

E-RIHS PP

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E-RIHS Training Strategy

Executive summary

This document constitutes an outcome of the WP7 (E-RIHS Academy) activities. The E-RIHS Education and Training Strategy (Deliverable 7.2) reports the results of the joint efforts of the E-RIHS PP Task 7.2, 7.3 and 7.4 members, led by UCL. In the preparation process, we have also consulted European and national E-RIHS stakeholders, as well as international partners.

The purpose of the E-RIHS Education and Training Strategy is to set out skills development priorities, set out key areas of training and delivery channels as well as ensure optimum use of available resources for training and strengthen capacity of those responsible for their use and management within the European Research Infrastructure for Heritage Science.

The Strategy presented below consists of the following elements:

- The context in which this strategy has been shaped
- The key strategic objectives for E-RIHS educational and training activities
- A framework strategic approach to guide E-RIHS decision-making about establishing or reinforcing appropriate training activities and programmes at international, and national levels of the E-RIHS community
- A training offer, designed in accord with the strategic approach, and in response to the particular education and training needs identified by the needs' assessment, presented in the E-RIHS Education and Training Needs report (Deliverable 7.1)
- Resource and material requirements for realisation of the overall objectives of the E-RIHS Education and Training Strategy
- Measuring progress on realising the strategy

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Preamble

E-RIHS is a world-leading European infrastructure delivering cross-disciplinary innovation in heritage science. However, in order to develop and utilize cutting edge science, E-RIHS also needs to deliver a broad range of cross-disciplinary skills, from engineering to digital, from physical sciences to humanities. **In order to fulfil its mission to stretch the boundaries and the impact of heritage science, E-RIHS will work with researchers, organizations and industry.**

The strategy's purpose is to foster a successful learning and research environment within E-RIHS. By developing knowledge and understanding, this **training strategy aims to support the delivery of world-class access to heritage science infrastructure. It will achieve this by developing a range of skills necessary for the creation, implementation and innovation in E-RIHS. We aim to deliver the E-RIHS training offer (E-RIHS Academy), representing**

- (i) training organised by E-RIHS where there are gaps in the current training offer**
- (ii) a network of institutions, projects and programmes delivering heritage science training, and**
- (iii) a self-reinforcing community of E-RIHS alumni¹ with unique and competitive heritage science skills**

The training strategy is designed to support the E-RIHS Scientific Vision and Scientific Strategy, the E-RIHS User Strategy and Access Policy, Quality Assessment Strategy, and the E-RIHS Communication and Dissemination Plan².

1 Context

This strategy has been calibrated by other E-RIHS internal strategies and external evidence. **The key guiding influence is the E-RIHS Scientific Vision³ and its priority areas and core values**, in particular the emphasis on competencies, responsible and ethical research, and excellence. The training offer of the E-RIHS Academy will reflect these values, supporting interdisciplinarity, co-creation, ethics, communication, innovation, complementarity, interoperability and quality user experience.

The second shaping factor is the current training needs, identified in the E-RIHS Academy research report⁴. This insight, along with a review of future skill needs in the heritage context⁵, raises important questions about how to develop a future-proof, cross-disciplinary and supportive training ecosystem. Much of this strategy, and the delivery channels in particular, are a response to the E-RIHS needs assessment.

In addition, we face many of the same challenges as other communities of practice related to the need of enhancing EU cooperation in training⁶ and developing 21st century skills⁷ among the heritage science community.

However, the primary aim of this strategy is to ensure that we invest our resources into creation of a training experience that enriches the quality and pushes the boundaries of collaborative heritage science research without encroaching on established delivery of formal training.

¹ By E-RIHS alumni, we understand both users of the research infrastructure and the beneficiaries of E-RIHS training. These represent the users, providers and the managers of the infrastructure as well as any other interested parties within the heritage science community.

² Koutoupas et al. 2017

³ Bertrand et al. 2018

⁴ Ropret et al. 2018

⁵ Brown 2017, Dillon et al 2014, Golfomitsou 2015

⁶ See: EU Cooperation in Education and Training

⁷ Golfomitsou et al 2017, Scott 2015

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This strategy has been developed in consultation with the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) and in its implementation we will work in partnership to achieve the aims of the strategy.

2 Objectives

Based on the aspects explored above, we plan to deliver the strategy by the following five cross-cutting and interconnected strategic objectives:

1. **Identify and promote a set of core heritage science skills** necessary to deliver E-RIHS excellence
2. Create a **culture of interdisciplinary research and leadership**
3. **Embed continuous learning** across E-RIHS and **drive the development of future-proof skills** in a complex, rapidly changing research field
4. Build around E-RIHS a **competency-based Heritage Science Network**
5. **Ensure access to state-of-the-art training** opportunities through diverse delivery methods

These five objectives will constitute key criteria against which the E-RIHS training provision will be evaluated.

3 Approach

Our core training focus will be to promote development and delivery of the necessary skills, understanding and knowledge base for the creation, implementation and innovation in E-RIHS as a joint responsibility of all stakeholders, that is users, providers and managers of the research infrastructure. By creating an appropriately trained and diverse heritage science community, we will ensure that the opportunities provided by the ERIHS infrastructure are taken up in the most efficient and advantageous manner so that it continues to provide the full range of benefits to society.

E-RIHS will resist the temptation to address all training needs within the wider heritage science community. This is too broad a scope, and the focus of a number of other initiatives and educational endeavours in the partner organisations and countries, delivered in diverse forms, institutional settings and languages.

3.1 Trainee-based approach

The key findings of the E-RIHS Academy research report⁴ demonstrated the **need to address barriers to training, explore mechanisms to attract more users to join training courses and to enable a Continuous Professional Development (CPD) system for heritage science**. The educational and training activities must reach the audiences as set in the E-RIHS User Strategy and Access Policy, which consist of the following three main audiences:

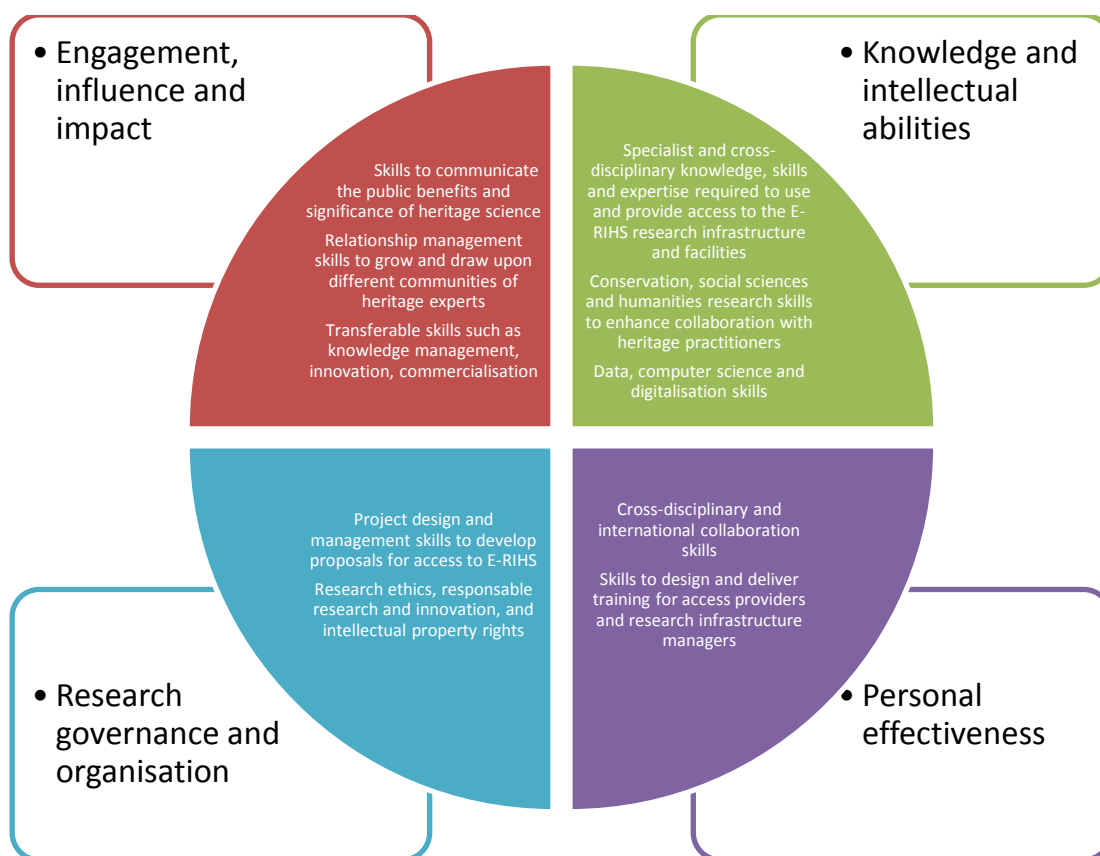
Users	Providers	Managers
Users of E-RIHS infrastructures encompass a wide ranging group, including diverse scientific communities, scholars, curators, conservators and other heritage professionals, as well as other stakeholders who require access to E-RIHS facilities	Providers of access work with users to utilise the diverse resources across the four key modes of access (MOLAB, DIGILAB, FIXLAB and ARCHLAB). They provide training and ad hoc learning opportunities to users at the point of access	Managers of the research infrastructure on national and international level include E-RIHS senior and middle management, and heads and administrators of national nodes as well as other members of E-RIHS community, with specific training needs

Although many providers might also be users (e.g. participating in research proposals within E-RIHS) or managers and vice versa, we see these roles as distinct in the project settings, and demanding project-specific skills.

Training will, therefore, cover core skills required by the scientific aims of project teams, but also transferable and management skills. This will enable project teams consisting of users and providers to obtain a greater insight into what they might do with and through the infrastructure, as well as to maximise the impact of their research.

3.2 Skills needs

The key findings of the E-RIHS Training Needs report and E-RIHS partner consultations identified needs in the following areas:



Future E-RIHS Academy will develop skills in the above four domains, from knowledge and intellectual abilities, engagement, influence and impact, to personal effectiveness and research governance and organisation⁸. By building activity across these domains, we will ensure that our trainees are well-prepared for diverse activities within the research infrastructure and in a changing heritage science research ecology. **We will build a catalogue of expected skills to ensure quality and integration within the E-RIHS community. Using a skill acquisition framework⁹, we will continuously review the catalogue, learning objectives and outcomes to meet the emerging needs of the community.**

To bridge different skill domains, E-RIHS training offer will diversify delivery such that it is suited to different training aims and trainee communities by:

- Building online training resources and courses (including MOOC course offers)

⁸ Vitae Researcher Development Framework (RDF)

⁹ We use the Icon’s (2016) Novice-to-Expert Scale adapted from the Dreyfus model of skills acquisition (1981)

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- Building on the established strengths of partners by galvanising stakeholders, and highlighting existing training facilities and opportunities offered by E-RIHS members and partner organisations for specialist and localised training.
- Establishing physical facilities for E-RIHS-wide group learning at the central E-RIHS hub
- Enabling hands-on and research-based learning including on-the-job training
- Signposting to educational and training opportunities available among E-RIHS members and partner organisations such as ICCROM, ICON, IIC, PARTHENOS, and RITRAIN
- Creating opportunities to meet in person and promote peer-to-peer learning
- Producing publicly available resources and material for hands-on training

3.3 Expertise sharing

E-RIHS training provision should not be treated as provision of core technical and scientific education for heritage scientists. E-RIHS will therefore endeavour to create partnerships with existing providers of heritage science education and specialist training on a national and international level.

To share best practice in the development of the training offer, we will draw on the experience, and collaborate with a number of training initiatives, projects and organisations such as:

- Training and access providers in the E-RIHS member countries
- IPERION CH¹⁰
- PARTHENOS¹¹
- ICCROM¹²
- RITRAIN

As training offer develops, we will seek further opportunities for training partnerships. This will enable us to utilise experience and innovative approaches developed by partners, avoid duplication and ensure an efficient use of resources.

3.4 E-RIHS Academy: holistic training support

E-RIHS training will reach beyond individual and specific educational activities. **We will establish and develop links with organisations, professional bodies and networks to ensure that training objectives are harmonised and E-RIHS activities feed into the wider scientific ecosystem. It is the E-RIHS Academy's aim to support training providers with advice on strategic training needs and delivery.**

Contact with trainees will be maintained after the end of the initial training in order to strengthen the relationships with specialist colleagues nationally and internationally, and permanently consolidate academic collaboration. Maintaining contact with trainees and resource persons also offers an opportunity for evaluation over time regarding training outcomes, prospective needs and future skills.

E-RIHS will enable the development of a Heritage Science Network for those with core heritage science skills and who may have accessed E-RIHS infrastructures or undertaken training organised by E-RIHS, to provide a mutually reinforcing environment where heritage science skills are appropriately recognised and promoted to the community and potential employers. This will enable alumni to continue to explore collaborative ties and organise a programme of follow up activities, thus feeding into the wider advocacy, communication and dissemination mission of the research infrastructure.

In return, this network will represent a rich pool of users and supporters of E-RIHS: a mature, global, cross-disciplinary heritage science community.

¹⁰ Integrated Platform for the European Research Infrastructure ON Cultural Heritage - <http://www.iperionch.eu/>

¹¹ Pooling Activities, Resources and Tools for Heritage E-research Networking, Optimization and Synergies - <http://www.parthenos-project.eu/introducing-parthenos-training-suite>

¹² International Centre for the Study of the Preservation and Restoration of Cultural Property - <https://www.icrom.org/>

4 Resource requirements

The implementation of this strategy is dependent on the effective use of resources. Our learning environments, physical and digital, and teaching facilities will be accessible and will support the E-RIHS community.

<p>Logistics and facility requirements</p>	<p>Training delivery will build on already existing training activity and capacity within the E-RIHS community. To avoid duplication of training opportunities, we will endeavour to highlight existing training facilities and offerings by E-RIHS members and partner organisations for specialist, national and localised training.</p> <p>We will use resources available nationally and within the central hub</p> <p>We will continuously maintain, update and improve the range of training environments and resources that encourage innovative teaching and learning</p> <p>We anticipate that with growing research activity, facilities will be under pressure once they are being accessed by users. Therefore, we will invest in a training facility in the central hub</p>
<p>Technological requirements</p>	<p>State-of-the-art training will require technological resources to deliver the required scientific and digital training. These resources will be necessary for the E-RIHS-wide learning platform as well as at the provider sites</p> <p>Given the current underutilisation of remote delivery methods of training, E-RIHS will develop a suite of online courses for the users and providers. We will invest in digital capabilities to enable the delivery of online and blended courses, combining online digital learning with facility- or classroom-based training methods</p>
<p>Financial requirements</p>	<p>We will invest in systems to enable the delivery of multi-channel learning opportunities (physical and online training) as well as the collection and analysis of learner data for learning innovation</p> <p>We will build on already existing training activity at E-RIHS partner sites.</p> <p>We will focus on partnerships with other initiatives, organisations and projects to share best practice, avoid duplication and attain maximum impact</p> <p>We will explore opportunities for funding for joint courses within the European training programmes such as ERASMUS MUNDUS programme</p>

5 Measures of success

Success will be measured in relation to one of the core values of the Scientific Vision of E-RIHS that relates to learning capacities of the research infrastructure: Competencies first – Considering skills as central.

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Increased skills within, and support for, the E-RIHS community will be the main outcome of the Training Strategy, and the end goal of our investment in staffing, resources and energy over the years. For each of the objectives outlined above, we will measure our progress against the following quantitative indicators.

Objective 1: Identify and promote a set of core skills necessary to deliver E-RIHS excellence

- Number of E-RIHS members with a full set of core skills (once launched)
- Number of learners and take-up of the training programme

Objective 2: Embed continuous learning across E-RIHS and drive the development of future-proof skills in a complex, rapidly changing research field

- Trainee feedback
- Number of courses
- Number of training programmes with research-based learning dimension
- Number of returning trainees

Objective 3: Build around E-RIHS a competency-based heritage science network

- Numbers of the alumni network or E-RIHS association (once launched)
- Number of training initiatives, resources and projects supported by partner organisations
- Income generated by supplementary grants supporting training activities (such as INFRADEV, ERASMUS MUNDUS)

Objective 4: Ensure that the E-RIHS community has access to state-of-the-art training opportunities through diverse delivery methods

- Investment (capital; resources; project costs)
- Learner satisfaction with learning spaces and resources, and achievement of learning objectives

Objective 5: Create a culture of interdisciplinary heritage science research and leadership

- Engagement with online materials by E-RIHS community
- Attendance at E-RIHS-related events, conferences and workshops
- Numbers of trained personnel for access providers annually
- Number of internships offered for on the job training of E-RIHS personnel

The qualitative review process will make use of partnerships for the process of developing, implementing and testing courses and training material. Surveys of training will give qualitative information on the user's expectations and their delivery. In addition, there will be close cooperation with E-RIHS communications team to distribute the training strategy as well as learning materials via the E-RIHS website, social media and other online outlets.

6 Ownership

Training will become part of the remit of one of the E-RIHS Executive Team members and delivery of this strategy as well as monitoring of progress towards the objectives outlined in the strategy, will be within their responsibility.

This strategy will be reviewed in 2023.

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