements. Although not directly related to the labelling process itself, they need to be taken seriously. Clear and transparent processes for changing the minimum requirements, involving all the affected parties, need to be developed. More automatic exchange of information across

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different systems including facility and instrument PIDs, Application Programming Interfaces (APIs), automatic notifications and document generation was also requested.

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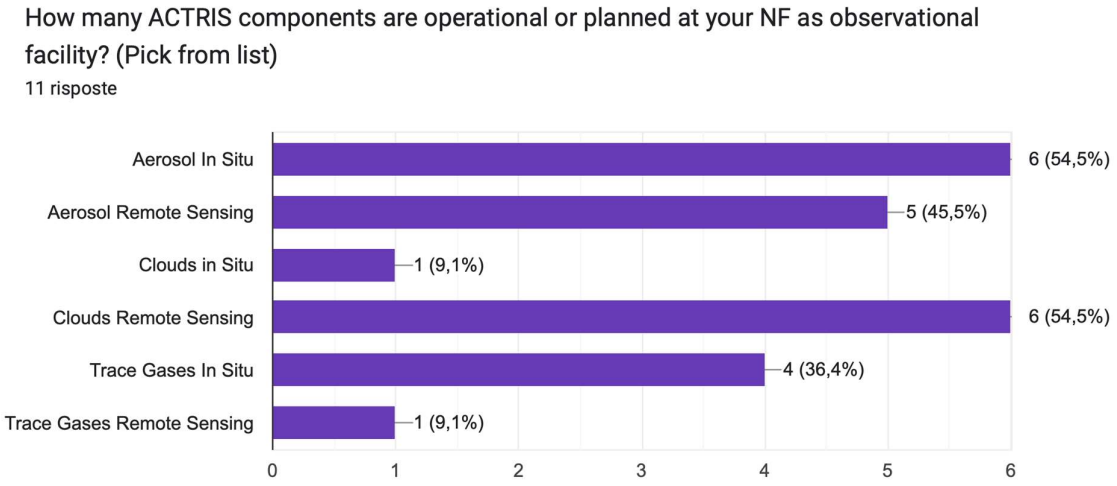
Annex 1: Questionnaire and results from NFs

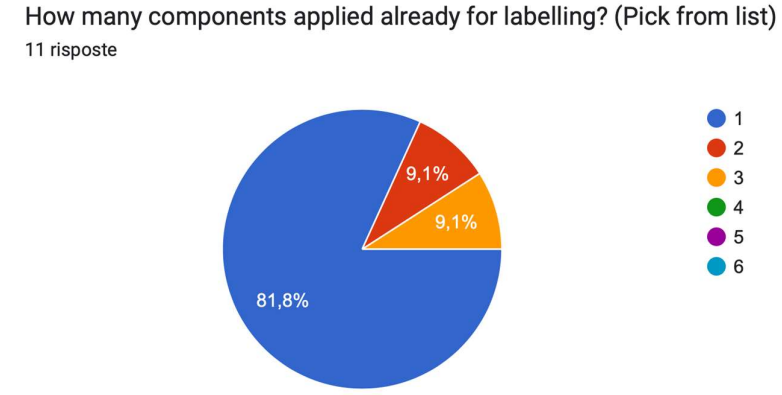
In the following, a summary of the outcome of the questionnaire to the NFs is reported with detailed answers and analysis question by question.

General questions

Question 1: How many ACTRIS components are operational or planned at your NF as observational facility?



Question 2: How many components already applied for labelling?



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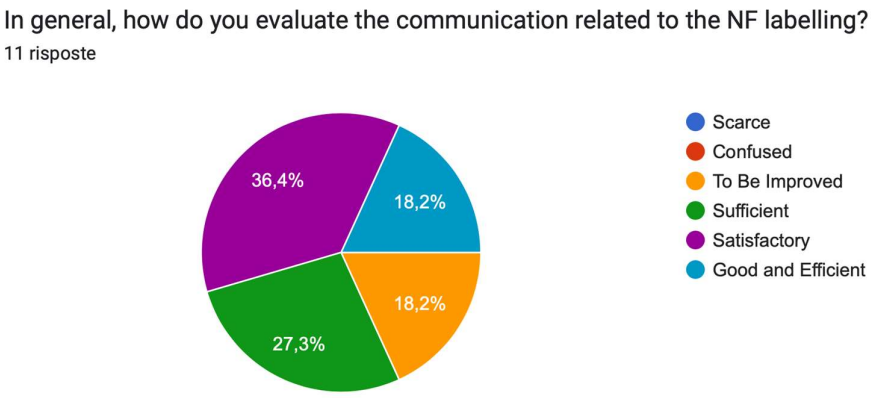
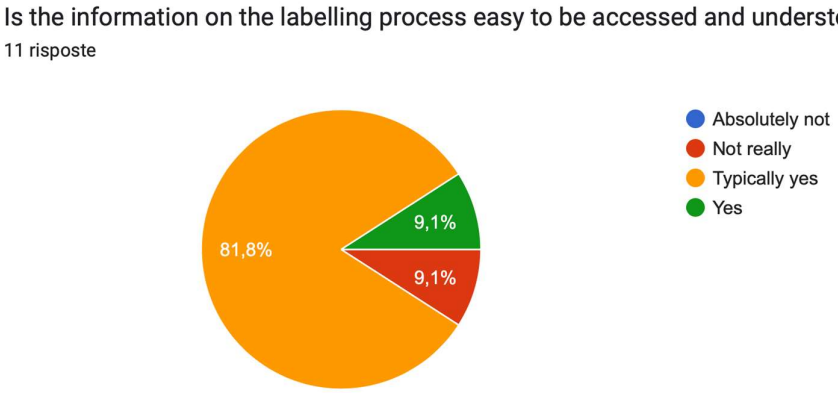
Communication

Question 3: In general, how do you evaluate the communication related to the NF labelling?



More than one half of the respondents judged the communication about the labelling process more than satisfactory, while only 18.2% (i.e., 2 out of 11 replies) considered important improvements. Suggestions for improvements are related to communication that feels still ad hoc and not planned, and about technical improvements for specific tools developed at the TC.

Question 4: Is the information on the labelling process easy to be accessed and understood?



Strong positive comments about the information about the labelling process were collected. There is only 1 negative reply, however additional suggestions were collected:

- The timing for uploading the upgrade plan on the platform is not well defined.

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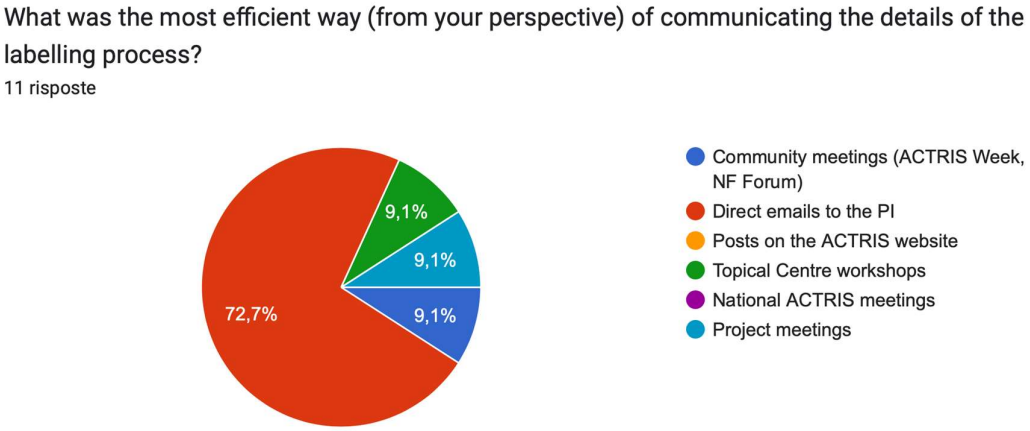
- The need for accessing to the labelling procedures on the website.
- Depending on the component, the process can be quite different, making it challenging to determine what required information/improvement is critical versus beneficial.

Question 5: Which was the most efficient way (from your perspective) of communicating the details of the NF labelling process?



While meetings and workshops are important in disseminating information, it is clear from the reply to this question that direct communication to the PI still remains the preferred channel of communication within the community. This is relevant and to be taken into consideration in developing the workflow for the labelling process and beyond.

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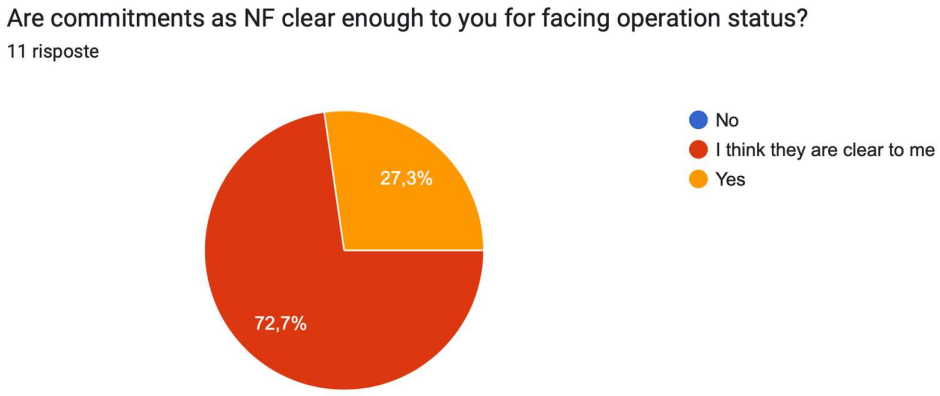
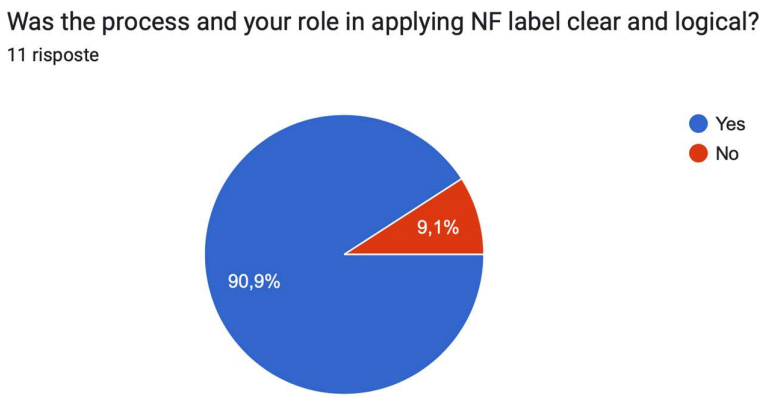
NF labelling process

Question 6: Are commitments as NF clear enough to you for facing operation status?



Nobody replies no, but a large part of the NFs has a feeling of having clear ideas but not sure of their validity. The same will be evident also in the following, highlighting a certain level of lack of confidence among NFs toward the labelling process.

Question 7: Was the process and your role in applying for the NF label clear and logical?



Here, only 1 negative reply was collected and associated with a remark regarding the use of an additional specific component portal for collecting info, which was confusing. It was suggested to link the central labelling portal to the specific component one.

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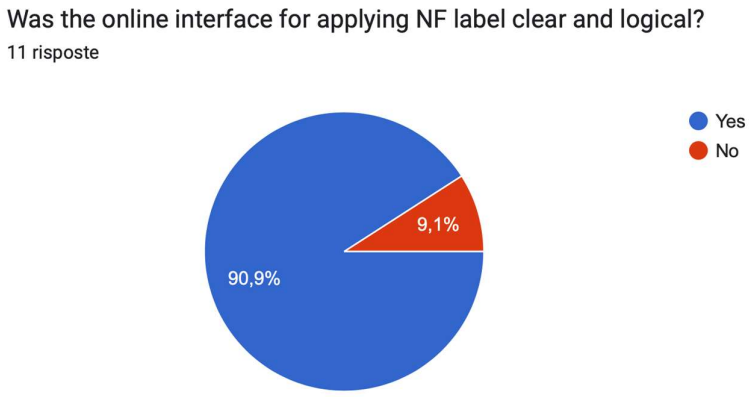
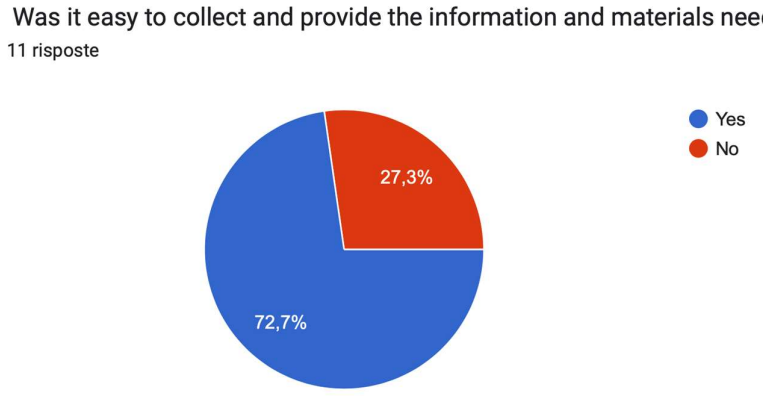
Question 8: Was the online interface for applying for the NF label clear and logical?



Same as above in terms of negative reply and comments.

Question 9: Was it easy to collect and provide the information and materials needed in Step 1a?



Most of the experienced NFs judge it easy to collect the needed info for Step 1a.

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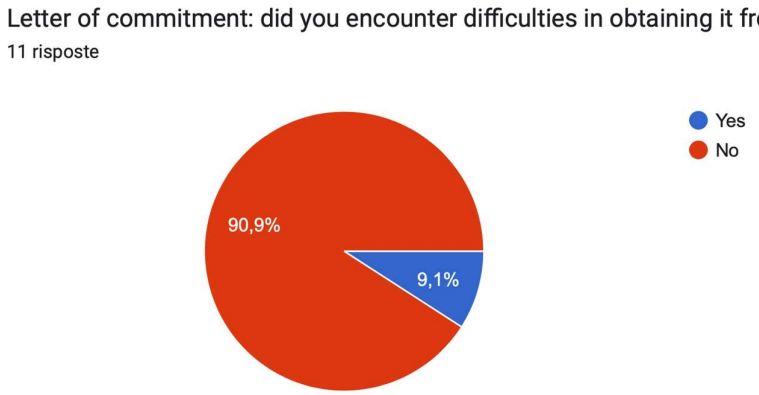
Question 10: How much working time at your NF did it take to collect and provide all the materials for Step 1a?

- Some hours - 3 replies
- 1-1.5 dd – 3 replies
- 2-3 dd – 3 replies
- 1 week – 2 replies

The time needed for applying to Step 1a ranges between a few hours to 1 week.

Question 11: Letter of commitment: did you encounter difficulties in obtaining it from your RPO?



Only in 1 case the letter of commitment was difficult to obtain and the reason mentioned was as follows:

- Unfinished and not straight-forward accessible supplementary documents: ACTRIS data policy, access and service policy, management plan

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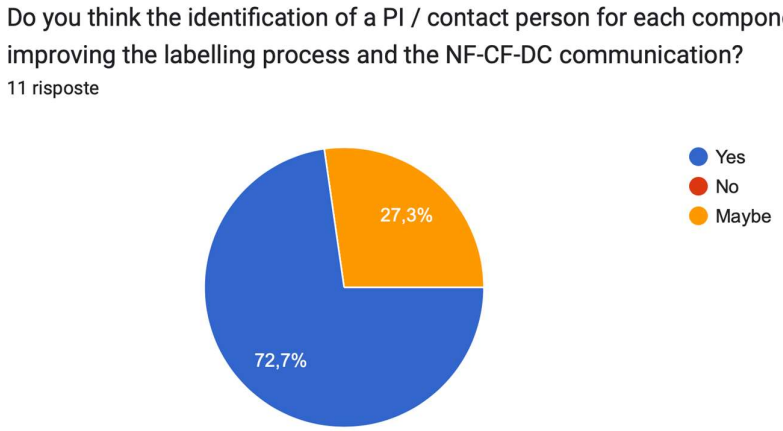
Question 12: Do you think the identification of a PI/contact person for each component would be important for improving the labelling process and NF-CF-DC communication?



This is a clear message coming from the NF audience: it is requested to have a direct communication between TC-DC and PI for each specific component and this applies also to the labelling process. This is confirmed also by the further suggestion coming at this point in the questionnaire:

It was sometimes difficult to judge from email recipient lists whether the component responsible persons had obtained the message, or whether the NF PI should forward it.

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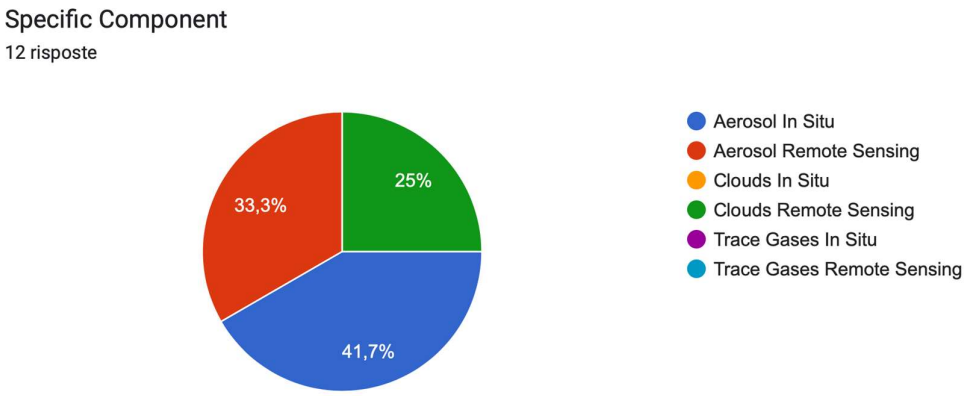
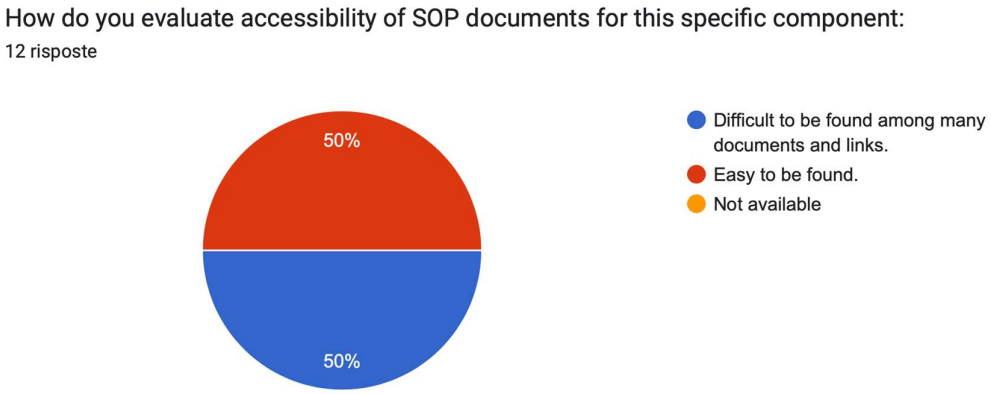
NF components - General questions

Here the percentages of the different components participating in the component-specific questionnaire are reported:



Question 1: How do you evaluate accessibility of Standard Operating Procedures (SOP) documents for this specific component?



One half of the participant NFs consider documentation difficult to find. This aspect must be improved and is addressed after question 2 in this section.

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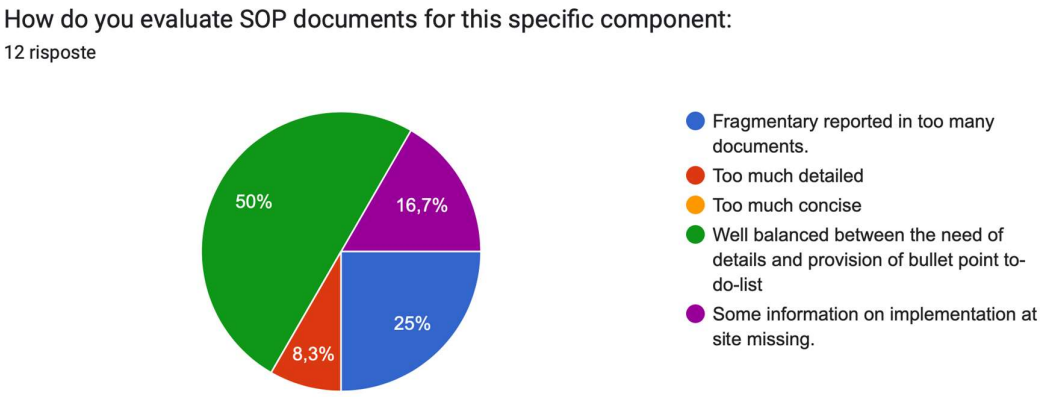
Question 2: How do you evaluate SOP documents for this specific component?



Also here, even if the SOP documents are ok for one half of the NFs, still problems are identified by the other half, and therefore this is an aspect to be improved, considering that experienced NFs are here involved, and therefore the difficulties will increase for less experienced ones.

Some suggestions have been collected about this aspect:

- The possibility of being able to access the detailed information on the labelling procedures on the website.
- Not sure if there are already easier ways to do it, but we did the usual thing and compared the GAW- guidelines with ACTRIS recommendations.
- The document "Preliminary ACTRIS recommendations for aerosol in-situ sampling, measurements, and analyses" provides a useful overview of the requirements. It will be helpful to include more links for each instrument/variable's guidelines.
- Link the SOPs to the main page of CCRES.
- Official ACTRIS SOPs should be available on the main CARS webpage.
- I had to think quite hard to think what is meant by SOP, this is a bad sign isn't it?
- My main problems with the general ACTRIS website, which I find not very well organized and it's difficult to find things.

The main outcome is that accessibility of SOPs on ACTRIS webpage (and subpage) could be improved.

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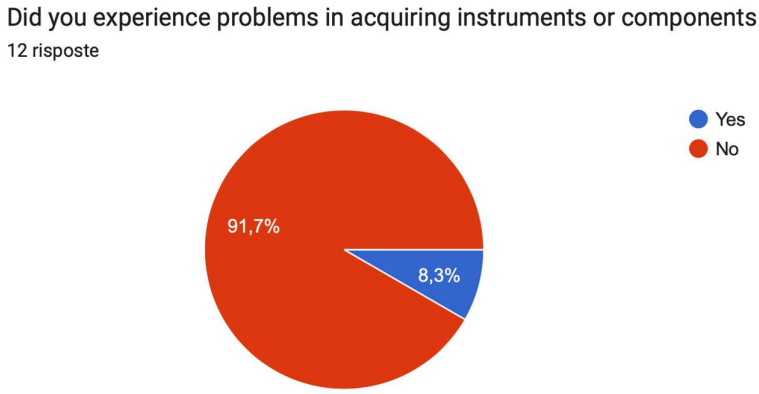
NF components - Experience in setting up your NF

Question 3: Did you experience problems in acquiring instruments and components compliant with CF request?



One NF encountered problems in acquiring components compliant to ACTRIS standards reporting the following issue:

- Some companies state that they are ACTRIS compliant even-though it is not such a list.

This could be a severe issue in particular for non-experienced NFs and should be addressed somehow by ACTRIS.

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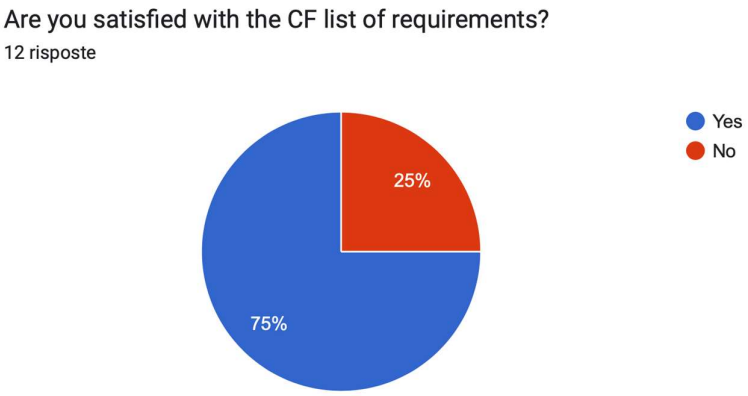
Question 4: What was the main difficulty in acquiring the instrumentation?

Answer	# of replies
Limited financial resources and high cost	5
Constraints in the tendering process	3
we had more or less all the instruments already installed	1
Cloud radar delivery delays due to the Ukraine war	1
only minor/local ones: prolongation of the procurement procedures; fast ageing of the equipment; increasing price of equipment form the initial quote	1
See previous answer about companies declaration of ACTRIS compliance	1
Too demanding technical requirements limiting the potential provider	0
Lack of consultancy from Topical Center and/or Data Center	0

Limited financial resources and constraints due to the tendering process are the 2 most relevant issues.

Question 5: Are you satisfied with the CF list of requirements?



One fourth of the NFs was not satisfied by the list of requirements. This is a relevant point and suggestions/comments about this point are the following:

- This starts to be an exclusive club. Sure, the quality requirements need to be there, but at some points it would be useful to consider feasibility vs. optimum requirements, and whether it is worth investing much time and money to achieve the last 1% of data coverage.

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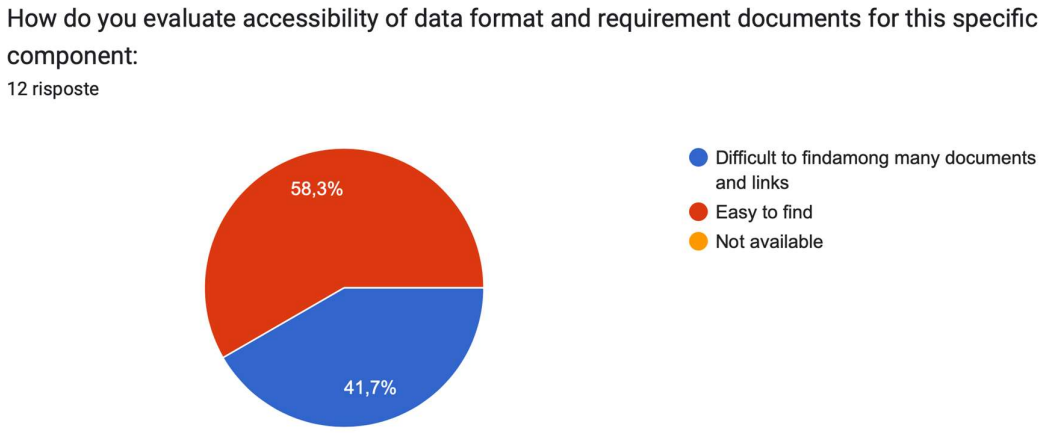
- New requirements have been included even though they were not initially included in the baseline document.
- Some unexpected news that acquired instrumentation will need to be replaced with another system - changing requirements will be a challenge.
- The request for a <300 m full overlap range is very hard to achieve.

As summary, 2 main points are highlighted:

- Changes in requirements pose severe problems at the sites and should be avoided.
- Strict requirements even if needed from a scientific point of view would reduce the number of observational sites. A compromise should be found.

Question 6: How do you evaluate accessibility of data format and requirement documents for this specific component?



Even if most of the NFs are satisfied with the findability of documents, here again an issue is reported about the difficulty to find information among the large number of documents.

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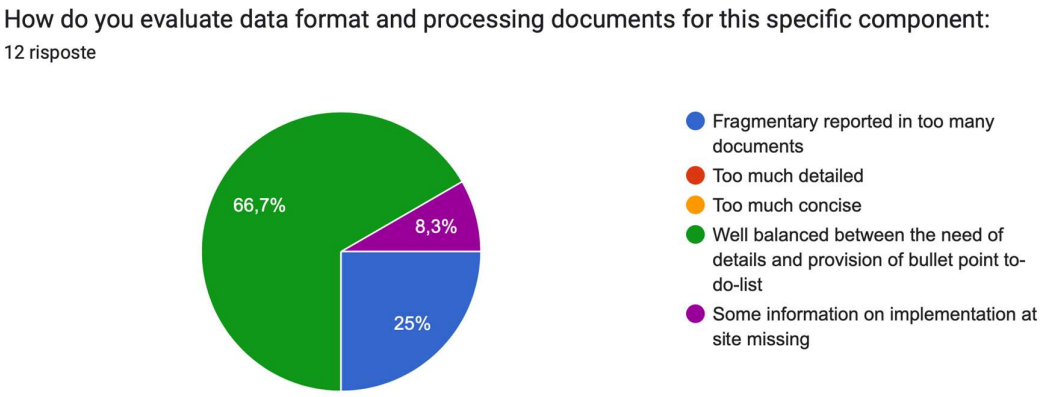
Question 7: How do you evaluate data format and processing documents for this specific component?



Data documentation is well balanced for most of the NFs but there is still room for improvements.

The following comments/suggestions are reported:

- One website/document which summarizes (give available links to) all information together, will be helpful, starting from the requirements, recommendation related to different issues (e.g., drying system/intervals) to recommended acquisition parameters, data requirements and data formats.
- Again, the problem is not with the documents themselves, but with the ACTRIS website organization.

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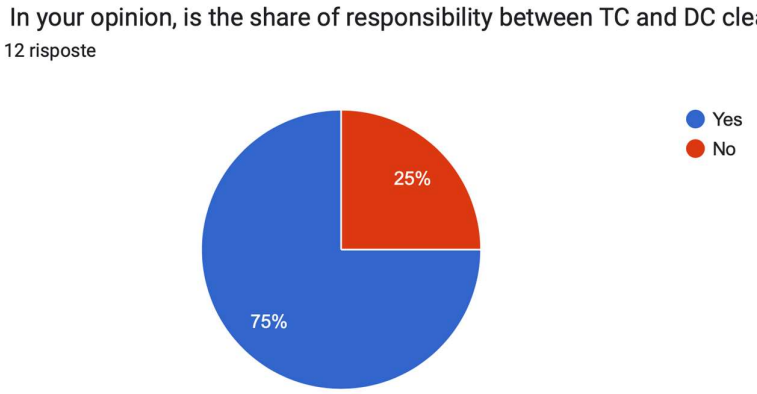
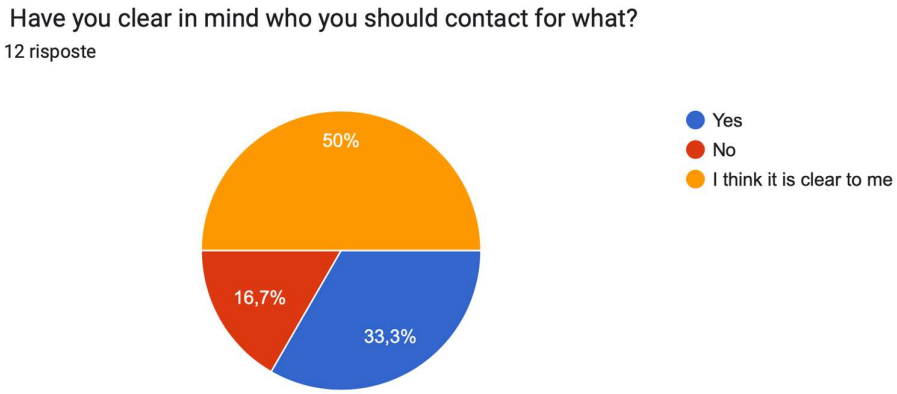
NF Components - Communication

Question 8: In your opinion, is the share of responsibility between TC and DC clear for your component?



Question 9: Have you clear in mind who you should contact for what?



Here as above, NFs do not declare that something is clear, but that they think it is revealing a certain lack of confidence with the organization and sharing of TC -DC responsibility. This is confirmed by the following comment on this question:

- I am not really sure what issues can be discussed with DC and what help for PI and NF they offer.

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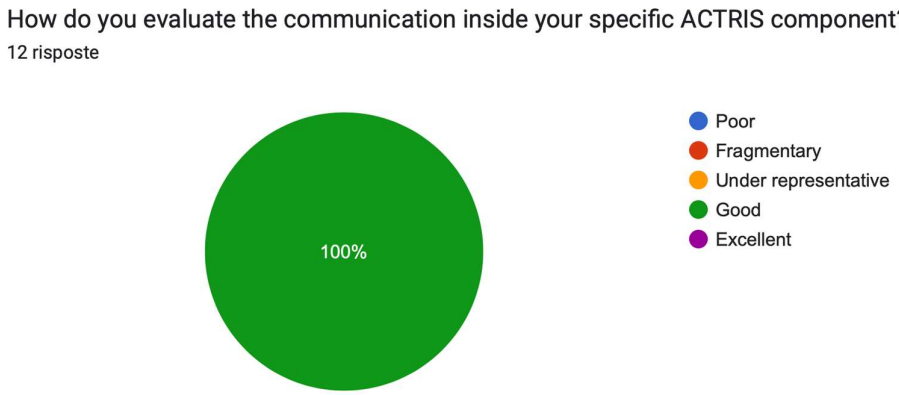
Question 10: How do you evaluate the communication inside your specific ACTRIS component?



Everyone is satisfied with the communication inside the specific ACTRIS component. This is a great result!

However, the NF PI community provided suggestions for improvements:

- Getting a bit mixed messages in terms of minimum requirements, and no clear understanding what should be followed.
- All announcements related to different meetings/workshops will be helpful to be also on the ACTRIS main website.
- Info should not only go to NF PI but also to PIs of instruments. I am not sure if this is the case. Communication between DC and TC seems to be disconnected from PIs of NFs. I am not sure if this is a good thing.

These suggestions are linked to some points raised before about the ACTRIS website, on one hand, and the specific component PI as key for the direct communication on the other hand.

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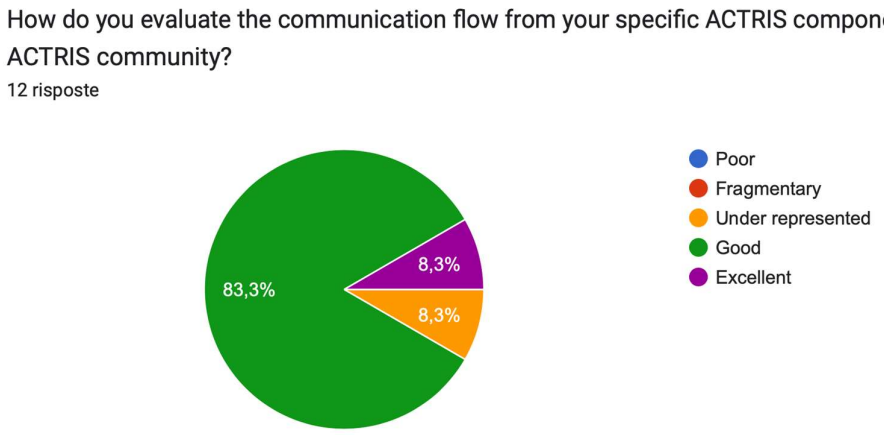
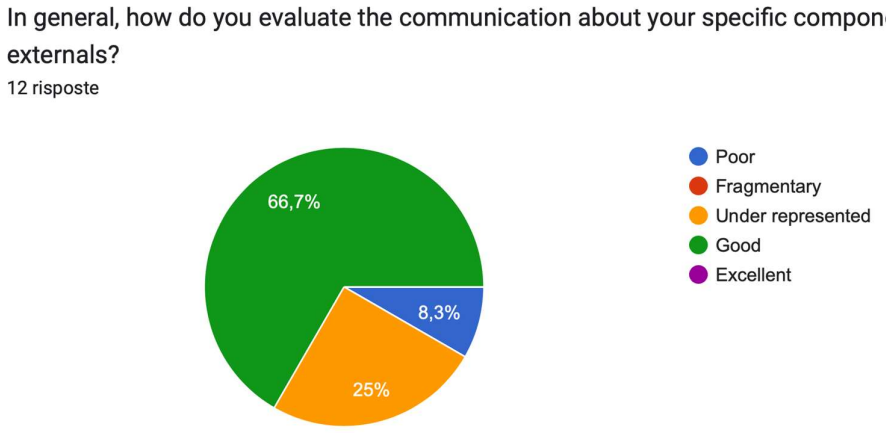
Question 11: How do you evaluate the communication flow from your specific ACTRIS component to the general ACTRIS community?



Only 1 NF replied that the communication toward ACTRIS community for its own component is underrepresented. However no comments were provided about this point.

Question 12: In general, how do you evaluate the communication about your specific component toward externals?



Some improvements are needed about the communication towards external communities: more than 1/3 of NFs had this impression and this should be taken into consideration. However, also on this point no suggestions were provided.

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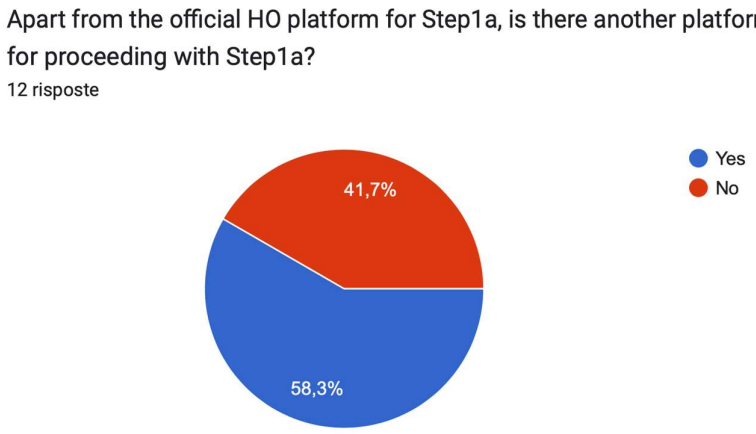
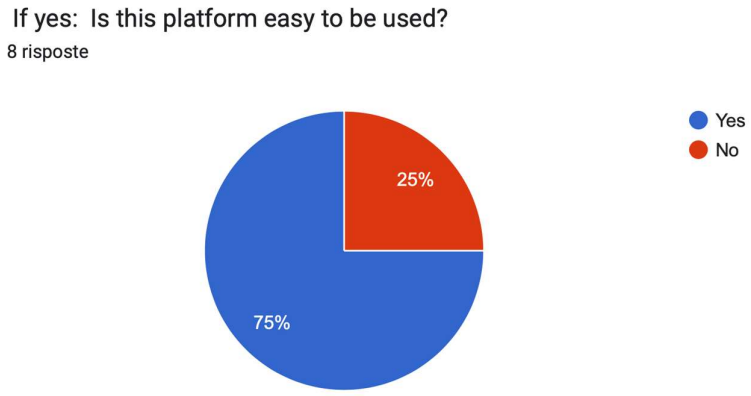
Labelling – Component specific

Question 13: Apart from the official HO platform for Step 1a, is there another platform available for collecting info for proceeding with Step 1a?



Question 14: If yes: Is this platform easy to be used?



Question 15: Was the form clear?

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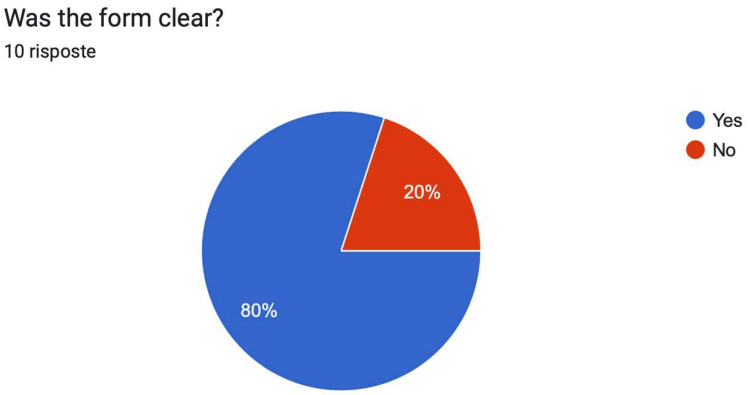
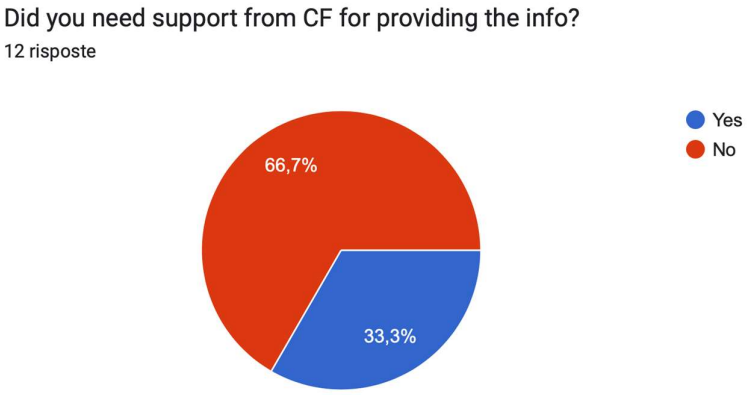


Some NFs experience a lack of clarity in the specific component platform and related forms, the following comments and suggestions have been collected:

- How to use CARPORT was unclear. (Note: CARPORT is the portal developed by TC of aerosol remote sensing for handling labelling procedure)
- The information was collected on a google spreadsheet and an account on the ECAC (European Centre for Aerosol Calibration) server.
- The info has been filled in in a google spreadsheet.
- It is not easy to update information.

Question 16: Did you need support from CF for providing the info?



Only 1/3 of NF needed support from CF for filling in all the information needed for Step 1a and (see below), when needed they were satisfied with the support from CF.

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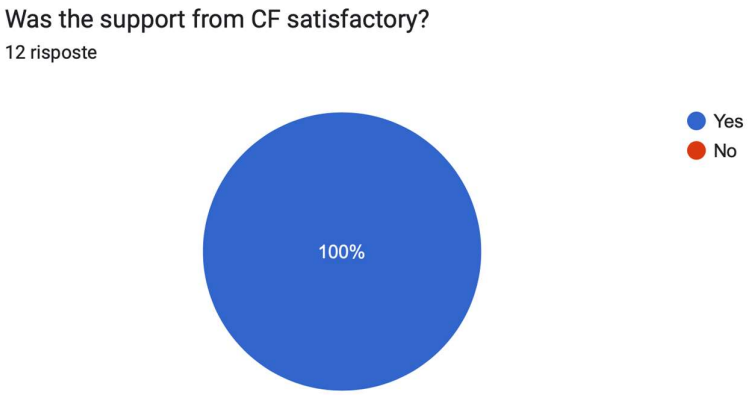
Question 17: Was the support from CF satisfactory?



On the provision of info for Step 1a, the following comments are collected:

- I understand that a collection of excel- files might not be an optimum solution for collecting information, but for a user it was still simple and easy.
- After filling in all documentation online, I was approached by CF to clarify some small points. This went very efficiently!

Question 18: How much time did you need for providing requested info for this component on the specific platform?

- Some hours - 2 replies
- 1-1.5 dd – 4 replies
- 2-3 dd – 4 replies
- 1 week – 1 reply

The time needed at a site for the technical part of Step 1a is less than 3 days in most cases (only 1 exception). This is an important measure of the clarity of the request from the CF-DC.

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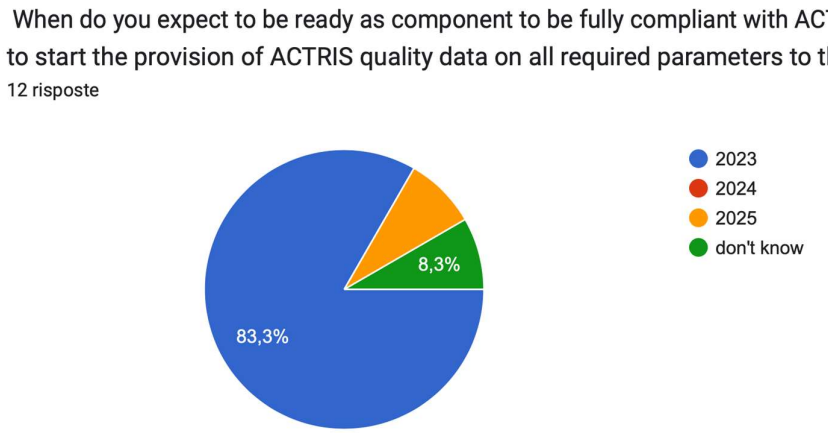
Question 19: When do you expect to be ready as component to be fully compliant with ACTRIS requirements and to start the provision of ACTRIS quality data on all required parameters to the DC?



Even if most of the pilot labelling NFs plan to be ready in 2023 for the Step 1b, 2 of them are still far from it.

Question 20: If you are not planning to be fully compliant in 2023, what are the main reasons for the delay?

Here, replies were expected only from NFs not planning to be ready in 2023, but most of them replied. A list of reasons that could be an obstacle for being ready soon is provided here:

- Time needed for finalizing instrumental set up.
- Still not sure whether the NRT (Near Real Time) data flow needs to be implemented, and how to arrange it in an optimum way for both ACTRIS as well as our RPO.
- Resources (in terms of budget and/or personnel) needed for going toward operation.
- Delays may be only in the case of force majeure (war, global crises, personal issues).
- If being fully compliant includes full overlap at <300 m, the problem is the budget.

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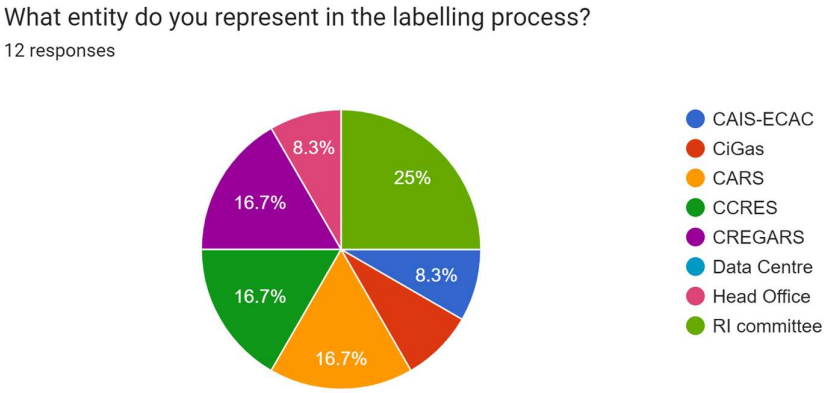
Annex 2: Questionnaire and results from CFs and RI Committee

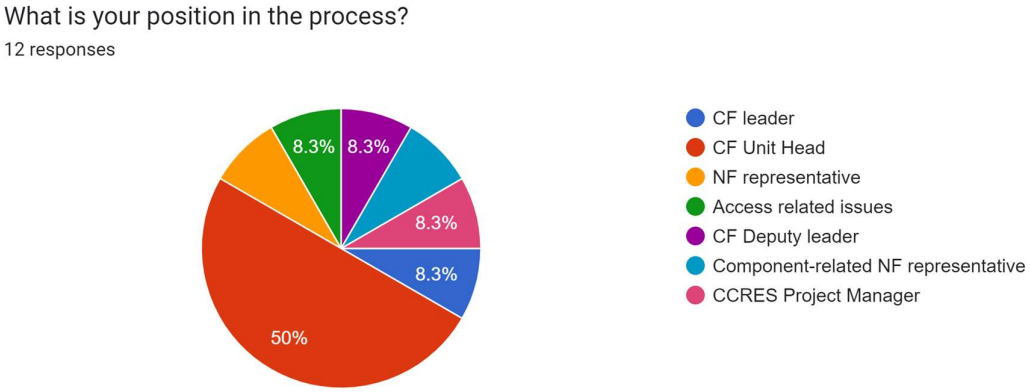
In the following, a summary of the outcome of the questionnaire to the CFs and RI Com is reported with detailed answers and analysis question by question. The questionnaire was about the work done for the pilot facilities in labelling Step 1a.

Background questions

Question 1: What entity do you represent in the labelling process? (multiple choice)



Question 2: What is your position in the process? (multiple choice including other, what?)



Analysis comment: The CF deputy leader is always the Head of some CF Unit.

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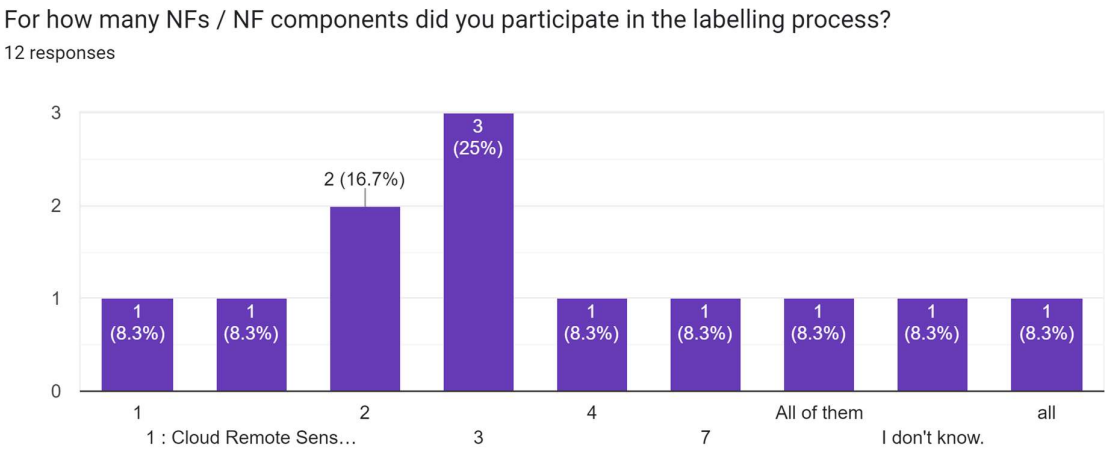
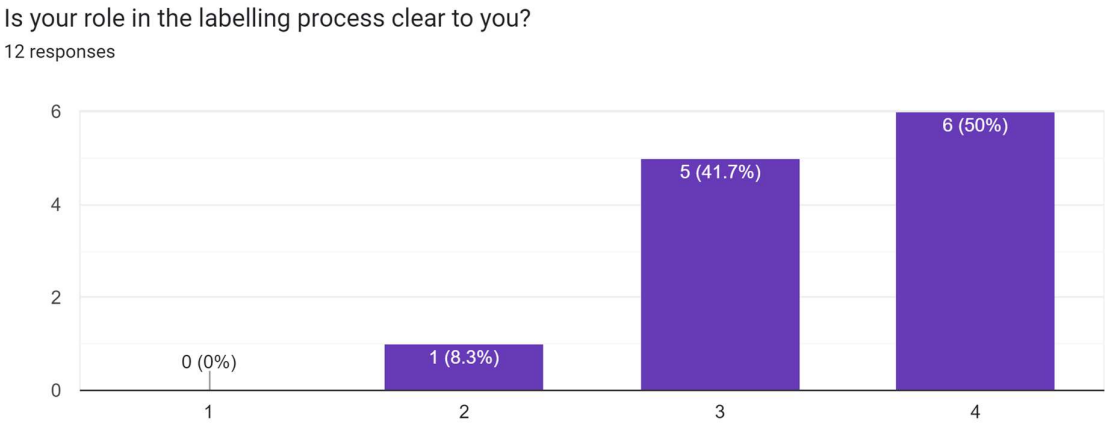
Question 3: For how many NFs / NF components did you participate in the labelling process? (short open answer, numbers expected)



Analysis comment: The two first columns in the figure above are both for one component, whereas the three last ones are most likely from RI Com members that are expected to participate in making the recommendation for each NF component.

Roles in labelling

Question 4: Is your role in the labelling process clear to you? (scale 1 = most unclear to 4 = most clear)



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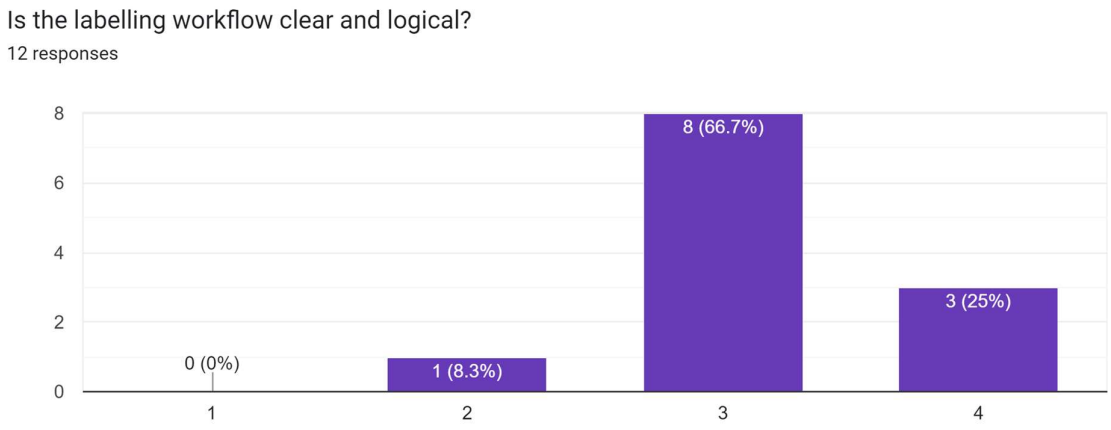
Question 5: How would you improve the process by modifying mandates / roles of the different parties? (open answer)

There were five answers of which two gave suggestions, one of them being related to the roles. The role of RI Com is quite vague, as the TC does the actual analysis and HO checks for technical eligibility. The role of RI Com seems to be mainly to approve what has been done by the others.

Labelling process

Question 6: Is the labelling workflow clear and logical? (scale 1 = most unclear to 4 = most clear)



Question 7: How would you improve the labelling workflow? (open answer)

There were eight answers including one from question 5. Some of the answers were about the labelling interface or did not give concrete suggestions. The suggestions proposed the involvement of the respective TC already at the very beginning to guide the work to the right direction and clear milestones including the possibility to reject a facility during Step 1b.

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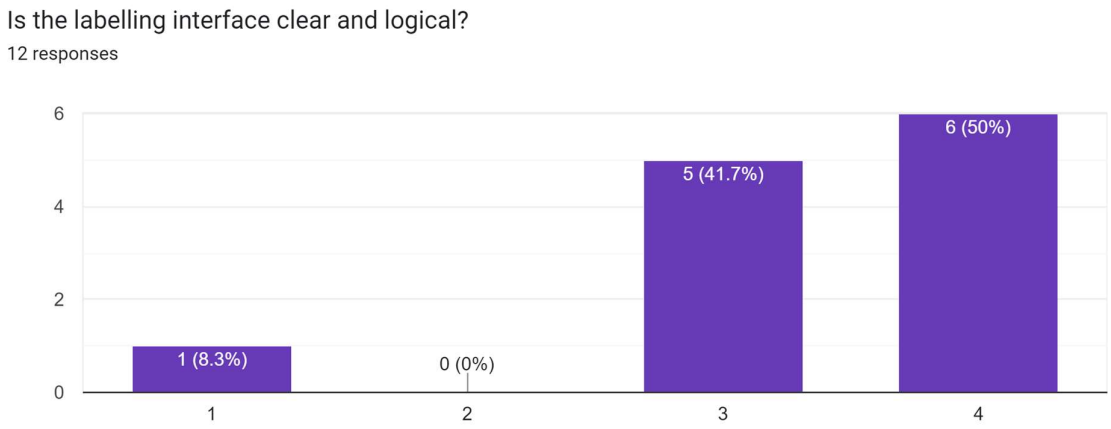
Labelling interface

Question 8: Is the labelling interface clear and logical? (scale 1 = most unclear to 4 = most clear)



Question 9: How would you improve the labelling interface? (open answer)

This question resulted in the longest and largest number of open answers, especially when interface-related answers from other questions were included. The suggestions asked for more automatic steps, clarifying the order of steps, and more flexible search options. Also, the ability to modify documents after the initial submission was requested, as well as the ability to download summary documents (which has so far been limited to specific user roles). In general, the limitation on who has access to what information seems to be too strict for many. One suggestion was related to the few facilities where the same component is hosted by more than one country. During the pilot phase, they have been listed as two separate facilities, creating confusion.

Other questions

Question 10: How much working time did it take you to perform the actions expected from you for the labelling of one NF? (open answer, numbers expected in time units)

The answers varied from 15 minutes to 15 weeks with most typical answers being around either 1 hour or 1 to 5 days. The large variation results from the person's role in the process, how the process is done at each TC and whether the person has multiple roles. The minimum corresponds to RI Com members who are expected to read the summary documentation on the component and to discuss at an RI Com meeting and give a recommendation whether the facility should be initially accepted. The maximum represents a TC leader or Unit Head from a TC that performs a physical audit at the facility to be labelled. It is also

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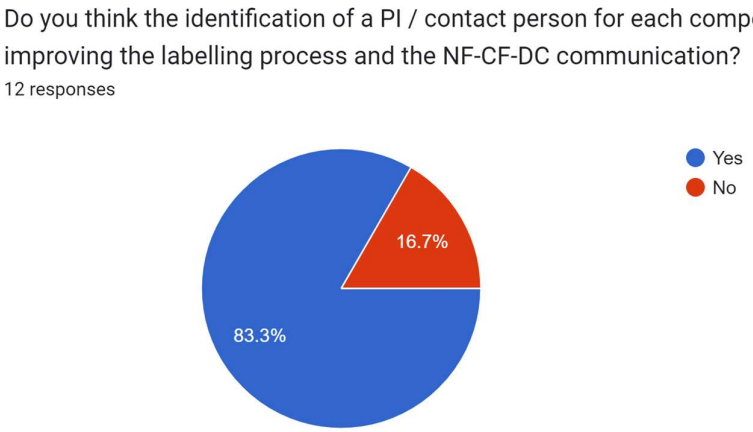
unclear whether the respondents have included only the real working time or the duration of the TC process for one NF.

Question 11: Do you think the identification of a PI / contact person for each component would be important for improving the labelling process and NF-CF-CF communication? (yes/no)



Question 12: Free feedback on the labelling pilot. (open answer)

For the open feedback there were eight answers. It was noted that the pilot has been very useful and that it takes a long time for both the NFs and CF to perform their expected tasks. It was also pointed out that as Step 1a can be passed with convincing plans, Step 1b will be more laborious when following that those plans are actually executed. The component-specific PIs were seen as beneficial but also difficult to maintain the information up to date.

Beyond the actual labelling there were worries that the requirements change along the way and cause additional burden and costs to NFs. Also, the labelling schedule proposed by the countries several years ago was considered as an artificial obstacle hindering the labelling of some otherwise ready facilities. Finally, the need for instrument database and unique instrument identifiers was recognized as a tool for tracing back the instrument history and related measurements.

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