RESILIENCE

Grant Agreement 101079792, RESILIENCE PPP

Training Services Management Plan

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Version Number	Date	Status	Name	Summary of Main Changes
00.01	09.06.2025	DRAFT	Initial Draft	
00.02	11.07.2025	WORKING	First Revised Text	Incorporation of the reviewers' comments
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01.00	22.07.2025	FINAL	Final Version	

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Distribution List

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All	Various	Various

Table of Contents

List of Abbreviations

BoD	Board of Directors
Cf./cf.	confer
chap.	chapter
DH	Digital Humanities
DOI	Digital Object Identifier
EOSC	European Open Science Cloud
GA	Grant Agreement
GLAM	Sector that includes Galleries, Libraries, Archives, Museums
IA	Impact Assessment
M	Month
PID	Persistent Identifier
PPP	Preparatory Phase Project
RI	Research Infrastructure
SSH	Social Sciences & Humanities
SSHOC	Social Sciences & Humanities Open Cloud
TNA	Transnational Access
WP	Work Package
WU	Working Unit

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1 Introduction

The Training Management Plan defines according to the Grant Agreement 101079792, a "model of training activities provided by RESILIENCE and represents a guide for the partners involved in training activities", according to the Grant Agreement 101079792.

In addition, the Deliverable D2.13 Training Management Report will be prepared, which will report on the activities of the RESILIENCE Training Services during the RESILIENCE Preparatory Phase Project 2022-2026 (due in M47, April 2026).

1.1 What is a Training Services Management Plan?

A Training Services Management Plan is a document that contains all the relevant information needed to develop a user-centred training programme and training prototypes, as well as how to plan and implement the various training courses. This Training Services Management Plan has the following components and objectives:

- **Training Programme: the future curriculum.** In order to develop the future training programme, the user needs are assessed, on the basis of which the curriculum is to be compiled and designed.

  ➔ This is realised in the PPP through the **Assessment of Training Needs**, see chapter 2.

- **Training Courses:** Building and maintaining a curriculum of courses that are relevant for our target audience (the RESILIENCE Training Programme) and breaking down the curriculum into individual courses.

  ➔ This is realised in the PPP through the **development of training prototypes**, see chapter 3.

Reflections on the **scholarship of academic training and learning** drawn from pedagogical and didactic literature are offered in chapter 4, highlighting the importance of evidence-based teaching methods that foster meaningful and effective learning. **Key recommendations** for high-quality RESILIENCE courses, which ensure that the training programme will be effective and appealing and maximise learning success, are based on best practices and lessons learned from the prototype trainings and previous experience and presented in individual aspects in chapter 5. Considerations and various **options for the platform on which the RESILIENCE training can be hosted** are discussed in chapter 6., and finally chapter 7 draws a **Conclusion**.

Workflow for Developing the Training Programme (High-level)

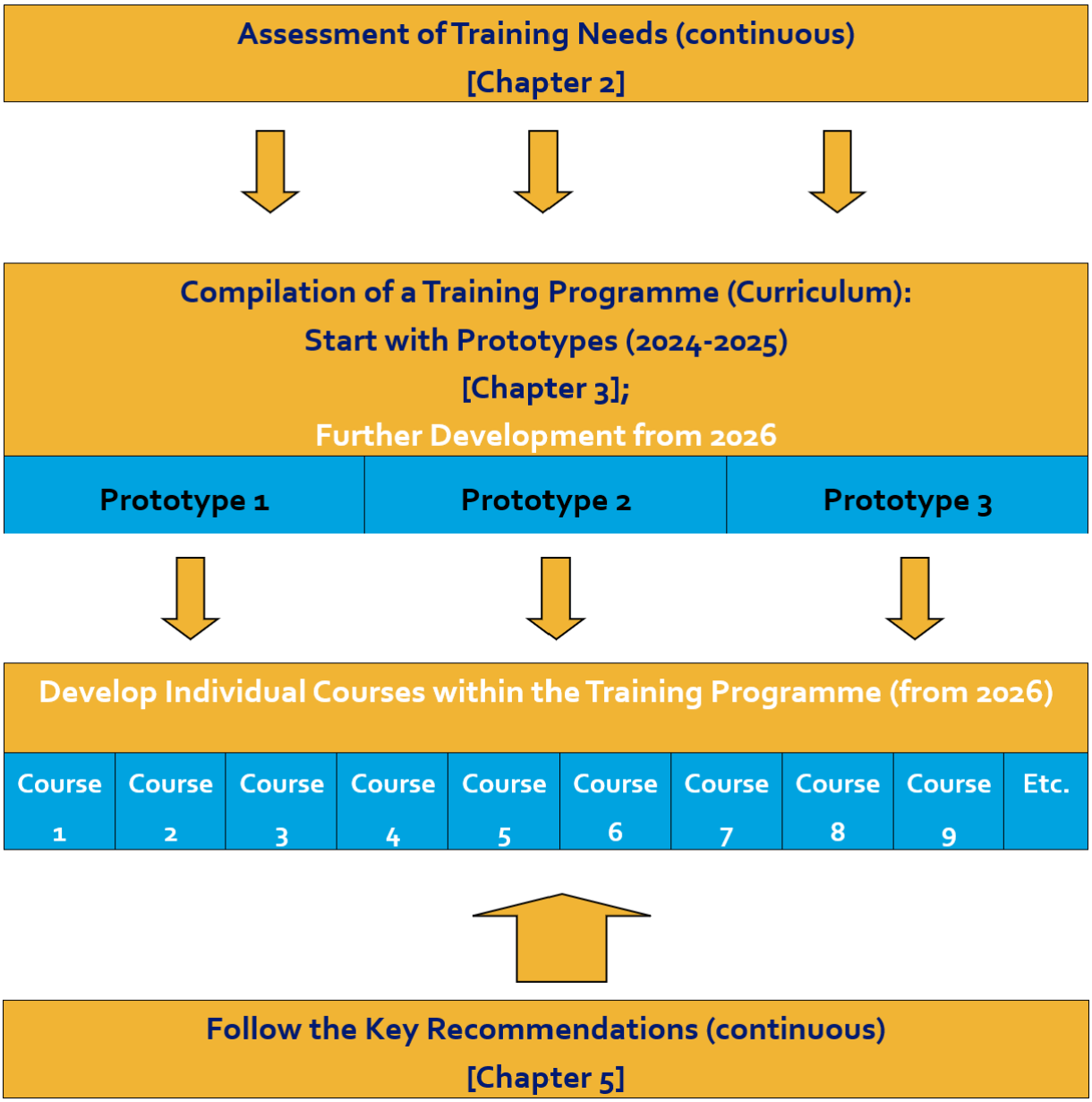

Figure 1: Workflow for Developing the RESILIENCE Training Programme (High-level).

The **RESILIENCE Training Services Management Plan** will be used as a manual for the development of the **RESILIENCE training programme**. It is derived from the knowledge and skills acquired in the predecessor project ReIReS[1] and extended by the work of WU Training during the PPP. Based on this expertise, **three**

[1] Collected in the comprehensive ReIReS Training Toolbox Report, which contains various kinds of tools to plan, develop, implement, evaluate, and improve training courses, including models for training activities, software tools and elements of didactics and practice. It also includes the experiences from the ReIReS Training Programme. Cf. Appendix, chap. 13.

prototypes derived from the user requirements identified in WP3 are developed and tested. The results derived from the utilisation of the prototypes are integrated into the **RESILIENCE Training Management Key Recommendations**. These are based on the experience gained from the training prototypes, from the previous project ReIReS, and is complemented by common standards of training management outside RESILIENCE (e.g. other RIs, universities, research, in the humanities and also outside the humanities in natural sciences, etc.)[2].

During the RESILIENCE PPP, the **training prototypes** are designed, implemented and evaluated and represent reusable models that can either be offered as copies of these training courses or filled with other content in the Implementation Phase. Once the **RESILIENCE Service Catalogue** is operational, specific training courses can be developed based on RESILIENCE services, on new tools, or to cover additional needs (such as physical sources or old/lost languages), **based on users' priorities**.

1.2 Why a Dedicated Training Programme for Research on Religion?

What kind of training services does a research infrastructure for the study of religion need? What training services can RESILIENCE develop and offer that are relevant (and innovative) for researchers on religion? And why should a separate training programme in research on religion be created?

The field of research on religion has unique characteristics that do not occur (to this extent) in any other field of research. These include:

- The **reference of all religions to the numinous**, i.e. the presumption of the divine or sacred as a higher and supernatural power outside the worldly sphere. This always remains in the background of all research on religion, despite all strictly scientific treatment.
- The **variety of languages and scripts** in which the sources are transmitted, including oral and visual traditions.
- The **diversity of sources**, which include not only texts, but also material (artefacts, architecture, etc.) and immaterial (rites, music, etc.) evidence.
- The **difficulty in accessing these diverse sources**, often located in religious sites, restricted archives, secluded monuments or other hidden places, and reachable only through personal contacts and networks.
- The **integration into complex and often contradictory religious, political and economic discourses** that have an effect in synchrony and diachrony.

These characteristics lead to specific requirements for those operating in this field. Due to this immense heterogeneity of sources, it will never be possible to conduct religious research exclusively in the digital space, in which these material and immaterial sources can never be fully represented due to their nature. **RESILIENCE is committed to continuing to also serve this physical space through access to and training**

[2] The WU "Training" is in contact with experts from e.g. FAIR-IMPACT/skills4eosc, eRImote and is also continuously looking for best practices outside the humanities, e.g. in the ELIXIR FAIR Training Focus Group, in addition to investigating the training programs of the relevant ERICs and RIs (DARIAH, CLARIN, EHRI etc.).

on physical sources. These two spaces of research into religion, the digital and the physical, complement each other, RESILIENCE aims to bridge the gap between these spaces. RESILIENCE also strives to create access to the third space, the numinous, which is represented in the research of non-material aspects in the form of observations and interpretations.

The development of RESILIENCE Training Services is guided by these special requirements, for example by a **prototype training on software for the study of intertextuality that can be used on sources in any language and script (Prototype 1, see chap. 3.1)**, and **training on physical objects and on tangible and intangible evidence of religion (Prototype 2, see chap. 3.2)**.

Elements of the Training Services Management Plan are already being used by RESILIENCE and adopted for the development of the training prototypes as well as for other courses and training sessions during the PPP, such as the application of the Key Recommendations (chap. 5) and the implementation of the prototypes.

1.3 Positioning of the RESILIENCE Training in the RESILIENCE Research Infrastructure

Although a variety of training courses are available to scholars in the humanities, there remains a noticeable gap in provision specifically tailored to the study of religion. Existing programmes are dispersed across different providers, lacking a cohesive, coordinated approach that addresses the unique needs of these academic disciplines.

RESILIENCE will not design courses on topics that are already covered.[3] (A future RESILIENCE Training Portal may point our users to such useful courses from other providers.) The RESILIENCE training programme is designed to avoid the problem of an arbitrary course register that collects various courses on different topics in an unstructured way, so that the user cannot recognise what is relevant.

Instead, the RESILIENCE training programme develops **criteria for user-centred training** courses that are relevant to our target audience and will bridge the gap between what is already available and what our users need. Relevant topics include all areas of the study of religion(s), as well as the skills required. These are e.g. IT skills for the use of tools needed for the research in this field (as in Prototype 1, cf. chap. 3.1). Other **typical needs of our user group are those arising from access to and the study of physical sources** stored in the archives of religious communities or other institutions that store religious heritage such as museums, local history or heritage associations etc., that have specialised archives that are often difficult to access or inaccessible to external parties:[4] These challenges are addressed by RESILIENCE Transnational Access, which can also be seen as a part of training. Another characteristic need of our user group is the question of

[3] In the "Third DARIAH Strategic Action Plan", for example, DARIAH plans in the "Support strategic pillar 2: Build access to education and training" to "Position DARIAH as a provider of key competencies for the digital transformation, in terms of interactions with key audiences (HEIs, CHIs), support for cutting edge tools, and accessibility/inclusion issues" by 2025.

[4] One example of many is the resources of the Mount Athos Monastery "St. Georgi Zograf" which has a unique and extremely rich manuscript, archive and library collection. **In situ, these resources are only accessible to male persons**, but can be accessed via the RESILIENCE partner Sofia University by all users, including female persons, in their digital collection, but only locally at the university. It includes in a single organic collection about 1000 manuscripts (Bulgarian, Greek, Moldavian-Vlach, etc.), more than 800 mediaeval and Renaissance charters and documents (Bulgarian, Byzantine, Moldavian-Vlach and Ottoman) and hundreds of rare old printed books.
Cf. https://zograflib.slav.uni-sofia.bg/pages/index-en.html

how to approach the study of material and immaterial evidence such as religious art, religious motifs, devotional music, liturgy (dealt with in Prototype 2, cf. chap. 3.2).

The development of the Training Services Management Plan is guided by the **RESILIENCE Vision and Mission Statement**: "The mission of RESILIENCE is to serve research by improving access to digital as well as physical data on religion and to advanced tools, training, existing research infrastructures and expertise for new, digital, and data-oriented research on religion on a global level."[5]

1.4 Schedule and Implementation

The Training Services Management Plan incorporates materials and resources from the previous ReIReS project (2018–2021). During the RESILIENCE PPP (2022–2026), the Training Services Management Plan is shaped in the form of a desk study. During this phase, prototypes of training courses are developed and piloted as real courses. The actual training programme is scheduled to start in 2026 in the Implementation Phase.

Once the service catalogue is operational, actual and specific training activities will be developed, based on the services RESILIENCE will offer then, on new tools or covering further needs (on physical sources, or on ancient or lost languages), which will follow the priorities of user needs.

A possible scenario that should be analysed with all stakeholders involved could result in a **European Research School for the Study of Religion**. It would primarily attract PhD candidates and post-doctoral researchers, i.e., graduates, but it would not be limited to them. It would also welcome senior researchers, members of the GLAM sector, political figures, journalists, religious communities, and interested non-professionals. The school can be open to all who meet the prerequisites and have a keen interest and the enthusiasm for the respective course topic.

[5] Vision and Mission Statement: https://www.resilience-ri.eu/we-are-resilience/vision-and-mission/

2 Start with the Assessment and Identification of Training Needs

The assessment of training needs is continuously conducted during the RESILIENCE PPP by WP3 "Users" through interviews and group discussions with our target audiences researchers and members of GLAM.[6] In parallel, training needs are identified in additional workshops and focus groups, including workshops of the WU "Training" during the PPP (remote in 10/2023, on-site in Leipzig in 03/2024, remote in 06/2024), the "Impact Assessment" workshop, organised by WP5 in Sarajevo in 03/2024 and online 06/2025, and a planned focus group workshop at EPHE Paris in 09/2025 that will be led by WP2/3. RESILIENCE consortium Partner EPHE has a broad expertise in various areas of study of religion in combination with Digital Humanities, therefore a collaboration is aimed to explore how training needs can be assessed in the future.

2.1 Assessment of Training Needs

The following **areas in which training needs exist or are certainly to be expected** have been identified so far:

- **Training in already existing RESILIENCE Services**, e.g. the mobility and expert matching service Transnational Access (TNA), and the discovery environment ReIReSearch.
- **Training in new skills emerging from unforeseen advancements** in research and the digital humanities, irrespective of whether these are connected to RESILIENCE services or tools or not.
- **Training in Core Skills and Competences for the study of religion** as a RESILIENCE service arising from expressed needs of our target audience. These include methodological competences in study of religion; ethical and cultural sensitivity and awareness; challenges of research in politically and religiously sensitive contexts, etc.
- **Training in Basic/Transversal Skills as a RESILIENCE Service**, e.g. IT skills, transversal skills, language skills, etc.

This categorisation is not intended to be clear-cut; the areas overlap, because the sorting of these sectors in the table is derived from the type of user needs assessment. When these have resulted in definite courses, the training areas should be organised in a way that gives the user a clear overview, like in IT skills, language skills, topics in study of religion, etc.[7]

In the following table these training areas are presented with **options for assessing these training needs**:

[6] The results are provided in RESILIENCE_WP3_D3.5_User-Stories-Catalogue-1st-Batch [R1] and RESILIENCE_WP3_D3.6_User Stories Catalogue - 2nd Batch [R2].
[7] Classification according to the European Skills, Competences, and Occupations classification (ESCO) , which is still under development, is being considered for the future training programme.

Sections of Training:	Training in RESILIENCE Services	Training in New Skills, Dependent or Independent to RESILIENCE Services	Training in Core Skills and Competences for the Study of Religion as a RESILIENCE Service	Training in Basic/ Transversal Skills as a RESILIENCE Service
Examples of RESILIENCE trainings in the PPP	· Training for TNA fellows (WP2, T2.6) · Training for TNA hosts (WP2, T2.6) · Training in ReIReSearch (WP2, T2.2)	· (not offered in the PPP)	· Prototype 2	· Prototype 1 · Prototype 3 · Training in Data Management · Training in FAIR Data Principles
Which factors determine the need?	· The need arises from the services	· The need arises from new developments on the market · The need arises from new requirements for researchers	· The need must be newly identified · The need results from domain needs and individual needs	· The need must be newly identified · The need results from domain needs and individual needs
How do we identify the need?	· The needs are identified in collaboration with the developers of the respective services so that the training courses can be designed in parallel with the RESILIENCE services.	· Ask trainers for upcoming trends · In focus groups with users/ stakeholders discuss trends and new developments · Contact with experts and specialists within and outside our discipline in order to be able to offer skills in their domain transferred to our disciplines · An emerging topic radar with a topic assessment, using semi-automated extraction. Such a radar would determine which skills or training courses are required by our target audiences. So before users know what will be needed in the future, training should already be developed for it.	· Evaluation with users to identify what skills are needed in their field, in the form of focus groups interviews, group discussions, individual interviews, evaluation forms · On demand, e.g. universities ask for a course	· Evaluation with users to identify what basic and transversal skills are needed in their field, in the form of interviews, group discussions, individual interviews, evaluation forms · On demand, e.g. universities ask for a course

Table 1: Areas of Training and Assessment of Training Needs.

The **"Train-the-Trainer" aspect** applies to all areas of training and will be covered in the future training programme as an important and impactful condition for effective and high-quality training.

2.2 Definition of the Target Audience for RESILIENCE Training Services

Researchers are the main user group of Research Infrastructures and form the highest priority.[8] It is therefore obvious to focus on this key user group of researchers on religion in all academic fields. The RESILIENCE WP3 survey of research user requirements was therefore largely conducted with researchers, supplemented by the expertise of the second user group, librarians/ archivists/collection managers (GLAM sector).

The RESILIENCE training programme will focus mainly on the needs of researchers and secondarily on those of members of the GLAM sector but could be open to any person who fulfils the requirements and has a particular interest in the respective course topic.

2.3 Training Design Based on Training Needs

The fundamental principle must be followed that every RESILIENCE training course is designed based on the required competences:

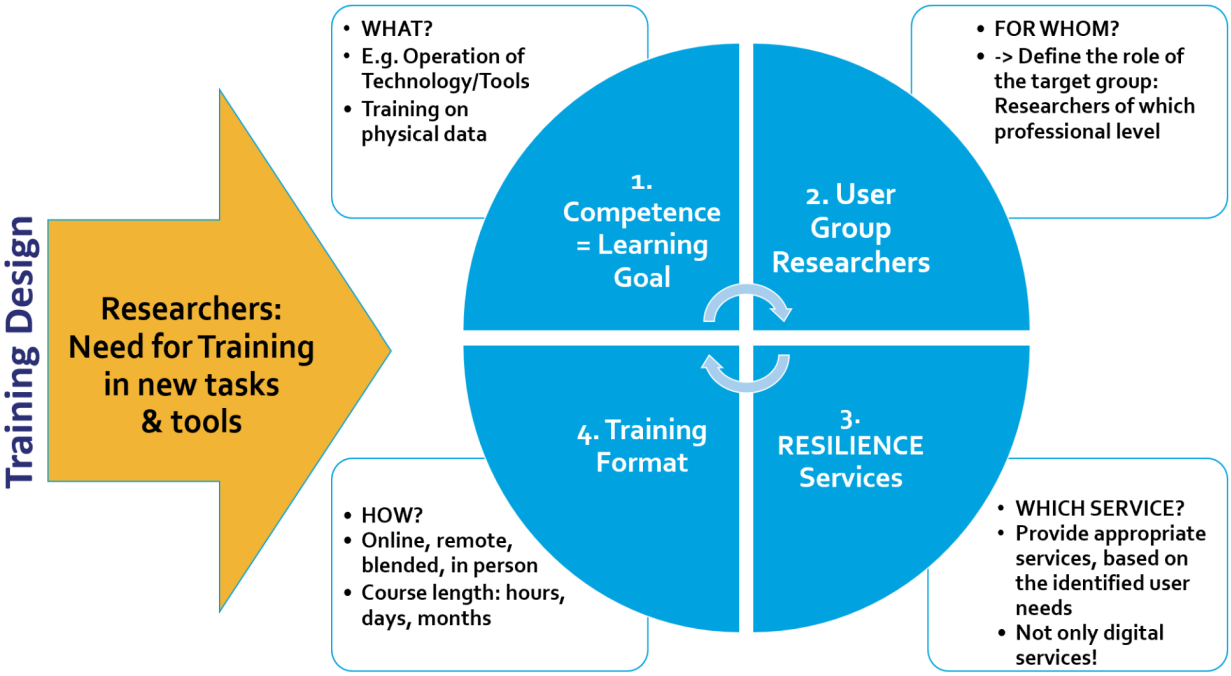

Figure 2: Training Design based on the Needs of Researchers

[8] Cf. CLARIN's "Value Proposition (2021)" and DARIAH's "Strategic Plan 2019–2026", which clearly prioritise the needs of researchers, while also addressing further user groups in politics and society.

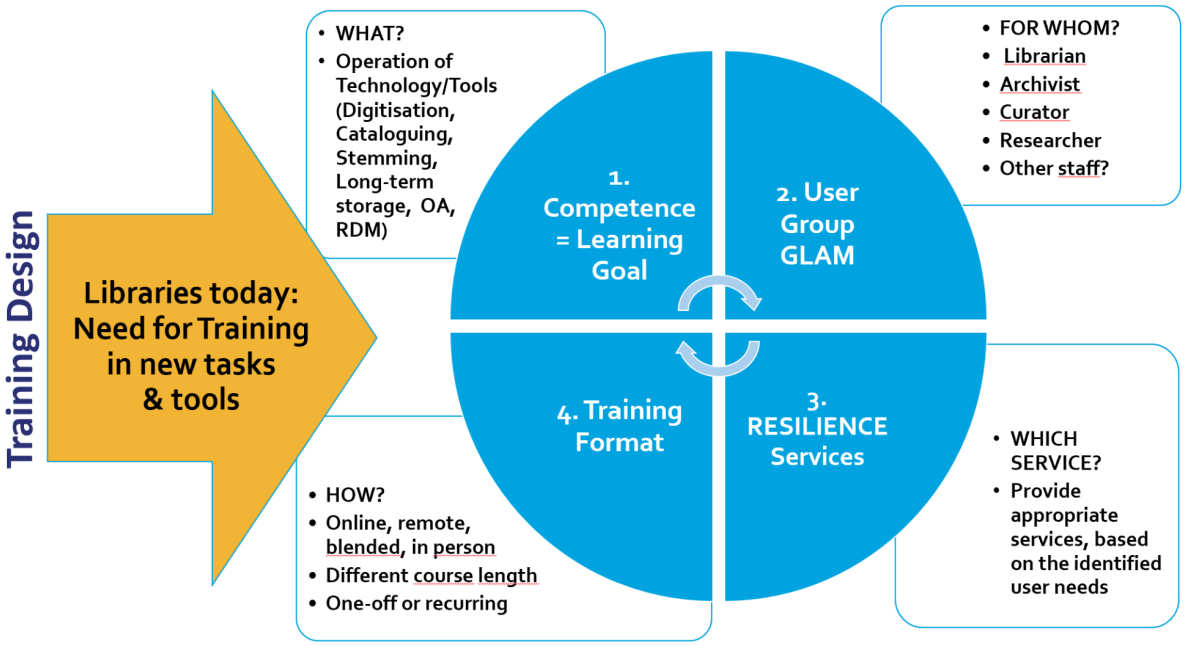

Figure 3: Training Design based on the Needs of Librarians/Archivists

2.4 Address Specific Skills Required for Research on Religion

A **need for specific transversal skills** was identified (in addition to the skills linked to knowledge/academic skills/IT/DH) that are also equally required in the field of study of religion, such as **cultural sensitivity and awareness of the specific requirements of research on religion**. These include, for example:[9]

- Dealing with trauma in interviews after religious conflicts;
- How to effectively address data protection in sensitive research areas; while these challenges are relevant across all disciplines that collect data, research on religion may face unique issues related to religion, ethnicity, and political conflict;
- Handling research in religious communities that are reluctant or unwilling to share their data;
- Coping with research as a member/believer in one's own religious community that potentially leads to results that are undesirable for the community;
- Problems of research on politically oppressed minorities with field studies in countries that are the oppressor; how to collect data, how to store data whose discovery by the authorities jeopardises the researcher and the oppressed individuals, etc.

In the field of research on religions in particular, these challenges arise from the different backgrounds in which research takes place and with which research has to cope, as well as from the position of the

[9] These needs emerged in RESILIENCE workshops in Villa Vigoni 03/2023 and in Sarajevo 03/2024 and should be assessed further.

researcher him- or herself in relation to the object or group under investigation, each with its own challenges depending on whether they are acting from an emic or etic perspective. The last question also touches on controversial political issues on which the European Commission may also have to position itself.

3 RESILIENCE Training Prototyping

In the Work Unit "Training" (WP2, Task 2.7), all RESILIENCE consortium partners are represented with their rich and diverse expertise in the different areas of research on religion(s). The WU decided during dedicated workshops[10] to develop prototypes with the aim of learning and understanding how trainings relevant to our target audiences are best planned, realised, evaluated and improved.

The prototypes were developed based on user requirements identified in Work Package 3 "Users" through individual interviews and group discussions. Researchers, librarians and archivists were queried about their general research needs and specific requirements for a Research Infrastructure for Religious Studies. The responses were transcribed, coded, and categorised. These categories were quantitatively analysed, resulting in a prioritised list of user requirements, articulated as user stories. This list quantitatively represents the prioritised needs of our target audience.[11]

The RESILIENCE service strategy[12] is aligned with these priorities and will serve as a framework while mapping and developing the service catalogue.

During the RESILIENCE PPP, Training sessions addressing the key priorities of "Accessibility" (15%), "Networking/Mobility/Transnational Access" (14%), and "Research Data Management" (10%) were already conducted in WP2.[13]

The prototypes developed complement these efforts and address the next priority (and also highly rated) requirements: "Software and Tools" (10%) with the Prototypes "Uncovering Intertextuality through Digital Tools" (chap. 3.1) as well as "AI for Religious Studies – Automatic Keyword Tagging of Multimedia Data" (chap. 3.3), and the need for "Enhancement of Research and the field of Religious Studies" (9%) is answered with the Prototype "Religion for the Senses. How to Read, Treat and Hear Religious Sources" (chap. 3.2).

In the Implementation Phase, the prototypes created in the PPP are to serve as models that can be reused, scaled to a larger quantity and filled with other content – e g. prototype 1 can be offered as training on another digital tool.

[10] All 13 consortium partners are involved in the WU "Training", which has cooperatively worked on the development of the RESILIENCE Training Programme in several workshops: remote in 10/2023, on-site in Leipzig in 03/2024, remote in 06/2024; in addition, several working meetings were held in smaller groups with individual partners, including CINECA, EPHE and the University of Warsaw.

[11] RESILIENCE_WP3_D3.5_User-Stories-Catalogue-1st-Batch [R1] and RESILIENCE_WP3_D3.6_User Stories Catalogue - 2nd Batch [R2].

[12] For the relations between the surveys in WP3 and the service strategy, see D2.1 Services Preparation and Implementation Strategy, chap. 4.1 [updated version in preparation for July 2025, will be accessible here: https://www.resilience-ri.eu/deliverables/] [R6, R7].

[13] **User Requirement "Accessibility":** Training on RelReSearch "Online Demo: What Can RelReSearch Do for You?" in December 2023; **User Requirement "Networking/Mobility/ Transnational Access":** RESILIENCE Training courses for TNA Hosts ("TNA Host Information Session") in June 2022, June 2023, September 2024; **User Requirement "Research Data Management":** RESILIENCE Training on "FAIR Principles and Religious Studies" in September 2023 with Webinar; RESILIENCE "Data Management Training" in October 2024.

The RESILIENCE training prototypes are deliberately developed in different formats, on-site and remote, for the two main target groups of RESILIENCE, researchers and librarians/archivists, in order to test and evaluate a wide possible range of conditions. The following sections describe each of the three prototypes.

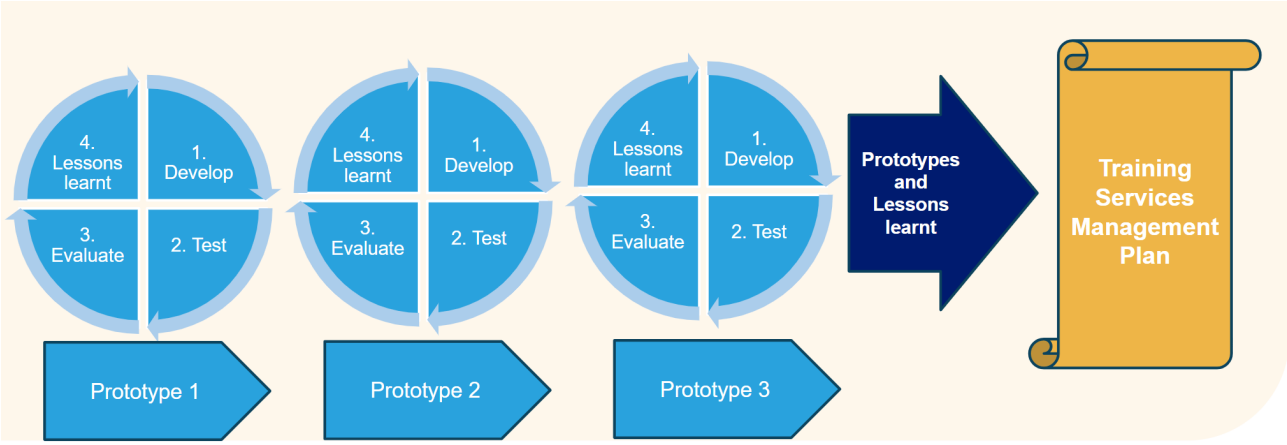

Figure 4: Objective of RESILIENCE Prototypes

3.1 Prototype "Uncovering Intertextuality through Digital Tools"

The first prototype developed was the course "Uncovering Intertextuality through Digital Tools, Demonstrated on the Software TRACER" as a remote live full-day training October 2, 2024, preceded by a helpdesk session. The prototype was successfully tested and can be offered as RESILIENCE training in the future. Optionally with this content or modified for training in another digital tool.

3.1.1 Description of the Prototype for Future Use

This prototype is designed for our target audience researchers to meet the user requirement "Software/Tools" for the study of religion.[14]

When researching texts in Religious Studies, Theology and related disciplines, a common and labour-intensive task involves comparing texts to identify instances of text reuse and to understand intertextual dependencies. This task can be performed by digital tools. The aim of this RESILIENCE training for the participants is not only to learn the basics of using the digital tool, but also to understand that the use of a tool requires extensive preparatory work, so that the user has the knowledge to decide whether it is beneficial to apply the tool to their research. Furthermore, the course aims to indicate problems working with texts by the 90-10-rule that implies that more than 90% of the words occur ten times or less so that text preparation is much more crucial than the tools themselves to uncover intertextuality.

The training can be conducted online or on-site throughout a full day. Under the trainer's guidance, participants complete tasks with the objectives mentioned below. After each learning unit in which a

[14] Cf. the list of prioritised User Requirements in RESILIENCE_WP3_D3.5_User-Stories-Catalogue-1st-Batch [R1], chap. 4.1, 4.2, as well as RESILIENCE_WP3_D3.6_User Stories Catalogue - 2nd Batch [R2], chap. 4.1, 4.2.

competence is taught, the trainees are given a task to solve independently so that the competence is memorised by the trainee because of their own practical application and to check whether they have acquired the skill.

Learning Outcomes of the Training

Learning outcomes are specific statements of what participants will be able to do after successfully completing a learning experience (which can be a single session, a course or a longer programme). They are written in a learner-centred, measurable way that is concise, meaningful and achievable.

Competences

The trainees will acquire the competences:

- Working with command line commands,
- Understanding "Historical Text Reuse Detection",
- Recognising the importance of comprehensive text pre-processing,
- Making texts measurable for the software,
- Ability to link text fingerprints and evaluating them,
- Ability to apply parameters such as pre-processing, labelling, selection and evaluation,
- Ability to independently compare texts (in this prototype, Gospel texts from Luke and Mark),
- Recognising text reuse in a specific graphic pattern when using the software successfully.

Outcome

- Users can compare large volumes of text with this tool.
- Human error is eliminated through automation.
- Foster serendipity and "random findings" by investigating texts at scale.

Impact

- Measurable time savings in research on intertextuality.
- Measurable efficiency of use: larger amounts of text comparable.

Description of the Software

The application of digital tools for recognising text reuse and intertextuality is demonstrated using the TRACER software. This software enables researchers to compare texts and versions to identify literal and near-literal quotations, paraphrases, and even ideas and allusions. The methodology is illustrated using an English edition of the Bible, the King James version, though the software is language-independent and applicable to any contemporary or historical language. The variant graph is a kind of a "textual diffchecker" that indicates differences in two aligned text passages so that researchers can easily illustrate the changes or differences of the aligned texts.

Language

The course is held in English for an international target audience. Therefore, the sources are also chosen in English, here an English bible version.

Preparation of the Participants

Prior to the training, participants receive an email requesting them to perform "essential preparatory work" on their computers, including downloading Java and other programs, with instructions to test their functionality. An online helpdesk session is to be conducted to prepare participants for the course. The trainer ensures that participants meet the technical requirements and resolves any technical issues to facilitate successful course participation.

Evaluation Form

The online evaluation form should be sent to the participants directly after the event, using a form module on the RESILIENCE website. An appeal should be made to the participants, highlighting the benefits for improvement, to ensure that each participant completes the evaluation.

The evaluation form must

A) ask about the learning objectives in relation to the competences acquired through the course, with the choices: Poor, Satisfactory, Good, Very good;

B) Ask additional questions that allow for free-text responses including the following:

- What did you like most about the training?
- How can we improve our future remote training?
- What is your overall impression of the training? Indicate a score 1-10.
- The tool will be useful for my research, indicate: Strongly disagree - disagree - neutral - agree - strongly agree, add a field for a brief explanation.
- Would you like to comment on anything else about the tool?
- Questions regarding the participant's career level and discipline.
- Space for a free-form message.

3.1.2 Results and Insights from the Implementation of the Prototype

- The prototype "Uncovering Intertextuality through Digital Tools" was rated excellent with an overall score of 9.1 out of 10 (in response to the question "What is your overall impression of the training? Indicate a score, whereby 1 is the lowest rate and 10 the highest").
- The six questions on the learning objectives achieved (questions 1-6) were also rated highly: 60% chose "Very Good", 28% "Good", 5% "Satisfactory" and 6.6% "Poor".
- This means that 88% achieved the learning objectives well or very well, the majority of them very well, despite the difficulty that most of them had little experience of working with the command line.
- The prototype can be integrated into the RESILIENCE Training Programme.

Various **best practice lessons** could be drawn from the prototyping from best practice, the trainees' suggestions for improvement and from observations made by the organisers. These insights gained from the prototype are integrated in the **Key Recommendations** (chap. 5).

Additional Materials

Additional materials are available in the Appendix [R4]:

- RESILIENCE Technical Course Description of Training Prototype 1 "Uncovering Intertextuality through Digital Tools" (chap. 1 of Appendix).
- RESILIENCE Lesson Plan of Training Prototype 1 (chap. 2 of Appendix).
- Evaluation of RESILIENCE Training Prototype 1 (chap. 3 of Appendix).

Example for Website with Instructions for Preparation:

- Training Prototype - RESILIENCE

3.2 Prototype "Religion for the Senses. How to Read, Treat and Hear Religious Sources"

The second prototype "Religion for the Senses: How to Read, Treat, and Hear Religious Sources" was conducted as a three-day on-site programme in Rome with 13 participants from 26–28 March, 2025. This prototype is designed for our target audience researchers to meet the user requirement "Enhancement of Research and the field of Religious Studies".[15] The target audience for this course are researchers conducting research on religion. These researchers are expected to be able to analyse the training prototype for future use and from the perspective of a user.

3.2.1 RESILIENCE as Facilitator of On-Site Training with Physical Access

The need and necessity for access to physical sources and locations will always remain in the study of religion, even in a fully digitised research environment, since physical sources can often only be fully understood in their original context and in their materiality, and this also applies to immaterial research objects. On-site study remains indispensable for advancing scholarly understanding in this field. Accordingly, RESILIENCE must continue to provide training that engages with physical resources as a core component of its educational offering.

This training prototype tested the implementation of a training on physical resources in the city of Rome as a place of high importance for research on religion. In this training prototype, the workshop venues Campo Santo Teutonico[16], Friezenkerk and Biblioteca Vallicelliana are considered as ecclesiastical and museal institutions, possible services in itself. It focuses on the physical pillar of RESILIENCE, as physical resources are an important part of the services that RESILIENCE will offer.[17] It addresses the needs of our user community for research on material and immaterial evidence that cannot (yet) be digitised, as religious motifs, art, music, sacred spaces, and liturgy.

[15] Cf. the list of prioritised User Requirements in RESILIENCE_WP3_D3.5_User-Stories-Catalogue-1st-Batch [R1] , chap. 4.1, 4.2.
[16] Campo Santo Teutonico is a German cemetery near St Peter's Basilica within Vatican territory. The access is limited: Visitors must report to the Swiss Guard and ask for admission in German language. The cemetery dates back to the 8th century and contains graves from the Middle Ages to the present day. It also includes a church and a priests' college. The buildings house an archaeological collection that is used for teaching during the training.
[17] Cf. RESILIENCE_WP2_D2.1 Services Preparation and Implementation Strategy, chap. 5.4 (in preparation, will be available here after July 2025) [R6, R7].

Exactly these places and resources will not necessarily be available in the future through RESILIENCE. This prototype is intended as an example and general model for on-site training in places that have significance for research on religion. These trainings are location-bound and therefore often (but not always) person-bound on specific trainers: those responsible for this particular site, namely researchers at a specific research site, the collection managers, curators, librarians or archivists of a collection, the religious leaders and those responsible for a religious site or place of worship. Access is restricted and subject to certain conditions.

The use of such sites and their objects or traditions for the purposes of research and training is usually only possible through personal contacts, which you can either obtain yourself as an individual or through an institution, in this case RESILIENCE. **This is a specific service that RESILIENCE will be able to offer in the future: Providing training in places that are key to the study of religion and of tangible as well as intangible evidence.**

3.2.2 Description of the Prototype for Future Use

This two-day[18] course takes place at the conference house of Campo Santo Teutonico, located within Vatican City. The training focuses on "Religion for the Senses: How to Read, Treat and Hear Religious Sources", exploring the opportunities and challenges of researching religious motifs in art and music. Campo Santo Teutonico, a German cemetery adjacent to St. Peter's Basilica in Rome, provides plentiful religious motifs to study.

Specialists in Christian art history and in archaeology present the history and collections of Campo Santo Teutonico. Participants are encouraged to identify and explain religious motifs in their surroundings, with guidance from the trainers. In the next session, an expert discusses liturgy with music in the cultural context of Italy during the Middle Ages and Renaissance, including its written transmission.

Outside Vatican City, participants engage with members of Friezenkerk Rome, a meeting place for Frisians and now Dutch people in Rome for over 1200 years, to discuss the possibilities and challenges in researching religious art. At the historic Biblioteca Vallicelliana, participants explore religious motifs and ideas through manuscripts and objects from the library's rich medieval and early modern collections.

The course offers a unique blend of theoretical knowledge and practical exploration, providing participants with a deeper understanding of religious sources in art and music, while respecting the diverse backgrounds of the participants.

Learning Outcomes of the Training

Learning outcomes are specific statements of what participants will be able to do after successfully completing a learning experience.

Competences

The participants will acquire the following competences:

[18] In the prototype training, on a third day input was collected and evaluations were carried out for the Training Services Management Plan.

- The participant will be aware of opportunities and difficulties in conducting research on religious arts.
- The participant is able to recognise motifs and ideas in religious arts.
- The participant is able to recognise motifs and ideas in liturgical and devotional music.
    - The participant is able to identify opportunities and difficulties in conducting research on liturgical and devotional music during Medieval and Renaissance times.
    - The participant recognises the cultural awareness behind different uses of liturgical and devotional music.
- The participant is aware of the growing challenges of religious illiteracy.
- The participant can give examples of how others deal with religious illiteracy.

Outcome

- Users receive awareness of the challenges and possibilities of working with and on religious objects.
- Users are able to set goals and define key aspects when developing a training programme themselves (Train-the-trainer).

Impact

- Trainees will gain **enhanced research skills** to conduct more effective and nuanced research on religious arts and music, recognizing both opportunities and challenges.
- Trainees will develop a **deeper understanding of the cultural contexts** and significance of religious motifs and music, fostering greater cultural awareness.
- Trainees will be better equipped to **identify and address the challenges of religious illiteracy**, promoting informed and respectful discourse.
- Trainees will improve **their Training skills** to create well-structured and goal-oriented training programmes, enhancing their ability to educate others effectively.
- Trainees will gain a **broader perspective** of how different communities engage with religious arts and music, enriching their overall perspective and approach to research and education.

Language

The course is held in English.

Programme in Form of a Booklet

For on-site training, it is recommended to provide physical programme materials. This ensures that participants have access to the programme content even when working with physical materials or without a computer. A programme booklet offers the additional benefit of including space for notes and task descriptions that can be completed directly within the booklet. The programme booklet for this prototype is included in the Appendix (chap 4) [R4].

Evaluation Form

An online evaluation form must be completed for each course, sent to the participants at the end or directly after the event, which is then evaluated and analysed with regard to possible improvements that must then be implemented. For a description of the evaluation structure, see chap. 3.1.1.

3.2.3 Results and Insights from the Implementation of the Prototype

For this prototype, in addition to the mandatory online evaluation, written recommendations ("Do's and Don'ts"), oral surveys and discussions were conducted. This approach was taken because on-site training presents more diverse and complex aspects that should be analysed to gain as many insights as possible from the prototype for a future training framework. The key findings and lessons learned are included in the "Key Recommendations" (chap. 5) and are to be taken into account when designing the future RESILIENCE training programme.

Adaptation of this Prototype for the RESILIENCE Training Programme

This training prototype is not meant to be replicated exactly; as described in 3.2.1, instead it is used to develop a structure and model for future on-site training courses on material und immaterial evidence in the study of religion. The numerous best practices and lessons learnt can be found in chap. 5 "Key Recommendations".

Three key features are identified as essential for future RESILIENCE training focused on physical sources and intangible cultural heritage on-site:

- Clearly defined learning objectives and outlined steps to achieve them.
- Participants are provided with active tasks and practical assignments to achieve the learning objectives, followed by thorough evaluation.
- Optimise use of the site and its material and immaterial resources.

Additional Materials

Additional materials are available in the Appendix [R4]:

- Programme Booklet for RESILIENCE Training Prototype 2 "Religion for the Senses: How to Read, Treat and Hear Religious Sources" (chap. 4 of Appendix).
- RESILIENCE Technical Course Description of Training Prototype 2 (chap. 5 of Appendix).
- RESILIENCE Lesson Plan of Training Prototype 2 (chap. 6 of Appendix).
- Evaluation (Online Form) of RESILIENCE Training Prototype 2 (chap. 7 of Appendix).
- Exposé on the Evaluation Discussion of RESILIENCE Training Prototype 2: Key Findings and Lessons Learned (chap. 8 of Appendix).

3.3 Prototype "AI for Religious Studies – Automatic Keyword Tagging of Multimedia Data"

This prototype is designed for our target audience especially for librarians, archivists, collection managers, but also for researchers to meet the user requirement "Software/Tools" for the study of religion.[19]

3.3.1 Description of the Prototype for Future Use

The RESILIENCE training prototype "AI for Religious Studies – Automatic Keyword Tagging of Multimedia Data" was developed by experts of the consortium partner CINECA in cooperation with WU Training.

The course aims to introduce participants to the adoption of AI for supporting several procedures in Cultural Heritage valorisation, accessibility and research, like:

- AI Image Enhancement: Improving the resolution of digital images.
- Object Detection: Detection of specific elements within visual digital assets.
- NER (Named Entity Recognition): Classification of text content based on several categories (i.e., names of people, organisation and places).
- OCR (Optical Character Recognition): Automatic recognition of printed characters.
- HCR (Handwritten Character Recognition): Automatic transcription of handwritten and typewritten texts.

The course is released in two parts: the first one dedicated to images, and the second one to handwritten and printed texts. In each part, the audience will be introduced to selected open science tools, available in the Hugging Face repository, for supporting the appropriate procedures. Both parts foresee a hands-on section with examples of usage of the presented tools.

Course participants receive references to further reading before the course,[20] and the course presentations and materials are shared after the course in a repository.

Learning Outcomes of the Training

Learning outcomes are specific statements of what trainees will be able to do after successfully completing a learning experience.

Competences

The trainees acquire the following competences:

- The participant is able to understand how AI can be applied to cultural heritage.
- The participant can identify useful AI tools for cultural heritage.

[19] Cf. the list of prioritised User Requirements in RESILIENCE_WP3_D3.5_User-Stories-Catalogue-1st-Batch [R1], chap. 4.1, 4.2, as well as RESILIENCE_WP3_D3.6_User Stories Catalogue - 2nd Batch [R2], chap. 4.1, 4.2.

[20] A. Guidazzoli, M. C. Liguori (ed.): AI, Cultural Heritage, and Art Between Research and Creativity. Workshop proceedings, February 9-10, 2024, DOI: 10.1388/IIIWORKSHOPAIBC, esp.: A Guidazzoli, S. Caraceni, R. Pansini, M. C. Liguori: A research methodology for the evaluation of open science solutions for cultural heritage, p. 15–28; S. Imboden, G. Cardano, C. Consiglio: New perspectives in managing heritage documents, p. 29–51; D. Sforzini, G. Fatigati, L. Mattei: Advanced solutions for automatic image and text analysis and enrichment", p 53–68.

- The participant is able to understand and use foundational models with Hugging Face.
- The participant is able to manage and perform object detection with Hugging Face tools.
- The participant is able to manage and perform image captioning using Hugging Face tools.
- The participant is aware of potential problems with object detection and image captioning tools.
- The participant understands and can apply AI image enhancement techniques.
- The participant understands and can apply Named Entity Recognition (NER).
- The participant is able to manage and perform Optical Character Recognition (OCR).
- The participant is able to manage and perform Handwritten Character Recognition (HCR).

Outcome

- Users can improve the resolution of digital images.
- Users can automatically recognise the individual elements in visual digital holdings.
- Users can automatically identify and categorise valuable artefacts and documents.
- Users can process data more efficiently by applying text recognition technologies such as Named Entity Recognition (NER), Optical Character Recognition (OCR) and Handwritten Character Recognition (HCR).

Impact

- Users save time and resources when improving the resolution of digital images.
- Users save time and resources when cataloguing documents.
- Users save time in capturing and transcribing handwritten and visual characters.
- Users can preserve valuable artefacts and documents digitally in high quality.
- Valuable original documents are preserved by the possibility of using digital representations.

Language

The course is held in English.

Preparatory Session for Participants

A mandatory online orientation session must be held prior to the course to provide participants with information on the course schedule, with a possibility to share expectations and obligations and as an opportunity to clarify any open questions. In such a training course on tools for use with materials in their own work and research field, trainees should be encouraged to submit their own materials to work with in the course.

Evaluation Form

An online evaluation form must be completed for each course, sent to the participants at the end the event or directly after, which is then evaluated and analysed with regard to possible improvements that must then be followed. For a description of the evaluation and structure, see chap. 3.1.1.

3.3.2 Results and Insights from the Implementation of the Prototype

The "AI for Religious Studies – Automatic Keyword Tagging of Multimedia Data" training prototype successfully introduced participants to advanced AI tools and their applications in cultural heritage. The feedback from participants and organisers highlighted several key points:

Participants appreciated the professional delivery, practical examples, and the opportunity to learn about AI tools relevant to their work. They suggested improvements such as more practical exercises, breaking the training into shorter sessions, and clearer communication of the programme in advance.

The training was well-received, with an average score of 7,6 out of 10. Most participants (75% "Yes", 25% "Partly") felt it should become part of the RESILIENCE Training Services, with some modifications to better meet their needs.

The organisers recognised the need to balance detailed technical content with practical application. They recommended reducing the focus on technical details, providing more guidance for self-application, and allowing participants to practice using the tools.

As a result of the implementation of this prototype, significant recommendations could be identified both from the best practice examples and from the suggestions for improvement, which are included in the "Key Recommendations" (chap. 5) and should be taken into account in the design of the future RESILIENCE training programme.

Adaptation of this Prototype for the RESILIENCE Training Programme

The two course parts with the course contents A) AI and Cultural Heritage, Object detection and Image Captioning, AI Image Enhancement, and B) Named Entity Recognition (NER), Optical Character Recognition (OCR), Handwritten Character Recognition (HCR), should be split into two separate training course parts to avoid overwhelming participants with too much input.

Each tool should be practised in hands-on sessions so that participants can use the tools independently under the guidance of the trainers.

Additional Materials

Additional materials are available in the Appendix [R4]:

- RESILIENCE Technical Course Description of Training Prototype 3 "AI for Religious Studies – Automatic keyword tagging of multimedia data" (chap. 9 of Appendix).
- RESILIENCE Lesson Plan of Training Prototype 3 (chap. 10 of Appendix).
- Evaluation of RESILIENCE Training Prototype 3 (chap. 11 of Appendix).

4 The Scholarship of Academic Training and Learning

The predecessor project ReIReS (2018–2021) addressed the topic of effective training and established the paradigm "From Teaching to Learning", because it was found that when organising and conducting academic training, there is always the risk that the focus is too much on teaching in the form of one-sided lectures that leave open the extent to which the trainee can use the content for themselves. In good teaching, the focus is on learning, which is achieved by defining desired learning objectives and the necessary steps to achieve them. The ReIReS Training Toolbox Report[21] contains various didactic aspects for training courses, which are incorporated into the Management Plan and Key Recommendations (chap. 5).

Contemporary research literature offers a wealth of methodological analyses and guidance on effective academic learning, with a strong emphasis on **active-participatory teaching approaches**. These pedagogical strategies are also foundational to the RESILIENCE training programme, chapter 4 outlines their relevance and application within this context. Chapter 5 then presents the **Key Recommendations** identified as essential for delivering a high-quality RESILIENCE training programme, drawing on best practices, lessons learned, and key desiderata from the prototype trainings and previous experience.

4.1 Active Learning as a Core Component of RESILIENCE Training

Active learning methods have been consistently shown to be highly effective in academic teaching, and studies consistently show higher learner satisfaction and performance when active learning methods are used, particularly when learners are required to solve in tasks that simulate hands-on activities and real-world projects. Activities such as experiments, artifact analysis, and field visits to libraries and museums are recommended to help bridge the gap between theoretical knowledge and practical application.[22]

A particular effective learning effect is achieved through **hands-on practice**, which is considered a key component of active learning, especially in online environments when learners immediately apply the concepts learnt through simulations, interactive tools or real-life tasks[23] – in a RESILIENCE training course on a digital tool for "Handwritten Text Recognition" (HCR), for example, this can be accomplished by the trainee applying the tool to their own research sources. Hands-on experiences also promote emotional engagement and sensory experiences as keys to deep cognitive learning.[24]

[21] Cf. ReIReS Training Toolbox Report, 6. Aspects of the Paradigm "From Teaching to Learning", p. 43–45; 7. The Didactic Aspects of the Trainings, p. 46–84, as well as 8. The Practical Aspects of the Trainings, p. 85–104, and various tools to realise this paradigm in practice in training courses; see Appendix, chap. 13.
[22] Cf. Wittayakom, S., Kanjanavisutt, Ch., Wongwanich Rumpagaporn, M.: Online Training by Active Learning Approaches: A Systematic Literature Review, in: Higher Education Studies; Vol. 14, No. 4 (2024), DOI: 10.5539/hes.v14n4p53, p. 7; Thomas, M. B., Muscat, A., Zuccolo, A. et al.: Navigating Pedagogical Innovation in Higher Education: Education Academics' Experiences with Active and Inquiry-Based Learning in Intensive Teaching, in: Innov High Educ (2025), DOI: 10.1007/s10755-025-09807-y, p. 15–20.
[23] Cf. Wittayakom et al., 2024, p. 4.
[24] Cf. Thomas et al., 2025, p. 19.

5 RESILIENCE Key Recommendations for Training Design and Delivery

This section presents the **key recommendations for the design and delivery of effective academic training events** that RESILIENCE intends to offer in the future. These instructions are based on the results of the PPP: the design and delivery of the training prototypes (chap. 3), their extensive evaluations with the support of the consortium partners and the training organisers, in the form of online evaluations, discussion-based assessments and additional feedback. It also incorporates key elements from the ReIReS toolbox report, contributing to a comprehensive and evidence-based approach to training design.

5.1 Course Planning and Practical Organisation

Course Planning and Practical Organisation
1. Selecting and Preparing Trainers
Criteria and Guidelines for Trainers
• Trainers should possess formal **didactic training**; RESILIENCE may consider offering a dedicated train-the-trainer course to support this. • Strong **voice and communication skills** are essential for effective delivery. • Trainers should demonstrate **assessment literacy**, including familiarity with formative and summative evaluation methods.
Trainer Agreements and Contracts
To ensure consistency and quality, trainer contracts should clearly specify: • **Learning objectives** to be achieved. • **Teaching methods** to be employed. • **Evaluation strategies** to be used. Additionally, organisers must establish a **clear agreement on expectations** regarding course preparation, including learning goals, content, and structure.
2. Clarify Roles
• **Define distinct responsibilities for moderators and trainers**, specifying who is responsible for delivering content and who will facilitate discussions. Equip moderators with facilitation skills to manage the session flow confidently and assertively.
3. Select the Optimal Training Format
• **Prioritise on-site delivery** whenever possible—even for courses focused on digital tools—as in-person settings foster richer interaction, enable real-time feedback, and allow trainers to more effectively monitor participant engagement and progress.
4. Mandatory Chat Support for Remote Trainings
• Ensure a **dedicated support person** is assigned to monitor and respond to participant questions and comments in the chat during remote sessions.
5. Registration Protocols
• **Use BCC** when emailing participants to protect personal data and avoid spam filtering.
6. Minimising Non-Attendance
• Clearly **communicate the importance of notifying non-participation** as early as possible. • **Send reminders** shortly before the event, prompting participants to confirm attendance or cancel via a clearly visible cancellation option. • Implement a **penalty system** for unexcused absences, such as temporary suspension from future registrations or waitlist-only access.

7. Provide Clear and Standardised Course Descriptions
• To ensure consistency and transparency across the RESILIENCE Training Programme, all courses must include a **standardised course description** that aligns with the requirements of the chosen training platform or portal.
Technical Course Description
• A **Technical Course Description** consolidates all essential information for participants in a single, accessible format (e.g., table, webpage, or LMS entry). • It must include **learning objectives, content overview, format, duration, prerequisites, and trainer details.** • See Appendix chap. 1: *RESILIENCE Technical Course Description of Training Prototype 1* for an example.
Training Guide (Optional)
• A **Training Guide** may be provided as a printed or digital booklet, especially for multi-day, on-site courses. • While less flexible than digital formats, **printed guides** can enhance participant engagement and serve as a lasting reference. • Recommended for recurring workshops or when targeting specific audiences. See Appendix chap. 4 *RESILIENCE Training Prototype Rome Programme Booklet* for an example.
Participant Notebook
• Provide a small **notebook (physical or digital)** for participants to record observations, reflections, and key takeaways.
8. Ensure an Effective Technological and Environmental Setup
• **Reduce technical barriers** to support full participation, especially in interactive components. • **Test all equipment in advance**, with a focus on audio quality and reliability. • **Arrange the physical space** for visibility, comfort, and interaction during the training (e.g., U-shape seating, power access). • **Secure stable internet access**, allowing time for setup and troubleshooting to avoid disruptions.

Table 2 Course Planning and Practical Organization

5.2 Aligning Course Design with Learner Needs

Aligning Course Design with Learner Needs
1. Align Course Design with Audience Needs
• **Clearly define prerequisites** for each course, including academic background, language proficiency, and tool familiarity. • **Adapt content** to participants' prior knowledge and technical skills. • **Offer tiered course formats** to accommodate varying experience levels, including extended sessions for beginners. • **Inform trainers in advance** about participants' expertise and expectations. • **Share participant profiles** with trainers to support tailored instruction. • **Include participant introductions** to foster engagement and peer learning.
2. Provide an Orientation Session
• **It is strongly recommended to offer an online orientation or help desk session prior to the start of each training**, whether on-site or remote. This session should address both general and technical questions and provide support for any digital prerequisites. • **Make attendance at the orientation session mandatory for all training formats** to ensure participants are well-prepared. • Communicate that this helps **establish a shared understanding of expectations** and ensures **smooth technical operation** from the beginning.
3. Foster a Positive Learning Environment
• **Create a welcoming and supportive atmosphere** that encourages **open participation and engagement**.

• **Allocate dedicated time for informal interaction**, including opportunities to meet, socialise, network, and engage in meaningful discussions—an often overlooked but powerful element in enhancing learning outcomes. • **Encourage active participation** by involving all trainees in individual or group tasks. Pay special attention to quieter participants to ensure inclusive engagement.
4. Foster an Inclusive and Equitable Training Environment
• **Integrate diverse perspectives** by including materials from various religious, cultural, and social backgrounds where applicable and relevant. • **Apply varied teaching methods** to accommodate different learning styles and needs. • **Use participatory approaches** such as discussions and group work to promote engagement and inclusion. • **Ensure accessibility** by providing materials in multiple formats (e.g., audio, braille) where possible.
5. Address Challenges in Training for the Study of Religion
Inclusion in the study of religion can present unique challenges: • **Historical and regional differences** in the relationship between religion and education may affect participant expectations. • **Balancing academic neutrality with religious sensitivity** can create tension between scholarly critique and respect for belief systems. • **Religion as personal identity** may lead to emotionally charged discussions. Trainers should be prepared to recognise and manage these dynamics transparently, fostering respectful dialogue and a safe learning environment.

Table 3 Aligning Course Design with Learner Needs

5.3 Didactical Design with Pedagogical Techniques and Tools

Didactical Design with Pedagogical Techniques and Tools
1. Define Clear Learning Objectives and Contexts
• **Start each session** by outlining the learning objectives. • **Provide historical and social context** to frame each topic meaningfully. • **Emphasise practical relevance** to connect content with real-world applications. Clearly defined learning outcomes help trainers design focused content and activities, while enabling participants to assess the course's relevance to their learning goals and competencies and achieve these.
2. Prepare a Structured Lesson Plan
• A well-designed lesson plan ensures that **learning objectives are met efficiently and consistently**. • It supports **clear organisation**, **effective time management**, and **learner engagement**. • It , serves also as a tool for **post-session reflection** and continuous **improvement**.
Key Components of a Lesson Plan:
• **Learning Objectives**: Define what participants should know or be able to do by the end of the session. • **Materials and Resources**: List all tools, readings, and media needed. • **Activities and Procedures**: Include varied, learner-centered tasks that promote active participation and skill application. • **Assessment Methods**: Identify how learning will be measured during or after the session. • **Time Allocation**: Assign realistic timeframes to each component to ensure balanced pacing. See Appendix chap. 12 *RESILIENCE Lesson Plan Template* for an example
3. Use Activating Didactics and Engaging Teaching Methods
• **Limit lecture segments** to 8–10 minutes to maintain attention. • **Integrate regular audience interaction** and learner-centered strategies to promote engagement. • **Vary teaching formats**, alternating between presentations, discussions, and collaborative tasks. • **Begin with a warm-up or attention grabber**, and revisit it during the session to reinforce key points. • **Encourage active participation** through group discussions, problem-solving activities, and hands-on projects. • **Design step-by-step tasks** after each learning segment to reinforce and apply knowledge progressively. • **Incorporate primary sources** (e.g., documents, artifacts) and teach critical analysis methods. • **Organise excursions or on-site sessions** (e.g., libraries, archives, museums) to connect theory with real-world contexts. • **Promote interdisciplinary perspectives**, especially within the Study of Religions and related fields. • **Foster collaborative learning**, including peer-to-peer interaction both in-person and online. • **Support reflective practices** through continuous self-assessment and feedback mechanisms.
4. Incorporate Hands-on Exercises

• **Integrate practical applications** relevant to participants' fields to enhance engagement and knowledge transfer.
• **Include follow-up tasks** after each course section to reinforce learning and assess progress.
• **Use built-in feedback loops**, such as trainer evaluations, group reflections, and peer feedback.
• **Encourage participant input** by inviting them to submit real-world examples in advance, where applicable.
• **Structure tool-based sessions** into clear phases:
  ○ Introduction of the concept
  ○ Explanation of the practical task
  ○ Guided implementation time
  ○ Group discussion of results
• **Ensure adequate trainer support** to guide participants through exercises effectively.
• **Allocate sufficient time** for task completion and meaningful feedback.

5. Provide Visual and Written Aids

• **Use visual and written materials** such as slides, handouts, and data visualisations to support comprehension. • **Ensure alignment between spoken and visual content** for clarity and consistency. • **Provide glossaries and bibliographic references** to support understanding and further exploration. • **Explain technical terms** based on the audience's disciplinary background. • **Include names, places, and dates in written materials** to aid comprehension, especially when pronunciation may vary due to accents.
6. Reinforce Key Takeaways
• **Conclude sessions with concise summaries** of the main learning points. • **Engage trainees in summarising outcomes**, either verbally or through collaborative activities. • **Visualise results**, for example by creating a summary poster or shared document to consolidate learning.
7. Manage Time and Pacing Effectively
• **Balance content with available time** to avoid cognitive overload. • **Avoid rapid topic shifts**; assign one clearly defined topic per training day. • **Limit lecture duration** and present information in manageable segments. • **Allow ample time for practice and reflection**, especially after complex content. • **Slow down for advanced topics** and provide additional support for non-specialists. • **Distribute intensive content** (e.g., multiple tools or complex concepts) across multiple sessions to maintain engagement and retention.

Table 4 Didactical Design with Pedagogical Techniques and Tools

5.4 Evaluation, Feedback and Impact Assessment

Evaluation, Feedback and Impact Assessment
1. Use Evaluation and Feedback for Continuous Improvement
• All RESILIENCE training courses and prototypes must be evaluated to ensure continuous improvement. Feedback from participants and organisers helps assess whether learning objectives have been met and identifies areas for enhancement.
2. Manage the Full Evaluation Circle (4 Steps)

1. **Design the Evaluation**
  • Align evaluation tools with defined learning goals and outcomes.
2. **Conduct the Evaluation**
  • **During training**: Use short assessments (e.g. hands-on tasks, oral feedback, Q&A) after each section to check understanding.
  • **At the end**: Use structured evaluation forms and open discussions to assess overall learning outcomes and gather suggestions.
3. **Analyse Results**
  • Review feedback to identify strengths, gaps, and actionable improvements.
4. **Apply Insights**
  • Integrate findings into future training design to support ongoing development.

3. Assess the Impact of Training
• Additionally, the RESILIENCE Training Programme will incorporate the impact assessment framework developed in WP5 ("Monitoring and Evaluation for RESILIENCE Trainings") to guide planning, monitoring, and evaluation. Teaching materials and methods should be regularly updated to reflect current best practices and pedagogical innovations.

Table 5 Evaluation, Feedback and Impact Assessment

5.5 FAIR-by-Design Training Material

FAIR-by-Design Training Material
1. Create FAIR-by-Design Training Material
The development of FAIR learning materials that can be easily reused by both trainers and learners is a key element of the Open Science approach, and RESILIENCE recognises Open Science as one of its guiding principles and commits to it.[25] In the RESILIENCE Open Science Policy it is stated for education and training: "RESILIENCE is committed to offering training courses and materials to increase knowledge and facilitate the adoption of Open Science by researchers in Religious Studies. RESILIENCE will make use of and disseminate existing materials to direct researchers to the relevant information for their level of training in OS principles. Any training resource created by RESILIENCE will be shared as Open Educational Resources (OER)."[26] The creation of learning materials is to be carried out, according to FAIR-by-design principles, with licence and PID right from the start, so that they are Findable, Accessible, Interoperable and Reusable. The application of the FAIR principles makes a significant contribution to improving the quality and efficiency of academic training courses and supports sustainable and inclusive knowledge transfer. The RESILIENCE Training Framework should adopt the standards of the SSH Open Marketplace and the European Open Science Cloud (EOSC) with the aim of future integration. This strategy will ensure our services are available to an even broader community, aligning with the FAIR principles and adhering to the highest standards.[27] The development of the FAIR-by-design materials is based on the recommendations of FAIR-IMPACT and Skills4EOSC, with whose experts the WU "Training" is in consultation. The following aspects should be addressed:
2. FAIR-by-Design Principles
• **Findability**: Materials must be easy to find to enable students and researchers to access relevant information and resources. They must be clearly organised on an accessible portal and provided with appropriate keywords. • **Accessibility:** Ensure that learning materials are accessible to all participants, including people with disabilities. This means, for example, choosing accessible formats, providing alternative text for images and ensuring compatibility with screen readers. • **Interoperability**: By adhering to standardised formats and protocols, FAIR materials can be easily used in different systems and platforms. This facilitates the integration and exchange of data and information. Preferably, the SSHOC metadata standards should be used to enable interoperability with the SSH Open Marketplace. • **Reusability/Sustainability:** Create materials that can be easily updated and reused by using open standards and formats that are accessible with OA software. • **Equity:** Develop materials that meet the different learning needs and backgrounds of the participants. This also includes taking language diversity and different prior knowledge into account.
3. Open Licensing
• **Use open licences** such as Creative Commons, to allow others to use, modify and share the materials free of charge. • Ensure that **all sources and contributors are credited**. This protects intellectual property rights and creates transparency about the origin of the materials.
4. Persistent Identifier (PID)
• **Assign persistent identifiers** (e.g. DOIs) for learning materials. This ensures that the materials can be cited and retrieved reliably in the future. • Include comprehensive **metadata** with each learning material to ensure that the content can be found, retrieved and used correctly. We recommend creating metadata that is compatible with the SSH Open Marketplace.

Table 6 Fair-by-Design Training Material

[25] Cf. e.g. RESILIENCE_WP2_D2.4_Data_Management_Plan_01.00_FINAL, chap. 3 and passim [R5].
[26] RESILIENCE_WP2_D2.1_Services Preparation and Implementation Strategy, chap. 9.6 [R6, R7].
[27] This is defined in the Services Preparation and Implementation Strategy, see RESILIENCE_WP2_D2.1_Services Preparation and Implementation Strategy, chap. 4.2, 4.3 [R6, R7].

6 Create or Join a Delivery Platform for the RESILIENCE Training Programme

There are different options for the public presentation and for the management of the future RESILIENCE training programme in the Implementation Phase: The integration of RESILIENCE training management and materials with an external training course provider (6.2), or the development and maintenance of an in-house RESILIENCE training portal (6.3), or a combined solution (6.4). A dedicated in-house RESILIENCE **training portal** would serve as a centralised access point to the RESILIENCE training programme for providers and users to all different areas of course planning, delivery, administration and materials. A portal can also integrate various services such as email, calendars, forums and other tools that are useful for managing and participating in courses. A **platform** is the technological basis on which training content can be developed and operated. A platform focuses on the provision and administration of course content but can also provide applications and learning management systems.

The choice of strategy as to which hosting option will be implemented depends on whether an external course provider such as DARIAH Campus or another has the necessary requirements for the RESILIENCE training programme. During the development of the training programme as part of the PPP, the requirements for a provider platform are first collected (6.1) and weighed up at a later stage to determine whether the RESILIENCE training courses can be hosted by an external provider.

The options will be discussed in close cooperation between WU "Training" and WU "Data" (Tasks 2.1 to 2.5). If no existing platform can meet the requirements for the RESILIENCE training programmes, the establishment of a dedicated RESILIENCE training portal will be targeted.

For the period of the RESILIENCE PPP, it was decided to upload training materials as well as other datasets to Zenodo and make them available to the research community and the wider public (cf. chap. 6.5).

6.1 Requirements for a Platform for the RESILIENCE Training Programme

The development of the requirements for a training platform was started in WU "Training" and will be further analysed and defined in a mock-up creation by WP3.

Requirements for a RESILIENCE Training Platform were collected, two catalogues with requirements on the part of trainees and trainers are listed below:

User Requirements Trainees for a RESILIENCE Training Platform

User Requirements Trainees for a RESILIENCE Training Platform: As a Trainee ...	Functionality Requirements for a RESILIENCE Training Platform:
1. I would like to search for course content.	1. **Search Functionality**: Implement a robust search feature that allows users to search for course content.

2. I need the ability to search by keywords, language, disciplines, etc.	**2. Advanced Search Filters**: Integrate advanced search filters enabling users to search by keywords, language, disciplines, etc.
3. I wish to find training courses relevant to my field (e.g. for the target audiences researcher on religion, librarians, archivists, GLAM sector members, religious community members. This need stems from the fact that many platforms contain numerous colourful contents for each type of course and the user cannot find relevant content).	3. **Course Discovery**: Develop a system to help users find relevant training courses easily.
4. I want to locate training courses created or recommended by RESILIENCE.	4. **Curated Content**: Ensure the platform highlights and allows users to find training courses created or recommended by RESILIENCE.
5. I would like to register for a training course.	**5. Registration System**: Provide functionality for users to register for training courses.
6. I need to store course materials.	6. **Material Storage**: Enable users to store course materials within the platform.
7. I want to create and store my own materials (e.g., processed worksheets, research materials, etc.).	7. **Custom Content Creation**: Allow users to create and store their own materials, such as processed worksheets and research materials.
8. I require a user interface in English.	8. **English User Interface**: Design the user interface to be available in English.
9. I would like a user interface available in other languages than English (to be determined).	9. **Multilingual User Interface / or Multilingual Support**: Develop the user interface to support multiple languages (specific languages to be determined).
10. I desire a user-friendly and easy-to-navigate interface.	10. **User-Friendly Design**: Focus on creating a user-friendly and easy-to-navigate interface.
11. I want an informative course description with clear learning goals, competences, outcomes, required prior knowledge or qualifications.	11. **Course Descriptions**: Provide detailed course descriptions that include clear learning goals, competences, outcomes, required previous knowledge/qualifications, etc.
12. I wish to keep a history log of my training path and achievements, displaying my course or training history, including exam results and certifications.	12. **Training History Log**: Implement a feature that allows users to keep a history log of their training path and achievements, displaying their course or training history, including exam results and certifications.
13. I would like to receive notifications about training deadlines or updates.	13. **Notification System**: Develop a notification system to inform users about training deadlines or updates.

Table 7: User Requirements Trainees for a RESILIENCE Training Platform

User Requirements Trainers for a RESILIENCE Training Platform

User Requirements Trainers for a RESILIENCE Training Platform: As a Trainer …	Functionality Requirements for a RESILIENCE Training Platform:
1. I want to create, edit, and store various file formats (e.g., interactive modules, video formats, PDFs, text files, etc.).	1. **File Format Support**: Implement functionality to create, edit, and store various file formats, including interactive modules, video formats, PDFs, and text files.
2. I want to organise course content in a logical structure (to be determined).	2. **Content Organisation**: Develop a system to organise course content in a logical structure as determined.
3. I want to manage courses and training modules effectively.	3. **Course Management**: Provide tools for effective management of courses and training modules.
4. I want to customise the presentation of courses or training modules based on participant needs.	4. **Customisation Options**: Enable customisation of course or training module presentations based on participant needs.
5. I want to manage and track course or training fees, if applicable.	**5.** **Fee Management**: Integrate features to manage and track course or training fees, if applicable.
6. I want to manage user access and permissions within the course or training management system.	6. **User Access Control**: Implement user access and permission management within the course or training management system.
7. I want to facilitate the sharing of course or training updates and announcements, including metadata and information about online sessions.	7. **Communication Tools**: Facilitate the sharing of course or training updates and announcements, including metadata and information about online sessions.
8. I want to record and display the course or training history for each participant.	8. **Participant History**: Develop a feature to record and display the course or training history for each participant.
9. I want features for creating and managing assessments, worksheets, interactive material, quizzes, etc.	9. **Assessment Management**: Include features for creating and managing assessments, worksheets, interactive material, quizzes, etc.
10. I want to manage trainer profiles, including qualifications and courses handled.	10. **Trainer Profile Management**: Provide tools to manage trainer profiles, including their qualifications and courses handled.
11. I want to evaluate and grade participants based on their performance.	11. **Evaluation and Grading**: Implement functionality for trainers to evaluate and grade participants based on their performance.

Table 8: User Requirements Trainers for a RESILIENCE Training Platform

These requirements are compared with existing platforms to determine whether it meets these criteria.

6.2 Upload of Training Material to an External Training Provider

Another option for offering RESILIENCE training courses is the connection of the RESILIENCE Training Management and training materials to a suitable platform that already exists.

Benefits:

- Synergy effects, saving of human and financial resources.
- Visibility right from the start with an already known platform.
- Wide reach even with addressees who are not yet users of RESILIENCE RI.

Disadvantage:

- Our target audience does not instantly find the RESILIENCE training materials / the materials relevant to them. A filter for "RESILIENCE training material" may be a potential solution.
- Storage and presentation follow the conditions of the external provider and cannot be customised to the needs of RESILIENCE users and target audiences.
- Dependence on the provider and its ability to properly maintain the repository and software and ensure its sustainability.

It is crucial to carefully consider which services you are willing to entrust to external providers, as you may have no control over the sustainability and consistency of this provider.

Possible suitable platforms for which the integration of RESILIENCE Training materials will be evaluated include (not exhaustive):

Social Sciences & Humanities Open Marketplace

DARIAH-Campus

Digital Humanities Course Registry (clarin-dariah.eu)

OER Commons

6.3 Creation of a RESILIENCE Training Portal

The creation of an in-house RESILIENCE training portal with hierarchically organised content and a user-friendly interface would be beneficial if the RESILIENCE training programme will not be affiliated with an external provider. A training portal would be designed to serve various purposes, as defined in chapter 6.1 Requirements for a Platform for the RESILIENCE Training Programme.

The RESILIENCE subsidiary project, ITSERR (Italian Strengthening of the ESFRI RI RESILIENCE), is currently developing a marketplace that will feature training courses and include a dedicated portal for Transnational Access. Moodle has been chosen as the platform for delivering these courses. It is an open-source learning management system (LMS), which offers a set of tools that enable trainers to design, manage, and deliver

online learning experiences. Its features include content delivery, quizzes, discussion forums, assignments, and integrated grading functionalities.

Starting in November 2025, this solution will be made available to be progressively acquired by RESILIENCE, and WU Training will evaluate whether it meets the requirements outlined in chapter 6.1.

6.4 Combined Solution

A combined solution is also conceivable, in which training materials are curated in repositories such as the SSH Open Marketplace or DARIAH Campus, while being made accessible through a dedicated RESILIENCE training portal.

When referring to RESILIENCE training materials on different platforms, it must be ensured that the same information is available in the different repositories and must be kept up to date.

6.5 Adopt Zenodo as Repository for Training Material

Since RESILIENCE chose Zenodo as the best option for its repository service (cf. D2.4 Data Management Plan),[28] the RESILIENCE training materials can be uploaded on the RESILIENCE community space on Zenodo (https://zenodo.org/communities/resilience). The decision to focus on Zenodo follows the service strategy in WP2 to align the services with the priorities identified through the data collection in the work unit "User Requirements" in WP3,[29] which identifies "Research data management and data deposit according to the FAIR principles" as the third most important priority.[30] RESILIENCE has also included this in its Open Science Policy: "The RESILIENCE community on Zenodo was specifically set up to better support our research community towards open and FAIR data sharing practices. All RESILIENCE's data and associated data services will apply open and FAIR principles."[31]

Zenodo is a universal open repository developed as part of the European OpenAIRE programme and operated by CERN, the European Council for Nuclear Research (Switzerland). It provides researchers with the ability to store research papers, datasets, software, reports and other digital artefacts and to assign a persistent Digital Object Identifier (DOI) to each submission for convenient and reliable citation.

6.6 Ensure Compatibility with SSH Open Marketplace

One of the guiding principles outlined in the D2.1 Services Preparation and Implementation Strategy [R1,R2] states that "RESILIENCE services should be integrated into the wider SSH and EOSC ecosystem". To adhere to this principle, compatibility with the categories of the Social Sciences & Humanities (SSH) Open Marketplace must be ensured with regard to metadata, keywords and descriptions, independently of which solution will be chosen for the RESILIENCE training programme.

[28] D2.4, chap. 5.2 and annex 7.4 [R5].
[29] D2.1 Service Strategy, p. 16–18 [R6, R7].
[30] RESILIENCE_WP3_D3.5_User-Stories-Catalogue-1st-Batch [R1].
[31] D2.1 Service Strategy, chap. 9.3 Open data [R6, R7].

7 Conclusion and Outlook

In the upcoming activities of WU "Training", the following tasks in particular will be further elaborated:

- A **strategy for assessing user needs** is being continuously developed in collaboration with WP3 "Users".
- The best options for **hosting the RESILIENCE training programme** are being further explored.
- The **methodology of the impact assessment** will be addressed in collaboration with WP5.
- Possibilities for a **programme accreditation** will have to be considered. It will be explored whether the granting of micro-credentials, which are recommended by the Council of the European Union,[32] will be suitable here.

A targeted training programme for the core services of RESILIENCE can be progressively developed as these services become available. Once the composition of the RESILIENCE partners for the Implementation Phase and the full scope of services are clearly defined, the training programme itself can be more precisely structured.

[32] https://education.ec.europa.eu/education-levels/higher-education/micro-credentials

8 Appendix Content

The Appendix [R4] is confidential, and it is available on the online repository.

1. RESILIENCE Technical Course Description of Training Prototype 1 "Uncovering Intertextuality through Digital Tools" (cf. chap. 3.1; 5.1 in D2.6)
2. RESILIENCE Lesson Plan of Training Prototype 1 (cf. chap. 3.1 in D2.6)
3. Evaluation of RESILIENCE Training Prototype 1 (cf. chap. 3.1 in deliverable D2.6)
4. Programme Booklet for RESILIENCE Training Prototype 2 "Religion for the Senses: How to Read, Treat and Hear Religious Sources" (cf. chap. 3.2 in D2.6.)
5. RESILIENCE Technical Course Description of Training Prototype 2 (cf. chap. 3.2 in D2.6.)
6. RESILIENCE Lesson Plan of RESILIENCE Training Prototype 2 (cf. chap. 3.2 in D2.6.)
7. Evaluation of RESILIENCE Training Prototype 2 (cf. chap. 3.2 in D2.6.)
8. Exposé on Evaluation Discussion on the RESILIENCE Training Prototype 2: Key Findings and Lessons Learned (cf. chap. 3.2 in D2.6.)
9. RESILIENCE Technical Course Description of Training Prototype 3 "AI for Religious Studies – Automatic Keyword Tagging of Multimedia Data" (cf. chap. 3.3 in D2.6.)
10. RESILIENCE Lesson Plan of Training Prototype 3 (cf. chap. 3.3 in D2.6.)
11. Evaluation of RESILIENCE Training Prototype 3 (cf. chap. 3.3 in D2.6.)
12. RESILIENCE Lesson Plan Template (cf. chap. 5.3.2 in D2.6.)
13. ReIReS Training Toolbox Report (cf. chap. 1; 4 in D2.6)

9 Applicable Documents

Applicable documents are documents from which all requirements must be fulfilled in the context of the Grant Agreement, although they are not repeated in the present document.

ID	Date	Title/Reference
A1	28/08/2022	Grant Agreement 101079792

10 Reference Documents

Reference documents are intended to provide background and supplementary information.

ID	Date	Title/Reference
R1	31/10/2023	RESILIENCE_WP3_D3.5_User-Stories-Catalogue-1st-Batch
R2	27/11/2024	RESILIENCE_WP3_D3.6_User-Stories-Catalogue-2nd-Batch
R4	28/07/2025	RESILIENCE_WP2_D2.6_Training Services Management Plan_Appendix_01.00_FINAL
R5	27/08/2024	RESILIENCE_WP2_D2.4_Data_Management_Plan
R6	27/11/2024	RESILIENCE_WP2_D2.1_Services Preparation and Implementation Strategy_02.00_FINAL (Beta-deliverable)
R7	24/07/2025	RESILIENCE_WP2_D2.1_Services Preparation and Implementation Strategy

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