

## Deliverable D1.2: ACTRIS Risk Management Plan for the Implementation Phase

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## 1. Purpose

The purpose of this document is to set out the principles for managing the key risks for the ACTRIS Implementation Phase, lasting from 2020 to 2024. An effective risk management is important to the success of ACTRIS and requires tools and strategies to mitigate potential risks. Risk management is an ongoing process over the lifetime of ACTRIS and its risks may evolve. This document describes the main elements of the proposed ACTRIS Risk Management Plan and process in order to identify, analyse and evaluate the risks during the ACTRIS Implementation Phase. It addresses the ACTRIS risk management process and responsibilities, how risks will be reviewed and reported. It provides a comprehensive Risk Register containing all risks identified for the ACTRIS implementation phase, their risk rating and the planned mitigation measures to reduce their likelihood of occurrence. The first version of the ACTRIS Risk Management Plan is presented for the Interim ACTRIS Council (IAC) for discussion.

## 2. Introduction

The risk management in ACTRIS is important – as in any research infrastructure (RI), organisation, business, or project the risks are the main source of uncertainty and potential threats to ACTRIS operation, outcome, and success. Risks can come from external and internal sources and be of different nature: e.g., operational, organisational, financial, legal, or strategic. Risk management is the process of identifying, addressing, prioritising, and eliminating potential sources of malfunctioning of the RI and the possible difficulties to achieve the objectives of the ACTRIS Implementation Phase. The risk assessment should be an integral and systematic part of the governance, management, planning and reporting processes and culture of ACTRIS. There is a link between quality management and risk management.

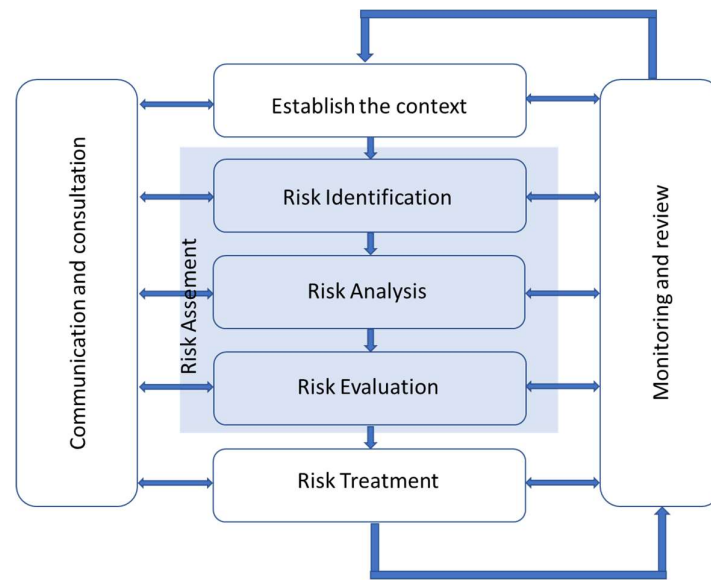
ACTRIS is a distributed research infrastructure that includes eight European-level Central Facilities (CF): six Topical Centres (TC), the Data Centre (DC) and the Head Office (HO), and more than a hundred National Facilities (NFs) run by a large number of different Research Performing Organisations (RPO) in the participating countries. The construction, financing, and creation of operational structures and services during the ACTRIS Implementation Phase is complex and involves multiple interlinked processes. It is, therefore, crucial to have a well-developed risk management strategy and carefully planned risk management and monitoring actions. The ACTRIS Risk Management Plan proposed in this document considers the relevant risks during the ACTRIS Implementation Phase.

The ACTRIS Implementation Phase will be a five-year period (2020-2024) dedicated to the construction and upgrading of the NFs and CFs, setting-up the user access and service provision, work on the governance and management tasks, increase the connection with new users and member countries, further develop strategies within ACTRIS and for international collaboration and partnerships, and integrate ACTRIS at different strategic levels (national, European and internationally). The development of an effective ACTRIS Risk Management Plan will contribute to the feasibility of the ACTRIS Implementation Plan.

The general principles of the ACTRIS Risk Management Plan are subject to update and amendment, as required. Amendments to the principles are proposed for approval by the IAC and revisions will be approved by the General Assembly (GA) of ACTRIS ERIC. IAC (GA) will review the risks biennially or when needed.

### 3. Elements of risk management

The framework of risk management defines what kind of risks the organisation is ready to take in pursuance of its objectives and what kind of a risk culture the organisation wants to pursue and maintain. Managing risks is an ongoing process to be carried out throughout the different RI phases for identifying, quantifying, managing and monitoring threats. Risk management includes risk assessment, mitigation strategies for those risks, risk treatment when occurring, preparation of contingency plans, communication and monitoring of the main risks.



**Figure 1.** The framework for risk management process.

#### 3.1 Risk assessment

Risk assessment includes both the identification of potential risk and the evaluation of the potential impact of the risk. Risk assessment can be expressed quantitatively, qualitatively or for example in heat maps.

Once a risk has been identified a probability of occurrence will be assigned to it. Once assessed, the risk should be evaluated to determine the likelihood of the risk or threat being realised and the seriousness, or impact, should the risk occur. Significant risks are those that have a high likelihood and can cause a severe impact on the successful implementation of the RI and endanger the goals for sustainability. A careful determination of a mitigation strategy will then follow. Each risk will have analysed to assess its likelihood using the risk exposure matrix in Table 1.

**Table 1.** The risk exposure matrix to identify the potential seriousness of the risk.

Risk rating	Impact			
Likelihood		Minimal-1	Moderate-2	Significant-3
	Unlikely-1	Low	Low	Medium
	Possible-2	Low	Medium	High
	Likely-3	Medium	High	High

### 3.2 Risk treatment

After assessing the risks, the risks need to be treated, particularly if the risk is realised. The risk treatment often involves developing a range of options for controlling, mitigating, and preparing contingency actions for the risks. Risk registry is the way of collecting the information on the risks and setting-up the mitigation strategies for individual risks. As the potential impact of the risks can be treated differently, different options for risk management can be adopted. For example, low-level risks can be accepted by the organisation without any additional action; medium level risks should be monitored and treated and the need for actions are related to organisation's strategies, acceptance and tolerance for risks; the high impact risks should always be treated with care and a set of administration and management actions in place in order to mitigate the high impact risks. For the high impact risks the contingency plans should be developed.

### 3.3 Monitoring and communicating risks

Important part of the risk management is the monitoring and reporting on risks. The organisation should collect and document performance of the activities and risks related to those activities. Risk monitoring includes regular updates on the risk registry and on the contingency plans. Reporting of the risks should be a normal procedure along the performance reporting. For successful risk management, good communication on the potential risks and immediate reporting of realised risks is important. In the organisation, definition of clear responsibilities and roles are necessary for efficient monitoring and communication.

## 4. Risk management in ACTRIS

### 4.1 ACTRIS Risk management principles

ACTRIS is proposing the following risk management principles as a general guideline:

**Risk management principle 1:** The risks need to be taken in the regular management and decision-making procedure, and they are assessed and monitored regularly. ACTRIS considers risk management as an integral part of the organisational process.

**Risk management principle 2:** ACTRIS shall apply all the necessary measurements and tools to mitigate the impact of the potential risks and prepare for contingencies.

**Risk management principle 3:** High likelihood risks with high consequences must be taken seriously. Everybody in ACTRIS is responsible for preventing the risks and reporting those to the Central Facility director, national ACTRIS Consortium coordinator and the HO and the Director General.

**Risk management principle 4:** ACTRIS maintains a Risk Register (RR), which is the basis for the European level Risk Management. The Risk Register (RR) includes the risks that are identified to endanger ACTRIS.

## 4.2 ACTRIS risk assessment

The first edition of the ACTRIS Risk Management Plan is elaborated by the ACTRIS Head Office in collaboration with the ACTRIS community within the ACTRIS PPP project. This current document is a living document available for partners to access and contribute to the development of risk identification, their probabilities, define the mitigation, adaptation and contingency measures, identify responsibilities.

For the identification of risks in ACTRIS and defining the impacts of each risks, all the ACTRIS partners are invited to participate, especially National ACTRIS Consortia, Central Facilities and National Facilities together with Head Office should work on the risk assessment.

For the Implementation Phase, ACTRIS is using following risk categories that are reflecting the main activity categories and objectives of ACTRIS implementation. The risks are categorised in relation to:

- RI operations;
- Services development and provision;
- Governance and coordinated management;
- Community and country engagement;
- Collaboration and communication; and
- ACTRIS impact

In addition to the ACTRIS Risk Management Plan, a detail risks assessment related to the implementation of the specific Central Facility will be prepared for each CF and they are based on CFs' internal activities and the requirement from the hosting organisations.

## 4.3 Risk treatment in ACTRIS

For the risk treatment ACTRIS has drafted the first version of the Risk Registry that includes identification of main mitigation actions. Moreover, ACTRIS will work on the contingency principles, procedures and preparation of ACTRIS contingency plans for main risks.

Risk treatment related to the resources and funding of ACTRIS strengthen the sustainability of the RI. Showing that ACTRIS can manage the risks related to the resources gives credibility to the stakeholders and the funding agencies increasing the possibilities of the RI to succeed in attracting funding and partners.

Regarding the identification and communication on the risks related to the resources, it is useful to follow the reporting rules for financial reporting. Since the CFs deliver their financial reports and work plans to the Head Office, they could also assess and report the financial risks as part of reporting tasks.

The Head Office together with Director General identifies and communicates the financial risks related to ACTRIS and ACTRIS ERIC to (Interim ACTRIS Council) General Assembly. Major changes in the financial plans require similar contingency procedures than the deviations in the main activities and operations. In the case of ACTRIS ERIC, the General Assembly makes decisions related to any financial mitigation or

contingency actions. Risk mitigation and contingency actions on the financial risks related to the CF units and NFs are under the responsibility of the RPO, and should be handled by the national host organisation. The National ACTRIS Consortium can manage the financial mitigation or contingency actions of the ACTRIS NFs together with hosting RPO at the national level.

The development and implementation of different CFs will be done at different times. The Head Office will be operational when the ERIC is established. Also, some of the CF units are already mature enough to start with their operation, supporting the existing community needs and the NFs labelling process and in the near future to be able to provide operational support to the foreseen NFs and to provide services to external users. The different maturity levels of the CF units need to be taken into account when planning risk treatment actions.

Highly educated and committed personnel is a key asset for ACTRIS, and managing the risks related to the stability and performance of the key personnel are important for the successful implementation of ACTRIS. ACTRIS Human resources strategy and Staff policy define actions for ensuring the positive development and maintenance of ACTRIS personnel.

#### 4.4 ACTRIS Risk Registry

It is recognised that ACTRIS will be confronted with some risks, which can be particularly critical for the Implementation Phase. A successful implementation means achieving sustainable management structures, financial commitments, NF and CF construction according to the standards, and starting the operations and ramping up the services to the users into the full capacity. In Table 2 the first draft of the ACTRIS Risk Registry is outlined.

The operations, services and provisions, the governance and coordination of the RI, the community engagement, the collaboration and communication and impact of the RI are differentiated in the risk register. Risks are dynamically updated and monitored through the risk register, which is a tool to support risk management. The risk register keeps track of identified risks, current assessment of their likelihood and impact and the exposure that the RI is subject to, who is currently responsible for taking action to minimise that exposure and keep a register of the actions or strategy adopted. The ACTRIS Risk Register will be held in the form of a spreadsheet accessible for interested parties on request.

**Table 2.** Preliminary ACTRIS Risk Registry for ACTRIS implementation activities including mitigation plans.

Description of Risk	Likelihood (high/medium/low)	Potential Impact (high/medium/low)	Mitigation/Risk reduction/Planned response
<b>RI operations</b>			
CFs consortia have difficulties in setting up CF activities for internal support and service provision	Medium	High	Ensure support from the RPOs and countries hosting CF units to have enough resources for the CF implementation.

The TCs do not have enough capacity to provide the required operational support to NFs	Low	Medium	Establish a well-planned ramp-up process with clear RI support schedule and plan for gathering the capacity.
Less than half of the foreseen NFs are submitted for labelling process	Medium	High	Ensure support from the RPOs operating NFs to have enough resources for upgrading and maintaining NFs operative. Ensure that the cost of memberships for ERIC is not hindering the NF.
Inefficient data work flow due to the difficulties in implementation of CFs and NFs	Low	High	Ensure the coherent development and implementation of ACTRIS Data Centre according to ACTRIS Data Centre concept and data management plan. Ensure proper RI operation management with all necessary ACTRIS components (HO, DC, TCs and NFs).
<b>Service development and provision</b>			
SAMU is not able to provide services to users due to the low level of TC and NF commitments or capacity on the provision of access to external users	Low	High	Work together with TC units, NF operators, hosting RPOs and countries to ensure the commitments for service provision. Communicate the benefits for NFs and TCs.
The user's interface is not efficient enough to process all the data and service requests from the users	Low	High	Establish a long-term plan for the SAMU and DC to be able to increase the capacity and resources if needed.
Users are not aware of the ACTRIS services or the cost per service is too high resulting too few requests for access to ACTRIS Facilities via SAMU	Low	High	Formulate a clear user strategy during the implementation phase in consultation with the experts and user communities. The awareness with efficient dissemination and promotion activities.
<b>Governance and coordinated management</b>			
Not enough countries as members of the ACTRIS ERIC	Medium	High	Present a clear ACTRIS concept and activity plan to the country delegates. Ensure the high quality and timely management and implementation of activities. Promote ACTRIS with the different stakeholders in each country and communicate the benefits of ACTRIS for countries.



ACTRIS ERIC not established in 2021	High	Low/Medium	Feed high-quality support material for decision making of the Interim ACTRIS Council and national decision-making processes. Engage and support IAC for constructive development of ACTRIS ERIC and ACTRIS.
Not enough CF agreements concluded	Medium	High	Define a clear plan for negotiation and signing the agreements with the RPOs hosting CFs units and NFs.
Not enough agreements sign with the NFs	Medium	High	Communicate the benefits of ACTRIS. Secure enough members for ACTRIS ERIC. Integrate the process with the CFs contract agreement when the RPO have both facilities; define a clear plan of negotiation for the rest of the RPOs
National ACTRIS consortia and national stakeholders are not interactive with ACTRIS ERIC	Low	Medium	Program NF assembly and national consortia events with ACTRIS ERIC to keep the communication flow.
Underestimation of the expertise and human resources to build ACTRIS or not enough staff provided by the RPOs to work on ACTRIS implementation	Medium	High	Guarantee the allocation of necessary human resources and available skills, efficient HR management and realistic progress assessment toward operation, training of staff. Communicate the importance of good HR and management to funders. Have a clear, updated strategy for human resources.
Over-dependence on key individuals	High	High	Ensure the engagement on ACTRIS goals and strategic issues. Communicate with RPOs on their crucial role for providing good work conditions and environment to ACTRIS staff. Create and maintain a supportive and attractive working environment. Monitor the well-being of staff. Adopt a management plan feasible for the complexity of the enterprise. Train new HR capacity and decrease dependence on single persons. Adopt good documentation and archiving system. Have a clear, updated strategy for human resources.
Underestimation of real implementation costs	Medium	High	Update and revise the implementation and business plan regularly. Revise the cost assessment, some of the services may not be implemented due to cost. Analyze expenditures,

			actively seek for cost efficiency in, e.g. procurements and operations RI-wide and with other environmental RIs.
Delay in implementing the RI in ten years since getting to the Roadmap	Low	High	Efficiently set up of the governance and get formal commitments from countries for ACTRIS ERIC; solid and concrete implementation plan written for CF and NFs; monitoring.
<b>Community and country engagement</b>			
Difficulties to engage countries, disagreements on the contribution principles.	Medium	High	Engage key countries and funders early in the negotiations. Keep everyone informed. Prepare (the decisive) meetings well with realistic financial plans. Build up trust and transparency in the working culture. National ACTRIS Consortia play an important role at the national level
Countries do not have strong and well-organized ACTRIS science communities.	Low	Low	Establish open and well-communicated events for science communities. Support the establishment of National Consortia.
<b>Collaboration and communication</b>			
Not enough collaboration agreements concluded with key partnerships (liaisons)	Medium	Low	Participate actively in the international arena, i.e. seeking partnerships and creating concreted means for collaborations and identifying service provision.
Not enough visibility among targeted user groups. ACTRIS does not reach new user communities	Low	Medium	Establish communication tasks working on targeting outreach activities and create different tools and materials to the user groups and stakeholders and facilitate internal and external communications.
The relevance and impact of ACTRIS not sufficiently communicated and promoted	Medium	Medium	Update the ACTRIS science case in dialogue with the users. Ensure that users have a proper way to acknowledge ACTRIS by request the users to cite ACTRIS datasets within the text of the publication and include a reference to them in the reference list. References to the dataset shall be detail enough that the reader of the paper or document shall be able to obtain the datasets from ACTRIS.

Impact (innovation and socio-economic)			
Not enough interest from the private sector to co-develop new services with ACTRIS	Medium	Low	Promote ACTRIS platforms for private sector users. Participate actively in technology and innovation events. Develop partnerships with private companies in the ACTRIS framework.
ACTRIS does not have enough socio-economic impacts	Low	Medium	Verify and strengthen communication and dissemination strategy and activities. Guarantee the full exploitation of ACTRIS results. Formulate a clear scientific strategy and align it to the needs of the user communities. Ensure the needed resources and competence for promoting, analyzing and communicating impacts.

For the risk that cannot be prevented ACTRIS will establish mitigation actions and contingency plans that minimises the harm if the risk is realised.

#### 4.5 Monitoring of the risks and communication

It is the responsibility of the different facilities to communicate to the Head Office the status and the impact of each risk and the mitigation plans in order to update the Risk Register and assess the relevance of the processes. The CF or NF involved in the risk will endorse the correct implementation of the risk treatment actions and the follow up process together with the HO. The CF leader for the CFs or National contact person for the NFs will keep track of the situation and communicate to the Head Office. The risk of vulnerability will be continuously re-evaluated and modified accordingly. The HO will follow up the process together with the (Interim) Management Committee, for new mitigation measures, e.g. uncoupling as much as possible the CFs workflows. If serious implications are foreseen after the mitigation measures, the (Interim Director) DG will bring these critical cases to the attention of (IAC)GA.

The new risks will be identified by the different facilities, reported to the HO and discussed by the DG and the Management Committee and will be included in the Risk Register. If a CF or a Unit of a CF cannot continue the operations the knowledge needs to be transferred to those that continue the operations.

The risk will be considered solved after the adverse situation occurred and it can no longer be considered as a threat to the facility.

All the ACTRIS bodies have a role in risk management activities in identifying, monitoring and reporting the risks. The management of the risk will follow the next process:

- the HO will draft the ACTRIS Risk Management Plan and collecting input from the partners on the risks and mitigation measures.
- The ACTRIS Risk Management Plan is approved by the IAC.
- The Head Office monitors the risk management according to the Risk Registry and prepares the biennial report based on the input received from CFs leaders and National contact persons to General Assembly.

- If mitigation actions or contingency are needed and taken, those should also be reported, as it is important to be able updated on the deviations in the original plan.
- The risks are monitored both at the CF level and the research infrastructure level, and communicated through the CF Director to the Head Office which will inform the ACTRIS Management Committee and RI Committee.
- Scientific and Implementation Advisory Board is kept informed about the risk management and can be requested for feedback on the content of the ACTRIS Risk Registry.
- The ACTRIS Management Committee and RI Committee should have an active role in risk management and monitoring and recommending updates on the ACTRIS Risk Registry.

#### 4.6 Responsibilities and roles

All the ACTRIS bodies have a role in the risk management by identifying, monitoring or reporting the risks. As a rule, especially legally, the decision to act on the risk mitigation plan or adaptation plan is taken by the national host institutions for National Facilities and Central Facility Units, and the Director General and the General Assembly for the ACTRIS ERIC.

##### Topical Centres and Data Centre

The CFs participate actively in the risk management activities and sustainable development and implementation of ACTRIS. The consortium agreement between the Units of the CFs (CF consortium agreement) defines the CF level Risk Management Plan and responsibilities at each CF. The CFs will follow up on their internal Risk Management Plan; as the Head Office will coordinate the risk assessment and the monitoring of the overall ACTRIS implementation and operation processes. Head Office will bring the critical risks to the RI Committee and to the ACTRIS ERIC Managing Committee. When needed, critical issues are brought to the (IAC) General Assembly by the (interim director) DG.

##### National Facilities

Technical risks and other related risks at the observational and exploratory platforms are the responsibility of the host RPOs to mitigate. The technical risks shall be reported to the associated Topical Centre and Data Centre Units which will report it to the HO and the National Contact Person. In the case of exploratory platforms, the risk reporting procedure needs to be developed during the ACTRIS Implementation Phase. The financial risks related to the NFs are tackled at the national level and the National consortium agreement defines the share of the responsibilities among RPO, National contact person, and National ACTRIS Consortium director/coordinator. The National contact person will communicate about the risk and report to the HO if the risks can have European level implications. The NF assembly can support the NFs for internal discussions and finding possible mitigation measures and actions.

##### Head Office

The ACTRIS Risk Management Plan will be approved by Interim ACTRIS Council and General Assembly when ACTRIS ERIC is established. Head Office will report the risk management activities to (IAC) GA biennially or in the case of realised or increased risk when needed or as requested. The Director General together with Head Office will prepare the update of the Risk Registry and risk monitoring report.

Head Office will lead the work on the risk management and on fostering the organisation culture of good risk management in ACTRIS. Table 3 summaries the roles of the different ACTRIS bodies and actors in the ACTRIS risk management during the Implementation Phase.

**Table 3.** *The identified roles of different ACTRIS bodies on risk management.*

Body, instance	Role
<b>(Interim ACTRIS Council) General Assembly</b>	<ul style="list-style-type: none"> <li>• Approves risk management plan, oversight and review</li> <li>• Decides on major risks' mitigation and contingency actions and in the case of ACTRIS, decided on the resource allocations</li> </ul>
<b>(Interim Director) Director General</b>	<ul style="list-style-type: none"> <li>• Drives a culture of risk management and signs the annual risk assessment on RI level.</li> <li>• In charge of executing the Risk Management Plan according to policy and rules decided by GA and applied the necessary measurements and actions</li> </ul>
<b>Head Office</b>	<ul style="list-style-type: none"> <li>• Drafts the ACTRIS Risk Management Plan.</li> <li>• Manages Risk Register at the RI level, ensures relevant communication, collect biennial risk reports</li> <li>• Oversees mitigation and contingency actions</li> </ul>
<b>(Interim) Management Committee</b>	<ul style="list-style-type: none"> <li>• Provides the recommendations regarding risk mitigation actions</li> <li>• Oversight and review of risk management activities on RI level</li> </ul>
<b>(Interim Scientific and Implementation Advisory Board) Scientific and Innovation and Ethical Advisory Boards</b>	<ul style="list-style-type: none"> <li>• Give advice and point out on risks related implementation and operation actions to Interim ACTRIS Council, later GA and to the (Interim director) DG</li> </ul>
<b>CF Leader</b>	<ul style="list-style-type: none"> <li>• Provides input to risk assessment on CF level</li> <li>• Proposes mitigation and contingency actions at the CF level according to the implementation plans and CF agreement, and report risks to the HO</li> <li>• Handle the internal communication to CF staff and RPOs</li> </ul>
<b>Hosting RPO of the CF Unit or NF (observational/exploratory platforms); Unit head</b>	<ul style="list-style-type: none"> <li>• Implement CF Unit level risk mitigation according to the CF Management Board decision and agreement(s)</li> <li>• Ensure staff in their Unit comply with the Risk Management Plan and foster a culture where risks can be identified and quantified.</li> </ul>
<b>National Facility Assembly</b>	<ul style="list-style-type: none"> <li>• Discuss network-level risks in the NF Assembly meetings</li> <li>• Informs potential network or NF level risks to the RI Committee</li> </ul>

<b>National Contact persons and National ACTRIS Consortium</b>	<ul style="list-style-type: none"><li>• Keep track of the risk in the NFs and report them to the HO</li><li>• Foster a culture where risks can be identified and escalated; Ensure that their NF comply with the ACTRIS Risk Management Plan</li></ul>
<b>Site PIs, staff and Partners in general</b>	<ul style="list-style-type: none"><li>• Comply with Risk Management Plan and procedures</li></ul>

## Literature

ISO 31000:2018, Risk management –Guidelines

ISO Guide 73:2009, Risk management - Vocabulary

IEC 31010:2009, Risk management – Risk assessment techniques