

DiSSCo related output

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Title

D7.3 Assessment tools and direction map to the implementation of common DiSSCo policies

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Abstract

The Distributed System for Scientific Collections (DiSSCo) Research Infrastructure will operate a number of e-services, all of which will have policy requirements for participating institutions. These policies include those related to digital and physical access to specimens, digital image and specimen metadata, and FAIR / Open Data. Previous projects have shown that the policy landscape is complex, and Task 7.3 has developed a policy self-assessment tool that will allow DiSSCo to assess policy alignment across the consortium.

This deliverable describes the development of the policy self-assessment tool and provides a walkthrough of the key features. The same technical framework was used to create a digital maturity tool, which was initially proposed by Task 3.1, and this is also described within this document. A set of recommendations are included that outline the future direction for the development of the policy tool.

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DiSSCo Prepare WP7 –D7.3 Assessment tools and direction map to the implementation of common DiSSCo policies

Josh Humphries, Lisa French, Matt Woodburn, Laura Tilley, Ana Casino, Quentin Groom, Helen Hardy, Marko Hyvärinen, Sharif Islam, Tina Loo, Carole Paleco, Patrick Semal, Serge Scory, Katharine Worley, Vincent Smith



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The Distributed System for Scientific Collections (DiSSCo) Research Infrastructure will operate a number of e-services, all of which will have policy requirements for participating institutions. These policies include those related to digital and physical access to specimens, digital image and specimen metadata, and FAIR / Open Data. Previous projects have shown that the policy landscape is complex, and Task 7.3 has developed a policy self-assessment tool that will allow DiSSCo to assess policy alignment across the consortium.

This deliverable describes the development of the policy self-assessment tool and provides a walkthrough of the key features. The same technical framework was used to create a digital maturity tool, which was initially proposed by Task 3.1, and this is also described within this document. A set of recommendations are included that outline the future direction for the development of the policy tool.

Contribution to DiSSCo RI (FOR DELIVERABLES ONLY)

The policy self-assessment tool developed in this task will help DiSSCo to understand the policy landscape of DiSSCo member institutions and identify policy principles for DiSSCo Services. The policy tool will support institutions to deliver institutional policy compliance and will help DiSSCo to identify the areas where institutions require additional support and guidance to align with DiSSCo policy. The digital maturity tool will help organisations develop their organizational readiness for the provision of DiSSCo services.

Keywords

Policy, Software, Self-Assessment, Services, Alignment, Standards, DiSSCo, Capability, Competency, Leadership

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INTRODUCTION

The Distributed System for Scientific Collections (DiSSCo) Research Infrastructure will operate across 23 countries and involve over 170 member institutions. The policy landscape of DiSSCo members is complex, with national legislation and institutional governance influencing organisational policy.

Policy requirements for DiSSCo services are still emerging and identifying areas of alignment across institutions will help to develop a set of policy principles. There are, however, challenges to understanding the existing policy landscape of DiSSCo member institutions. The structure of policy documentation differs between institutions, and policies are written in multiple languages. The accessibility of institutional policies is low, as although many institutions are willing to share their policies, they are often not made publicly available (Agosti & Egloff, 2019).

To help DiSSCo compare policy positions across institutions, a Policy Self-Assessment Tool has been developed. This tool aims to help institutions evaluate their status of alignment against DiSSCo policy requirements. By completing a self-assessment, institutions will be able to see whether they comply with DiSSCo policy requirements, and access further guidance and best practices. The DiSSCo Research Infrastructure (RI) will be able to identify areas where support may be needed across the consortium to further align policy. The policy tool also hopes to improve the discoverability of institutional policies, by encouraging users to either provide links to their public website or to upload documentation to the DiSSCo Knowledgebase.

The policy tool has been developed alongside SYNTHESIS+ Task 2.1, which has created a policy metadata schema. This schema provides a common framework for describing policy content and will allow for comparative analyses of the progress of policy alignment across DiSSCo members. The policy tool aims to support DiSSCo members to deliver institutional policy compliance, and to help the DiSSCo Coordination and Support Office to view overall policy alignment across DiSSCo member institutions (Figure 1).

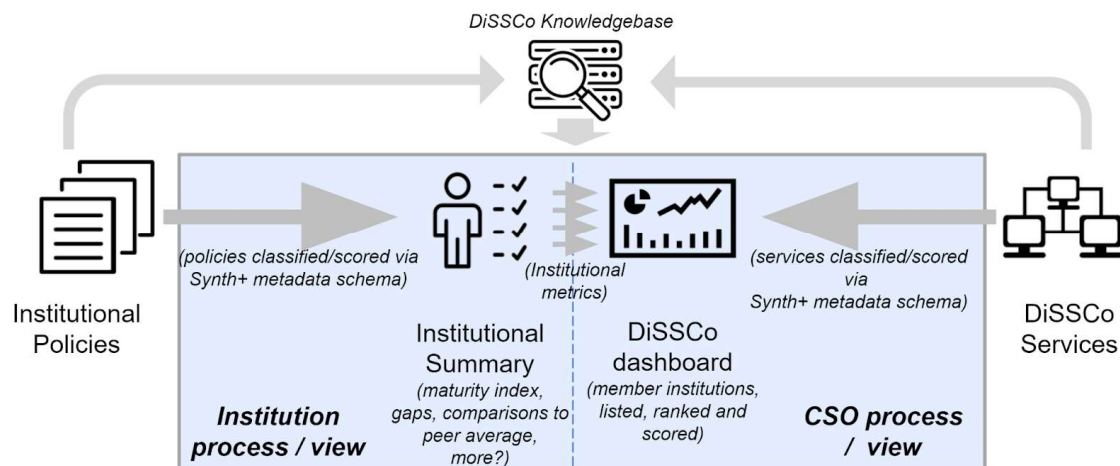


Figure 1: Process diagram for the DiSSCo Policy Self-Assessment Tool

The previous milestone from this task, MS7.5 'Design of the DiSSCo policy framework tool', identified synergies between this self-assessment tool and the requirements of the digital maturity tool outlined in Task 3.1 (French *et al.* 2021, Hardy *et al.* 2021). The policy tool has been designed to be extensible and modular, and this has allowed the platform to be adapted to the needs of the digital maturity tool. This deliverable therefore describes the development of both tools, and recommendations are made for the future direction of this project during the DiSSCo construction phase.

Development

Design Blueprint

The design blueprint for the self-assessment policy tool was described in MS7.5 'Design of the DiSSCo Policy Framework Tool' (French *et al.*, 2021). This blueprint outlined a set of functional and non-functional requirements for the policy tool, which were written in the form of an acceptance criteria.

The digital maturity self-assessment tool requirements are included in MS3.2 'DiSSCo Digital Maturity Self -Assessment Tool - Design Blueprint' (Hardy *et al.* 2021). The requirements are similar to the acceptance criteria for the policy tool, and they could both be built on the same platform. A combined set of requirements can be found in Appendix 1.

Development Principles

This project followed DiSSCo Development Principles:

- Code available in public DiSSCo Github repository (<https://github.com/DiSSCo/policytool>)
- Open Source Licence available in the repository
- Intellectual property (IP) donated to the DiSSCo legal entity
- Contact person/lead developer available for support
- Privacy statement available
- Version displayed

Knowledgebase and Authorisation and Authentication Infrastructure (AAI) Integration

The first step in the development of the policy tool was to determine the level of integration it would have with the [DiSSCo Knowledgebase](#). Discussions were held with the Knowledgebase team, and Figure 2 shows the agreed 'loosely-coupled' model.

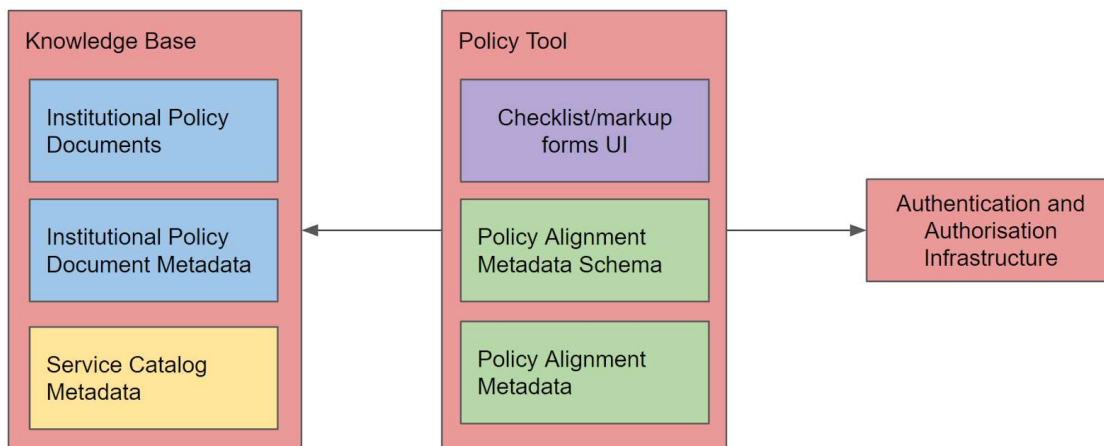


Figure 2: Model of integration with Knowledgebase and AAI

In this model, DiSSCo policy documents will be stored within the Knowledgebase. Institutions will optionally be able to store their own policies in the Knowledgebase, although they will be able to provide the DiSSCo RI links to their institutional website if the documentation is publicly available. Users will be able to access the policy tool to undertake the self-assessment, and this is underpinned by the policy metadata schema (described below).

User logins will eventually be managed through the DiSSCo AAI. The AAI has been piloted in the SYNTHESYS+ project, in partnership with GRNET (Greek Research and Technology Network).

Policy Metadata Schema

The DiSSCo policy metadata schema, which forms the backbone of the policy tool, was developed in SYNTHESYS+ NA2.1. The metadata schema provides a structure for describing DiSSCo policy requirements, and the initial draft conceptual data model for the schema is shown in Appendix 2. The first set of policy requirements included in the metadata schema have been based around the European Loans and Visits System (ELViS). A full description of the metadata schema data model and development will be included in the SYNTHESYS+ NA2.1 deliverable report.

To facilitate the addition, removal and modification of the policy metadata schema content included in the tool, a series of YAML files exists in the GitHub repository to act as a source of truth. Although creating a user interface as part of the web application to achieve this functionality would have been preferable from a user perspective, it was decided that keeping a file-based copy of this metadata was preferable, at least in the short term. This allows community collaboration on the metadata's content through the public GitHub repository, a versioned history of this content, and allowed developers as part of this task to concentrate their efforts on creating the user interfaces and backend software required for answering the questions. SYNTHESYS+ NA2.1 will make recommendations for the long-term sustainability and maintenance of the metadata schema.

The YAML files are loaded through custom loading commands inspired by [Django's built in "fixtures" functionality](#). Using custom loading logic allows the tool to react to changes in the content and in the future notify users based on the changes. Additionally, it simplifies the YAML files allowing them to be more easily edited by non-technical users with fewer mistakes.

The policy metadata schema content YAML definitions can be found here:

<https://github.com/DiSSCo/policytool/tree/main/dissco/policy/defs>. Additionally, the maturity tool question definitions are held in a similar way, they can be found here: <https://github.com/DiSSCo/policytool/tree/main/dissco/maturity/defs>.

Software Code

The code for the policy and maturity tools is available in the DiSSCo GitHub repository. This repository contains both the frontend user interface code as well as the backend server code.

The frontend user interface is written in JavaScript using VueJS as the interface framework, Tailwind as the CSS framework, and Vite to facilitate artefact building and rapid development. A full list of dependencies can be found in the repository. This modern stack was used to allow structured, rapid development of the tool's user interface and ensure its maintainability going forward. The design for the tool was implemented in accordance with the DiSSCo branding, colours and fonts.

The backend server is written in Python using the Django web framework. This framework was chosen as it offers a huge number of features and out of the box functionality, reducing the amount of boilerplate required and allowing the tool to be developed quickly. Django is also a very popular web framework which will be easy for future developers to understand and use with little experience. A full list of dependencies can be found in the repository.

The GitHub repository can be found here: <https://github.com/DiSSCo/policytool>. The version described in this deliverable can be found at <https://doi.org/10.5281/zenodo.7007211>.

User Testing

DiSSCo T7.3 and Synthesys+ NA2.1 task partners were invited to take part in user testing for the policy tool. Feedback from these user testing sessions informed the next stages of development.

Initial versions of the policy tool had a focus on policy areas, directing users to complete a survey based on policy type. Feedback from user testing indicated that this should instead have a service focus, and the policy tool now asks users to select a DiSSCo service (more details available in the policy tool walkthrough below). User testing also identified several user interface improvements.

Policy Tool

Statement of Purpose

DiSSCo Prepare Task 7.3 has developed an online self-assessment which will allow a DiSSCo member to map their institutional policies against the policy requirements of DiSSCo services to ascertain policy existence, alignment and/or compliance. For the DiSSCo RI, the Policy Tool will allow the central hub to view the overall policy alignment across all DiSSCo members. For DiSSCo members, the tool will support their efforts to deliver institutional policy compliance and follow best practices and implement tested protocols and procedures.

The Policy Tool:

- Supports the upload or linkage of policies
- Supports deposition of a list of the policy requirements of the DiSSCo RI for the different DiSSCo services
- Contains a classification of terms (metadata schema) for these policies and services
- Supports evaluation of alignment between institutional policies and DiSSCo service policies, through an institutional self-assessment checklist that uses the metadata schema (French *et al.* 2021).

Walkthrough

Starting from the home page, users can log in (Fig. 3) to begin assessing their institution's policies against DiSSCo service policies. This login page is common for both the policy and maturity parts of the tool. User account administration is currently managed through the policy tool, however, once the DiSSCo AAI is complete this could be integrated with this service.

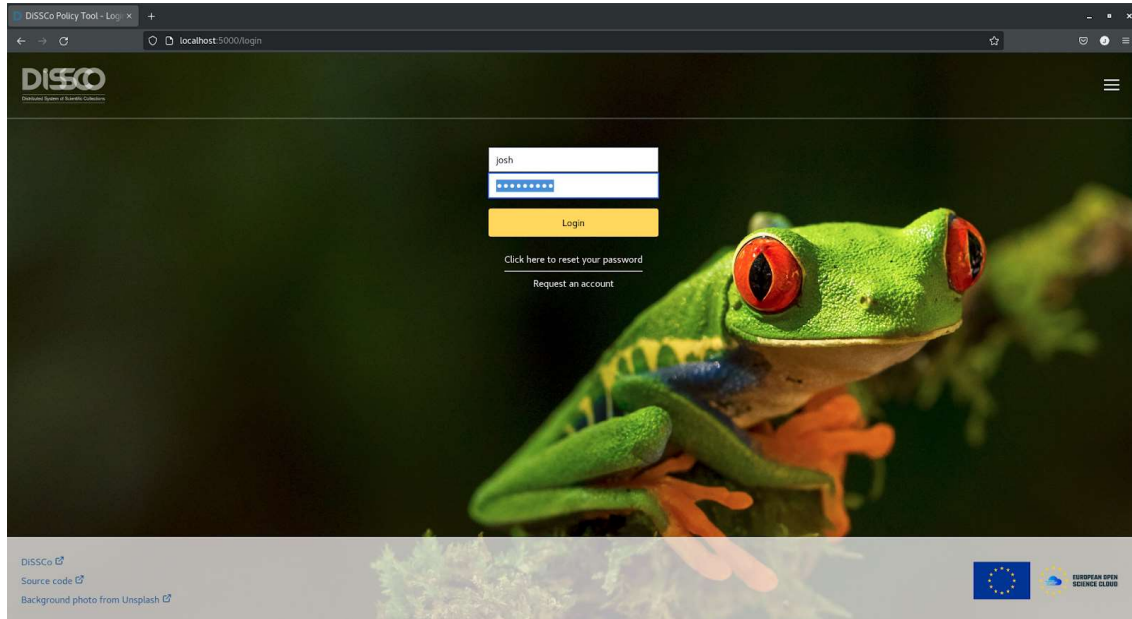


Figure 3: Screenshot showing the tool login page.

Once logged in, the user can navigate to the institution's policy homepage (Fig. 4). This page is a central hub for accessing the institution's policy related content. An institution has a single set of responses to the policy tool self-assessment, and all users who are associated with the institution can view and amend this self-assessment.

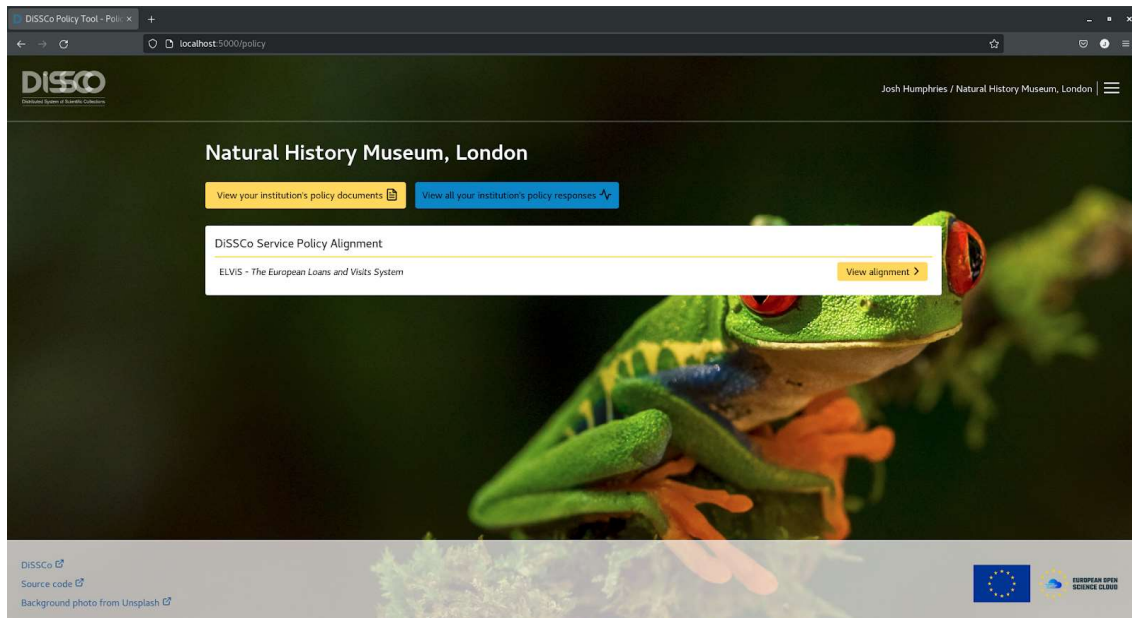
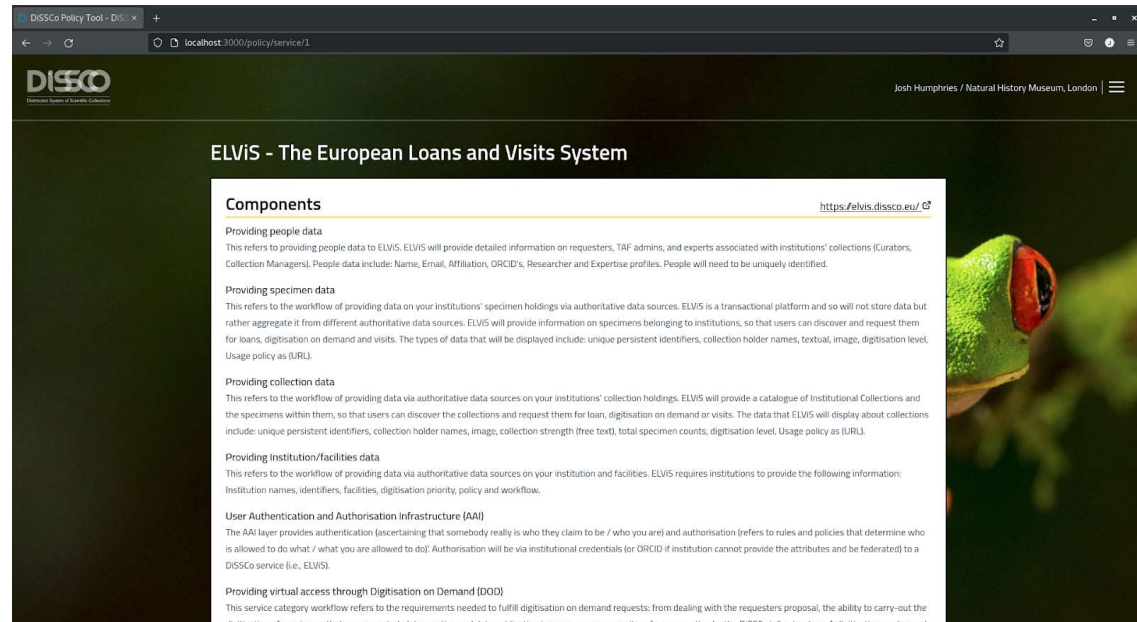


Figure 4: Screenshot showing the institutional policy home page.

From the home page, the user can access information about the policy documents the institution has added into the tool, view all the DiSSCo Services that they can assess against, or view their institution's policy responses for a single service (ELViS is currently the only service with metadata schema content). Additionally, they can see the components that make up the services in the list by clicking on the name of the service in the list (Fig. 5).



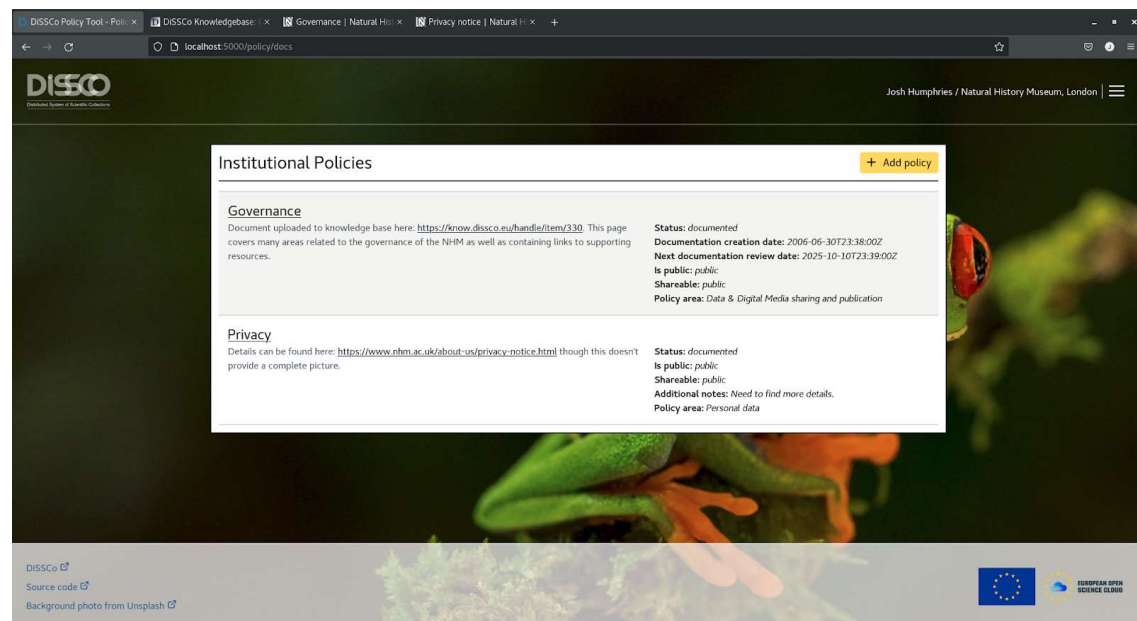
The screenshot shows a web browser window displaying the DiSSCo Policy Tool interface. The page title is "ELViS - The European Loans and Visits System". The URL in the address bar is "localhost:5000/policy/service/1". The page content is organized into a list of components, each with a brief description and a link to the service's metadata schema content.

Components <https://elvis.dissco.eu/>

- Providing people data**
This refers to providing people data to ELViS. ELViS will provide detailed information on requesters, TAF admins, and experts associated with institutions' collections (Curators, Collection Managers). People data include: Name, Email, Affiliation, ORCID's, Researcher and Expertise profiles. People will need to be uniquely identified.
- Providing specimen data**
This refers to the workflow of providing data on your institutions' specimen holdings via authoritative data sources. ELViS is a transactional platform and so will not store data but rather aggregate it from different authoritative data sources. ELViS will provide information on specimens belonging to institutions, so that users can discover and request them for loans, digitisation on demand and visits. The types of data that will be displayed include: unique persistent identifiers, collection holder names, textual, image, digitisation level, Usage policy as (URL).
- Providing collection data**
This refers to the workflow of providing data via authoritative data sources on your institutions' collection holdings. ELViS will provide a catalogue of Institutional Collections and the specimens within them, so that users can discover the collections and request them for loan, digitisation on demand or visits. The data that ELViS will display about collections include: unique persistent identifiers, collection holder names, image, collection strength (free text), total specimen counts, digitisation level, Usage policy as (URL).
- Providing institution/facilities data**
This refers to the workflow of providing data via authoritative data sources on your institution and facilities. ELViS requires institutions to provide the following information: Institution names, identifiers, facilities, digitisation priority, policy and workflow.
- User Authentication and Authorisation Infrastructure (AAI)**
The AAI layer provides authentication (ascertaining that somebody really is who they claim to be / who you are) and authorisation (refers to rules and policies that determine who is allowed to do what / what you are allowed to do). Authorisation will be via institutional credentials (or ORCID if institution cannot provide the attributes and be federated) to a DiSSCo service (i.e., ELViS).
- Providing virtual access through Digitisation on Demand (DOD)**
This service category workflow refers to the requirements needed to fulfill digitisation on demand requests: from dealing with the requesters proposal, the ability to carry-out the digitisation of resources that are requested, data creation and data publication in a user service environment for annotations by the DiSSCo's infrastructure. A digitisation on demand

Figure 5: Screenshot showing the ELViS service components.

By clicking the "View your institution's policy documents" button on the institutional policy home page, the user can view their institution's policy documents that have been entered into the system (Fig. 6). In line with the decisions made at the start of the development process), the policy tool only stores metadata about institutional policies. The user can link to documents stored elsewhere on the internet, including linking to policies they have uploaded to the DiSSCo Knowledgebase.



The screenshot shows a web browser window displaying the DiSSCo Policy Tool interface. The page title is "Institutional Policies". The URL in the address bar is "localhost:5000/policy/docs". The page content is organized into a list of policies, each with a brief description and a link to the policy document.

Institutional Policies [+ Add policy](#)

- Governance**
Document uploaded to knowledge base here: <https://know.dissco.eu/handle/item/330>. This page covers many areas related to the governance of the NHM as well as containing links to supporting resources.
Status: documented
Documentation creation date: 2006-06-30T23:38:00Z
Next documentation review date: 2025-10-10T23:39:00Z
Is public: public
Shareable: public
Policy area: Data & Digital Media sharing and publication
- Privacy**
Details can be found here: <https://www.nhm.ac.uk/about-us/privacy-notice.html> though this doesn't provide a complete picture.
Status: documented
Is public: public
Shareable: public
Additional notes: Need to find more details.
Policy area: Personal data

At the bottom of the page, there are logos for DiSSCo, Source code, Background photo from Unsplash, the European Union flag, and the European Open Science Cloud logo.

Figure 6: Screenshot of the policies page for an institution. Here we can see two entries with a variety of metadata.

From this page the user can also add new policy documents to the tool (Fig. 7). A number of metadata fields can be filled in on this page and the user also has the ability to associated the new policy with a DiSSCo policy area to indicate that the new policy contains information pertinent to that particular area.

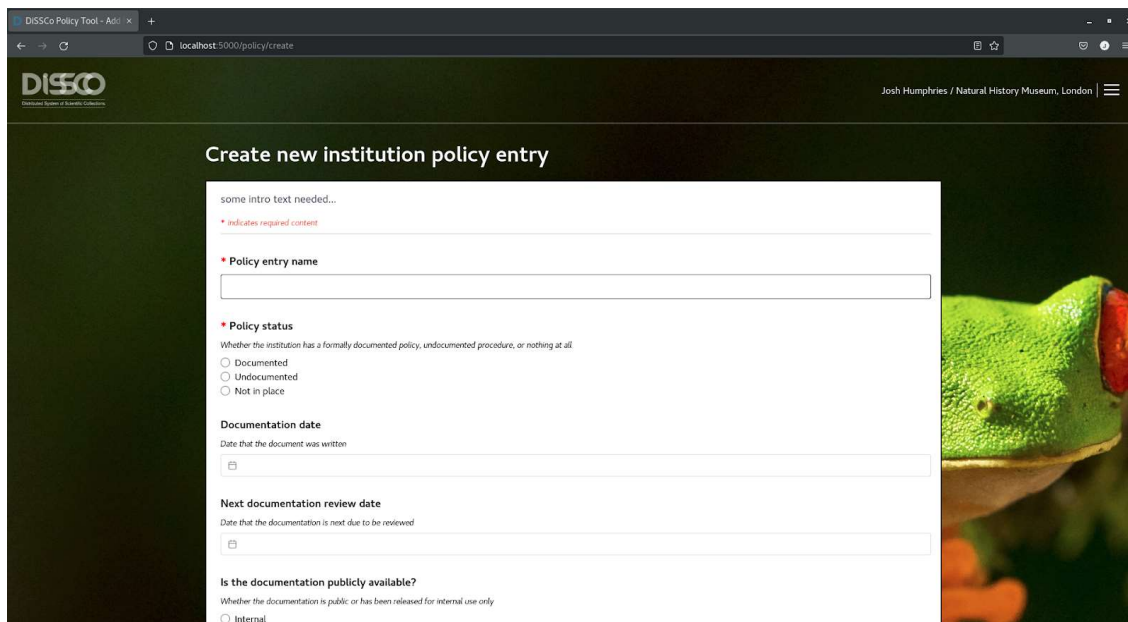
The image shows a web browser window displaying the 'Create new institution policy entry' form in the DiSSCo Policy Tool. The browser's address bar shows 'localhost:5000/policy/create'. The DiSSCo logo is visible in the top left, and the user's name 'Josh Humphries / Natural History Museum, London' is in the top right. The form itself is white with a dark background and contains several sections: a text input field for 'some intro text needed...' with a red asterisk indicating it is required; a text input field for 'Policy entry name' also with a red asterisk; a 'Policy status' section with three radio button options: 'Documented', 'Undocumented', and 'Not in place'; a 'Documentation date' section with a date picker; a 'Next documentation review date' section with a date picker; and an 'Is the documentation publicly available?' section with two radio button options: 'Internal' and 'Publicly available'. A decorative image of a green frog is on the right side of the form.

Figure 7: Screenshot of the policy document creation page.

From the institutional policy home page again (Fig. 4), the user can click the “View alignment” button to start filling out alignment surveys and assessing their alignment with the DiSSCo service they have selected (Fig. 8). This page shows the responses currently made by the institution’s users on behalf of the institution. Multiple users can work on the responses for the institution, as the responses are stored against the institution as a whole.

Initially, the alignment status will indicate misalignment and this is automatically updated every time a new response is entered (Fig. 8) (please see Recommendation 3, which considers options for how ‘misalignment’ could be visualised to the user).

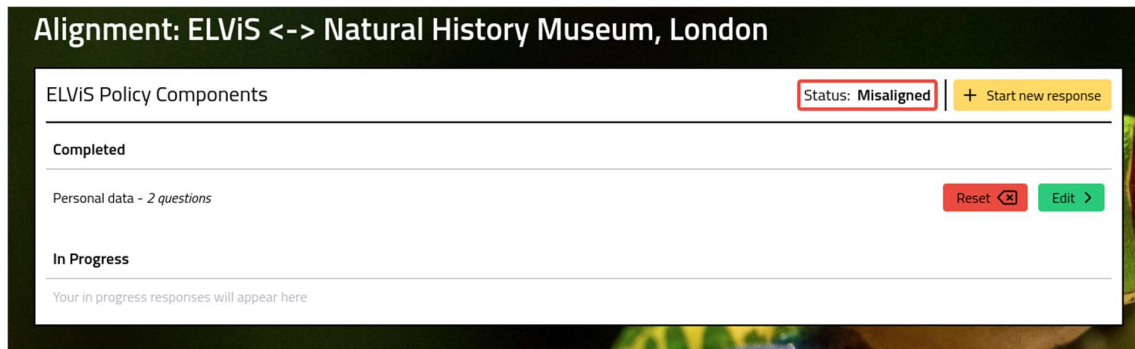


Figure 8: Screenshot of the service alignment home page for an institution, showing the policy surveys they have completed and are working on currently as well as their current alignment status (see Recommendation 3 for further discussion).

Users can click on the alignment status to view the issues that need to be addressed across all the policy requirements of the given service (Fig. 9). Results are broken down by policy area with a link provided so that the user can quickly go to the policy responses to review their answers immediately if they so wish.



Figure 9: Screenshot of a part of the alignment status page showing the alignment for a particular policy area. One component is successfully aligned while the other is misaligned and may require review.

Once all their policies align with the given service, the alignment details modal will show all passes and the status will switch to green (Fig. 10).

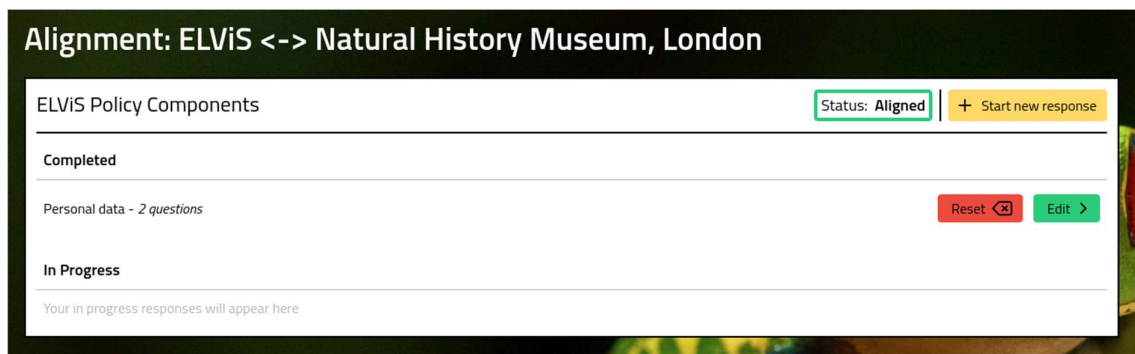


Figure 10: Screenshot of a completely aligned policy page.

Users actually fill out their responses by navigating through a series of questions based on the DiSSCo policy components (Fig. 11, Fig. 12, Fig. 13).

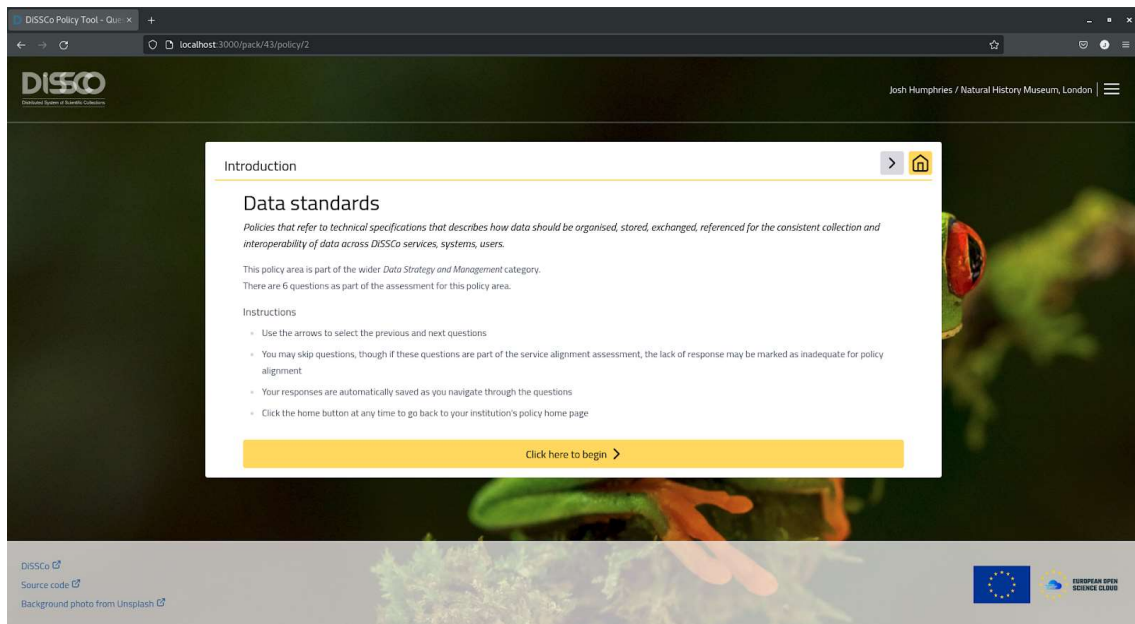


Figure 11: Screenshot of the first page of a survey on policies around data standards that the institution is using.

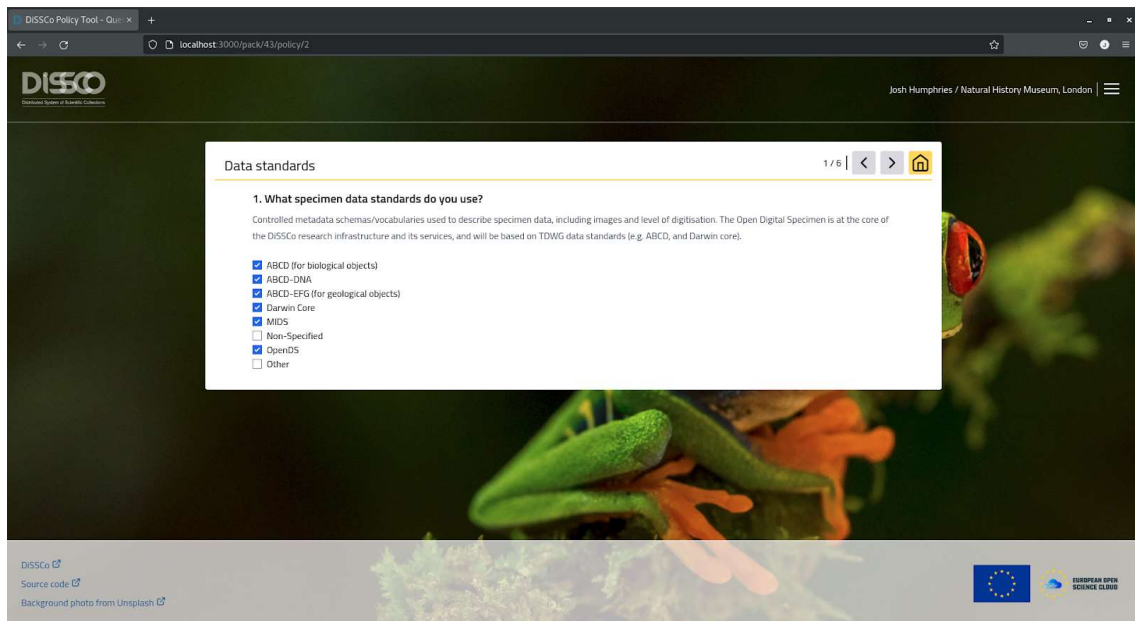


Figure 12: Screenshot of a policy question. For this question, the user is expected to select the applicable options of the list.

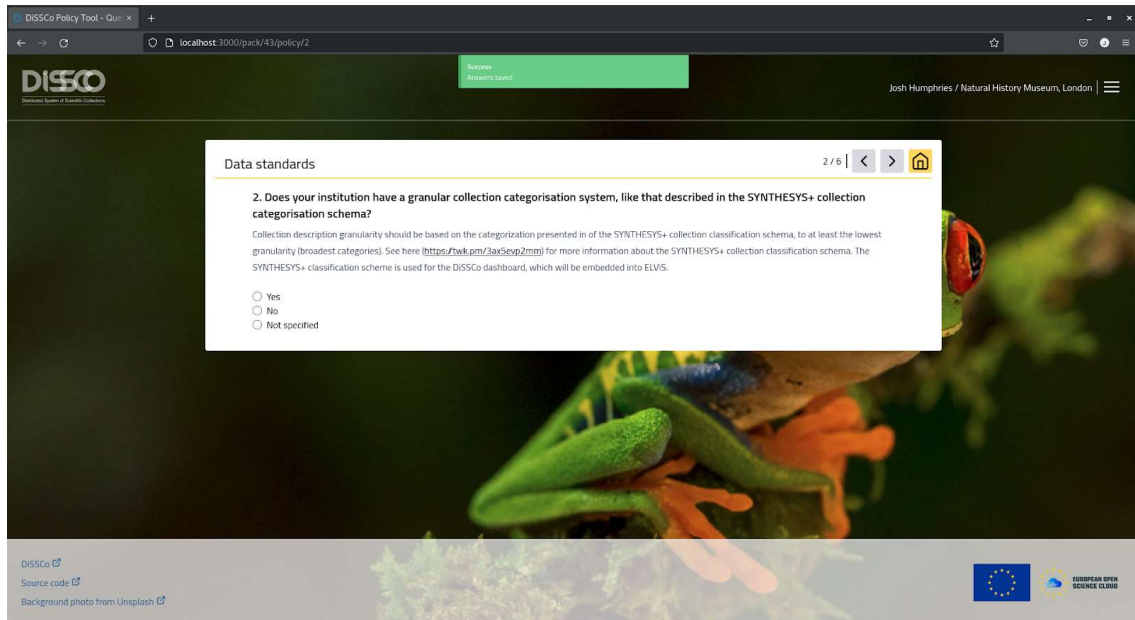


Figure 13: Screenshot of another policy question, showing the on page navigation auto-saving functionality with the notification at the top of the screen. For this question, the user is expected to select one option.

Once the user has completed a set of questions, they can mark them as complete (Fig. 14). This will then allow them to be viewed by the DiSSCo Coordination and Support Office. Alignment checks are made regardless of completion status so that the users can see how their alignment status changes as they progress through the tool.

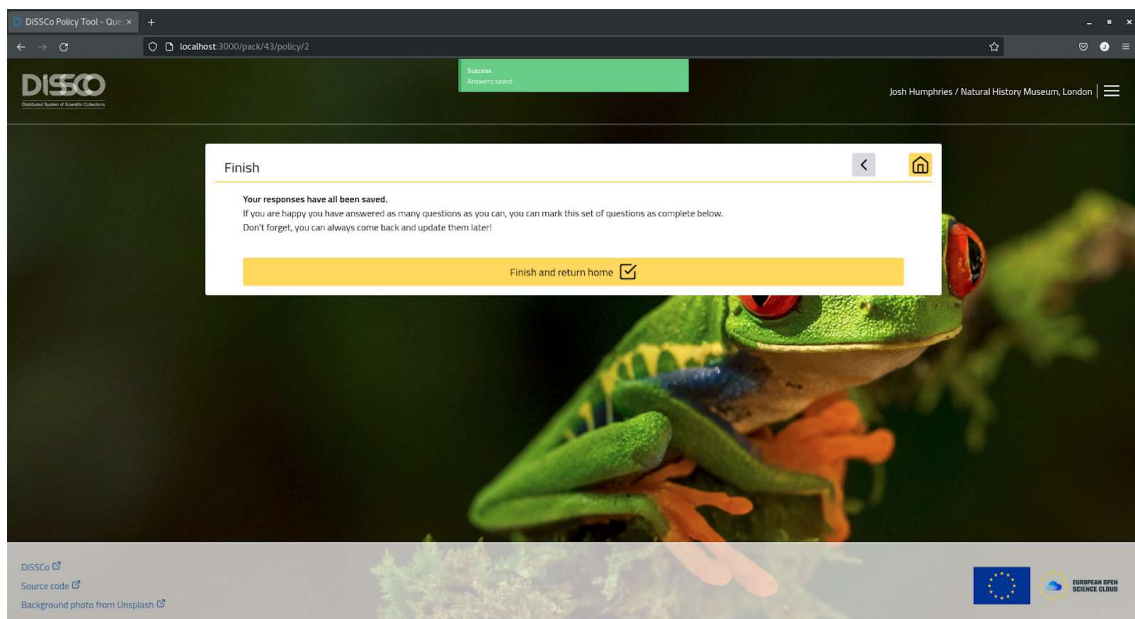


Figure 14: Screenshot of the final page of the survey where the user can mark the set of responses as complete.

At any time, users also have the ability to reset a set of questions to remove the answers from the system. A “are you sure?” prompt is given to the user before removal to ensure they haven’t clicked on the reset button accidentally (Fig.15).

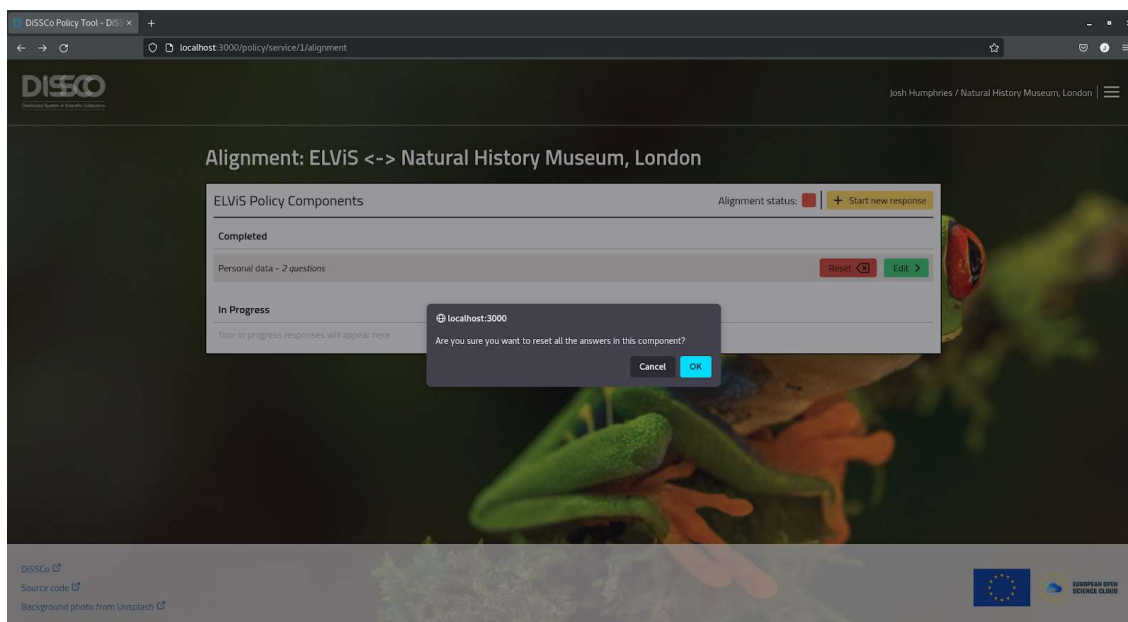


Figure 15: Screenshot of the reset button in action.

Digital Maturity Tool

Statement of Purpose

DiSSCo Prepare Task 3.1 has developed an online self-assessment tool which allows a DiSSCo Partner to map their team’s or organisation’s digital maturity against a scale of suggested elements; define which of those elements are relevant to their desired progress and set progress objectives. It allows the DiSSCo RI to see the overall state of digital maturity and gaps across all DiSSCo Partners, contributing to monitoring, and where possible will provide links to relevant guidance, support and training (Hardy *et al.* 2021).

This document describes the development of the maturity tool, the rationale and content for the digital maturity tool can be found in the associated WP3 milestones and deliverables.

Walkthrough

The maturity tool’s survey components work in a very similar way to the policy tool’s alignment questions and actually use a common framework in the code, however, there are some key differences to the way the questions are answered and the responses are stored.

Once the user has logged in and navigated to the maturity tool home page, they can see all the teams they have created responses for (Fig. 16). These are not shared and are only visible to the user who created them.

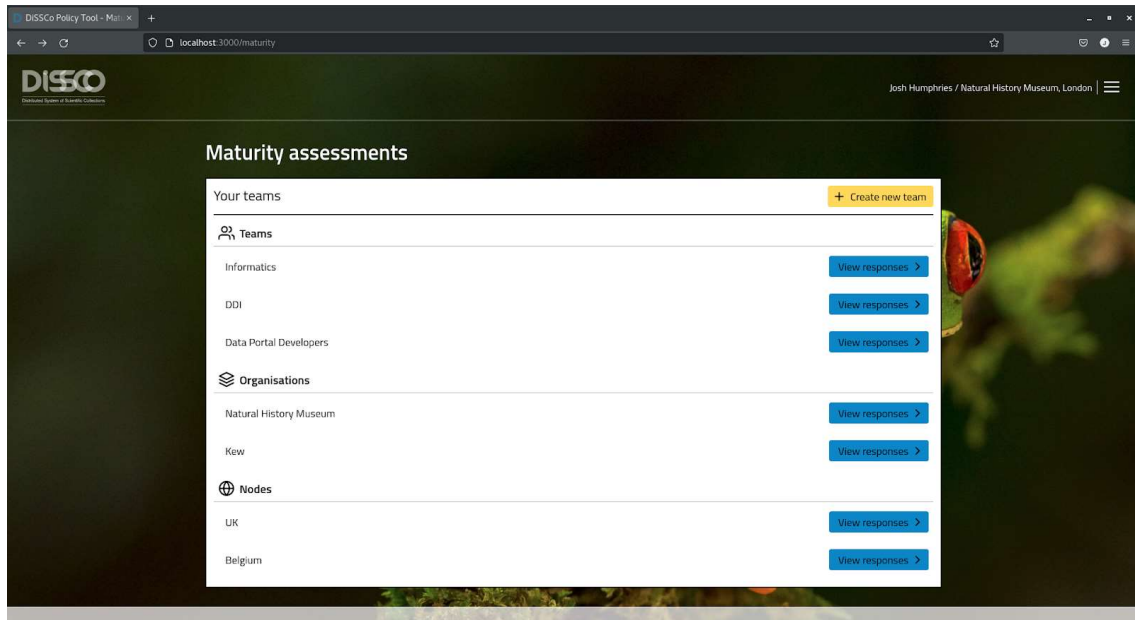


Figure 16: Screenshot of the maturity tool home page where users can see all the teams they have made responses for.

From this page, the user can also create new teams (Fig. 17).

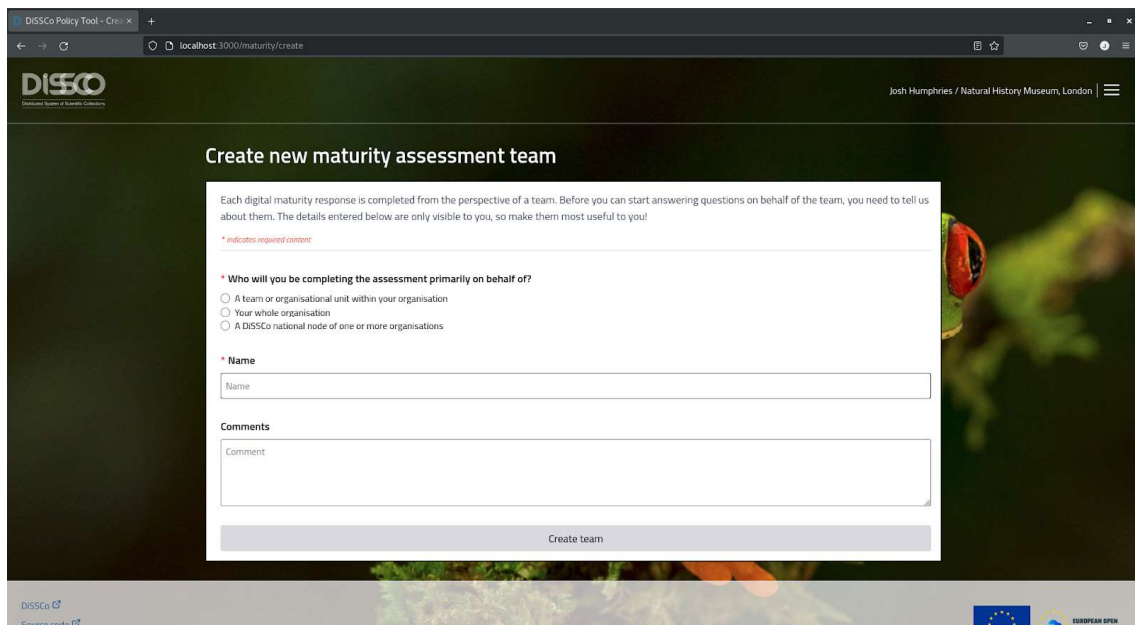


Figure 17: Screenshot of the new team creation page.

If the user clicks on the view button next to any of the teams listed on this page they can view and create new survey responses for that team (Fig. 18).

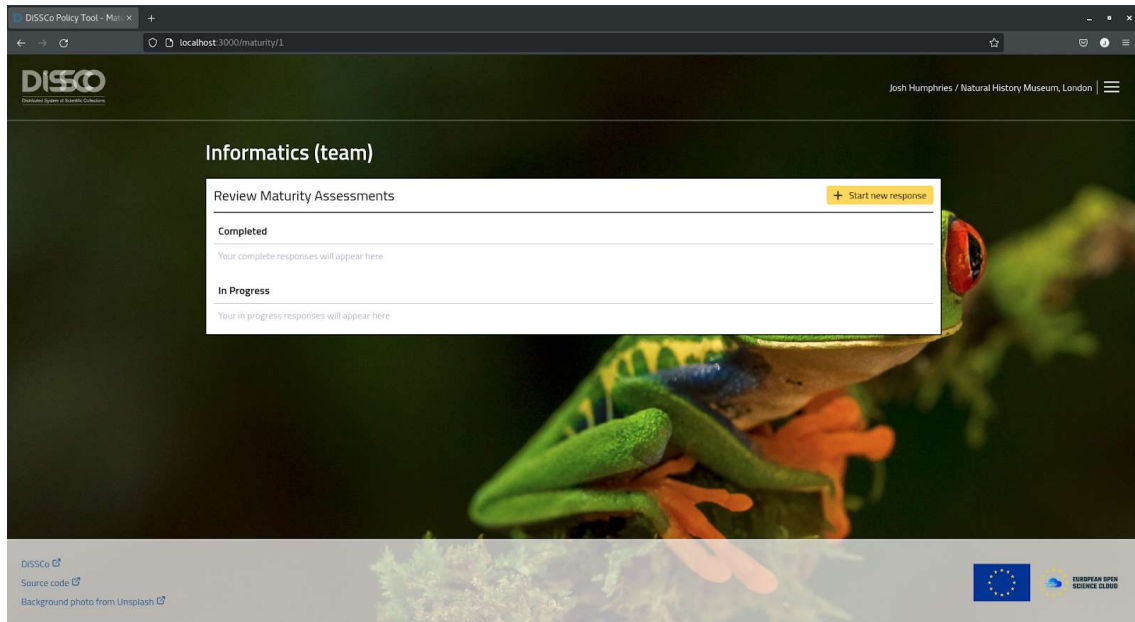


Figure 18: Screenshot of an empty team responses page.

By clicking on the “Start new response” button, the user can select one of the options from the list and start a new survey response (Fig. 19).

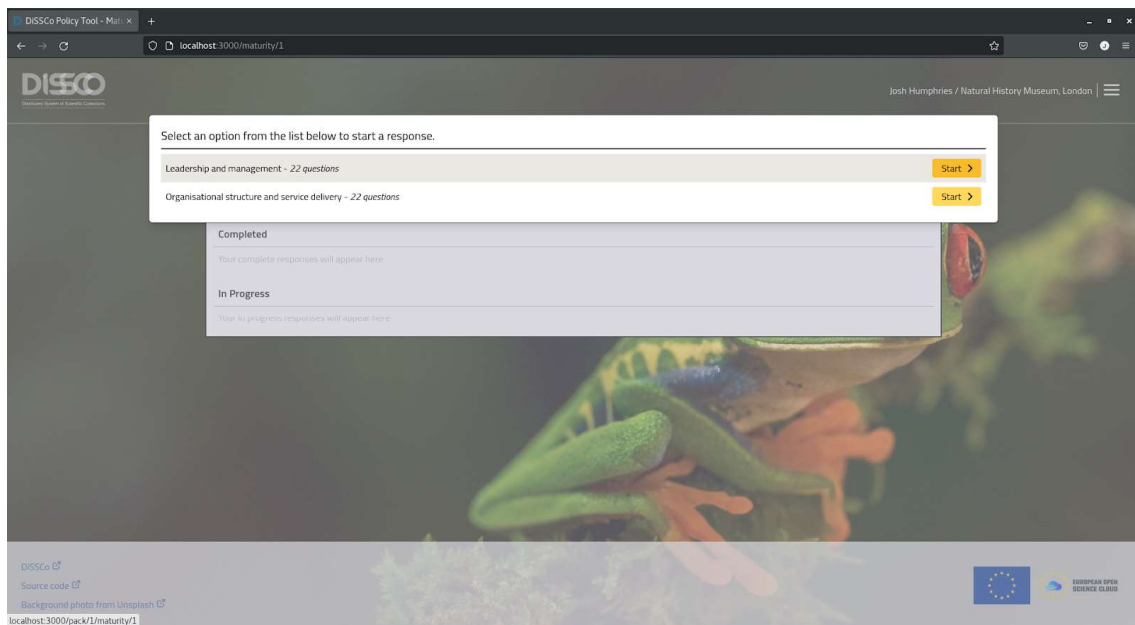


Figure 19: Screenshot of the maturity tool survey selection modal.

Once they start a new assessment, they are presented with an introduction page (Fig. 20) (similar to the policy tool’s introduction screen) and can fill out questions (Fig. 21) using the navigation provided. The questions take the form of a prompt and the user is given the opportunity to assess their agreement with it using a range of options. Users are asked to respond based on the current situation and also based on their expectations in 12 months (Fig. 22). The user can enter comments which are only visible to them.

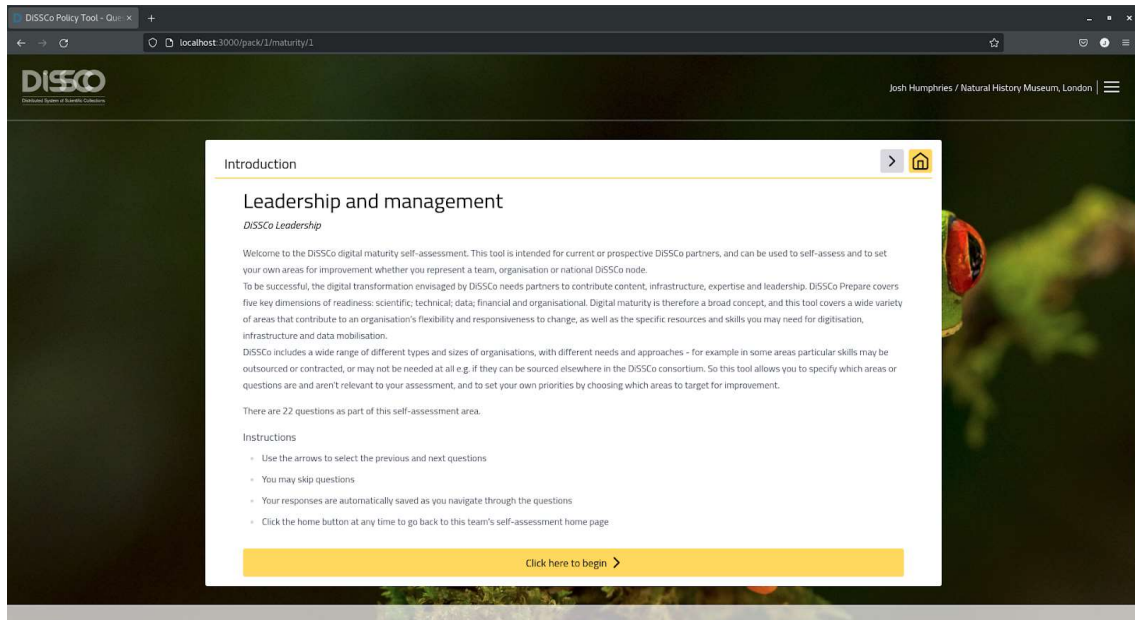


Figure 20: Screenshot of a maturity tool survey introduction page.

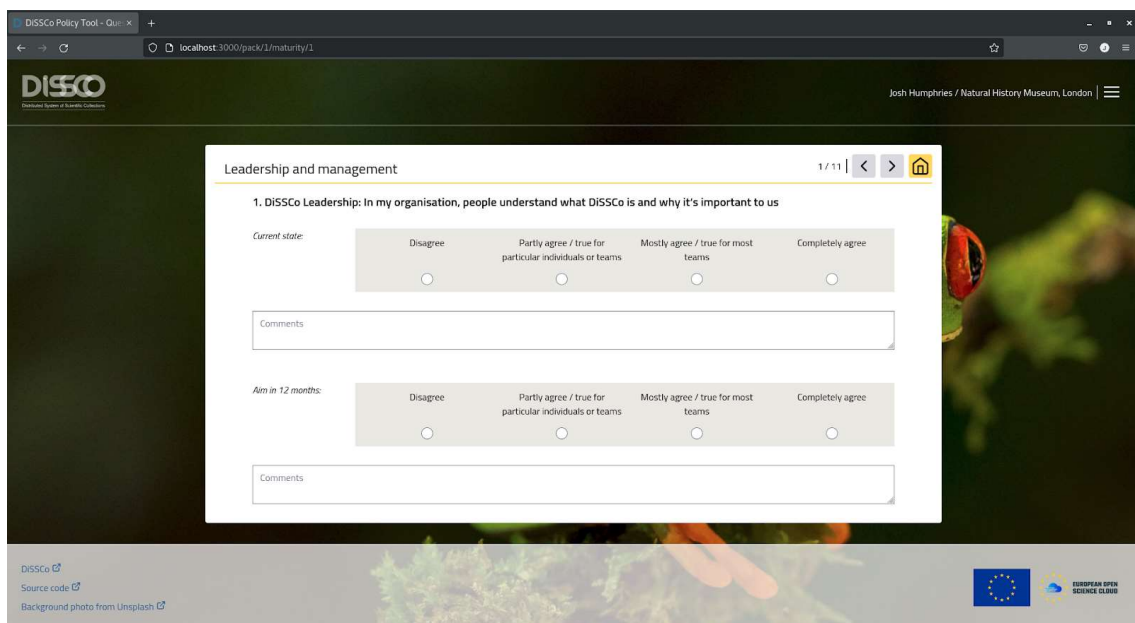


Figure 21: Screenshot of an empty maturity tool question.

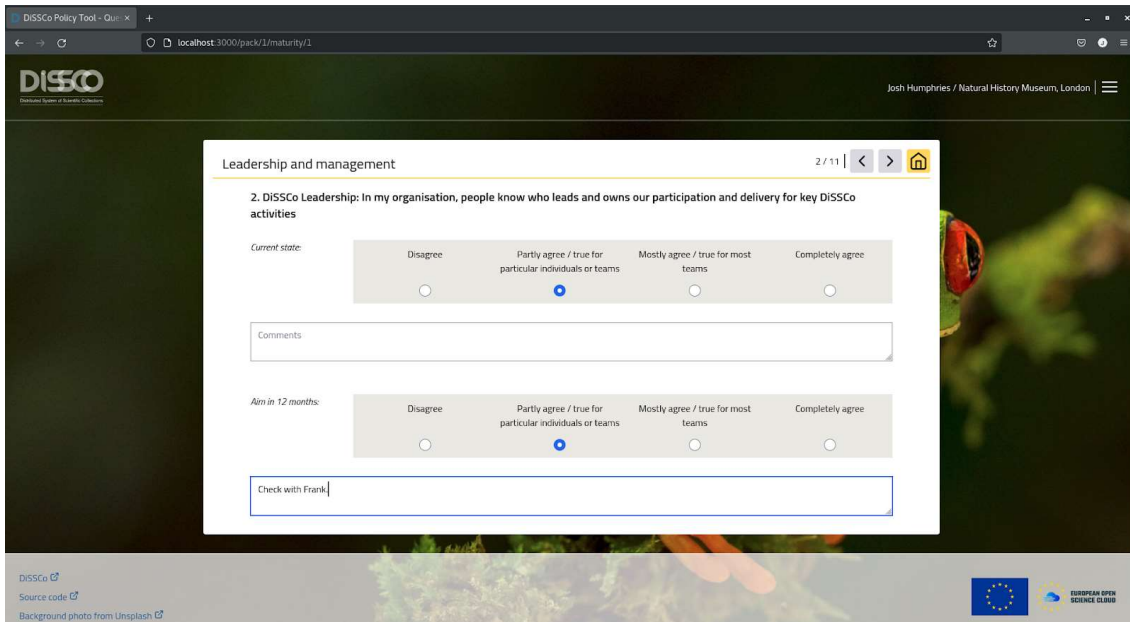


Figure 22: Screenshot of a filled out maturity tool question with use of the comment box.

As the user works through the survey questions the team home page is updated to display the current status of each response set (Fig. 23).

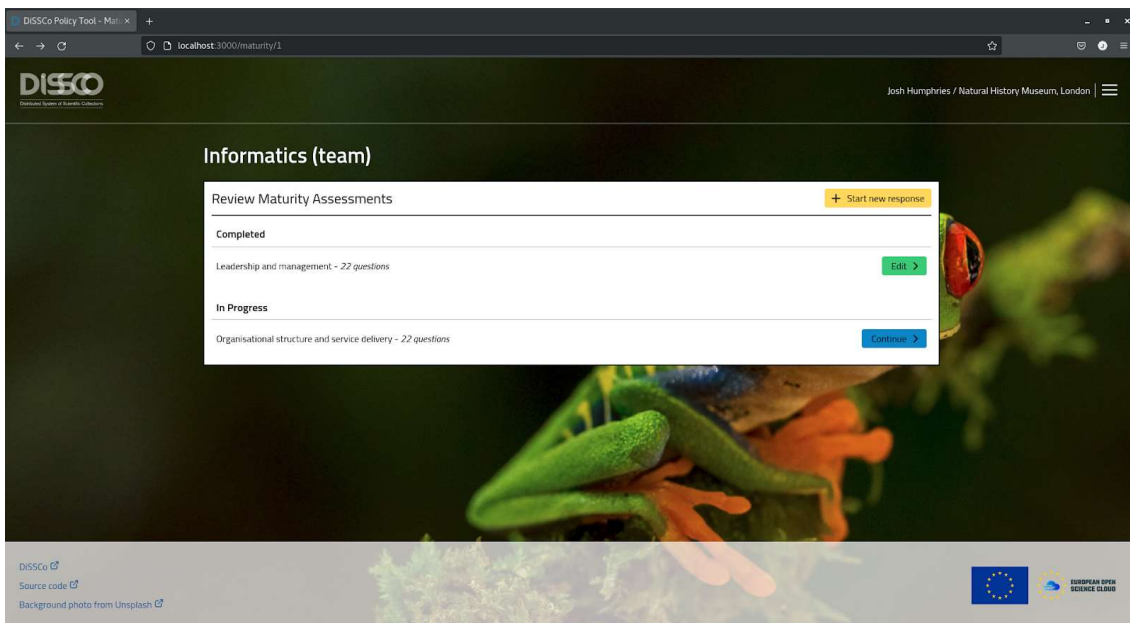


Figure 23: Screenshot of the Informatics team home page showing one completed survey and one in progress.

Recommendations

Recommendation 1: Continue the development of the policy and digital maturity self-assessment tools during the construction phase of DiSSCo

T7.3 has developed a prototype policy and digital maturity self-assessment tool, with a provisional technology readiness level (TRL) of 6. The majority of the ‘must have’ acceptance criteria (Appendix 1), and many of the ‘should have’ and ‘could have’ criteria, have been completed.

There are areas where further development would be beneficial during the construction phase of DiSSCo:

- DiSSCo Dashboard:** The design blueprint for the policy tool identified four main components: a policy portal, a self-assessment tool, an institutional summary and a DiSSCo dashboard. The DiSSCo dashboard has not been developed, however some of the API reporting routes exist for accessing the status of institutional alignment. We have not developed the dashboard in this task, as it is likely the requirements for data visualisations will evolve during the construction phase of DiSSCo. The policy metadata schema currently covers ELViS, and will need to be expanded to cover additional DiSSCo services and this will change the scope of the dashboard. A data analyst should work closely with the DiSSCo to develop this dashboard.
- DiSSCo Administrative Interface:** The site is currently administered using a Django interface. These pages will need further development to enable the DiSSCo central hub to administer the full policy alignment process: for example, including an option for the central hub to contact users and set deadlines for the self-assessments to be completed or updated. Reminders could be set up to automatically remind institutional users if they have not updated their self-assessment. More work is needed to understand DiSSCo central hub requirements and business processes, and a developer can then implement a set of administration pages within the existing framework already implemented.
- Institutional Policies Upload:** The interface to add information about institutional policies has not been user tested. This interface was based upon a data model created early in the project, and it is likely that improvements will be required after user testing. For example, the submission form currently only allows an institution to associate a policy with a single policy component, but it is possible that this should allow for multiple selections. There is also the possibility of further integration with the Knowledgebase through this interface, which could help institutions upload their policy documentation.
- Digital Maturity Tool:** Task 3.3 will continue to update the digital maturity tool (e.g. adding new questions). New content can be added using the YAML files in the GitHub repository, and this is an opportunity to understand how easy or difficult it is for a non-technical user to maintain this content.

The list above is not exhaustive, and the DiSSCo Policy Portal [GitHub Repository](#) has an up-to-date list of issues and suggestions for feature development. This should include working toward Web Content Accessibility Guidelines (WCAG) 2.1. The Synthesys+ NA2.1 deliverable (not yet published) will contain recommendations related to the policy metadata schema.

Recommendation 2: Develop a statement on data sharing which users must agree to before completing a self-assessment

The policy and digital maturity tools should ask users to agree to a data sharing statement. This should detail what information will be shared with the DiSSCo RI and national nodes (e.g. the comment section of the digital maturity tool is private to the institution, and is not shared with the DiSSCo RI central hub).

Recommendation 3: Promote the benefits of policy alignment with DiSSCo service requirements

This task has created a self-assessment tool which can show institutions their alignment with DiSSCo service requirements. It is important that further consideration is given on how to communicate the benefits of aligning with DiSSCo policies before institutions are asked to complete this self-assessment (Tilley, 2021).

Some of the terminology in the policy tool should be then updated to reflect this communications approach, for example, considering how to best visualise ‘misalignment’ against DiSSCo policy in the institutional summary. Some text (‘aligned’/‘misaligned’) has been included as a placeholder, however, this should be updated to reflect DiSSCo positioning. For example, there may be some policy requirements which are essential to a DiSSCo service, and others where the policy requirement is considered ‘best practice’ but not essential. The text and/or visualisation in the institutional summary should reflect these nuances.

Recommendation 4: Produce best practices and guidelines to include in the institutional summary

The institutional summary currently shows an institution which areas they align with DiSSCo policy requirements, and in which areas they do not. Best practices and guidelines will be needed to help support users in areas where they do not align with DiSSCo policy. These best practices will need to be maintained. The DiSSCo helpdesk could be a suitable place for institutions to seek further guidance, both on how to use the tool if they encounter any difficulties, and to provide a route for an institution to seek further support on implementing best practices.

Conclusion

Task 7.3 has developed a policy and digital maturity self-assessment tool. This deliverable describes the development of these tools and provides a walkthrough of the user interface. A set of recommendations describe the future development of these tools. The tool has been designed to allow for potential scalability should other self-assessment needs be identified, and these can be built on the same platform. The policy and digital maturity tools can help to facilitate DiSSCo partner institutions in better understanding the requirements for participating in DiSSCo and help to provide an overall picture of organisational readiness.

Author Contributions

Contribution types are drawn from [CRediT - Contributor Roles Taxonomy](#)

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Writing – review & editing: Quentin Groom, Helen Hardy, Carole Paleco, Laura Tilley, Katharine Worley

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Appendix 1

Table 1: Acceptance Criteria for Policy and Digital Maturity tools. See French *et al*, 2021 for description of user roles.

USID	User Story	AC ID	Acceptance Criteria	Priority*
Policy Portal				
1	As a Institutional Policy Lead I want to understand the policy requirements for a DiSSCo Service so that my institution can join the service	1.1	DiSSCo RI User can upload, edit, remove and replace a DiSSCo Policy	4
		1.2	User can search for a DiSSCo Policy	4
		1.3	User can view and download a DiSSCo Policy	4
		1.4	User can link to a DiSSCo Policy	4
2	As a DiSSCo RI user I want to share a list of DiSSCo Service policy requirements with DiSSCo members so that members can see what requirements they need to meet	2.1	Users can view the policy requirements for a specific DiSSCo Service	4
3	As a Institutional Policy Lead I want to see a list of all DiSSCo policy requirements so that I can check whether my policies need to be updated	3.1	Users can view all DiSSCo policy requirements in one place	4
4	As a Institutional Policy Lead I want to be able to find help and guidance on DiSSCo policy requirements so that I know how to update my policies so my institution can join a DiSSCo service	4.1	DiSSCo RI User can add, upload, edit, remove and replace help, guidance, best practice and protocols	4
		4.2	Users can access help, guidance, best practice and protocols	4
		4.3	DiSSCo policies can link to further help, guidance, best practice and protocols	4
5	As a DiSSCo RI user I want to be able to link to relevant DiSSCo and institutional policies when setting up a funding call so that researchers can check they can access and sample the required specimens as part of their grant proposal	5.1	DiSSCo RI Users can create a bespoke list of DiSSCo policies and can link to them	2
6	As a Researcher I want to be able to access an institution's policies when responding to a funding call so that I know I can undertake	6.1	Users can access institutional policies relevant to a DiSSCo service call for applications	2

USID	User Story	AC ID	Acceptance Criteria	Priority*
	the planned research before I submit the proposal	6.2	Users can view a contact e-mail address for institutional policies which are not shareable	2
7	As a Institutional Policy Lead I want a place to store our institution's policies so that researchers can access them more easily and we can share the policies with funders	7.1	Institutional users can upload, replace and delete institutional policies	2
		7.2	Institutional users can set whether their policies are visible to the to the DiSSCo RI only, to other institutional users or to the general public	2
		7.3	Users can access institutional policies which they have the appropriate access permissions to view.	2
		7.4	Institutional users can set how often they want a reminder to check that an uploaded policy is up to date	2
		7.5	Institutional users can optionally add a contact email address which will be visible to other users	2
		8	As a Institutional Policy Lead I want to access relevant policies of other institutions so that I can review them when updating my own policy	8.1
Self Assessment Tool				
9	As a Institutional Policy Lead I want to self assess our policies against DiSSCo requirements so that I can see where we meet the requirements, identify gaps and discover inconsistencies	9.1	Institutional user can register and login to an account	4
		9.2	Institutional user can complete the self assessment	4
		9.3	Institutional user can save progress and come back to the self assessment at a later time	4
		9.4	Institutional user can request for their self assessment responses to be removed from the system	4
		9.5	DiSSCo RI user can remove an institution's self assessment responses from the system	4

USID	User Story	AC ID	Acceptance Criteria	Priority*
10	As a Institutional Policy Lead I want to be able to review my past responses to the self assessment, and only update areas that have changed so that I can save time when I am asked to complete the assessment again in future	10.1	Self Assessment tool prepopulates with previously submitted responses	4
11	As a Institutional Policy Lead I want to be able to work on the self assessment with my institutional colleagues so that we can use our combined expertise to complete it	11.1	Institutional users can work collaboratively on the self assessment	4
18	As a DiSSCo RI user I want add a new DiSSCo service or policy to the self assessment tool and DiSSCo Dashboard so that DiSSCo members can assess themselves against the new policy requirements	18.1	Policy self assessment tool allows for updates to the metadata schema	4
		18.2	An update to the metadata schema will not result in loss of previously entered data	4
4	As a Institutional Policy Lead I want to be able to find help and guidance on DiSSCo policy requirements so that I know how to update my policies so my institution can join a DiSSCo service	4.4	Self Assessment tool can link to help and guidance	3
12	As a Institutional Policy Lead I want to be able demonstrate where our internal policy is due to governmental/ external accreditation requirements so that DiSSCo RI are kept informed of areas where we cannot change our policy	12.1	Self Assessment tool allows users to enter where a policy requirement is determined by governmental/ external accreditation requirements	2
		12.2	Self Assessment tool allows institutional users to optionally upload and/or link to their institutional policies	2
		12.3	Self Assessment tool allows users to add comments which will be visible to DiSSCo RI users	2
13	As a Institutional Policy Lead I want to only complete the self assessment for the DiSSCo Service(s) I want to join so that I can save time by only assessing relevant policy areas	13.1	Self Assessment tool allows users to select which DiSSCo Services to self assess their institutional policies against	2
		13.2	Self Assessment tool will allow users to submit responses for the selected DiSSCo Services, and be able to return to complete the other areas of the self assessment at a later date	2

USID	User Story	AC ID	Acceptance Criteria	Priority*
22	As a Digitisation Manager I want to be able to transfer the ownership of the assessment to another user so that the information is not lost if I leave the organisation	22.1	DiSSCo RI user/Institutional user (?) can assign a new owner to a self assessment response	4
24	As an Institutional Policy Lead, I want to be able to complete the self-assessment in any order so that I can come back to questions after consulting with colleagues	24.1	Institutional user can complete the self-assessment, completing questions and sections in any order	3
26	As an Institutional Policy Lead, I want to be able to save my progress so that I don't have to complete the assessment in one sitting	26.1	Institutional user can save the self-assessment progress	4
		26.2	Form auto-saves responses	4
29	As a DiSSCo RI user I want to be able to select which questions are mandatory for a particular DiSSCo Service so that users only need to complete the essential information	29.1	DiSSCo RI user can set which questions are mandatory for each service	3
		29.2	Institutional user is only required to complete mandatory questions before submission and can optionally complete other questions	3
Institutional Summary				
9	As a Institutional Policy Lead I want to self assess our policies against DiSSCo requirements so that I can see where we meet the requirements, identify gaps and discover inconsistencies	9.6	Institutional user receives an institutional summary once the self assessment questionnaire is complete	4
		9.7	Institutional summary shows where the institution is compliant with DiSSCo policy requirements, and areas where they are not compliant	4
		9.8	Institutional summary allows institutional users to filter by policy category	4
		9.9	Institutional summary allows users to filter by DiSSCo Service area	3
		9.10	Institutional summary can show a scoring system to rate institutional compliance against DiSSCo policy requirements	3
		9.11	Institutional summary shows the date the self-assessment was completed	3

USID	User Story	AC ID	Acceptance Criteria	Priority*
4	As a Institutional Policy Lead I want to be able to find help and guidance on DiSSCo policy requirements so that I know how to update my policies so my institution can join a DiSSCo service	4.4	Institutional summary can direct institutional users to appropriate help and guidance	4
17	As a DiSSCo RI user I want I want to be able to change the policy requirement for a DiSSCo service so that I can keep the tool up to date if requirements change	17.1	Institutional summary can be updated if a DiSSCo Service policy requirement has changed in the metadata schema	4
18	As a DiSSCo RI user I want add a new DiSSCo service or policy to the self assessment tool and DiSSCo Dashboard so that DiSSCo members can assess themselves against the new policy requirements	18.3	New information can be added to the institutional summary when the metadata schema updates	4
14	As a Institutional Policy Lead I want to see what proportion of institutions have policies in each area so that I can use this information to help me develop our own policy	14.1	Institutional users can view the proportion of institutions which have adopted each policy requirement	2
		14.2	Institutional users can opt out of allowing their self assessment responses to be included in the proportions shown as part of AC37.1	2
DiSSCo RI Dashboard				
15	As a DiSSCo RI user I want to evaluate the overall alignment status of DiSSCo member policies with DiSSCo services policies so that I can identify most urgent areas of need for the DiSSCO community to advise on alignment strategies and help develop capacity	15.1	DiSSCo RI users can register and login to the DiSSCo Dashboard	4
		15.2	DiSSCo RI Dashboard can show an individual institution's responses to the self assessment	4
		15.3	DiSSCo RI can show the proportion of DiSSCo members compliant or not with a policy requirement	4
		15.4	DiSSCo RI Dashboard allows selection of multiple policy requirements, showing the proportion of institutions compliant with these policies	4
		15.5	DiSSCo RI Dashboard allows DiSSCO RI users to filter by	3

USID	User Story	AC ID	Acceptance Criteria	Priority*
			DiSSCo Service, which then only shows the policy requirements relevant to that service	
		15.6	DiSSCo RI user can see the date the self-assessment was completed by each institution	3
16	As a DiSSCo RI user I want to understand where DiSSCo member policies differ from DiSSCo Service policies so that I can identify areas of DiSSCo policies requiring supplementation or modification	16.1	DiSSCo RI can view the institutional policies uploaded by DiSSCo Partners	4
17	As a DiSSCo RI user I want I want to be able to change the policy requirement for a DiSSCo service so that I can keep the tool up to date if requirements change	17.2	DiSSCo Dashboard can be updated if the metadata schema has changed, showing compliance against revised policy requirements	4
18	As a DiSSCo RI user I want add a new DiSSCo service or policy to the self assessment tool and DiSSCo Dashboard so that DiSSCo members can assess themselves against the new policy requirements	18.4	New views can be added to the DiSSCo dashboard when the metadata schema updates	4
		18.5	DiSSCo RI can inform institutional users about a policy requirement update	4
19	As a DiSSCo RI user I want to send reminders to institutional users to complete or update their self assessment so that I have current information from as many institutions as possible	19.1	DiSSCo RI can set a deadline for the self assessment to be completed or updated, with reminders automatically sent to institutional users	4
		19.2	DiSSCo RI users can select to send reminders only to institutional users who have not completed or updated the self assessment tool since a selected date	4
		19.3	System records the self assessment tool date of submission	4
20	As a National Node Coordinator I want to be	20.1	National node user can register	3

USID	User Story	AC ID	Acceptance Criteria	Priority*
	able to evaluate the overall alignment status of my National Node institutions with DiSSCo services policies so that I can help develop capacity within the national node		and login to an account	
		20.2	DiSSCo RI User can specify which self assessment data each national node user has permission to access	3
		20.3	National node user can use the functionality listed in AC 4.2-4.5 for the institutions they have access permissions to view	3
21	As a DiSSCo RI user I want to be able to vary policy requirements between DiSSCo services so that institutional users can accurately assess their compliance against each DiSSCo service	21.1	Institutional users can enter different responses based on the DiSSCo service being assessed	2
		21.2	Results Summary can show where DiSSCo Service requirements differ	2
Digital Maturity Tool - Additional Requirements (MS3.2)				
23	As a Digitisation Manager I want to be able to complete more than one digital maturity self assessment so that I can complete it on behalf of my different teams (e.g. institution, one of my teams or a national node)	23.1	Institutional user can create more than one digital maturity self assessment	2
		23.2	An institutional user cannot create more than one policy self assessment per institution	4
25	As a Digitisation Manager, I want to be able to enter notes to explain my responses to each section so that when I review the survey at a later date I can remember why I was targeting that area for improvement	25.1	Institutional user can enter notes to explain their responses to each section	4
26	As a DiSSCo RI user, I want to be able to update the digital maturity tool by amending, adding or removing questions so that I can keep it up to date with the latest developments	26.1	Digital Maturity tool self assessment questions can be updated without losing previously entered user data (including still being able to generate institutional summaries and dashboard)	4

USID	User Story	AC ID	Acceptance Criteria	Priority*
27	As a Digitisation Manager, I want to know if someone else in my institution has completed a self assessment so that we don't duplicate effort and can contact each other	27.1	Institutional users can agree at sign-up whether their information can be shared with other users from the same institution	3
		27.2	Institutional users will be alerted to other self-assessments from their institution and provided with contact details (where this has been agreed by the other user - see 27.1)	3
28	As a Digitisation Manager, I want to select which sections of the assessment are relevant to my team so that I don't have to complete the full assessment	28.1	Institutional user can select which sections are relevant to their use case, with the self-assessment tool only asking them to complete these sections	4
		28.2	Institutional users are able to change which sections of the tool are relevant to their use case	4
		28.3	Institutional user can generate the institutional summary even if they have not completed all sections they had selected as relevant	3
29	As a Digitisation Manager, I want to be able to record my current maturity level and my desired maturity level in 12 months time for all questions so that I can measure my progress	29.1	Institutional user can specify the current level and their desired level in 12 months for all questions	4
30	As a DiSSCo RI user, I want to be able to understand the digital maturity of institutions and nodes so that we can identify potential training needs	30.1	DiSSCo RI can view information about the self-assessment tool use, including which institutions have completed one or more assessments	4
		30.2	DiSSCo RI can view institutional self-assessment responses	4

*4=must have 3=should have 2=could have 1=won't have

INSTITUTION DETAILS	SERVICE DETAILS	POLICY DESCRIPTION	POLICY VALUES
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