



# ROSIE

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## D6.5: ROSiE Knowledge Hub

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<p><b>ABSTRACT:</b></p>	<p>The ROSiE Knowledge Hub (KH) beta version is currently undergoing its fifth and last phase of beta testing. As this phase concludes, it signifies the commencement of the definitive design of ROSiE KH as a user-friendly platform, intended to transparently showcase the project's outcomes. This report will outline the present status of ROSiE KH, as it was shaped by the feedback gathered from beta testers throughout the preceding four phases of beta testing.</p>
<p><b>Keyword List:</b></p>	<p>Open Science, Platform, Beta version, Beta testing, Stakeholders, Optimisation, Structure, User friendliness, Usability, End users.</p>



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## Acronyms

Open Science: OS

Knowledge Hub: KH

Citizen Science: CS



## 1 Executive summary

The ROSiE Knowledge Hub (ROSiE KH) will be a platform that is currently being designed and optimized to openly funnel the project's results and outputs in a user-friendly way. The content of the ROSiE KH will be organized in different thematic, OS-related, sections that will focus on the following: infrastructures, research ethics & research integrity, legal issues of OS, social issues of OS, policy issues of OS and training in OS. These thematic sections also reflect the work package structure of ROSiE. However, it should be mentioned that wherever a specific guideline (output) is related to more than one theme, it will be placed in more than one thematic section of the ROSiE KH.

Each thematic section will be structured in three distinct levels, which will provide to the end user not only different information but also different levels of descriptive granularity of the ROSiE KH's content.

The content, albeit in a limited form, and the structure of ROSiE KH, is now reflected in the current state of the beta version of KH, which is currently in the final phase of beta testing. It is important to note that the content of the beta version includes the content of deliverables until March 2023.

Therefore, this report describes the structure of the beta version of ROSiE Knowledge Hub in its present state, which encompasses all the adjustments made in response to feedback from beta testers during the four phases of testing.

## 2 An overview of the development of the beta version

This section constitutes the summary report of the ROSiE Knowledge Hub (KH) preparation within the consortium, aiming to establish a consensus on conceptual, functional, and aesthetic aspects, while a more detailed description is provided in D6.4.

On **November 2021**, NTUA led discussions with UoL, UiO, ECSA, and EUREC to gather input on the ROSiE KH, addressing questions about its purpose, functions, content, and structure. The key outcomes focused on three main functions.

**Structured Recommendations:** Designing a clear structure, possibly in the form of a decision tree or standard operating procedure, to provide automated recommendations to end users.

**Community Forum:** Integrating an open forum for ROSiE users, allowing them to seek nuanced input or answers not found through search functions. Community members would respond to queries.

**Knowledge Sharing Space:** Creating a space to link all ROSiE outputs for targeted knowledge sharing. This includes supplementary materials such as ROSiE deliverables and resources from other SwafS and/or WIDERA projects.

On **February 2022**, early simulations of ROSiE KH were presented at the 3rd Cross-SwafS Stakeholder Forum for feedback on design and user-friendliness. Pre-final mockups were shared in December 2022 at the 1st Stakeholder Forum meeting.

On **January 19, 2023**, EUREC provided insights on making ROSiE KH user-friendly for visually impaired individuals.

On **February 2023**, the NTUA team completed the integration of the results of the ROSiE project, described in its various deliverables, into the beta version of the platform. To optimize the user experience within the KH we implemented interventions. These interventions included adjustments to the extend and structure of deliverables. In particular, we divided the deliverables based on the topics covered by their various sections and placed them in the corresponding category of the KH.

Importantly, these modifications were informed by feedback from both the project coordinator and the WP leaders, responsible for each deliverable which was included in the KH. The goal was to align the content more closely with user expectations and project goals, ensuring a more streamlined and user-friendly KH.

### 3 The phases of beta testing

After completing the planning stage for the beta version of KH and introducing all necessary materials, we proceeded to the beta testing phases, addressing the beta testers as indicated in each phase according to the plan described in D6.4.

**On March 6, 2023, Phase 1:** Beta testing from TSV partners

**On March 30, 2023, Phase 2:** Beta testing from the ROSiE consortium



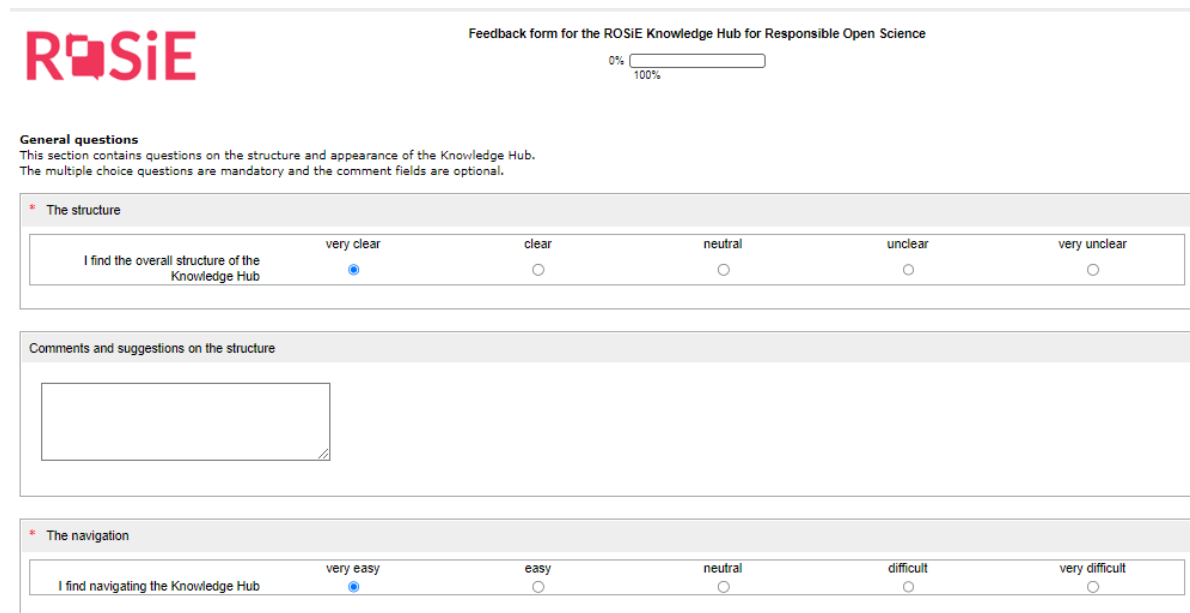
**On May 18, 2023, Phase 3:** Beta testing from the members of the ROSiE Advisory Board

**On September 29, 2023, Phase 4:** Beta testing from the members of the Stakeholder Forum and Cross-SwafS Stakeholder Forum

**On November 8, 2023, Phase 5:** Beta testing from interested stakeholders to be recruited via ROSiE’s social media channels

Please note that the duration of each phase, as well as the transition from one phase to another, did not align in time with what has been outlined in the plan in D6.4. This was due to the following reasons: (a) the necessity to provide as much time as possible for the beta testers to provide input, (b) the amendments that had to be applied in the KH beta version after the completion of each phase, (c) the procedure that NTUA had to follow to make sure the GDPR compliance of the form that was used to gain feedback during the 4<sup>th</sup> and the 5<sup>th</sup> stages of beta testing.

During the 1st phase of beta testing of KH beta version, we began designing the feedback form in collaboration with partners from TSV. After finalizing the design and ensuring GDPR compliance of the feedback form, we distributed it to beta testers in the 4th and 5th phases. Below, you'll find some illustrative snapshots of the form.



**Figure 1:** The welcome page of the feedback form.



**General questions**

This section contains questions on the structure and appearance of the Knowledge Hub. The multiple choice questions are mandatory and the comment fields are optional.

**\* The structure**

I find the overall structure of the Knowledge Hub

very clear  clear  neutral  unclear  very unclear

Comments and suggestions on the structure

**\* The navigation**

I find navigating the Knowledge Hub

very easy  easy  neutral  difficult  very difficult

**Figure 2:** General question on KH.

**The content of the Knowledge Hub**

This section contains questions about specific areas of the Knowledge Hub. The multiple choice questions are mandatory and the comment fields are optional.

**\* The main pages**

The amount of information on the main pages is

too limited  optimal  too extensive

**?** The main pages refers to the tabs for infrastructure, research integrity, research ethics, legal, social, policy, training.

Comments and suggestions on the main pages

**\* Articles**

The individual articles are

too short  optimal  too long

**?** Click on "Explore the category" on a main page and choose an article under "Mapping" or "Recommendations". Example: [Open Science and Research Ethics \(opens in new window\)](#)

**Figure 3:** Questions about the content of specific areas of the KH.

## 4. The structure of the ROSiE Knowledge Hub (beta version)

As outlined in the executive summary, each thematic section is organized into three distinctive levels, offering end users varying degrees of descriptive detail regarding the results and outputs constituting ROSiE KH's content. The term "results" pertains to the outcomes derived from diverse mapping exercises conducted in the early phases of ROSiE, while "outputs" refers to various documents furnishing guidance to practitioners of OS. Further clarification on the differentiation between these two content types within ROSiE KH is provided below, with specific details outlined.

### 4.1. The welcome page of KH (beta version)

To facilitate the user's navigation across the aforementioned levels and diverse thematic categories within KH, we have developed a user's guide. This guide provides a detailed description of how users can transition from one level to another. The user guide is accessible on the KH welcome page and can be downloaded. Within the same guide, there is a description of navigating the Training category as it deviates from the structure of the other categories.

### 4.2. The three levels of KH (beta version)

**Level 1** contains the aims and objectives of each thematic section, while it highlights the methodology used to draft the content of the ROSiE KH. This information is minimal, i.e. brought to the attention of the end user only via icons, in order not to overburden with information that can be found in the deliverables (all the necessary references is made in other places of the ROSiE KH, as it will be described below). This level has been designed to be identical in all thematic sections, except Training on OS, since the types of the building blocks that have included at Level 2 are completely different.

**Level 2** contains the "building blocks" of information that is displayed in a way that the end-user will be able to easily grasp their content. These building blocks is categorized in "Mapping"-type and "Recommendations"-type building blocks.

The former contains the results of the mapping exercises conducted in the initial stages of ROSiE (i.e., the “results” mentioned above) and the latter contains the various documents that provide guidance to practitioners of OS (i.e., the “outputs” mentioned above). These building blocks contains information from the project’s deliverables. They are also the searchable elements from the search function of the ROSiE KH; for this reason, they are described with specific types of metadata (tags) visible only at the back-end of the ROSiE KH. This level has been designed to be identical in all thematic sections, except Training on OS, as in the case of Level 1, since the types of the building blocks that have found a place here are completely different.

**Level 3** hosts the content of these building blocks, as retrieved from the relevant ROSiE deliverables. In most cases, the content of Level 3 is similar, though not completely the same as the deliverables. This is due to the fact that in several cases the text of the deliverables had to be re-structured to fit the needs of an online document, i.e., in order to be more concise and be structured in smaller units/sections. This is the most detailed level of information of the ROSiE KH and the second most detailed level of information of the ROSiE website, with the actual deliverables representing the most detailed documents that will be produced from the consortium. As in the previously-described levels, this level has been designed to have a similar design in all thematic sections, except the following: Training on OS and Policy issues in OS.

## 5 A view at the ROSiE KH (beta version)

This section includes a series of indicative screenshots from the ROSiE KH beta version, configured after the completion of four phases of beta testing. It essentially closely replicates the actual structure and aesthetics of ROSiE KH as it is featured in the staging environment where beta testing takes place.

### 5.1. The welcome page of ROSiE KH

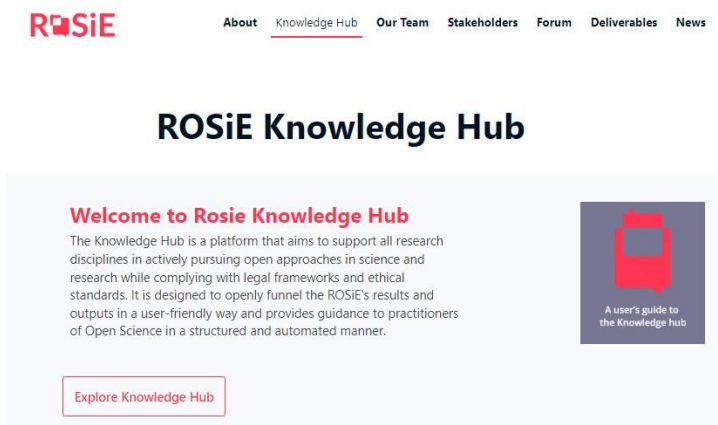


Figure 4: The welcome page of KH

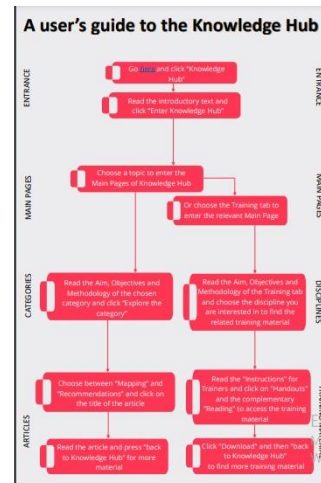
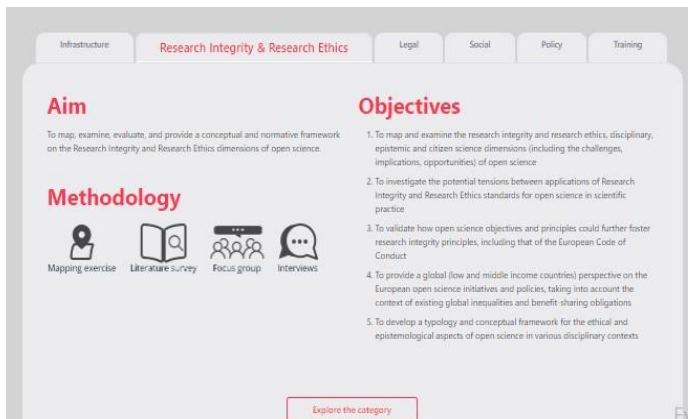


Figure 5: The user's guide to the KH

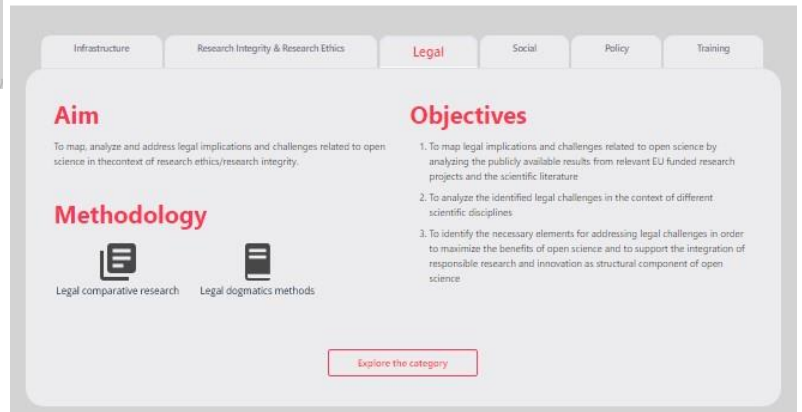
## 5.2 Level 1 of the ROSiE KH

This subsection (Figures 6 and 7) presents the Level 1 of two thematic sections of the ROSiE KH. As it is mentioned above, this level has been designed to be identical in all thematic sections, except Training on OS.

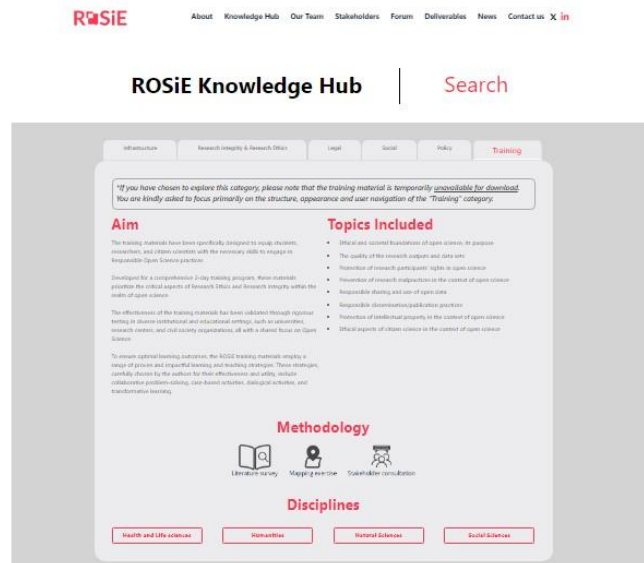




**Figure 6:** Level 1, Research Integrity & Research Ethics thematic section



**Figure 7:** Level 1, Legal thematic section



**Figure 8:** Level 1, Training thematic section. In contrast to the other thematic sections, this one has multiple entrances to Level 2, since training material is structured along disciplines

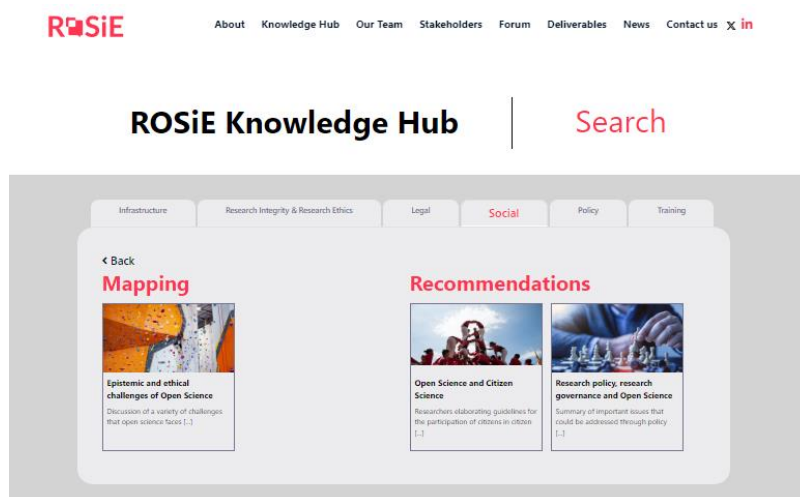
From the figures at this section, it is evident that only Level 1 differs with regard to its structure is Training on open science (Figure 8). This is due to the fact that the types of documents that have been included differ from all other thematic sections. More specifically, there are no “Mapping”-related and “Recommendations”-related documents/building blocks but those related to the structure of the ROSiE training programme, as will be displayed at the next subsection.

It is crucial to note, regarding the Training category, that during this phase, we temporarily **deactivated links to training materials** due to the inclusion of their older versions. Consequently, a disclaimer has been added at this level, stating, ***“If you have chosen to explore this category, please be aware that the training material is temporarily unavailable for download. Kindly focus primarily on the structure, appearance, and user navigation of the 'Training' category.”*** As the updated version of training materials is already prepared, this section will be updated in the final version of ROSiE KH.

### 5.3 Level 2 of the ROSiE KH



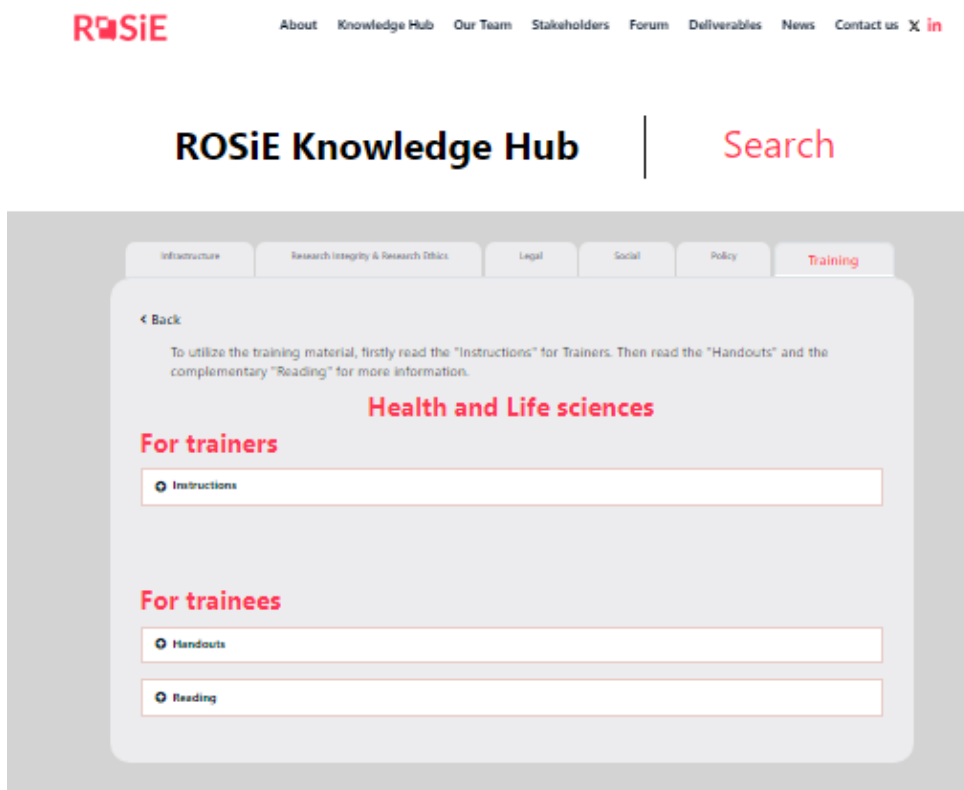
This subsection presents Level 2 of selected thematic sections of the ROSiE KH. Figure 9 depicts Level 2 of the thematic section of Social. This is indicative of all but one (Training) thematic section. Each Level 2 contains two types of building blocks: the ones that contain information of the results of the mapping that fall under the title “Mapping”, and the ones that contain information of the guidelines related to the thematic section that fall under the title “Recommendations”.



**Figure 9:** Level 2, Social thematic section.







**Figure 10:** Level 2, Training thematic section.

For the sake of user-friendliness, the building blocks are depicted as square areas with an indicative photograph, a short title and a very short description of the content. The number of building blocks depends on the current situation on the finalization of different deliverables; i.e., the final ROSiE KH will contain more building blocks.

Figure 10 shows a screen capture from Level 2 of Training. As shown, the structure clearly indicated the three different types of building blocks, as well as for whom these are relevant for, i.e., either for trainees or for trainers. The end user can click of the bullets with the plus sign in order to see the content of each type of building blocks, i.e., Instructions, Handouts, and Readings. Then, a display of all building blocks appears in the screen (see Figure 11). NTUA has chosen this way of displaying the building blocks for Training since there is a large number of them and if everything was visible, by default, at Level 2, that would cause a lot of “optical noise”.



The screenshot shows the ROSIE website interface. At the top, there is a navigation menu with links: About, Knowledge Hub, Our Team, Stakeholders, Forum, Deliverables, News, Contact us, and social media icons for X and LinkedIn. Below the menu, there are tabs for Infrastructure, Research Integrity & Research Ethics, Legal, Social, Policy, and Training (which is highlighted). The main content area is titled 'Health and Life sciences' and is divided into two sections: 'For trainers' and 'For trainees'. Under 'For trainers', there is a section for 'Instructions' with a thumbnail image and the text 'TRAINING MATERIALS for Responsible Open Science Part IV: Health and Life Sciences'. Under 'For trainees', there is a section for 'Handouts' containing a grid of nine handout thumbnails. Each thumbnail includes a title and a brief description of the unit's content, such as 'UNIT 1: Double-entry reading journal (Table)', 'UNIT 2: Privacy in genomic research', 'UNIT 3: Development of an ethically sound Citizen Science project (Table)', 'UNIT 4: Authorship, coauthorship and group coauthorship in citizen science', 'Unit 5.1.1 - Quality of data in Citizen Social Science', and 'UNIT 5.1.2 - Data quality in Citizen Science'.

**Figure 11:** Level 2, Training thematic section.



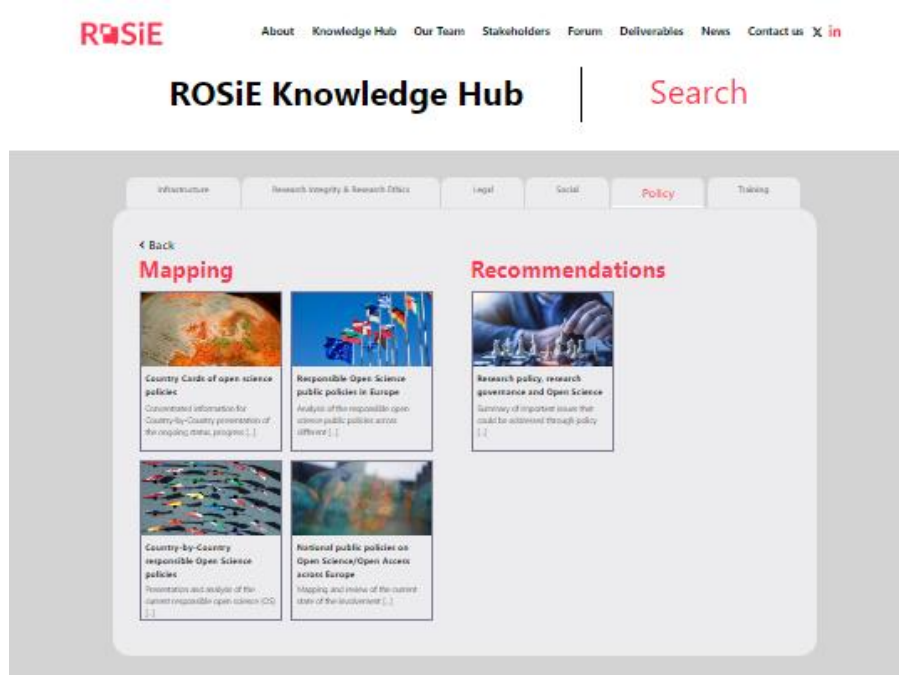


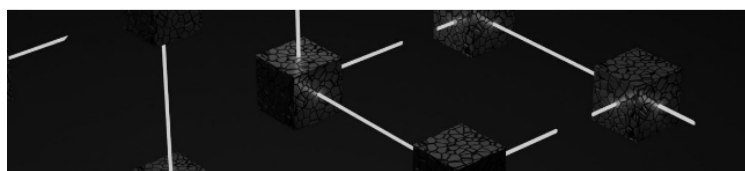
Figure 11 provides another example from Level 2 of the Policy thematic section.

## 5.4. Level 3 of the ROSiE KH

This subsection presents Level 3 of selected thematic sections of the ROSiE KH. Figure 12 presents the content of Level 3, of Infrastructure category.

## Blockchain technology in Open Science data infrastructures

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### Discussion of the role of Blockchain technologies in developing open science data infrastructures and mapping of the metadata linked to open science data

#### Introduction

We believe that Blockchain technologies (BCTs) can play an important role in developing open science (OS) data infrastructures. The main argument is that blockchains can help implementing legal and ethical requirements, among them the FAIR principles of OS (Findable, Accessible, Interoperable and Reusable data) and in particular security functions such as integrity, confidentiality and authentication of data as well as prevent falsification or misuse. Using encryption techniques, timestamping and hash functions (the hash value as result of a hash function described as a digital "fingerprint"), BCT offers various ways to protect and secure source data as well as program code that result from the research. To protect program code or other digital representation of methods and procedures may be difficult by traditional database techniques, while BCT provides appropriate tools as e.g. digital fingerprints, smart contracts, tokens etc.

In a short-term perspective, we do not see that OS data themselves may be stored on a blockchain. Rather OS data will be kept in traditional databases, as e.g. on an OS data cloud, or stored in a distributed systems such as Interplanetary File System (IPFS) and other similar solutions. Following this we argue that selected metadata may be stored on-chain, such as data descriptors (title, keywords, etc.), author identification credentials, possible licenses and conditions for use, etc. In addition, one may include a digital fingerprint for later verification and, if necessary, also authentication. In this way, researchers can make their data accessible by an access key stored on-chain, creating a quasi-immutable record of initial ownership, and even encode "smart contracts"[]

**Figure 12:** Level 3, of Infrastructure, mapping category, on blockchain technologies.

Figure 13 presents the content of Level 3, of Policy thematic section, mapping category, which is about the country cards. As seen, instead of presenting all Country Cards (EU countries plus UK and Norway), we have placed a drop-down menu in order for the end user to display one country at a time and avoid confusion or an overcrowded screen.

## Country Cards of open science policies

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This article provides a mapping of the existing Open Science (OS) public policies across Europe. The involvement of each of the selected countries (the European Union MS, Norway and the United Kingdom) in OS is presented through the Country Cards. These documents give an overview of the current state of OS and facilitate the analysis of the national OS public policies, which in turn allowed the identification of 'responsible' policies, strategies and good practices.

Austria ▼

Select Country

- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta

**AUSTRIA**

OVERVIEW	Yes	No
Active in Open Science	✔	✘
Research Ethics & Integrity	✔	✘
Authorities responsible for OS	✔	✘
National Policies on OS	✔	✘
National Laws on OS	✔	✘
National Funder Policies on OS	✔	✘
National Data Repositories	✔	✘
Involved in INFRAEOSC 3a call	✔	✘

AUTHORITIES RESPONSIBLE FOR OPEN SCIENCE & ACCESS

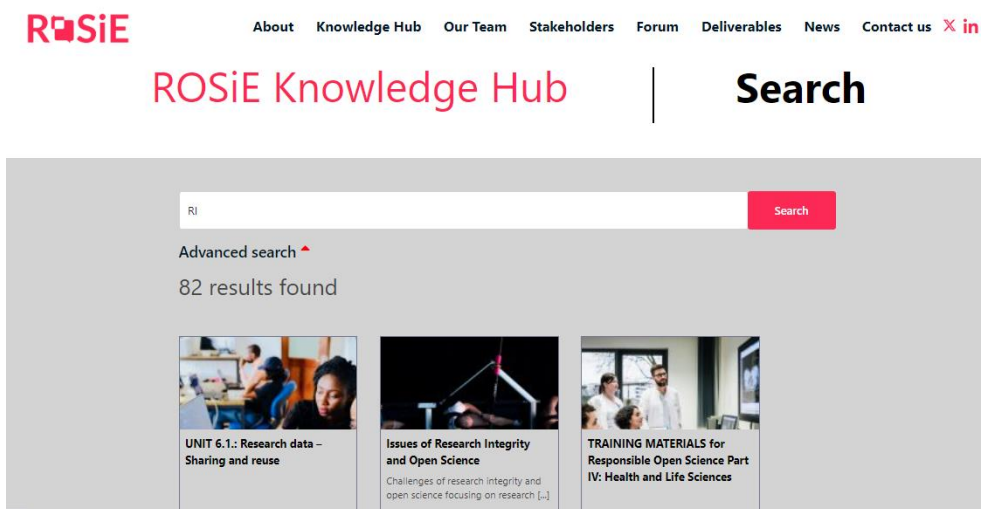
Austrian Federal Ministry of Education, Science and Research (BMBWF) (<https://www.bmbwf.gv.at/en>)

**Figure 13:** Level 3, of Policy thematic section, mapping category, which is about the Country Cards.

## 5.5. Search function of the ROSiE KH

Despite the fact that the ROSiE KH has been designed to provide a clear structure that provides accessibility to the building blocks with only two clicks, a search function has been included. This function is visibly located right next to the title of the ROSiE KH and for the end user to make use of it, she/he has just to click on the “Search” title. Figure 14 depicts the way that the results of a search would look like. For reasons of simplicity and user-friendliness, the results of search are the building blocks that comprise Level 2 of all thematic sections.





**Figure 14:** The search function of the ROSiE KH.

## 5.6 Accessibility

When designing the structure of KH, one of our main goals was to ensure that KH would be fully accessible to visually impaired people using reading devices. In this respect, we collaborated with the IT developers of the KH website who consulted us on the basic principles of the Alternative Text (Alt Text) feature of the website. Alt Text will be applied to images significant to the content of KH, like the methodology icons on Level 1 and images included in the articles at Level 3. Moreover, Alt Text will be applied to parts of the text leading to external links, in order to provide the information or name of the website and not simply the link itself. Since this feature will be integrated into the final version of KH, there is no print screen available.

## 6 Dissemination of the beta testing

The beta testing of the Phase 3 was disseminated through the leaders of WP3 (EUREC) and WP4 (ECSA) that run the Stakeholder Forum and the Cross-SwafS stakeholder Forum, respectively. The 5th phase of the beta testing is already disseminated via ROSiE's social media channels, the Embassy of Good Science, and the professional networks of all ROSiE partners. ROSiE tweets and posts the 5th phase on a weekly basis. The 5<sup>th</sup> phase of beta testing will be closed on November 29, 2023.



## 7 Concluding remarks

As previously mentioned, this report delineates the development of the beta version of KH and its present status, following the integration of feedback from beta testers during the preceding four beta tests. The current configuration of the beta version of KH closely mirrors the anticipated structure of the final KH.

## 8 Deviations from DoA

The final version of the KH is scheduled for completion by the beginning of February 2024, since there are deliverables that are going to be included in the KH (i.e. those that were submitted after March 2023) and another that is planned to be submitted at a later stage. In this sense, the finalisation of the KH will be *de facto* an ongoing process until the end of January 2024, as mentioned. ROSiE consortium plans to present the final version of the KH at the final event that has been planned for the 21st of February 2024.

