



E-RIHS

EUROPEAN RESEARCH INFRASTRUCTURE
FOR HERITAGE SCIENCE

E-RIHS ERIC Quality System

Approved by the E-RIHS ERIC General Assembly on 27 May 2025

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E-RIHS ERIC QUALITY SYSTEM

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ABSTRACT

The *E-RIHS Quality System* addresses the need for a dedicated regulation for service quality standards and evaluation procedures in E-RIHS ERIC, as required by Article 7(3) of the E-RIHS Statutes.

The *E-RIHS Quality System* ensures operational consistency and supports continuous improvement across all activities. It combines a strategic quality policy with operational procedures, including Key Performance Indicators (KPIs), to assess and maintain high standards.

Designed with flexibility, the system accommodates the diverse contexts of National Nodes while upholding E-RIHS's core quality principles. It provides a structured framework for evaluating access services, training activities, and external partnerships. All providers undergo rigorous assessments: new candidates are evaluated for internal governance and technical capacity, while existing providers are periodically reviewed against KPIs. Feedback loops, through user satisfaction surveys and performance reviews, are integral to the system, enabling services to evolve in response to user needs.

The quality system also incorporates the foundational *E-RIHS Ethics Guidelines*, aligned with the ALLEA Code of Conduct, addressing individual, interpersonal, societal, and environmental ethics to ensure E-RIHS's credibility and reputation. These guidelines are expected to evolve over time to reflect advancements in research practices and emerging technologies.

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E-RIHS QUALITY POLICY

E-RIHS, *the European Research Infrastructure for Heritage Science*, is a distributed infrastructure integrating national facilities of recognized excellence. E-RIHS connects researchers in arts, humanities, science and engineering and fosters a transdisciplinary culture of exchange and cooperation.

E-RIHS is dedicated to delivering exceptional services and fostering scientific excellence across all its distributed National Nodes. E-RIHS's commitment to quality is central to its mission of advancing collaborative research and ensuring that users, providers, and stakeholders benefit from the highest standards of innovation, reliability, and ethical integrity.

E-RIHS intends to maintain consistency across all National Nodes by ensuring that all services and their outputs meet the set quality criteria. Each National Node is held to the same high standards of operational performance.

The needs of users and stakeholders are prioritized through continuous adaptation to their evolving expectations through active engagement and feedback. By listening to its user community, E-RIHS strives to deliver research support while fostering collaboration and open communication across the network.

E-RIHS is built on a foundation of continuous improvement, with regular monitoring driving its commitment to quality, ensuring that best practices are widely adopted. E-RIHS is equally committed to sustainability, supporting cutting-edge research innovation that contribute to long-term scientific and societal goals.

This *E-RIHS Quality Policy* applies to all National Nodes, personnel, and providers, guiding the central approach to quality management. By adhering to this policy, E-RIHS aims to be a leader in providing exceptional research services and ensuring that E-RIHS is recognized for its excellence and contribution to global scientific advancements.

1. E-RIHS SERVICE QUALITY

Quality is one of the pillars of E-RIHS and to ensure its high-level, set quality criteria must be met by all organizations and research groups connected to the E-RIHS brand identity or using the E-RIHS label. However, as a general note, "quality" must be understood throughout the E-RIHS network as a standard of excellence established by the ERIC with a view to ensure: (i) the will and the means to satisfy the users of its services; (ii) consistency between its providers, particularly in respect to operational procedures and their results; (iii) register and store of all preliminary steps, metrological conditions and results related with any service rendered, allowing its inclusion in a digital database or replication in any other laboratory. E-RIHS ERIC shall coordinate the community of National Nodes including the establishment and monitoring of quality management procedures for the National Nodes and the provider facilities. Thus, it is expected that the indicated assessment procedures be provided by the central coordination yet upheld at the National Node level through reporting to the Central Hub and established timelines.

This document represents the minimum quality manual content to be prepared and maintained collaboratively by the Central Hub and all National Nodes and their providers. The quality manual aims at being an in-house reference document, which has been made as brief and non-bureaucratic as possible. An updated copy should be easily accessible to those directly involved in E-RIHS operations. The manual may also be made available on request to users and may in general be diffused to give confidence in the work done and its results. National Nodes are free to increase the contents or alter their disposition as they consider fit for its purpose.

In all cases, the contents of this document comprising the quality manual does not need duplicate the contents of any other manual applicable to the service. Therefore, the manual as prescribed may be simplified if the institution is accredited or certified for the service rendered by a standard such as ISO 17025 (ISO/IEC 17025, 2017) or ISO 9001 (ISO 9001, 2015) and already holds a quality or procedures manual where the full information may be found.

2. E-RIHS QUALITY ASSESSMENT

On a general note, “quality” is understood as an evaluation from the specific E-RIHS perspective as a degree to which distinct criteria are maintained within the research infrastructure. Given the varied nature of the services to which the quality assessment will apply, the procedures presented herein require flexibility. It must be noted that the procedures must not be considered as a bureaucratic compliance verification exercise but rather as a collaborative process between all parties involved with a common goal to ensure E-RIHS quality.

Quality assessment is required for ALL services offered by E-RIHS, starting with access services, which include excellence-driven access, wide access procedures to prospective modes such as matchmaking services, market-drive access, thematic access calls (Etgens et al, 2024). The assessment applies both existing providers through periodic reviews, candidates seeking to become new providers or external institutions aiming to establish collaboration with E-RIHS. It will also be used to evaluate services such as HS Academy training activities (Andrews & Grau-Bove, J., 2024) and may extend to communication and dissemination initiatives (Benassi et al., 2024) and events proposed by non-E-RIHS organizations seeking an endorsement from E-RIHS. Last but not least, the quality assessment already impacts certain Central Hub’s activities (Striova et al, 2024), with potential for further development.

2.1 Procedures for Access Services

The E-RIHS access services are offered by providers granting access to a wide range of high-level scientific instruments, archives, data and specialized knowledge for advancing science and technologies in the field of heritage science.

The E-RIHS quality assessment procedures for access services (see Annex I.1—5) starts on the initiative of a provider contacting its National Node and proposing new services, or of a prospective new provider (“candidate”) contacting the E-RIHS Central Hub and being referred to its National Node. Regarding periodic provider reviews, assessment is carried out at national level according to Central Hub coordination and set timeframe.

ASSESSMENT PROCEDURE	PROVIDERS	NEW PROVIDER CANDIDATE
Overall quality assessment	Yearly periodic assessment (Annex I.3)	Admission (Annex I.1)
New services offered	Simplified procedure (Annex I.2)	Full procedure, jointly with admission procedure (Annexes I.1 and I.2)
Feedback on services rendered	Continued assessment at National Node – data provided to Central Hub annually or on request	The means for monitoring feedback should be in place on acceptance into E-RIHS

Table 1: Application of E-RIHS access services quality assessment procedures according to institution type and subject.

2.1.1 Overview of Steps for E-RIHS Access Service Quality Assessment

The procedure for assessing the quality of providers or candidate providers, as well as the services they provide or propose to provide through E-RIHS is carried out in a sequence of steps. Guidelines for each step and, where applicable, the Key Performance Indicators chosen for continuing appraisal will be published by E-RIHS and made available to all institutions undertaking the procedure.

The complete procedural steps are as follows.

STEP 1: EX-ANTE QUALITY ASSESSMENT [only for candidate provider]

This step aims at evaluating the existence and correctness of the candidate's internal processes, including governance, management and administration. This step may be skipped or simplified if the institution is accredited / certified by a standard such as ISO 17025 or ISO 9001. Verification of financial viability is also part of this step; it may be omitted for public institutions.

Annex I.1 is filled out and declared by the candidate provider, submitted to the National Node and, if positively assessed, sent to the Central Hub for record-keeping.

The assessment is carried out by the quality representative at the National Node or the National Node Coordinator, who retains overall responsibility. Each Node may organize this process as it sees fit, provided it aligns with the E-RIHS Quality Policy and its criteria.

STEP 2: DOCUMENTATION OF EXISTING AND PROPOSED NEW SERVICES

This step focuses on collecting documentation of existing services or those proposed for new inclusion by current providers or candidate providers. The objective is to gather comprehensive information on the relevance of these

services to the aims of E-RIHS, their adhesion to E-RIHS' vision and mission and ethical guidelines as well as the actual or expected demand by the heritage science community for such service/s.

Annex I.2 is to be filled out by provider, candidate provider or service manager (i.e., the contact person managing access at a provider's facility) for proposing any NEW access services for the Catalogue of Services.

Existing services already offered by providers are monitored yearly through **Annex I.3**.

The forms Annex I.2 and Annex I.3 are sent by the quality representative at the National Node or the National Node Coordinator, who retains overall responsibility, to the Central Hub for record-keeping.

STEP 3: ASSESSMENT

STEP 3a: Peer review assessment [only for proposed new services]

This step evaluates proposed new services through a peer review process that follows established academic good practices for scientific reviews. The evaluation is based on the information provided in Annex I.2, and the assessment uses **Annex I.4**.

STEP 3b: Periodic assessment [only for existing services]

This step focuses on the periodic assessment of services already included in E-RIHS on the basis of the information provided in Annex I-3. The quality representative or National Node Coordinator, who holds overall responsibility, uses this data to fill out Assessment Forms for Existing Services (**Annex I.5**). The Central Hub compiles a **periodic assessment summary report** on the basis of the collected forms.

Both the peer review and periodic assessments are performed by the Scientific and Ethics Advisory board (SEAB), assisted by the Committee of National Nodes (see the E-RIHS ERIC Statutes Article 7(1-2). If required, an ad hoc committee (Statutes, Art. (18)(6)(c)) may also be involved. The recommendation report generated during these steps – Annex I.4 for each new service and comments based on the periodic assessment summary report for existing services – is provided to the Committee of National Nodes to inform their decision on approval and implementation.

STEP 4: APPROVAL AND IMPLEMENTATION

STEP 4a: Approval of new providers and services

The final decision of addition of new services and candidate providers with new services will be made by the E-RIHS CNN as part of their task to prepare the annual offer of services (see E-RIHS ERIC Statutes Art. 20(3)(f)) based on the recommendation report from Step 3a.

The Committee of National Nodes is free to organize internally as it deems appropriate to finalize the decision, provided it acts in good faith and solely in the best interest of E-RIHS. An **evaluation report** will be prepared and transmitted to the E-RIHS Director General to enable the Central Hub to inform the respective providers or candidate providers and implement the decision.

The decision may be one of the following:

- a) *Approved*;
- b) *Rejected, with justification*;
- c) *Approved with recommendations*: This is the case where minor issues are noted, but they are expected to be amended in the short term; the evaluation report will indicate a plan for corrections. Final approval is then subject to the verification of successful compliance to such plan.
- d) *Pending*: In this case E-RIHS sees a potential for the candidate but major issues prevent the immediate approval of the candidature. The final report will sketch out a roadmap to acceptance and will indicate, when appropriate, tutor organizations chosen within the partnership to accompany and guide the candidate to achieve full compliance. Final approval is subject to a renewed quality assessment of the candidate provider and/or the proposed new service.

Probation Period

Approved new providers and services are subject to a period of probation of at least 12 months. Following such, the service undergoes periodic assessment, and the relevant National Node Coordinator recommends to the Committee of National Nodes:

- (i) a positive conclusion,
- (ii) an extension of the probation for a further period or
- (iii) a negative result.

The CNN decides on the outcome of the process and communicates to the E-RIHS Director General to enable the Central Hub carries out the relevant communications.

STEP 4b: ^[OBJ]Periodic quality review for existing providers and services

The periodic quality review focuses on the annual activities of existing providers and services within E-RIHS, primarily based on Annex I.3 and Annex I.5 documentation. On-site visits and interviews may be conducted if deemed necessary. Exclusion proposals are considered only in cases of significant non-compliance or defaults and must be justified and motivated by substantial evidence.

2.2.2 Scenarios Requiring Quality Assessment

The above process applies in part or wholly to the various assessment scenarios, as detailed below.

i. *Inclusion of a new provider and service/s*

The process of the acceptance of a new provider includes Step 1 (Annex I.1), Step 2 (Annex I.2) applied to all proposed services, Step 3a (Annex I.4) and Step 4a. Additionally, it includes an evaluation of the in-kind contribution associated with these services.

ii. *Periodic quality assessment of existing providers and services*

The process for quality assessment of existing providers and services follows a simplified procedure that omits Step 1 and includes Steps 2 (Annex I.3), Step 3b (Annex I.5) and Step 4b.

iii. *New services offered by existing providers*

The quality assessment of new services, including the evaluation of their in-kind contribution, are carried out by applying Step 2 (Annex I.2), Step 3a (Annex I.4) and Step 4a, focusing exclusively on the proposed new service/s. Step 1 is not required.

ACTIVITY SUBJECT TO QUALITY ASSESSMENT	QUALITY CONTROL FEATURES	
	PROVIDER	CANDIDATE PROVIDER
Inclusion as new provider	N/A	Step 1
Inclusion of new service/s	Steps 2, 3a and 4a, assessed only as regards the new service/s. Minimum one-year probation.	Steps 3a and 4a, assessed for each new service. Minimum one year probation.
Periodic quality assessment	Steps 2, 3b and 4b.	N/A

Table 2: Quality control features for each category assessed.

2.2 Procedures for Training Initiatives

While it is likely that the organization of training initiatives will often originate within the Central Hub (Striova et al., 2024), with the host being decided through a competitive selection process, it is possible that National Nodes may want to organize their own 'self-proposed' training events under HS Academy branding, sometimes within national languages. As emphasised in *D4.5 Revised Training Strategy* (Andrews & Grau-Bove, J., 2024), it is clear that there needs to be a process for ensuring the quality and conformity of these events; this has been proposed below:

- The training personnel within the Central Hub should be made aware of the 'self-proposed' training event at the earliest stage in preparations.
- Before any advertising has been undertaken, a draft programme should be submitted to the Central Hub so that checks can be made that the course aims, content, delivery, and speakers align with E-RIHS' objectives.
- In the first year of running, 'self-proposed' training courses should be identified as 'Pilots' and must be attended by an official E-RIHS observer – ideally the

member of staff responsible for overseeing training – and formal feedback as to the suitability of the course and recommendations for future iterations must be provided to the hosts. Feedback is to be collected timely from participants.

- Following the approval of the event by an E-RIHS representative, a reasonable re-observation strategy should be put in place based on the frequency of the course.

It is also possible that training may be offered as a service by providers. The principles of the quality system must be adapted to effectively monitor training services, ensuring that they meet the standards of excellence expected by all E-RIHS services.

2.3 Procedures for Unforeseen and External Needs

2.3.1 Endorsement Process for External Initiatives and Organization

E-RIHS provides formal endorsement to initiatives, projects, or entities that align with its mission, vision, and values, supporting impactful contributions to the heritage science community. For external needs not covered by existing quality assessment cases, a structured process is followed to evaluate and grant endorsement. Request for endorsement (**Annex II.1**), addressed to the Director General (DG) and the Chair of the Committee of National Nodes (CNN), should include key details about the project/initiative, such as its title, abstract, objectives, and relevance to E-RIHS's goals. The DG and Chair CNN, in consultation with committee members if needed, evaluate the proposal, ensuring it does not conflict with other E-RIHS initiatives. Upon positive evaluation and absence of conflicts of interest, the DG issues an endorsement letter (**Annex II.2**), which may include permission to use E-RIHS branding. Regular updates may be requested to monitor the project's progress and sustained alignment with E-RIHS standards, ensuring that the endorsement remains a mark of quality and commitment to excellence within the heritage science community.

2.3.2 Unforeseen Cases

Cases not included in the categories listed above or unforeseen circumstances are to be addressed by the quality officer/s at the Central Hub and National Nodes using as a basis the principles and procedures set by this document with the necessary adaptations.

3. RESOURCES ALLOCATION AND COSTS

D3.1 E-RIHS ERIC Human Resources Strategy and Procedures has identified that a role supporting the implementation of the E-RIHS quality system will be established within the core Central Hub team at the initial operation of the ERIC. This role involves coordinating quality assessment procedures, ensuring compliance with E-RIHS standards, and aligning practices across National Nodes with the Quality System. The role also serves as a point of contact for National Nodes, providing guidance and support to ensure consistent application of quality criteria throughout the infrastructure. In addition to overseeing quality procedures, the dedicated staff unit will monitor the costs incurred by E-RIHS related to quality assessment activities, including staff time, travel expenses and eventual payments to external members.

Special cases such as courses, summer schools, organized by non-E-RIHS institutions may be exempt from monitoring costs, but subject to special conditions, such as offering discounted registration fees to E-RIHS providers.

4. APPROVAL AND REVISION

This E-RIHS Quality Policy and the related procedures will become effective upon approval by the General Assembly of E-RIHS ERIC, in accordance with Article 7(3) of the Statutes.

Revisions may be proposed annually, based on the analysis of Key Performance Indicators (KPIs) and operational feedback. Any proposed changes must be submitted in advance of the General Assembly meeting.

If updates are approved, the relevant sections of the procedures will be adjusted accordingly.

It is the responsibility of the quality representative at each National Node or the National Node Coordinator, who retains overall responsibility for aligning the national quality assessment with the E-RIHS ERIC requirements, to keep the most recent version of the procedures available to all relevant providers.

ANNEX I.

E-RIHS ACCESS SERVICE QUALITY ASSESSMENT FORMS

Annex I includes the forms to be used in three of the four steps of the quality assessment process for access services for both providers and candidate providers. All form templates and related guidance are available in the *E-RIHS IP D3.5 Quality System Implementation Plan* (Doherty, Andrews, & Virgili, 2024), accessible at the link <https://doi.org/10.5281/zenodo.14546122>

They are:

ANNEX	WHO [COMPILED BY]	PROCEDURE
I.1 Candidate Provider Form [STEP1: EX-ANTE QUALITY ASSESSMENT]	Candidate provider	Reviewed by NN quality representative/Coordinator. Sent to the Central Hub.
I.2 New Service Assessment Form [STEP 2: DOCUMENTATION]	Provider / candidate provider or service manager	Reviewed by NN quality representative/Coordinator. Sent to the Central Hub.
I.3 Periodic Provider Self-Assessment Form [STEP 2: DOCUMENTATION]	Provider	Reviewed by NN quality representative/Coordinator. Sent to the Central Hub for record-keeping.
I.4 Recommendation Form for New Services [STEP 3: ASSESSMENT]	SEAB assisted by CNN/ ad hoc committee	Sent to CNN.
I.5 Assessment Form for Existing Services [STEP 3: ASSESSMENT]	NN quality representative/ Coordinator	Sent to the Central Hub. Periodic assessment summary report sent to SEAB, assisted by NNC/ad hoc committee.

Prospective partnerships with E-RIHS often involve only a specific division or a research group within an organization. While most assessments will focus on the relevant unit, critical aspects such as decision-making processes, financial viability, and technical or administrative management, must be evaluated at the organizational level (Annex I.1).

The new service assessment is aimed to apply to candidate providers, proposing to offer access to E-RIHS services (Annex I.2).

Selected Key Performance Indicators (KPI) are also incorporated within the periodic assessment of providers' services (Annex I.5) to be objectively measured, allowing an unbiased calculation of operational effectiveness. All E-RIHS KPIs instead are presented as a stand-alone document (see Annex IV).

The assessment of data-related services for digital access is provisionally addressed separately in Annex III and will be fully revised after the DIGILAB platform is finalized.

ANNEX II. E-RIHS ERIC ENDORSEMENT: REQUEST AND LETTER TEMPLATES

This annex includes example templates for requesting (**Annex II.1**) and issuing endorsement letters (**Annex II.2**). Full formats and instructions are provided in the *E-RIHS IP D3.5 Quality System Implementation Plan* (Doherty, Andrews, & Virgili, 2024), accessible at <https://doi.org/10.5281/zenodo.14546122>.

ANNEX III.

E-RIHS DIGITAL SERVICES QUALITY ASSESSEMENT

Annex III is derived from the E-RIHS Preparatory Phase deliverable D2.2 Quality Manual and KPIs (Mimoso et al., 2020) and is included here for completeness. Further improvements may result from collaboration with initiatives like the European Open Science Cloud (EOSC) and the European Collaborative Cloud for Cultural Heritage (ECCCH). These initiatives can enhance the quality assessment of E-RIHS data by providing frameworks for interoperability, FAIR data principles, and domain-specific tools. EOSC offers standards for trustworthiness, preservation, and accessibility, while ECCCH focuses on facilitating the integration of cultural heritage datasets, supporting advanced data processing tools, and ensuring alignment with ethical and scientific priorities specific to the heritage domain. This collaboration can strengthen E-RIHS's capacity to deliver high-quality, reusable data for research in heritage science.

Annex III outlines a tentative process for evaluating whether to accept or reject: (a) datasets proposed for registration in the DIGILAB registry (henceforth, data provision services) and (b) data processing tools proposed for inclusion in the DIGILAB portfolio (henceforth, tool services). The steps and procedures are aligned with the specifications detailed in the main document, the E-RIHS Quality Policy.

Publicly available datasets, such as those published within an Open Data framework, may also be considered for inclusion. For tool services, software tools in the public domain, Open Source, freely available, or commercial ones may also be eligible.

Digital access differs from physical access, as it has in practice no limitation on the number of users accessing the service. Access can also be repeated as necessary, consuming data and using data services with no limitation or cost increase beyond the ones for storage and management. Furthermore, digital services have their own specific requirements about quality and use, summarized below with the related indicators. In any case, offering access to datasets or tool services implies an indirect endorsement by E-RIHS, so they should be carefully verified before being incorporated in the E-RIHS digital access offer.

Defining quality criteria at the earliest opportunity is crucial to start (and test) the operations of DIGILAB, as this is in practice a brand-new facility offered to the research community.

Full procedure and criteria are provided in the *E-RIHS IP D3.5 Quality System Implementation Plan* (Doherty, Andrews, & Virgili, 2024), accessible at <https://doi.org/10.5281/zenodo.14546122>.

ANNEX IV.

KPI AND DATASHEETS

Key Performance Indicators (KPIs) are objectively measurable values used to assess operational effectiveness. This annex outlines a set of KPIs aligned with E-RIHS objectives and compliant with RACER criteria (Relevant, Accepted, Credible, Easy to monitor, Robust).

Developed in accordance with ESFRI's 2019 guidelines and the 2016 monitoring recommendations, these flexible KPIs build on experience from previous E-RIHS European projects. They have been tested in monitoring access provision, education, and training activities. The core KPI set, designed for the launch of E-RIHS operations, has been expanded to include additional ESFRI categories such as scientific advice, policy engagement, management efficiency, and commercial income.

KPIs will support annual self-assessment at the National Node level, reported to the Central Hub. Deviations from targets should prompt internal review and corrective action by providers. While KPIs are not used in isolation, they will inform periodic evaluations of E-RIHS performance.

Each KPI includes a clear definition, its ESFRI strategic objective, rationale, data sources, the responsible for data provision and collection, calculation methodology, unit of measure, frequency of assessment, and target values. Full details are available in the *E-RIHS IP D3.5 Quality System Implementation Plan* (Doherty, Andrews, & Virgili, 2024), accessible at <https://doi.org/10.5281/zenodo.14546122>.

Table IV.1 gives an overview of the indicators and their corresponding targets.

Table IV.1: E-RIHS ERIC Key Performance Indicators.

INDICATOR		TARGET
FINANCES AND DEVELOPMENT		
1.	Revenues	Assess target and actual values yearly
2.	Number of members in E-RIHS	Increase numbers of formal engagement yearly
ECONOMIC ACTIVITIES		
3.	Income from commercial activities and number of entities paying for service	Year 1-2: 2%; Year 3: ~5%; Full operations: ~10% of total revenue
4.	Share of users and publications associated with industry	Report when feasible
USER ACCESS		
5.	Number of user requests for access	Full operations: 600 users/year for physical platforms; >100 applications/year; DIGILAB considered when ready
6.	Retention of access users	Retain and steadily grow numbers after launch
7.	Access demand	> 100% yearly across all platforms

8.	Number of users served (and share per EU, non-EU country)	Initial operations: 300 users/year; Full operations: 650 users/year
9.	Number of access provisions	100% fulfilment for the previous year
10.	Access quality feedback	> 80% after the first 12-month probation period
11.	Number of publications (open access and share per country)	1:1 ratio of publication vs accepted application; > 40% in open access, increasing yearly
12.	Percentage of top (10%) cited publications	Assessable only 4-5 years post-publication
HS ACADEMY		
13.	Participants in dissemination and education events	1000 participants/year for dissemination events; 84 participants/year for education initiatives
14.	Hours of dissemination events	9 hours/year for dissemination events
15.	Master and PhD students using E-RIHS	Target to be set after sufficient data collection
16.	Training of non-E-RIHS staff	Target to be set after sufficient data collection
17.	Educational/training quality feedback	> 80%
DATA MANAGEMENT AND DIGITAL INFRASTRUCTURE		
18.	Number of available datasets (public and restricted)	Year 1: > 80% of dataset FAIR compliant; Year 3: 100% of dataset FAIR compliant.
19.	Number of datasets used externally	Target to be set, refinement after test usage period
COMMUNICATION AND OUTREACH		
20.	Outreach through printed, broadcast and web-based media	Steady annual increase post-initial operations
21.	Website and social media activities	Steady increase based on previous baseline data (2022-24): Website visits increased from ~59K/year (2022-23) to ~68K/year (2023-24), with an average session duration of 01:36 mins. Social media metrics include: Twitter 6.9K followers, YouTube 7.9K views, Facebook 7.6K post engagements, and LinkedIn 100K page reach.
22.	Direct contact engagement (events)	Steady increase post-initial operations
SCIENTIFIC ADVICE		
23.	Participation by RIs in policy related activities	To be set

24. Citations in policy related publications	Refinement after test usage period
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ANNEX V. EXAMPLES OF E-RIHS SATISFACTION FEEDBACK FORMS

This annex contains examples of user satisfaction surveys. Format and full guidance are available in the *E-RIHS IP D3.5 Quality System Implementation Plan* (Doherty, Andrews, & Virgili, 2024), accessible at <https://doi.org/10.5281/zenodo.14546122>.

ANNEX VI.

E-RIHS ETHICS GUIDELINES

The following section provides a summary of the E-RIHS Ethics Guidelines. The complete and detailed version is available in the *E-RIHS IP D3.5 Quality System Implementation Plan* (Doherty, Andrews, & Virgili, 2024), accessible at <https://doi.org/10.5281/zenodo.14546122>.

Ethics is integral to the operations and mission of E-RIHS ERIC, ensuring that all activities uphold the highest standards of integrity, fairness, and responsibility. Aligned with the *ALLEA Code of Conduct for Research Integrity*, the *E-RIHS Ethics Guidelines* provide a comprehensive framework to guide individual and institutional behavior. These guidelines are structured into four domains—individual, interpersonal, societal, and environmental—to address diverse ethical challenges across E-RIHS operations.

INDIVIDUAL DOMAIN. Values: Honesty, Integrity, Transparency, Reliability, Competence. The individual domain underscores the importance of honesty, competence, and integrity in all activities conducted within E-RIHS. Personnel and collaborators are encouraged to maintain a high level of professional rigor and accountability, ensuring that their research practices uphold transparency. This domain emphasizes the need to uphold academic integrity by avoiding unethical practices such as plagiarism, falsification, and data fabrication. Furthermore, meticulous documentation of processes and results is critical to ensure that research findings are reproducible and reliable.

INTERPERSONAL DOMAIN. Values: Respect, Inclusivity, Equity, Reciprocity, Sharing, Cooperation, Safety. It emphasizes fostering respectful, inclusive and collaborative relationships within E-RIHS and its broader community. Respect for people, equality, diversity and inclusion ensure that all individuals work in an environment of trust and mutual respect. Safeguarding policies ensure the well-being and safety of students, collaborators and E-RIHS teams (see also § 6.4 Risk Management). Professionals are encouraged to uphold ethical values in balancing professional competition and good research practices and are expected to share ideas openly, respect confidentiality, and recognize intellectual property rights. Practices such as peer review processes and acknowledging contributions promote fairness and transparency.

SOCIETAL DOMAIN. Values: Reputation, Trust, Stewardship, Service, Clarity. It underscores E-RIHS's role in bridging research and societal impact. The stewardship of cultural heritage values ensures that E-RIHS activities respect and preserve the significance of heritage assets. Responsible handling and sampling practices are guided by standards like the UK Institute for Conservation's Ethical Sampling Guidance,⁶¹ respecting object value and ethical considerations, especially with human remains. E-RIHS prioritizes beneficence (do good), supporting public benefit. While its outcomes may aid authentication, E-RIHS does not provide authentication expertise. Data stewardship adheres to FAIR principles. Personal data is handled responsibly, complying with GDPR regulations. This approach fosters societal trust and safeguards E-RIHS reputation.

ENVIRONMENTAL DOMAIN. Values: Awareness, Efficiency, Sustainability, Protection, Innovation. In alignment with the European Green Deal and the Do No Significant Harm (DNSH) principle, E-RIHS integrates sustainability into its operations and adopts eco-friendly practices to: (i) minimize the environmental impact of research activities, including resource use and travel—virtual meetings are prioritized to reduce travel emissions; (ii) promote efficiency and waste reduction across operations; (iii) advocate for environmentally friendly practices in the preservation of cultural heritage. By limiting its impact on climate, ecosystems, and biodiversity, E-RIHS ensures its research contributes to both heritage conservation and environmental protection.

ABBREVIATIONS

Acronyms	Expansion
ALLEA	All European Academies
ARCHLAB	ARCHive LABoratory: E-RIHS access platform that brings together organized scientific information in largely unpublished datasets from archives of prestigious European museums, galleries and research institutions (https://www.e-rihs.eu/e-rihs-catalogue-of-services/)
BSD	Berkeley Software Distribution
CC-NC license	Creative Commons – Non-Commercial license
CC0	CC0 1.0 Universal (Creative Commons deed with no-copyright dedication)
CNN	Committee of National Nodes
DIGILAB	DIGItal LABoratory: E-RIHS access platform that provides remote access to heritage science data, supplemented with digital services and tools within a virtual research environment (under development)
DIN	Deutsches Institut für Normung (German Standardization Institute)
DMP	Data Management Plan
DSA	Data Seal of Approval (a self-assessment process for digital archives, aimed at archives that hold data)
E-RIHS	European Research Infrastructure for Heritage Science
ECCCH	European Collaborative Cloud for Cultural Heritage
EOSC	European Open Science Cloud
ERIC	European Research Infrastructure Consortium
EU	European Union
FAIR	Findable, Accessible, Interoperable, and Reusable
FIXLAB	FIXed LABoratory: E-RIHS access platform that brings together fixed research facilities and associated scientific experience of their staff that develop and maintain sophisticated state-of-the-art instrumentation for advanced diagnostics and archaeometry (https://www.e-rihs.eu/e-rihs-catalogue-of-services/)
GPL	General Public Licence
HS Academy	E-RIHS training program in heritage science delivered through various formats, including doctoral summer schools, on-site training camps, webinars, lecture series, and specialized modules. The program is designed for both E-RIHS users and providers.
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
KER	Key Evaluator Ratings (average of scores attributed by a team of evaluators appointed by the E-RIHS management on a scale of 1–poor to 10–excellent, corresponding to a quantification of subjective appraisals of the quality level of the feature examined)
KPI	Key Performance Indicators (values that may be objectively measured allowing an unbiased appraisal of operational effectiveness)
MOLAB	Mobile LABoratory: E-RIHS access platform that brings together European laboratories offering state-of-the-art mobile equipment and related competencies, for in-situ non-destructive measurements of artworks, collections, monuments and sites (https://www.e-rihs.eu/e-rihs-catalogue-of-services/)
NC	Non-Commercial

NN	National Node
OAI-PMH	Open Archives Initiative - Protocol for Metadata Harvesting
RG	Research Group (any individualized group of researchers and technical support active in the context of E-RIHS).
SEAB	Scientific and Ethics Advisory Board

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