Deliverable 2.5: Methodology and criteria for validation of ACTRIS operation support and service provision

Authors: Giuseppe Gargano, Silja Häme, Pirjo Kontkanen, Niku Kivekäs, Doina Nicolae, Sabine Philippin, Ulla Wandinger, Carmela Cornacchia

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1. Introduction

Keeping the operation support and service provision up to date is considered crucial for ACTRIS to hold the position and a leading role in the global landscape of environmental research and respond to current and emerging scientific challenges related to air quality, climate and related areas. It implies that during the ACTRIS lifetime changes will happen in the scope of operation or in the RI organization. Conditions for implementing the ACTRIS mission and vision will need to be adjusted over the years, and therefore specific strategic goals for the short-medium term will be periodically set in the 5-year ACTRIS work plans and the related financial plans.

Although some procedures for contingency and recovery actions have already been set, and mechanisms for upgrading ACTRIS to emerging user needs have been proposed, changes in the scope of the operation or in the organization of the facilities require that all relevant technical, financial, administrative, legal and strategic aspects of the RI operations are verified.

In particular, a validation process shall be started to verify whether the ACTRIS facilities are in a position of providing the planned operation support and services to users, and to check that the planned activities are feasible, necessary and adequately dimensioned, and that the respective costs are justified, reasonable and well defined. Ultimately, the validation is also intended to assure the ACTRIS member and observer countries on the reliability of the estimation of the operational costs that need to be sustained by their financial contribution or other necessary funds.

However, an extensive validation of all ACTRIS activities is complex and time consuming. A first validation started in 2019 and was closed at the end of 2020 to confirm the relevance of the activities and the sustainability of costs for the Central Facilities' operation support and partially for service provision to prepare the 5-year financial plan for the ERIC Step 2 submission.

The purpose of this document is to provide a methodology for a recurrent validation process that clearly defines the principles and the scope of the validation, sets straightforward and timely tasks and procedures, and identifies the bodies involved in the process.

2. Subject and scope of the validaton

Subject to the validation process shall be both: the activities carried out by the Central Facilities (CF) (management, operation support, services and any new scientific and technological development carried out by the facilities to ensure their progress and preserve their state-of-the-art); and the services that the National Facilities (NF) provide for users under the ACTRIS ERIC access framework.

These activities will be regularly checked as part of the whole RI through the ordinarily evaluation of the annual plans and by the means of reports and KPIs specifically developed for the ACTRIS ERIC monitoring. A new round of the validation process will be performed only when the relevant changes and specific circumstances listed below occur:

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1. Significant changes in the scope of operation and/or the provision of the ACTRIS services (already operational or ready to be operational) impacting the facilities' operating costs;
2. A significant change in the organization of the ACTRIS Facilities, to ascertain whether the planned support will be still achievable after the planned reorganization of the CF units (for example, withdrawing of one of the existing CF unit or addition of a new CF unit, and subsequent reorganization of the activities and workload between the remaining CF units, etc.);
3. The execution of those mechanisms and procedures that already set precise plans and well defined scope of the validation for including new variables and upgrading ACTRIS to emerging user needs or for carrying out contingency plans and related measures when high-level risk occurs.
4. Requests from the ACTRIS ERIC General Assembly (GA) for its intended purposes.

Motivations for starting a new validation round shall be promptly communicated to the ACTRIS Head Office (HO) by the relevant ACTRIS representing bodies.

In particular, for points 1 and 2 the request for validation is submitted by the CF leaders and the ACTRIS NF Technical and Scientific Forum co-chairs.

For point 3, starting of the validation process is defined by the relevant mechanisms and procedures.

For point 4, the Director General (DG) can submit a request on behalf of the GA.

Requests for validation shall be submitted in accordance with the process and timeline defined by the HO, including all the information defined in the relevant application form.

After collecting the requests for validation, the HO will start the planning activities to define the specific scope and the proposal of the new validation round. Details of the workflow are provided in the following.

3. Process tasks

The following tasks shall be performed to prepare and complete a validation round.

1. Planning

1.1. The HO verifies the adequacy and eligibility of the requests collected and drafts the supporting documentation for a first assessment of the DG.

1.2. A detailed proposal for a new validation round is prepared by the HO, including the expected actions, possible re-balancing of the evaluation criteria, defining profiles and expertise of the reviewers to be involved. A timeline is also proposed, taking into account possible topical and urgent debates.

1.3. If needed, the DG could inform the Research Infrastructure Committee (RI Comm) to seek a relevant opinion on matters related to consistency, coherence and sustainability of ACTRIS with reference to the activities proposed for the validation.

1.4. The DG presents the proposal for validation to the GA, to discuss and decide on the planned actions.

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1.5. The validation round starts.

2. Preparation

2.1. After the start of the new validation round, the HO organizes and facilitates the execution of the process, prepares the required application and review forms, and puts in place the relevant communication actions.

2.2. Each facility under validation (applicant) identifies the contact persons that will provide input during the process.

2.3. The reviewers are identified with help of RI Comm and engaged by the HO.

2.4. Teams of 3-4 reviewers are created and assigned with one or more applications considering their expertise and knowledge.

3. Application

3.1. The contact persons of the applicant provide the information and material through the relevant application forms provided by the HO, upon which the activities and services included in the scope of the validation round will be evaluated.

4. Review

4.1. Each team of reviewers evaluates the planned operation of the assigned applications and passes judgments through the relevant review forms provided by the HO.

4.2. Questions and comments can be asked by the reviewers; answers and clarifications must be provided by the applicants. The HO facilitates exchanges by collecting/transferring information and documents between applicants and reviewers.

4.3. A report is provided by each team of reviewers with recommendations regarding the validation of each application.

5. Reporting

5.1. The HO prepares a final report on the validation round and consults the documents with the RI Comm.

6. Decision

6.1. The DG presents the results of the validation round to the GA for approval.

6.2. Decisions taken by the GA are communicated by the HO to the applicant and the relevant ACTRIS bodies, and with that the validation round is considered finalized.

4. Schedule

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The duration of each round of validation shall be established case by case depending on the scope of activities under validation. A duration of 6 -7 months would be optimal considering that:

- Requests for a new validation round shall be set in the sufficiently long time windows and then communicated by the HO to the ACTRIS Community.
- A duration of 2 months would be optimal to carry out the planning and preparatory activities at the level of HO.
- The ideal would be a 2 months period for the application and a 2 months period for the review (including requests for clarifications before issuing the final evaluation report). However, a precise timeline for the Application and Review tasks shall be proposed by the HO, considering the different aspects of the process.
- HO monitors the process to collect possible issues and informs the DG to take the necessary decisions and resolutive actions. Adjustments of the schedule could be applied to handle issues and/or delays.
- A duration of maximum 1 month would be sufficient to elaborate outcomes of the validation round and to prepare the final validation report by HO.

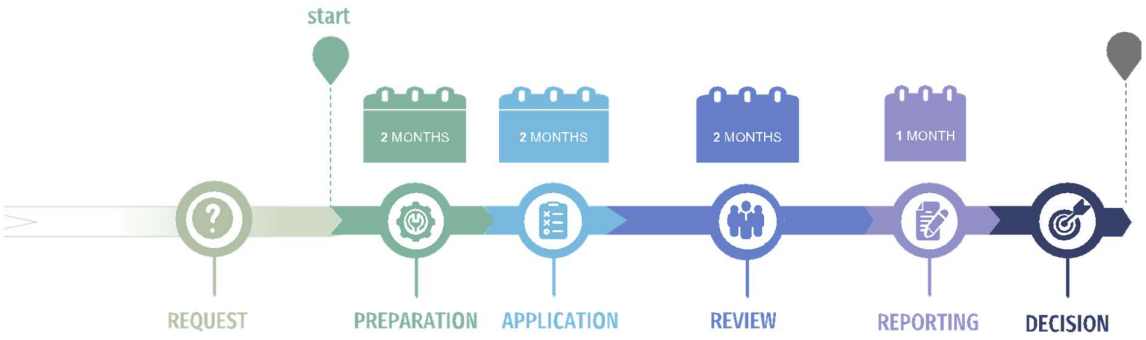

Figure 1. Optimal schedule of the validation process.

The timeline of the validation could follow a different path and/or schedule when carried out as part of wider processes, such as the specific contingency plans and recovery actions set for high-level risks, or the proposed mechanism for including new ACTRIS variables and the procedures for upgrading ACTRIS to emerging user needs.

5. Actors and roles

Commitment of the actors involved in the process shall be planned in advance, to clearly identify who is responsible and owns a task and who gets a say in the final decisions when unexpected issues arise in the process. Moreover, a proper planning and identification of the persons and roles involved should avoid work overload.

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The following actors are identified as crucial to perform, each in its role, the planned tasks of the validation process.

Table 1. Identified actors in the validation process.

ACTORS	ROLE IN THE PROCESS
Applicant	The contact persons of the involved facilities/units/RPOs provide the information and material upon which the activities and services included in the scope of the validation round will be evaluated through the relevant application form provided by the HO. The contact persons could be: the CF leader, the PIs responsible for the coordination and representation of CF Unit or PI of the NF operated by a research performing organization, etc.
Head office (HO)	The Head Office collects the request for validation and prepares the draft of the process and the supporting documentation for the DG and GA. The HO organizes, runs and facilitates the process and compiles the final reporting. However, the HO could participate in the evaluation where needed, in particular for the financial and user base analysis . Head office staff can be complemented by additional expertise if needed for the preparation and reporting of particular scientific /organizational /financial aspects of the validation round.
Director General (DG)	The DG oversees the process and is responsible to formulate a clear proposal to the GA based on the outcomes and recommendations from reviewers and the preparatory work made by the HO. He/she is responsible for the implementation of the decisions on behalf of the GA and applies the necessary measures and actions to solve arising issues.
Research Infrastructure Committee (RI Comm)	The RI Comm can be asked to review and advise on matters related to consistency, coherence and sustainability of the RI connected to the activities proposed for the validation.
Reviewers	Reviewers are independent experts evaluate the planned activities of the proposal.
ACTRIS ERIC General Assembly (GA)	The GA decides on the planning and outcomes of the process, making the final decision if the planned activities and costs are realistic enough for the facility to proceed in its implementation/operation.

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Reviewers

Reviewers are external to the facilities being validated, working in teams of 3–4.

They should have knowledge of research infrastructures, and expertise on the required technology and scientific scope, and potential user base for the activities under evaluation.

Reviewers with the following profiles should be considered:

- Representatives of ACTRIS user communities, including both users of data and users of physical access relevant to the CF/NF evaluated
- Representatives of foreseen ACTRIS NFs that benefit from the operation support of the CF evaluated
- Representatives of other ACTRIS CFs and NFs, being familiar with the ACTRIS concepts
- Representatives of other Research Infrastructures
- Financial experts

The reviewers should be anonymous towards the facility under evaluation until the end of the process.

The assessment of possible direct/indirect conflict of interests shall be considered for Reviewers. The HO needs to bring up any situations where there might be a conflict of interest. Each person with a conflict of interest must sign a declaration but can continue in the validation process or, depending on the situation, rule out himself/herself. The HO can decide, on a case by case basis, the exclusions from the evaluation teams.

Responsibility assignment matrix

A RACI matrix approach should be adopted to clearly identify the responsibilities of the various actors throughout the validation process.

RACI is the acronym derived from the four key responsibilities used.

RACI	
Responsible Who executes a task and is responsible for getting the work done.	**Accountable** Who oversees the task and ensures the work gets done properly.
Consulted	**Informed**

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Who provides information that assists the responsible. They are not directly responsible for a task.	Who needs to be kept up to date on the progress of a task or deliverable. They do not have immediate input on the process.

Table 2. RACI Matrix of the validation process.

	CF NF	HO	DG	RI COMM	REVIEWERS	GA
Task 1: Planning		R	R	C		A
Task 2: Preparation	C	R	A		C	
Task 3: Application	R	A	I			
Task 4: Review	C	A	I		R	
Task 5: Reporting		R	A	C	C	
Task 6: Decision		C	R			A

6. Evaluation criteria

The validation shall cover as much as possible all the relevant aspects of the activities being analyzed, from the scientific & technological to the financial and legal ones, and addressing the issue of sustainability.

In particular, the validation shall be performed against the following criteria:

Criteria for the technical validation:

1. Adequacy of the CF capacity. The CF capacity needs to be appropriately dimensioned with respect to the foreseen need for operation support and services of the ACTRIS community to ensure the operation of the RI.
2. Technical feasibility and adequacy of the procedures. Addressing the ACTRIS validation from a technical point of view means to confirm that the technology and methodology for the operation of each activity type is at *the state of the art*, robust and feasible (also in relation with the time and the economic investment needed to implement/operate it) and will allow to ensure compatibility and comparability according to ACTRIS standards.
3. Relevance and justification of planned resources. The resources needed for any planned activity need to be justified, realistic and comparable among different units offering the same or similar activities.
4. Relevance of the activities to ACTRIS.

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Criteria for the financial validation:

5. Adequacy of the costs; Costs are justified with regard to the work involved, adequately planned for optimal benefit.
6. Adequacy of the methodology; The methodology for calculating the costs is sound, transparent, and in line with EU and national regulations and the accounting principles of the host organizations.

The administrative and governance aspects of the Facilities need to be validated as well, assuring that the Facilities are in legal position to make agreements with ACTRIS ERIC, and to ensure that their management is effective and adequately resourced in agreement with the RPO.

Over time, the relevance and weight of the evaluation criteria can change, for example to closely follow the strategic development of the IR in the medium and long-term.

7. Relevant material for the validation

Simple, comprehensive and customizable material is key to ensure flexibility and efficient execution of the process tasks.

Application and review forms shall clearly identify the information needed for the review, avoiding the repetition of any information already provided in other relevant documents.

The application form shall be prepared by HO in order to inquire relevant questions to facilities and collect the needed information to evaluate the above mentioned criteria. As a general formulation, information on the facility and detailed description of the activities under validation should be reported in the application form, pointing out: scientific justification, motivation for the change or addition, foreseen implementation and the timeline, financial and personnel requirements, financial consequences, potential risks and challenges, statement of the respective part of the NF Technical & Scientific Forum, statement from CF concerned, statement from the ERIC (HO and DC), statement from the Ri Comm, any other statements.

Reference documents must be released and maintained up to date to describe in a clear and concise manner the process and the methodology to all the involved parts. Adequate material and documents shall be considered by the applicants and provided to reviewers to allow them capturing a broad understanding of the activities under validation (for example, the facility work plan, the cost book and financial plan, etc.).

Digital tools could be adopted for an efficient management of the process. In particular, flexible online forms could be considered to streamline the execution of the process workflow.

At the end of the validation process, short reports shall be provided to all the actors involved. At the same time, feedback from the actors shall be solicited to get their views, recommendations and suggestions to improve and standardize any next round of the validation process.

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8. Conclusions

As experienced in the first validation round that was concluded within the ACTRIS IMP project, setting up a validation process of the operation of ACTRIS could bring up many complexities.

For this reason, a robust but lean process is needed during the operational phase, which has to be carried out in a timely manner whilst guaranteeing the effectiveness and relevance of the results.

However, a certain degree of flexibility must always be envisaged when setting the objectives and the aim of this process, to be able to adapt the way the process is executed based on the various possibly occurring circumstances.

In the end, the validation process should be considered as a permanent but living tool, which effectiveness shall be continuously assessed and improved to fit the evolving needs of the operation of the ACTRIS research infrastructure.

9. References

- Milestone 2.4: Mid-term report on ACTRIS operation support and service validation - ACTRIS IMP
- D2.1 Contingency plan for implementation - ACTRIS IMP (confidential)
- Deliverable 7.2: ACTRIS strategic report from current status to 30-year vision - ACTRIS PPP

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