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Definition of requirements for the proposed design for the IRISCC Catalogue of Services

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D7.1

**Definition of
requirements for the
proposed design for the
IRISCC Catalogue of
Services**



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Abstract


Key words

Metadata schema, vocabulary, search filters, service description

This report provides an overview of the primary, technical requirements for the design of the first release of the IRISCC Catalogue of Services. The catalogue will be built on the existing ISIA platform that also hosts service catalogues of other projects including the AgroServ EU-INFRA SERV project. As AgroServ is also a project giving access to services across multiple RIs, the requirements for the IRISCC Catalogue of Services are defined with the AgroServ Catalogue of Services as the reference model. The report I) gives an overview of existing vocabularies used across the different RIs in IRISCC that should be used as much as possible in building the specific IRISCC metadata schema, II) it highlights the changes needed for the IRISCC Catalogue of Services in comparison to the AgroServ Catalogue of Services, and finally III) it summarises the steps forward from this early stage of the IRISCC project.

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Terminology / Acronyms	
Term/Acronym	Definition
AAT	Art & Architecture Thesaurus.
AgroServ	Integrated services supporting a sustainable Agroecological transition (AgroServ). EU-INFRA SERV project (2022-2026).
Analytical facility	Facility that offers advanced biological, physical and chemical analyses for a deeper insight into processes.
API	Application Programming Interface. API is a way for two or more computer programs or components to communicate with each other.
ISIA	Platform hosted at CNRS to share data, information and resources such as service catalogues of various research infrastructures.
Metadata schema	The metadata schema lists the data elements with their definitions. In addition, it states the rules that govern the use of each specific data elements to describe a resource.
PASS	Platform for managing user Access to ACTRIS Services (PASS), an online, centralized access management platform operated by the ACTRIS Service and Access Management Unit and made available to IRISCC to manage physical, remote and hybrid access to the research facilities.
RI	Research Infrastructure.

Search filter	Pre-made search strategy with keywords and/or relevant groupings to aid the user in finding the most relevant information.
TA	Transnational Access (Physical, Remote).
Thesaurus	A list of words/descriptors/information about a particular field or set of concepts usually with a cross-reference system.
URI	Unique Resource Identifier (URI) is a unique combination of characters that identifies an abstract or physical resource.
VA	Virtual Access.
Vocabulary	In science, the language used for a specific field of expertise.

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Executive summary

The overall objective of IRISCC WP7 is to design, establish and maintain the IRISCC Catalogue of Services. The IRISCC Catalogue of Services is the main reference for the users and the single source of consistent information on all operational services on climate change-related risks and vulnerabilities made available to users in the IRISCC project via transnational and virtual access. The early deliverable D7.1 aims to define the technical requirements for the proposed design of the IRISCC Catalogue of Services. As such, this report forms the starting point for the technical development done by the developers of the IRISCC Services catalogue and the IRISCC homepage.

The development of the IRISCC Catalogue of Services will build on the already existing service catalogues established by the IRISCC consortium members. Specifically, the IRISCC Catalogue of Services will be hosted on the ISIA platform, developed and maintained at CNRS, France (<https://test.isia.cnrs.fr/>). The ISIA platform currently also hosts service catalogues of AnaEE France, AnaEE ERIC and the EU INFRASERV project AgroServ. As the AgroServ project already is a service catalogue giving access to services across multiple RIs, the newest test version of this catalogue (<https://test.isia.cnrs.fr/catalog/2/services>) will serve as the reference model for the IRISCC Catalogue of Services. A new development for IRISCC is the Integration of the IRISCC Service Catalogue hosted on ISIA with the PASS platform for managing user access to services. PASS is an online, centralized access management platform operated by the ACTRIS Service and Access Management Unit and made available to IRISCC to manage physical, remote and hybrid access to the research facilities. This report identifies changes needed for the upcoming IRISCC Catalogue of Services to optimise user access and discovery of the IRISCC services.

During the project, the development of the IRISCC Catalogue of Services will be an iterative process between IRISCC work package activities and service developments and the web interface developers. This report is therefore not exhaustive, but does state the primary, technical requirements for the design of the first release version of the IRISCC Catalogue of Services.

Summary of technical requirements:

- In building the metadata schema for the additional information needed in IRISCC, the existing vocabularies within the IRISCC consortium should always be used if possible (section 2).
- The IRISCC Catalogue of Services must be able to handle all the different types of access identified for IRISCC (section 3).
- The existing metadata schemas from AgroServ to describe additional information on facilities and services need to be adapted to the needed description of facilities and individual services in IRISCC (section 4).

- Search filters need to be adapted for IRISCC. In particular, for the first release of the Catalogue of Services, the two core search filters should be “System” and “Risk”. Other improvements of the current handling of search filters for AgroServ are also requested for IRISCC (section 5).
- A technical solution allowing integration of the PASS access management tool and ISIA is needed (section 6).
- An online web interface for service providers to allow updating required information is requested. In addition, preferably the web interface should provide the opportunity to fill out and upload a .csv template or similar with all mandatory data fields from the service providers (section 7).

Based on these technical requirements, the next steps are to first define the mandatory metadata fields for IRISCC service providers from the EOSC-based model and then to define the additional information required for the descriptions of facilities and individual services in IRISCC. Then developers can make the necessary adaptations of ISIA and service providers can start filling out either the online form or a simple .csv template (if possible) to populate the online web Catalogue of Services. Concurrent with this development, the development of a technical solution for the integration of the PASS access management tool and ISIA should be initiated.

1. Objective of this report

The overall objective of IRISCC WP7 is to design, establish and maintain the IRISCC Catalogue of Services, as the IRISCC Catalogue of Services is the main entry-point for the users to find and explore integrated information, digital services and transnational access services on climate change related risks and vulnerabilities.

In meeting this overall objective, the first deliverable D7.1 set already for month 3 of the IRISCC project aims to define the requirements for the proposed design of the IRISCC Catalogue of Services. As such, this report will form the starting point for the technical development done by the developers of the IRISCC Services catalogue and the IRISCC website.

The development of the IRISCC Catalogue of Services will build on already existing service catalogues established among the IRISCC beneficiaries, which will form the basis for further development within the context of IRISCC. The IRISCC Catalogue of Services will be hosted on the ISIA platform, developed and maintained at CNRS, France (<https://test.isia.cnrs.fr/>). The ISIA platform currently also hosts service catalogues of AnaEE France (<https://test.isia.cnrs.fr/catalog/3/services>), AnaEE ERIC (<https://test.isia.cnrs.fr/catalog/1/services>) and the EU INFRA-SERV project AgroServ (<https://test.isia.cnrs.fr/catalog/2/services>). As the AgroServ project already is a service catalogue giving access to services across multiple Research Infrastructures (RIs), the newest test version of this catalogue will serve as the reference model for the IRISCC Catalogue of Services. This report therefore aims to identify which specific improvements are needed for the upcoming IRISCC Catalogue of Services to provide users an easy overview of and access to the IRISCC services.

2. Using existing vocabularies across IRISCC

A controlled vocabulary derived from thesauri is essential to ensure interoperability between tools, disciplines and users. It guarantees an unambiguous understanding of the content expressed and allows a unique identifier (URI) to be associated with it, enabling machines to read it. Table 2.1 lists the current vocabularies used across IRISCC RIs.

It is a technical requirement of the IRISCC Catalogue of Services to use existing vocabularies whenever possible and only create new data fields – and associated vocabularies – when required. Priority should be given to vocabularies already used across multiple RIs in IRISCC.

Among the IRISCC partners, D4Science provides a vocabulary matching tool. This tool, developed as part of the ARIADNE H2020 project, assists in mapping locally used terms and concepts to the Getty Art & Architecture Thesaurus (AAT). The goal of this mapping process is to identify subject mappings from source terms and concepts to AAT concepts, facilitating improved browsing and searching of the data. (Link to vocabulary matching tool: <https://vmt.ariadne.d4science.org/vmt/vmt-app.html>). As IRISCC has a stronger focus on environmental data, data products, models, and socio-economic impacts, an even more relevant adaptation for IRISCC vocabularies is that a Semantic Analyser for wider environmental terms is currently being developed as part of the HE FAIR-EASE project (<https://zenodo.org/records/10606930>), which includes SeaDataNet vocabularies, hosted by National Oceanography Centre (NOC) – British Oceanographic Data Centre (BODC).

Table 2.1. Overview of existing vocabularies used by IRISCC partners

RI	Link
ACTRIS	https://vocabulary.actris.nilu.no/actris_vocab/ https://vocabulary.actris.nilu.no/actris_controlled_lists/ https://www.actris.eu/sites/default/files/Documents/ACTRIS%20IMP/Deliverables/ACTRIS_D6_5_Access_Management_Plan.pdf https://www.actris.eu/sites/default/files/inline-files/ACTRIS_glossary_April2022_0.pdf
AnaEE	https://www.anaee.eu/resources/acronyms-glossary/glossary https://www.anaee.eu/resources/acronyms-glossary/acronyms https://www.vocabularyserver.com/anaeethes/
D4SCIENCE	https://catalogue.d4science.org/dataset?systemtype=GlossaryTerm
ECMWF	https://vocab.nerc.ac.uk/standard_name/ https://www.ecmwf.int/en/forecasts/datasets/open-data
EGI	https://confluence.egi.eu/display/EGIG/
EIRENE RI	https://zenodo.org/records/11219301
eLTER	https://vocabs.lter-europe.net/elter_ci/en/

EMBRC	A glossary of terms and definitions is defined in the internal document " Guidelines for access to EMBRC " (ver. 2.2, pages 15-16)
EOSC (NOT RI but used by many RIs)	https://vocabs.sshopencloud.eu/vocabularies/eosc-resource-category/eoscResourceCategoryScheme
GESIS	https://lod.gesis.org/en/ https://lod.gesis.org/thesoz/en/page/?uri=http%3A%2F%2Flod.gesis.org%2Fthesoz%2Fconcept_10042069
IAGOS	Using AERIS vocabulary for variables: https://skosmos.aeris-data.fr/aeris_param/en/ mapped with GCMD keywords for discoverability and CF Standard Names (cfconventions.org) for description in data files (in NetCDF format)
ICOS	https://lov.linkeddata.es/dataset/lov/vocabs/cpmeta tabular datasets: https://meta.icos-cp.eu/ontologies/cpmeta/TabularDatasetSpec other datasets: https://meta.icos-cp.eu/ontologies/cpmeta/DatasetSpec dataset variables: https://meta.icos-cp.eu/ontologies/cpmeta/DatasetVariable
IS-ENES	In progress but uses: CF Standard Names: https://cfconventions.org/Data/cf-standard-names/78/build/cf-standard-name-table.html (cfconventions.org) CMIP6 controlled vocabularies: https://wcrp-cmip.github.io/CMIP6_CVs/ IS-ENES data service "catalog": https://is.enes.org/sdm-access-use-data/
SeaDataNet	https://www.seadatanet.org/Standards/Common-Vocabularies (links to multiple used vocabularies) https://vocab.seadatanet.org/search (gathers data from more than 110 data centres)
OPTED	In progress (part of WP8 in OPTED Horizon project No. 951832)

3. Access types in IRISCC

The IRISCC Catalogue of Services should be able to handle different types of access including virtual access (VA) and transnational access (TA; Physical, Remote) or Hybrid access (Table 3.1). Some harmonization work regarding the vocabulary specific for access types and modes for access will be needed and done during the IRISCC project as the meaning is differently used between RIs. For example, in AnaEE, access mode is about paid/free access, while in ACTRIS it is about the conditions and evaluation of the access. (excellence-driven, market-driven, technical need-driven, etc., in line with the European charter of access to RIs).

Table 3.1 Types of access in IRISCC	
Type of Access	Definition
<i>Virtual access (VA)</i>	Virtual access (VA) is free access to users provided by a facility or infrastructure through communication networks; an unlimited number of users can simultaneously use the available services or resources and the users are not selected. Virtual access within IRISCC concerns access to scientific data, digital tools and/or integrated online services related to climate change risks.
<i>Transnational access (TA)</i> <i>Physical access</i>	Physical access is “hands-on” access when users physically visit an infrastructure/facility/equipment/installation. Physical access means access to services offered by IRISCC through an installation of the participating RIs. The available services or resources are not unlimited, and a competitive, peer-reviewed process is required following a defined procedure with well-defined criteria and call conditions for the selection of users.
<i>Transnational access (TA)</i> <i>Remote access</i>	Remote access is access to resources and services offered by IRISCC through a participating RIs without users physically visiting the infrastructure/facility/equipment/installation. Similar to physical access, the services or resources are not unlimited, and a competitive, peer-reviewed process is required following a defined procedure with well-defined criteria and call conditions for the selection of users.
<i>Hybrid access (TA / VA)</i>	Hybrid access combines multiple types of access to IRISCC resources and services, including virtual, physical and remote access. As hybrid involves resources for which the IRISCC facilities have limited capacity, a competitive selection of users similar to that described above for physical and remote access is required.

4. The IRISCC metadata schema

The IRISCC metadata schema will be adapted from the existing AgroServ metadata schemas (Figure 4.1, 4.2, 4.3 and 4.4). While all data fields in the EOSC model from the AgroServ project (Figure 4.1 and 4.3) can be accepted in the context of IRISCC, only a subset of these will be categorised as mandatory while others will be categorised as optional. There are two existing schemas in AgroServ, one for the facilities (Figures 4.1 and 4.2) and one for the services (Figures 4.3 and 4.4). The tables following each figure provide the description of each metadata field.

The metadata schema used for describing services in IRISCC should at least be compatible with the corresponding metadata schemas used in EOSC and related projects and activities. It is currently unclear whether the IRISCC service metadata schema is based on any such EOSC related schemas, especially since there does not seem to be consensus about an EOSC service metadata schema. As first attempt, an “EOSC resource profile” has been defined. However, the EOSC Future project deprecated this profile in favour of a service profile dedicated to digital services. It seems that some alignment is needed between [EOSC Beyond](https://envri.eu/envri-hub-next/) (successor of EOSC Future), ENVRI-Hub NEXT (<https://envri.eu/envri-hub-next/>), and other projects to arrive at a conclusion, which could be in place for the 2nd or 3rd release of the IRISCC Catalogue of Services. Until such a conclusion is reached, IRISCC should work with the existing metadata schema of AgroServ.

The starting point for IRISCC is therefore to define the mandatory metadata fields in Figures 4.1 and 4.3, and to adapt the additional information needed in Figures 4.2 and 4.4 to the purpose of IRISCC. For physical or remote access this still needs to be defined, for virtual access services the following metadata is needed as a minimum:

- Service URL
- Access requirements (free text, not same as access policy)
- Helpdesk URL (not email)
- If relevant: account request URL

In the metadata fields in general, it would be good to be able to enter more than one contact person.

4.1 EOSC model - facilities

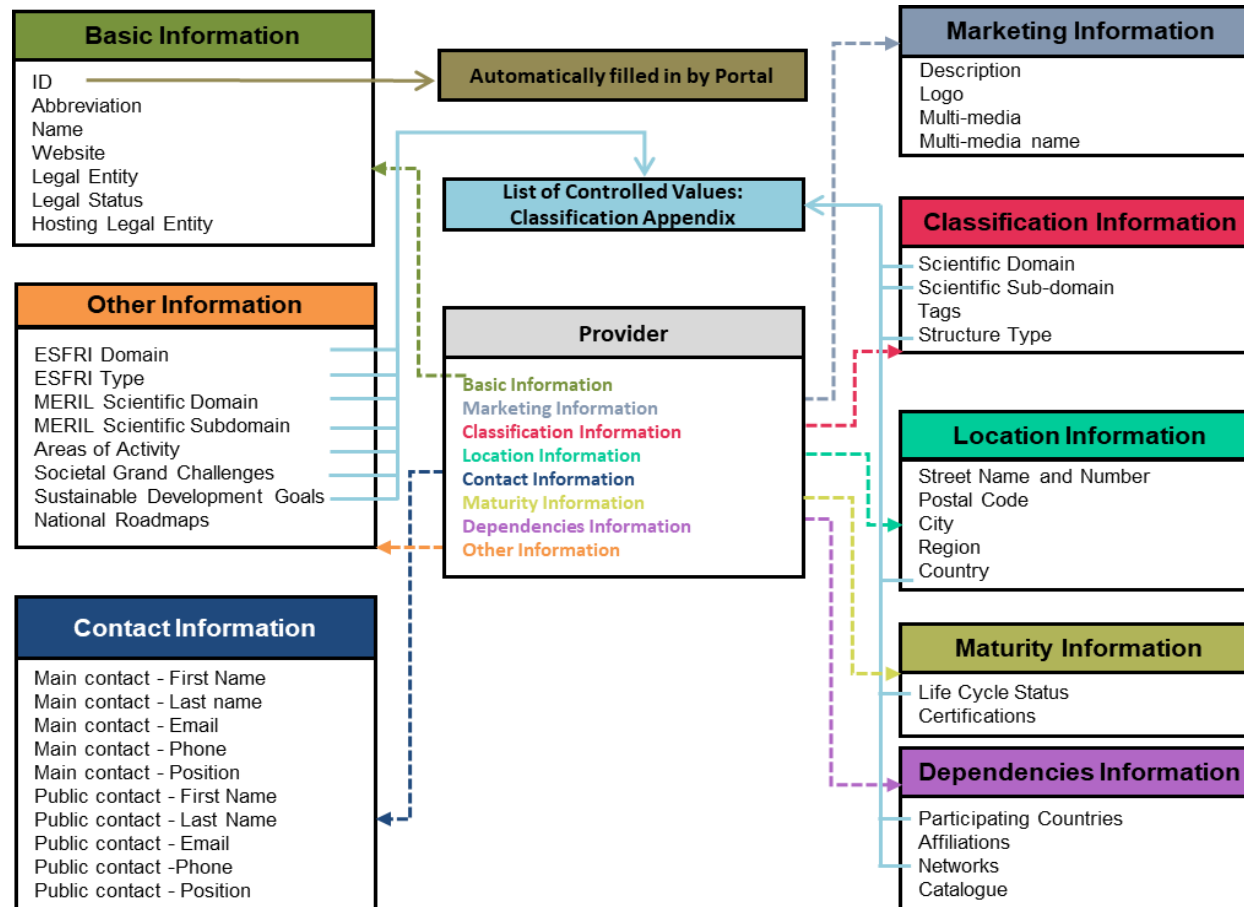


Figure 4.1 EOSC model used by the ISIA platform for the Groser Catalogue of Services to describe the *facilities* that provide services.

4.1.1 Basic Information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
ID	A persistent identifier, a unique reference to the Provider	String (max 30)	One	Mandatory	Yes	No	Delivered by EOSC Catalogue
Abbreviation	An abbreviation of the Provider Name as assigned by the Provider	String (max 30)	One	Mandatory	Yes	Yes	AnaEE - Central Hub
Name	Full Name of the Provider/Organisation offering the resource and acting as the main contact point.	String (max 100)	One	Mandatory	Yes	Yes	Analysis and Experimentations on Ecosystems
Website	The website with information about the Provider.	URL	One	Mandatory	Yes	Yes	https://www.anaee.eu/
Legal Entity	A Y/N question to define whether the Provider is a Legal Entity or not.	Boolean	One	Mandatory	Yes	No	Yes

Legal Status	<p>The legal status of the Provider. The legal status is usually noted in the registration act/statutes. For independent legal entities (1) - legal status of the Provider. For embedded providers (2) - legal status of the hosting legal entity. It is also possible to select Not a legal entity.</p>	List of controlled values	One	Optional	Yes	Yes	European Research Infrastructure Consortium (ERIC)
Hosting Legal Entity	<p>Name of the organisation/institution legally hosting (housing) the provider/research infrastructure or its coordinating centre. A distinction is made between: (1) research infrastructures that are self-standing and have a defined and distinct legal entity, (2) research infrastructures that are embedded into another institution which is a legal entity (such as a university, a research organisation, etc.). If (1) - name of the research infrastructure, If (2) - name of the hosting organisation.</p>	String (max 100)	One	Mandatory	Yes	No	Research infrastructures that is self-standing and have a defined and distinct legal entity

4.1.2 Marketing Information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Description	A high-level description of the Provider in fairly non-technical terms, with the vision, mission, objectives, background, experience.	String (max 1000)	One	Mandatory	Yes	Yes	AnaEE (Analysis and Experimentation on Ecosystems) will pave the way for understanding the complex impact of today's multiple, interacting global change drivers on terrestrial and aquatic continental ecosystems across Europe. It will forge evidence-based adaptation and mitigation strategies that assure plant, soil, water, biodiversity and ecosystem health today and in the future. Characteristic of AnaEE, its versatile facilities that can simulate environmental drivers from land-use change, pollution, biological invasions, rising atmospheric greenhouse gases concentrations, and increasing extreme events such as droughts and heatwaves. AnaEE will link its facilities with an array of user communities, including scientists, land managers, the bio-economy industry and policy makers, to minimise human environmental impact and maximise societal benefits in a dynamic world. Specificity of AnaEE is to integrate, in a single, distributed RI, experimental methods, modelling and experimentation.

Logo	Link to the logo/visual identity of the Provider.	URL	One	Mandatory	Yes	Yes	https://i.postimg.cc/FHcsQ5WY/logo-anaee-web.png
Multimedia	Link to video, slideshow, photos, screenshots with details of the Provider.	URL	Multiple	Optional	Yes	Yes	https://www.anaee.eu/
Multimedia Name	Short description of the Multimedia content	String (max 100)	Multiple	Optional	Yes	Yes	AnaEE Website

4.1.3 Classification Information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Scientific Domain	A named group of providers that offer access to the same type of resource or capabilities.	Set of controlled values (see Table 1)	Multiple	Mandatory	Yes		Agricultural Sciences, Natural Sciences, Social Sciences

Scientific Sub-domain	A named group of providers that offer access to the same type of resource or capabilities, within the defined domain.	List of controlled values (see Table 1)	Multiple	Optional	Yes	No	Agricultural Biotechnology, Agriculture, Forestry & Fisheries, Animal & Dairy Sciences, Other Agricultural Sciences, Veterinary Sciences, Earth & Related Environmental Sciences, Environmental Engineering, Biological Sciences, Chemical Sciences
Tags	Keywords associated with the Provider to simplify search by relevant keywords.	String (max 20)	Multiple	Optional	Yes	Yes	Analysis, Experimentation, Ecosystem, terrestrial, aquatic, ...
Structure Type	Defines the Provider structure type (single-sited, distributed, mobile, virtual, etc.)	List of controlled values (See Table 2)	Multiple	Optional	Yes	Yes	Distributed, physical, virtual, mobile

4.1.4 Location Information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Street Name and Number	Street and Number of in-corporation or Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile providers.	String (max 50)	One	Mandatory	Yes	Yes	Campus CNRS 1 avenue de la terrasse
Postal Code	Postal code of in-corporation or Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile providers.	String (max 20)	One	Mandatory	Yes	Yes	91190
City	City of incorporation or Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile providers.	String (max 20)	One	Mandatory	Yes	Yes	Gif-sur-Yvette
Region	Region of in-corporation or Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile providers.	String (max 50)	One	Mandatory	Yes	Yes	Ile de France
Country	Country of in-corporation or Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile providers.	List of controlled values (See Table 3)	One	Mandatory	Yes	Yes	France

4.1.5 Contact Information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Main contact/Provider Manager –First Name	First Name of the Provider's main contact person/Provider Manager.	String (max 20)	One	Mandatory	No	No	Michel
Main contact/Provider Manager –Last Name	Last Name of the Provider's main contact person/Provider Manager.	String (max 20)	One	Optional	No	No	Boer
Main contact/Provider Manager –Email	Email of the Provider's main contact person/Provider manager.	Email	One	Mandatory	No	No	michel.boer@anaee.eu
Main contact/Provider Manager –Phone	Phone of the Provider's main contact person/Provider manager.	String (max 20)	One	Optional	No	No	+33(0)677020295
Main contact/Provider Manager –Position	Position of the Provider's main contact person/Provider manager.	String (max 50)	One	Optional	No	No	Director General
Public contact–First Name	First Name of the Provider's contact person to be displayed at the portal.	String (max 20)	One	Optional	Yes	Yes	Michel
Public contact–Last Name	Last Name of the Provider's contact person to be displayed at the portal.	String (max 20)	One	Optional	Yes	Yes	Boer

Public contact-Email	Email of the Provider's contact person to be displayed at the portal or general email to contact Provider.	Email	One	Mandatory	Yes	Yes	michel.boer@anaee.eu
Public contact-Phone	Phone of the provider's contact person to be displayed at the portal or general phone to contact the Provider.	String (max 20)	One	Optional	Yes	Yes	+33(0)677020295
Public contact-Position	Position of the Provider's contact person to be displayed at the portal.	String (max 50)	One	Optional	Yes	Yes	Director General

4.1.6 Maturity information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Life Cycle Status	Current status of the Provider/Research infrastructure life-cycle.	List of controlled values	One	Optional	Yes	No	Operation
Certifications	List of certifications obtained for the Provider (including the certification body and any certificate number).	String (max 250)	Multiple	Optional	Yes	No	AGROSERV: HORIZON-INFRA-2021-SERV-01, ENVRI FAIR, EHRIITC

4.1.7 Dependencies Information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Participating Countries	Providers/Research Infrastructures that are funded by several countries should list here all supporting countries (including the Coordinating country).	List of controlled values (See Table 3)	Multiple	Optional	Yes	No	Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Italy
Affiliations	Providers that are members or affiliated or associated with other organisations should list those organisations here	String (max 30)	Multiple	Optional	Yes	No	https://www.anaee.eu/about/national-nodes
Networks	Providers that are members of networks should list those networks here.	List of controlled values	Multiple	Optional	Yes	Yes	AgroServ, ENVRI
Catalogue	The Catalogue this Provider is originally registered at.	Catalogue ID	1	Optional	Yes	Yes	https://isia.cnrs.fr/catalog/platform/list/agroserve

4.1.8 Other information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
ESFRI Domain	ESFRI domain classification.	List of controlled values (See Table 4)	Multiple	Optional	Yes	No	Environment
ESFRI Type	If the research infrastructure is (part of) an ESFRI project indicate how the RI participates: a) is a node of an ESFRI project, b) is an ESFRI project, c) is an ESFRI landmark, d) is not an ESFRI project or landmark.	List of controlled values (See Table 5)	One	Optional	Yes	No	Landmark
MERIL Scientific Domain	MERIL scientific domain classification	List of controlled values	Multiple	Optional	Yes	No	Earth & Environmental Sciences
MERIL Scientific Subdomain	MERIL scientific subdomain classification	List of controlled values	Multiple	Optional	Yes	No	Agronomy, Forestry, Plant Breeding Centres, Analytical Facilities, In Situ Earth Observatories, Conceptual Models
Areas of Activity	Basic research, Applied research or Technological development	List of controlled values (See Table 6)	Multiple	Optional	Yes	No	Applied Research, Basic Research, Technological Development, Other

Societal Grand Challenges	Provider's participation in the grand societal challenges as defined by the European Commission	List of controlled values (See Table 7)	Multiple	Optional	Yes	No	Environment, Europe in a changing world, Natural Resources
Sustainable Development Goals	Provider's contribute to the sustainable development goals as defined by European Commission	List of controlled values (See Table 9)	Multiple	Optional	Yes	No	Zero hunger, Clean water and sanitation, Sustainable cities and communities, Responsible consumption and production, Climate action, Life below water, Life on land
National Roadmaps	Provider's participation in a national roadmap.	String (max 80)	Multiple	Optional	Yes	No	https://op.europa.eu/en/publication-detail/-/publication/c6647f05-874e-4cdd-af70-22ade4759930/language-en

4.2 Metadata fields for additional Information – facilities

Additional Information				
Basic & Marketing Information	Keywords	Experimental platform Information	Analytical platform Information	Modelling platform Information
Main Image Submission project link Affiliation laboratory Research Institution Platform capacity Accommodation capacity Electricity Wifi HighSpeed Wifi Shower	List of keywords Location Information Latitude Longitude Country abbreviation	Experimental platform type Climate Zones Ecosystems Environmental Controlled Factors Environmental Manipulated Factors Replication capacity HighSpeed Wifi Shower	Analytical platform type Analysis categories Analysed parameters Instruments used Precision and sensitivity Analytical capacity	

Figure 4.2 The AgroServ metadata fields for additional information on *facilities* that provide services. This table, in particular, needs to be adapted to the needs of IRISCC.

4.2.1 Basic and marketing Information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Main image for the descriptive sheet	This image will appear at the top of the description sheet and will be representative of the installation.	String (max 30)	One	Mandatory	Yes	Yes	https://i.postimg.cc/BbT9V4Q3/le-chateau-de-button-a-gif-sur-yvette-le-31-juillet-2015-1.jpg
Submission project link	Link to your network's project submission form with the selected installation.	URL	One	Mandatory	Yes	Yes	https://isia.cnrs.fr/ppa/agroserv/agroservpreproposal
Affiliation laboratory	Name of your affiliate laboratory	String (max 100)	One	Mandatory	Yes	Yes	https://www.anaee.eu/about/national-nodes
Research institution	Name of your Research institution	String (max 100)	One	Mandatory	Yes	Yes	https://www.anaee.eu/about/national-nodes
Installation capacity	Number and designation of available experimental units	String (max 100)	One	Mandatory	Yes	Yes	0

Accommodation capacity	Number of accommodations available	String (max 100)	One	Optional	Yes	Yes	0
Electricity	Power supply available on the installation	Boolean	One	Mandatory	Yes	Yes	Yes
Wifi	Wifi available on the installation	Boolean	One	Mandatory	Yes	Yes	Yes
Highspeed Wifi	High-speed Wi-Fi available on the installation	Boolean	One	Mandatory	Yes	Yes	Yes
Shower	Shower available on the installation	Boolean	One	Mandatory	Yes	Yes	No

4.2.2 Keywords

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Keywords	Keywords about your installation	String (max 1000)	Multiple	Mandatory	Yes	Yes	Analysis, Experimentation, Ecosystems, terrestrial, aquatic, ...

4.2.3 Location and country

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Latitude	Latitude coordinate of the installation (in decimals: 60.924530 for 6055'8.3"N)	String (7)	One	Mandatory	Yes	Yes	48.704754
Longitude	Longitude coordinate of the installation (in decimals: 11.451259 for 1127'04.5"E)	String (7)	One	Mandatory	Yes	Yes	2.135254
Country Code	Country name abbreviation (France: FR)	Controlled values	One	Optional	Yes	Yes	FR

4.2.4 Experimental Installation

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Experimental Installation Type	Enclosed, Open air or Observation	Controlled values	One	Mandatory	Yes	Yes	Open air
Climate Zones	Climates that can be found on the installation	Controlled values	Multiple	Mandatory	Yes	Yes	Mediterranean
Ecosystems	Ecosystems that can be found on the installation		Multiple			Yes	Grassland

		Controlled values		Mandatory	Yes		
Environmental Controlled Factors	Environmental parameters measured on the installation	Controlled values	Multiple	Mandatory	Yes	Yes	atmospheric temperature, humidity, soil water content, soil temperature, ...
Environmental Manipulated Factors	Environmental parameters that can be manipulated on the installation	Controlled values	Multiple	Optional	Yes	Yes	precipitation, nutrients, ...
Replication Capacity	Number of experimental units available	String (max 100)	One	Optional	Yes	Yes	16

4.2.5 Analytical Installation

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Analytical Installation Type	Stable or Mobile	Controlled values	One	Mandatory	Yes	Yes	Mobile
Categories	Analysis categories that can be found on the installation	Controlled values	One	Mandatory	Yes	Yes	Isotopes
Analysed Parameters	Parameters that can be analysed on the installation	Controlled values			Yes	Yes	¹³ CO ₂

			Multiple	Optional			
Instrument Used	Instruments used to analyse this parameter on the installation	String (max 100)	Multiple	Optional	Yes	Yes	Picarro G2401
Precision and Sensitivity	Instrument precision and sensitivity	String (max 100)	Multiple	Optional	Yes	Yes	10 to 50 ppb
Analytical Capacity	Number of analysis you can realise (ex : 1000 per day)	String (max 100)	Multiple	Optional	Yes	Yes	Max sampling frequency: 5s 4 analyzers

4.3 EOSC model – services

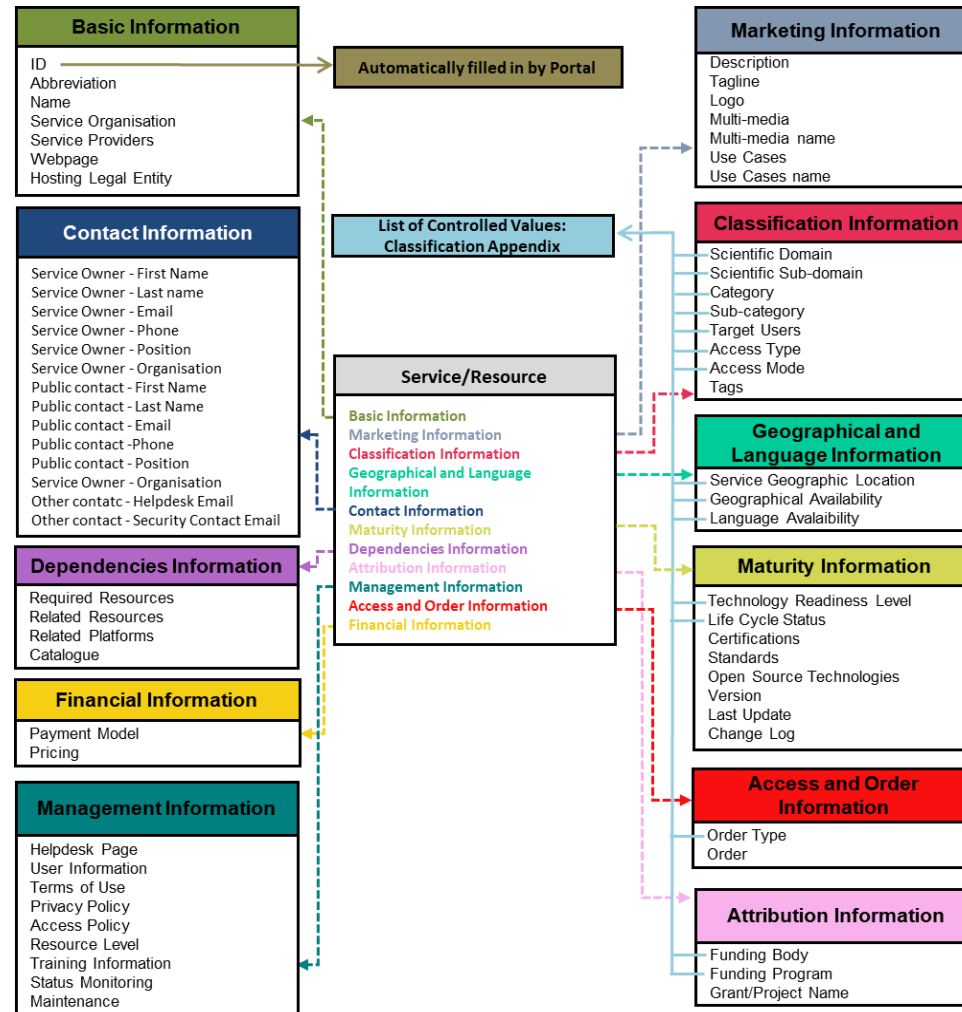


Figure 4.3 EOSC model used by the ISIA platform for the AgroServ Catalogue of Services to describe the services provided.

4.3.1 Basic Information

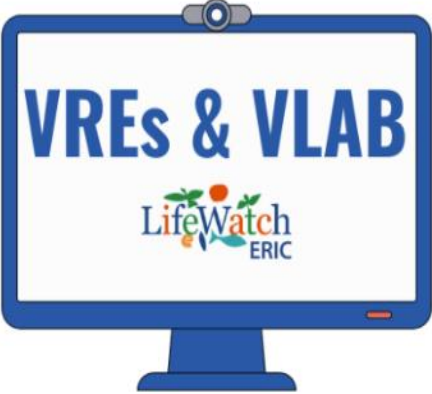
Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
ID	A persistent identifier, a unique reference to the Service/Resource in the context of the EOSC Portal.	String (max 30)	One	Mandatory	Yes		Delivered by EOSC Catalogue
Abbreviation	An abbreviation of the Service/Resource Name as assigned by the Provider	String (Max 20)	One	Mandatory	Yes	Yes	AE - VRE
Name	Service/Resource Full Name as assigned by the Provider.	String (max 80)	One	Mandatory	Yes	Yes	Agroecology Virtual Research Environment
Service/Resource Organisation	The name (or abbreviation) of the organisation that manages or delivers the service/resource, or that coordinates	Provider ID	One	Mandatory	Yes	Yes	LifeWatch ERIC

	resource delivery in a federated scenario.						
Service/Resource Providers	The name(s) (or abbreviation(s)) of Provider(s) that manage or deliver the Service/Resource in federated scenarios.	Provider IDs	Multiple	Optional	Yes	Yes	LifeWatch ERIC
Webpage	Webpage with information about the Service/Resource usually hosted and maintained by the Provider.	URL	One	Mandatory	Yes	Yes	https://www.lifewatch.eu

4.3.2 Marketing Information

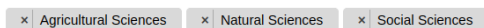


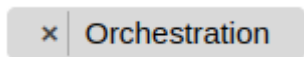
Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Description	A high-level description in fairly non-technical terms of a) what the Service/Resource does, the functionality it provides and Service/Resources it enables to access, b) the benefit to a user/customer delivered by a Resource; benefits are usually related to alleviating	String (max 1000)	One	Mandatory	Yes	Yes	<p>Lifewatch ERIC is a European Research Infrastructure that provides e-Science research facilities to scientists, with a thematic focus on biodiversity, ecosystem functions and services research, including agroecology. Lifewatch ERIC achieves this by providing access to a multitude of resources and services that enable researchers to conduct their work and drive innovation.</p> <p>One of these services is the design and implementation of a Virtual Research Environment (VRE). A VRE is a web-based workspace that provides data users with a comprehensive suite of services and tools to support their data-related work. These tools include centralised access to data, data processing, visualisation of data, sharing of results, and other e-services. By using a VRE, data-users can work more efficiently with data, collaborate more effectively with other data-users stakeholders, and generate new knowledge in their field.</p> <p>In agroecology, a VRE provides data users with a platform for networking, data gathering and integration, data analysis and visualisation and artificial intelligence (AI) deep learning. The VRE allows data-users to identify and engage with their community while gathering and integrating data from various sources. The VRE offers computing power through high data analysis</p>



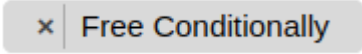
	<p>pains (e.g., eliminate undesired outcomes, obstacles or risks) or producing gains (e.g. increased performance, social gains, positive emotions or cost saving),</p> <p>c) list of customers, communities, users, etc. using the Resource.</p>						<p>capacities such as the Picasso supercomputing centre, as well as storage capacity and data maintenance. Data users can also replicate and share the processes of data analysis, including workflows, models, and algorithms. Additionally, the VRE supports the use of Artificial intelligence (AI), deep learning and digital twins for more advanced research. The VRE in agroecology could also offer training and capacity building opportunities and facilitate dissemination and communication of research findings to relevant stakeholders.</p> <p>Using a VRE provides many benefits to the agroecology community. These benefits include improved efficiency and collaboration, access to advanced computing resources, the ability to analyse and visualise data in new and innovative ways, and the potential for increased research productivity and impact.</p>
<p>Tagline</p>	<p>Short catchphrase for marketing and advertising purposes. It will be usually displayed</p>	<p>String (max 100)</p>	<p>One</p>	<p>Mandatory</p>	<p>Yes</p>	<p>Yes</p>	<p>Unleashing the data-users potential with Lifewatch ERIC's Virtual Research Environments - the ultimate tool for seamless collaboration and data-driven innovation in Agroecology</p>

	close to the Resource name and should refer to the main value or purpose of the Resource.						
Logo	Link to the logo/visual identity of the Resource. The logo will be visible at the Portal. If there is no specific logo for the Resource the logo of the Provider may be used.	URL	One	Mandatory	Yes	Yes	
Multimedia	Link to video, screenshots or slides showing details of the Resource.	URL	Multiple	Optional	Yes	Yes	https://www.lifewatch.eu/photo-video-gallery/

Multimedia Name	Short description of the Multimedia content	String (Max 100)	Multiple	Optional	Yes	Yes	Website Videos and photos
Use Cases	Link to use cases supported by this Resource.	URL	Multiple	Optional	Yes	Yes	https://community.lifewatch.eu/working-groups/biodt/
Use Cases Name	Short description of the Use Case content	String (Max 100)	Multiple	Optional	Yes	Yes	BIODT: Biodiversity Digital Twin

4.3.3 Classification information

	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Scientific Domain	The branch of science, a scientific discipline that is related to the Service/Resource.	List of controlled values (See Table 9)	Multiple	Mandatory	Yes	Yes	
Scientific Sub-domain	The sub branch of science, the scientific subdiscipline that is related to the Service/Resource.	List of controlled values (See Table 9)	Multiple	Mandatory	Yes	Yes	
Category	A named group of Resources that offer access to the same type of Service/Resource or capabilities.	List of controlled values	Multiple	Mandatory	Yes	Yes	
Sub-category	A named group of Service/Resources that offer access to the same type of Service/Resource or capabilities, within the defined Resource category	List of controlled values	Multiple	Mandatory	Yes	Yes	

Target Users	Type of users/customers that commissions a Provider to deliver a Service/Resource.	List of controlled values	Multiple	Mandatory	Yes	Yes	
Access Type	The way a user can access the Service/Resource (Remote, Physical, Virtual, etc.)	List of controlled values (See Table 10)	Multiple	Optional	Yes	Yes	
Access Mode	Eligibility/criteria for granting access to users (excellence-based, free-conditionally, free etc.)	List of controlled values	Multiple	Optional	Yes	Yes	
Tags	Keywords associated to the Service/Resource to simplify search by relevant keywords.	String (max 50)	Multiple	Optional	Yes	Yes	Blockchain, Data analysis, Data gathering, Data visualisation, Modelling, Simulation tools, Tokenization, Virtual Research Environment

4.3.4 Geographical and language availability information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Geographical Availability	Locations where the Service/Resource is offered.	List of controlled values (See Table 3)	Multiple	Mandatory	Yes	Yes	
Language Availability	Languages of the (user interface of the) Service/Resource.	List of controlled values	Multiple	Mandatory	Yes	Yes	United Kingdom of Great Britain and Northern Ireland

4.3.5 Resource location information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Resource Geographic Location	List of geographic locations where data, samples, etc. are stored and processed	List of controlled values (See Table 3)	Multiple	Optional	Yes	Yes	Spain

4.3.6 Contact information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Main Contact/Resource Owner -First Name	First Name of the Service/Resource's main contact person/manager.	String (max 20)	One	Mandatory	No	No	José Manuel
Main Contact/Resource Owner -Last Name	Last Name of the Service/Resource's main contact person/manager.	String (max 20)	One	Mandatory	No	No	Ávila Castuera
Main Contact/Resource Owner - Email	Email of the Service/Resource's main contact person/manager.	Email	One	Mandatory	No	No	josem.avila@lifewatch.eu
Main Contact/Resource Owner - Phone	Telephone of the Service/Resource's main contact person/manager.	String (max 20)	One	Mandatory	No	No	0034609788444
Main Contact/Resource Owner - Position	Position of the Service/Resource's main contact person/manager.	String (max 20)	One	Optional	No	No	Agroecology Coordinator

Main Contact/Resource Owner - Organisation	The organisation to which the contact is affiliated	String (max 50)	One	Optional	No	No	LifeWatch ERIC
Public Contact -First Name	First Name of the Resource's contact person to be displayed at the portal.	String (max 20)	One	Optional	Yes	Yes	Iria
Public Contact -Last Name	Last Name of the Resource's contact person to be displayed at the portal.	String (max 20)	One	Optional	Yes	Yes	Soto - Embodas
Public Contact -Email	Email of the Resource's contact person or a generic email of the Provider to be displayed at the portal.	Email	One	Mandatory	Yes	Yes	iria.soto@lifewatch.eu
Public Contact - Phone	Telephone of the Resource's contact person to be displayed at the portal.	String (max 20)	One	Optional	Yes	Yes	0034616812551
Public Contact - Position	Position of the Resource's contact person to be displayed at the portal.	String (max 20)	One	Optional	Yes	Yes	Agroecology Project Manager
Public Contact - Organisation	The organisation to which the contact is affiliated	String (max 50)	One	Optional	Yes	Yes	LifeWatch ERIC

Other Contact – Helpdesk email	The email to ask more information from the Provider about this Resource.	Email	One	Mandatory	Yes	Yes	iria.soto@lifewatch.eu
Other Contact – Security Contact Email	The email to contact the Provider for critical security issues about this Resource.	Email	One	Mandatory	No	Yes	securas@lifewatch.eu

4.3.7 Maturity information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Technology Readiness Level	The Technology Readiness Level of the Resource (to be further updated in the context of the EOSC).	List of controlled values	One	Mandatory	Yes	Yes	7 - system prototype demonstration in operational environment
Life Cycle Status	Phase of the Resource life-cycle.	List of controlled values	One	Optional	Yes	Yes	Beta
Certifications	List of certifications obtained for the Resource (including the certification body).	String (max 100)	Multiple	Optional	Yes	Yes	No
Standards	List of standards supported by the Resource.	String (max 100)	Multiple	Optional	Yes	Yes	Darwin Core, Ecological Metadata Language, INSPIRE, Others

Open Source Technologies	List of open-source technologies supported by the Resource.	String (max 100)	Multiple	Optional	Yes	Yes	Blockchain, DRAMA, GIS, Keycloak, Kubernetes, Minio, NodeJS, Openstack
Version	Version of the Resource that is in force.	String (max 10)	One	Optional	Yes	Yes	
Last Update	Date of the latest update of the Resource.	Date (dd/mm/yy yy)	One	Optional	Yes	Yes	11/05/2023
Change Log	Summary of the Resource features updated from the previous version.	String (max 1000)	Multiple	Optional	Yes	No	https://tesseract.lifewatch.dev/

4.3.8 Dependencies information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Required Resources	List of other Resources required to use this Resource.	Resource IDs	Multiple	Optional	Yes	Yes	No
Related Resources	List of other Resources that are commonly used with this Resource.	Resource IDs	Multiple	Optional	Yes	Yes	https://metadatalogue.lifewatch.eu

Related Installations	List of suites or thematic installation in which the Resource is engaged or Providers (Provider groups) contributing to this Resource.	List of controlled values	Multiple	Optional	Yes	Yes	Copernicus Climate Change Service
Catalogue	The Catalogue this Resource is originally registered at.	Catalogue ID	One	Optional	Yes	Yes	No

4.3.9 Attribution information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Funding Body	Name of the funding body that supported the development and/or operation of the Resource.	List of controlled values	Multiple	Optional	Yes	No	European Commission (EC)
Funding Program	Name of the funding program that supported the development and/or operation of the Resource.	List of controlled values	Multiple	Optional	Yes	No	Other
Grant/Project Name	Name of the project that supported the development and/or operation of the Resource.	String (max 100)	Multiple	Optional	Yes	No	101058020 – AgroServ – HORIZON-INFRA-2021-SERV-01

4.3.10 Management Information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Helpdesk Page	The URL to a webpage to ask for more information from the Provider about this Resource.	URL	One	Optional	Yes	Yes	https://www.lifewatch.eu/help-desk/
User information	Link to the Resource user manual and documentation.	URL	One	Optional	Yes	Yes	https://training.lifewatch.eu/
Terms of Use	Webpage describing the rules, Resource conditions and usage policy which one must	URL	One	Mandatory	Yes	Yes	https://workdrive.lifewatch.eu/external/1e06f91acf1d951698c67502238fdafc28de83caf61f2f4db6a52ca7b5849ed0

	agree to abide by to use the Resource.						
Privacy Policy	Link to the privacy policy applicable to the Resource.	URL	One	Mandatory	Yes	Yes	https://workdrive.lifewatch.eu/external/1e06f91acf1d951698c67502238fdafc28de83caf61f2f4db6a52ca7b5849ed0
Access Policy	Information about the access policies that apply	URL	One	Optional	Yes	Yes	https://workdrive.lifewatch.eu/external/1e06f91acf1d951698c67502238fdafc28de83caf61f2f4db6a52ca7b5849ed0
Resource Level	Web Page with information about the levels of performance that a Provider is expected to deliver.	URL	One	Optional	Yes		No

Training Information	Webpage to training information on the Resource.	URL	One	Optional	Yes	Yes	https://training.lifewatch.eu/
Status Monitoring	Webpage with monitoring information about this Resource	URL	One	Optional	Yes		https://status.lifewatch.dev
Maintenance	Webpage with information about planned maintenance windows for this Resource	URL	One	Optional	Yes		https://status.lifewatch.dev

4.3.11 Access and order information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Order Type	Information on the order type (requires an ordering procedure, or no ordering and if fully open or requires authentication)	List of controlled values	One	Mandatory	Yes	Yes	Order required
Order	Webpage through which an order for the Resource can be placed	URL	One	Optional	Yes	Yes	securas@lifewatch.eu

4.3.12 Financial information


Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Payment Model	Webpage with the supported payment models and restrictions that apply to each of them	URL	One	Optional	Yes	Yes	-
Pricing	Webpage with the information on the price scheme for this Resource in case the customer is charged for it.	URL	One	Optional	Yes	Yes	-

4.4 Metadata fields for additional Information – services

Additional Information		
<p>Marketing Information</p> <ul style="list-style-type: none"> Main Image General description Functionalities it provides Users benefits Users producing gains Reference name Reference Media Use Case Name Content Description Use Case Media 	<p>Location Information</p> <ul style="list-style-type: none"> Latitude Longitude Country abbreviation 	<p>Dependencies Information</p> <ul style="list-style-type: none"> Required or Related Resource Measured Parameter Precision / Sensitivity Analytical Capacity

Figure 4.4 The AgroServ metadata fields for additional information on *services* provided. This table, in particular, needs to be adapted to the needs of IRISCC.

4.4.1 Marketing information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Main image for the descriptive sheet	This image will appear at the top of the description sheet and will be representative of the service.	URL	One	Mandatory	Yes	Yes	
General description	What the service does. Short description.	String (Max 1000)	One	Mandatory	Yes	Yes	<p>A Virtual Research Environment (VRE) is a versatile web-based workspace that allows data users to conduct data-related work more efficiently and fosters collaboration among diverse users, with the goal of generating new knowledge. A VRE typically encompasses centralised data access, processing, visualisation, result sharing, and other e-services. The VRE can be utilised to address both scientific and managerial inquiries and</p>

							<p>has applications across various fields, including agroecology.</p> <p>In agroecology, the VRE is a web-based workspace that provides data-users with a platform for networking, data gathering and integration, data analysis and visualisation, and artificial intelligence (AI) deep learning. The VRE allows researchers to identify and engage with their community while gathering and integrating data from various sources. It offers computing power through high data analysis capacities such as the Picasso supercomputing centre, storage capacity, and data maintenance. Additionally, researchers can share their data analysis processes, including workflows, models, and algorithms. The VRE also supports the use of AI-deep learning and digital twins for more advanced research.</p> <p>Moreover, the VRE in agroecology could offer training and capacity building opportunities and facilitate the dissemination and communication of research findings to relevant stakeholders.</p>
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							By providing a collaborative workspace and access to essential services, the VRE in agroecology enables data-users to conduct data-related work more efficiently and effectively, leading to the generation of new knowledge and advancements in the field of agroecology.
Functionalities it provides	Details of the regular and optional features provided by the service	String (Max 1000)	One	Mandatory	Yes	Yes	A Virtual Research Environment (VRE) is a versatile web-based workspace that allows data users to conduct data-related work more efficiently and fosters collaboration among diverse users, with the goal of generating new knowledge. A VRE typically encompasses centralized data access, processing, visualization, result sharing, and other e-services. The VRE can be utilized to address both scientific and managerial inquiries and has applications across various fields, including agroecology.
Users benefits	Eliminate undesired outcomes, obstacles or risks	URL	Multiple	Optional	Yes	Yes	In agroecology, the VRE is a web-based workspace that provides data-users with a platform for networking, data gathering and integration, data analysis and

							<p>visualization, and artificial intelligence (AI) deep learning. The VRE allows researchers to identify and engage with their community while gathering and integrating data from various sources. It offers computing power through high data analysis capacities such as the Picasso supercomputing center, storage capacity, and data maintenance. Additionally, researchers can share their data analysis processes, including workflows, models, and algorithms. The VRE also supports the use of AI-deep learning and digital twins for more advanced research.</p>
<p>Users producing gains</p>	<p>Increase performance, social gains, positive emotions or cost saving</p>	<p>String (Max 100)</p>	<p>Multiple</p>	<p>Optional</p>	<p>Yes</p>	<p>Yes</p>	<p>Moreover, the VRE in agroecology could offer training and capacity building opportunities and facilitates the dissemination and communication of research findings to relevant stakeholders. By providing a collaborative workspace and access to essential services, the VRE in agroecology enables data-users to conduct data-related work more efficiently and effectively, leading to the generation of new knowledge and advancements in the field of agroecology.</p>

References	Customers, Communities, Publications	URL	Multiple	Optional	Yes	Yes	https://community.lifewatch.eu/
Use cases	Short description of the Use Case content	URL	Multiple	Optional	Yes	Yes	-

4.4.2 Location and country

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Latitude	Latitude coordinate of the installation (in decimals: 60.924530 for 6055'8.3"N)	String (7)	One	Mandatory	Yes	Yes	virtual access
Longitude	Longitude coordinate of the installation (in decimals: 11.451259 for 1127'04.5"E)	String (7)	One	Mandatory	Yes	Yes	virtual access
Country Code	Country name abbreviation (France: FR)	Controlled values	One	Optional	Yes	Yes	virtual access

4.4.3 Dependencies information

Field Name	Definition	Type	Multiplicity	Required	Public	Descriptive sheet	Example
Required /Related Resource	Is the resource is required to use the service or only a related resource?	List of controlled values	One	Optional	Yes	Yes	Required
Required or Related Resource	Resource name	String (Max 100)	One				N2 gaz for Picarro Oven
Measured parameter	Measured parameters by the required/Related Resource	String (Max 100)	One	Optional	Yes	Yes	-
Precision / Sensitivity	Measuring range and precision	String (Max 100)	One	Optional	Yes	Yes	-
Analytical Capacity	Resource measurement capacity (sampling frequency for continuous measurements, samples processed per day or per hour, ...)	String (Max 100)	One	Optional	Yes	Yes	Sampling frequency: 5 mins

5. Adaptations and changes compared to the AgroServ service catalogue (AgroServ test version, June 2024)

The original IRISCC proposal included an overview of all existing services related to climate change risks (Table 5.1). The first release of the IRISCC catalogue of existing services should first and foremost give easy access to more information about these specific services based on which system(s) and risk(s) the user is interested in. Overall, 'System' and 'Risk' are therefore the two core search filters of the online IRISCC service catalogue.

The structure of the current search terms in the AgroServ Catalogue of Services (Figures 5.1 – 5.6) therefore needs to be adapted accordingly, i.e. after "Free text" and "Keywords" search filters, should be "System" and "Risk" according to Table 5.1. In testing the current test version of the AgroServ Catalogue of Services we note that:

- Filters (and state of the app) are not persistent when you select a service and go back. This should be resolved.
- For the services that result from the filter, the catalogue sometimes provides only a picture (most of them are not informative at all), the responsible org, and a short(ened) title, which is not enough to make an informed choice. Vertical scrolling list of services with a small thumbnail and then a full title, short abstract (3-4 lines) would be preferred.
- The current setting of the filters is clumsy, the dialogue could be replaced with a simple dropdown box of options that could be checked/unchecked and react to search by typing. All filters except free text could be shown in one horizontal line (or in a column left of the service list).
- The IRISCC-defined services from each service provider should be clearly described in a few lines of text, e.g. similar to the current style of the ACTRIS Catalogue of Services (Figure 5.7 and 5.8).
- To improve the usability of the IRISCC Service Catalogue, the target group and their needs for information discovery should be considered in all steps of the catalogue development (i.e., refer to stakeholder mapping and analysis report, IRISCC D1.1).
- In general, UI (User Interface) design should focus on intuitive navigation, clear search functionalities, and visually appealing presentation.

Table 5.1. The original table 1.1 from the IRISCC proposal, highlighting number of existing services across IRISCC beneficiaries and affiliated entities for each System / Risk combination.

System / Risk	Climate warming	Desertification	Cryo / snow	Sea level rise	Ocean acidification	Heat waves	Drought	Floods	Storm surges	Fires	Landslides	Disease vectors, pests	Air and water pollution
Urban areas	9	5	1	1		12	8	5	2	10	1	9	12
Rural areas	15	8	2	1		16	11	6	2	13	1	7	11
Mountain communities	7	1	4	1		4	5	2	2	4	3	3	9
Coastal communities	4	4	1	2	1	3	3	2	3	7	1	2	5
Managed forests	16	4	3	1		15	16	4	1	10	1	6	10
Agro ecosystems	16	8	2	1		14	16	7	2	10	1	8	15
Aquaculture/ fisheries	8		1	1	6	5	3	1	1	3	1	7	7
Forests	24	7	3	1		19	17	6	3	15	1	8	14
Grasslands / shrublands	15	7	3	1		12	17	8	2	7	1	6	10
Coastal	15	3	1	6	11	14	4	4	5	6	1	8	17
Wetlands	13		1	4		12	8	4	2	5	1	5	7
Freshwater	10		1	3		10	7	3	1	3	1	4	7
Marine	15		1	6	11	12		3	3		1	7	13

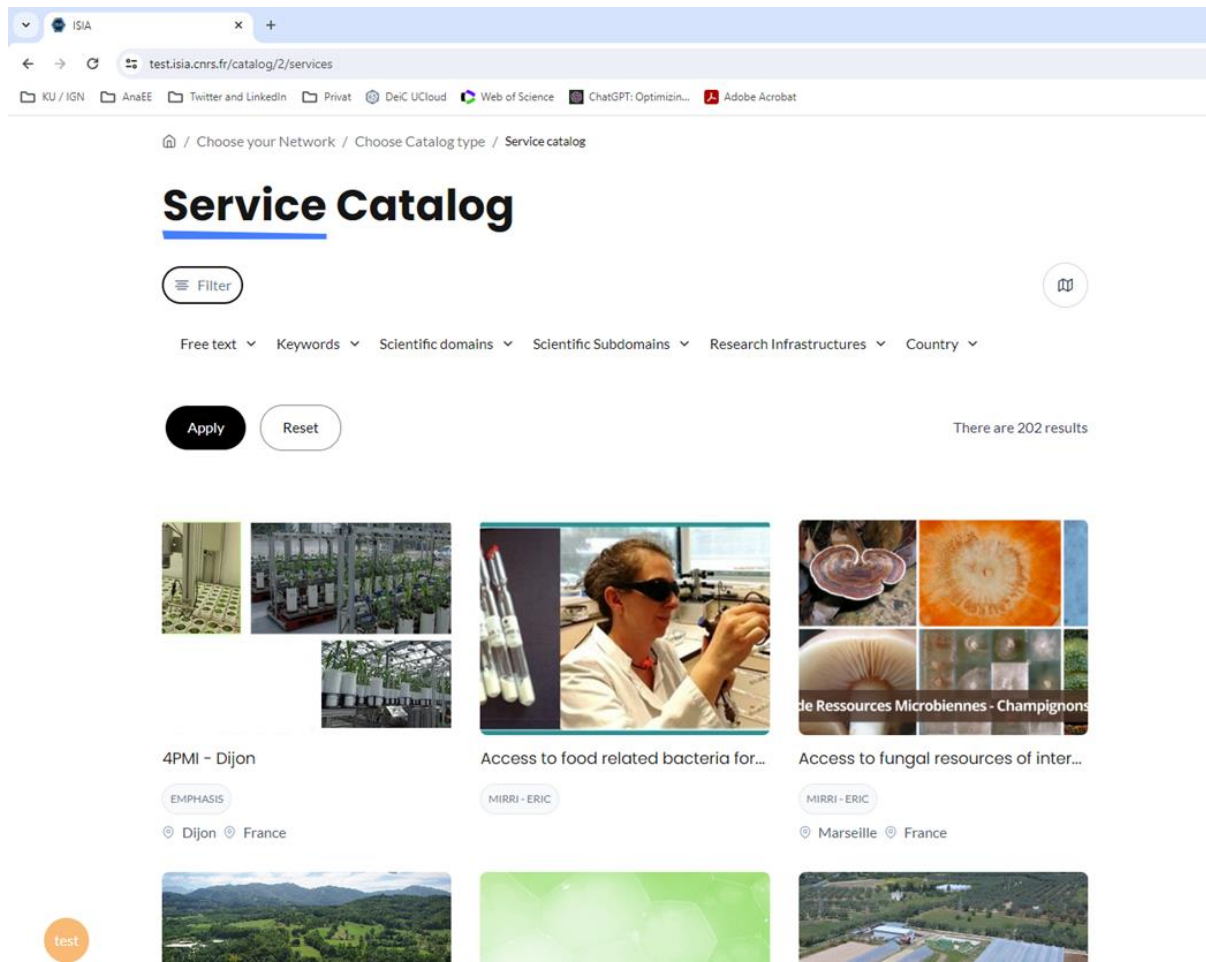


Figure 5.1 Overview of the search terms in the test version of the AgroServ service catalogue.

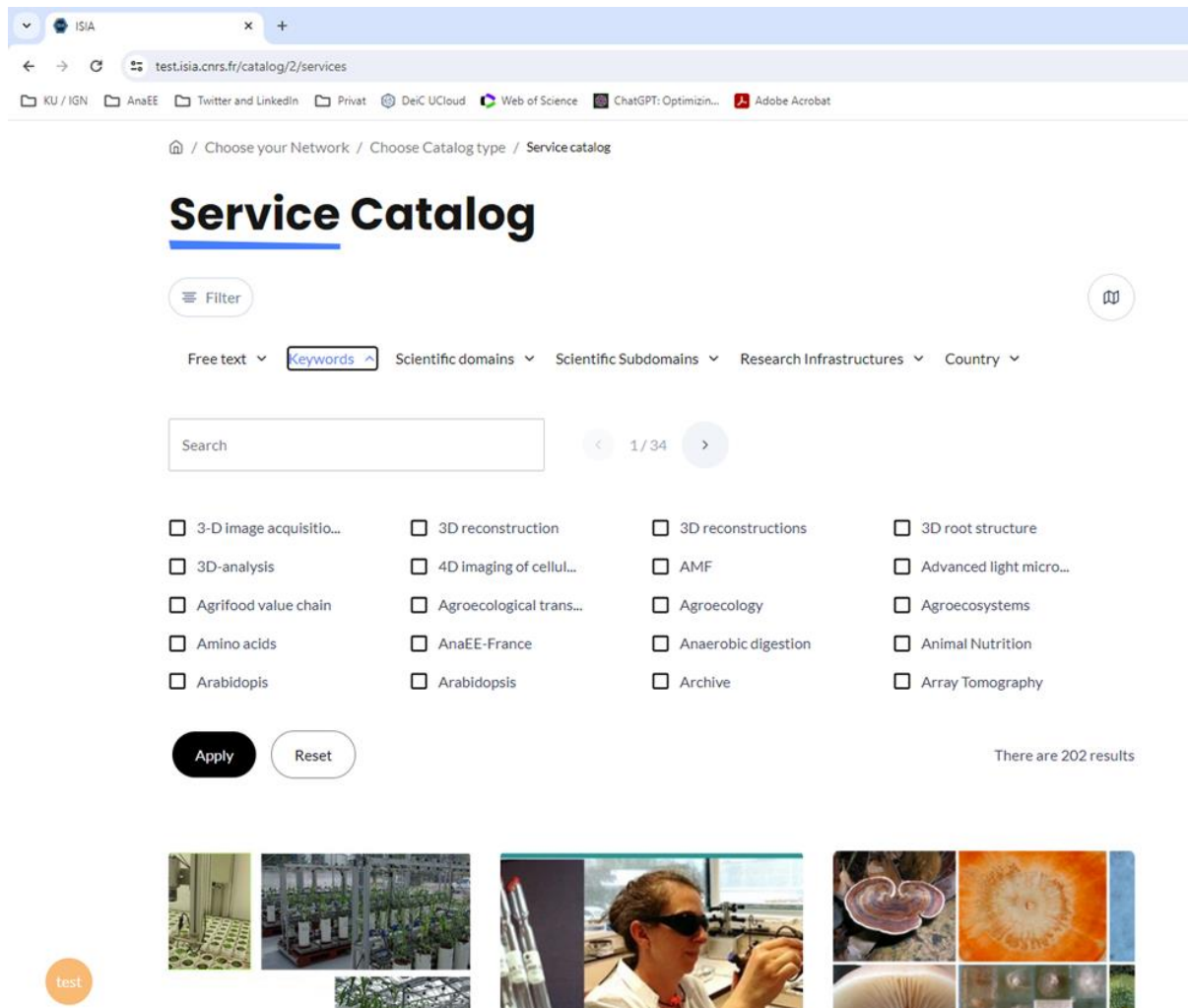
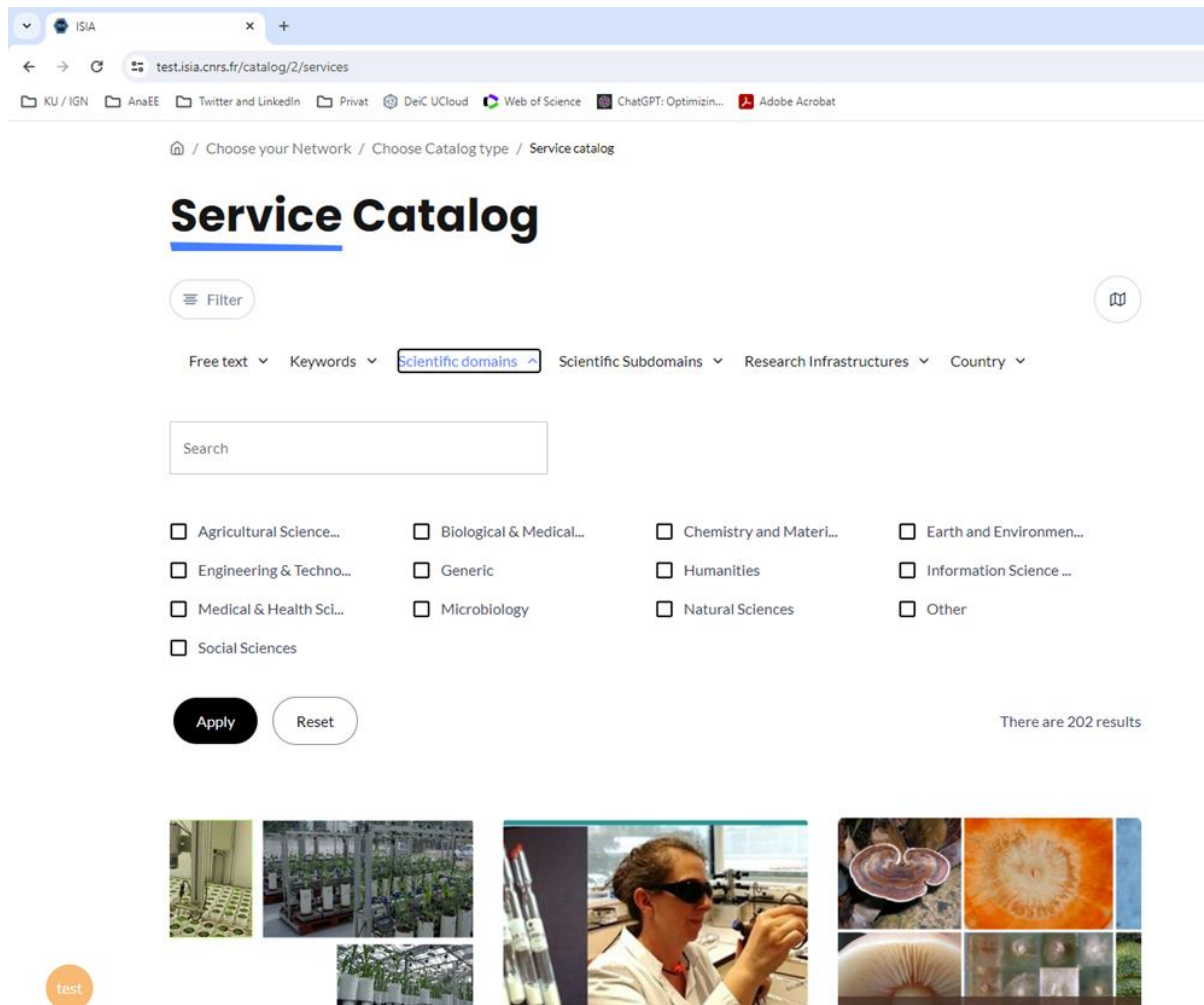


Figure 5.2 Example of how the “Keywords” search filter is shown in the AgroServ Catalogue of Services.



The screenshot shows a web browser window with the URL `test.isia.cnrs.fr/catalog/2/services`. The page title is "Service Catalog". Below the title, there is a "Filter" button and a search bar. The "Scientific domains" filter is selected, showing a list of categories with checkboxes:

- Agricultural Science...
- Biological & Medical...
- Chemistry and Materi...
- Earth and Environmen...
- Engineering & Techno...
- Generic
- Humanities
- Information Science ...
- Medical & Health Sci...
- Microbiology
- Natural Sciences
- Other
- Social Sciences

Below the filter, there are "Apply" and "Reset" buttons. To the right, it says "There are 202 results". Below the filter, there is a grid of images showing various scientific and agricultural scenes, including a laboratory setting, a person in a lab coat, and various biological specimens.

Figure 5.3 Example of how the “Scientific domains” search filter is shown in the AgroServ Catalogue of Services.

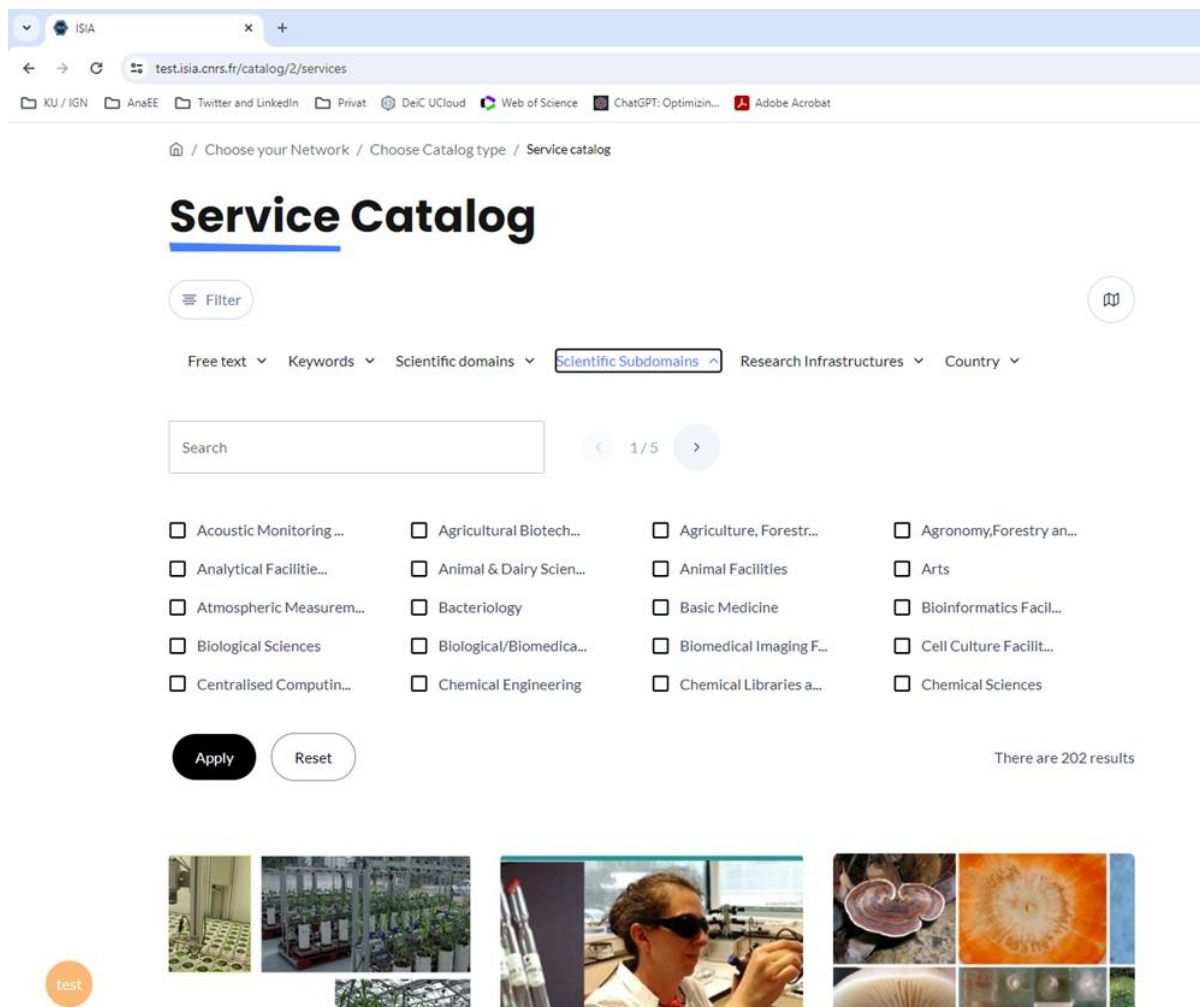


Figure 5.4 Example of how the “Scientific subdomains” search filter is shown in the AgroServ Catalogue of Services.

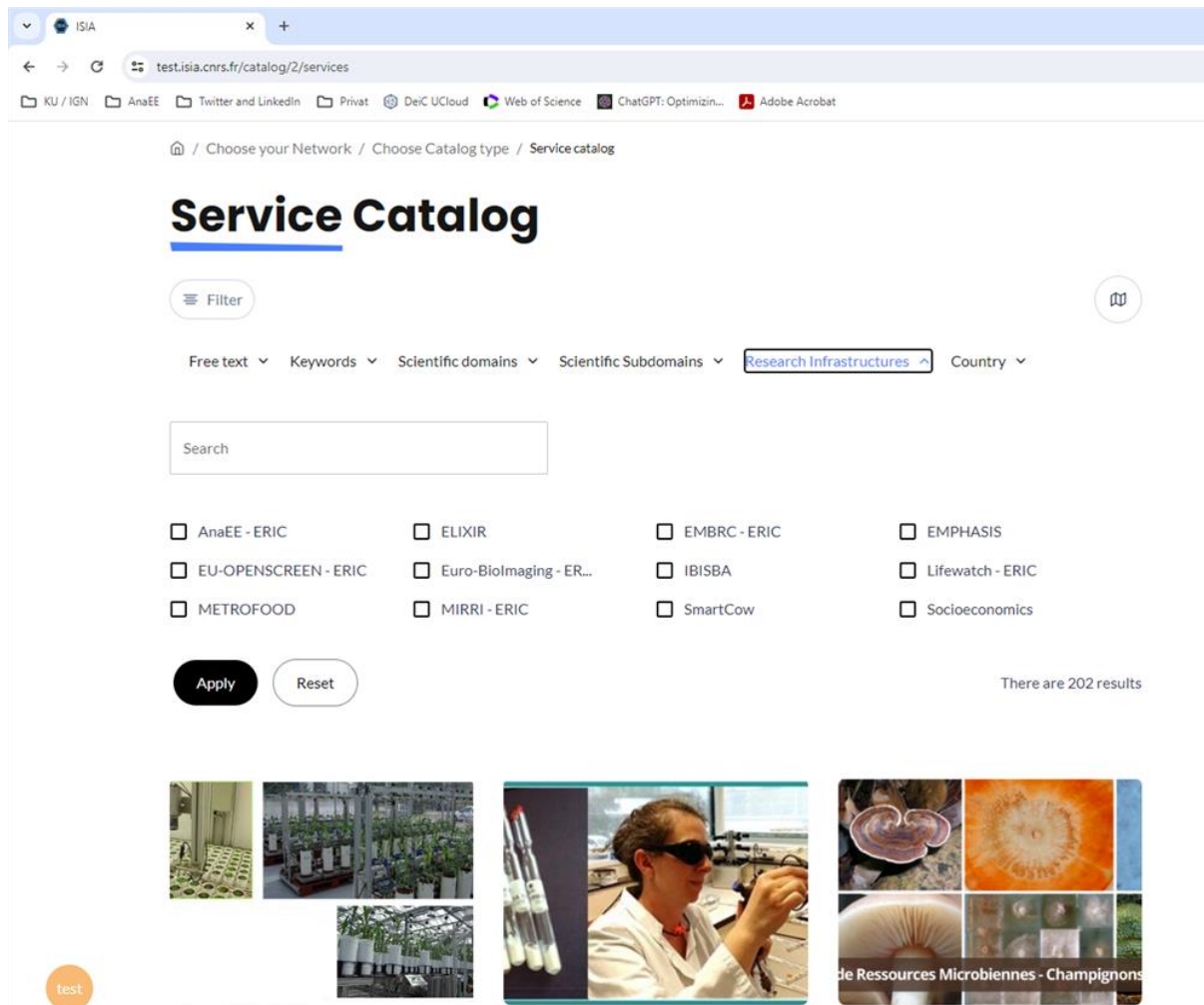
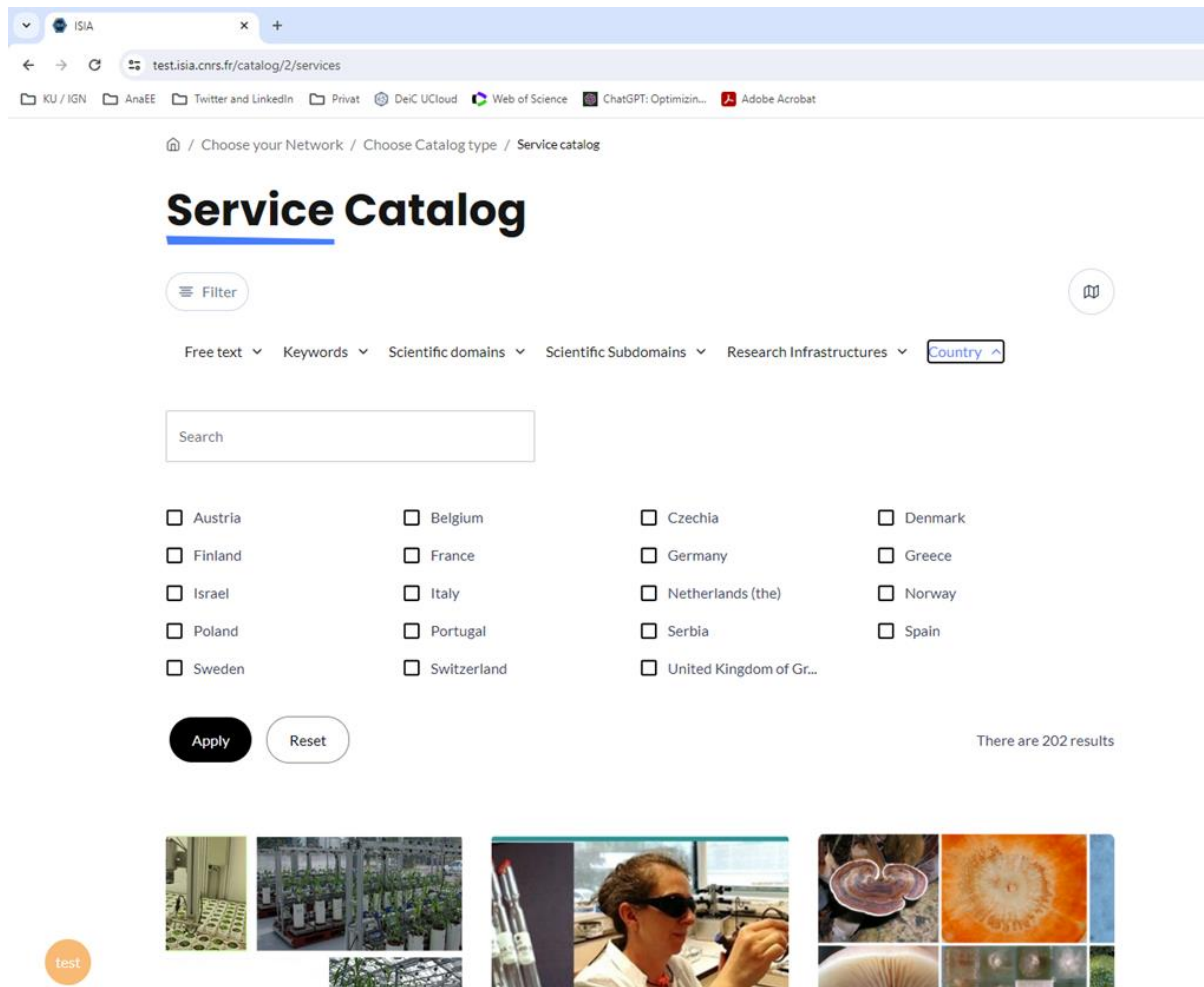
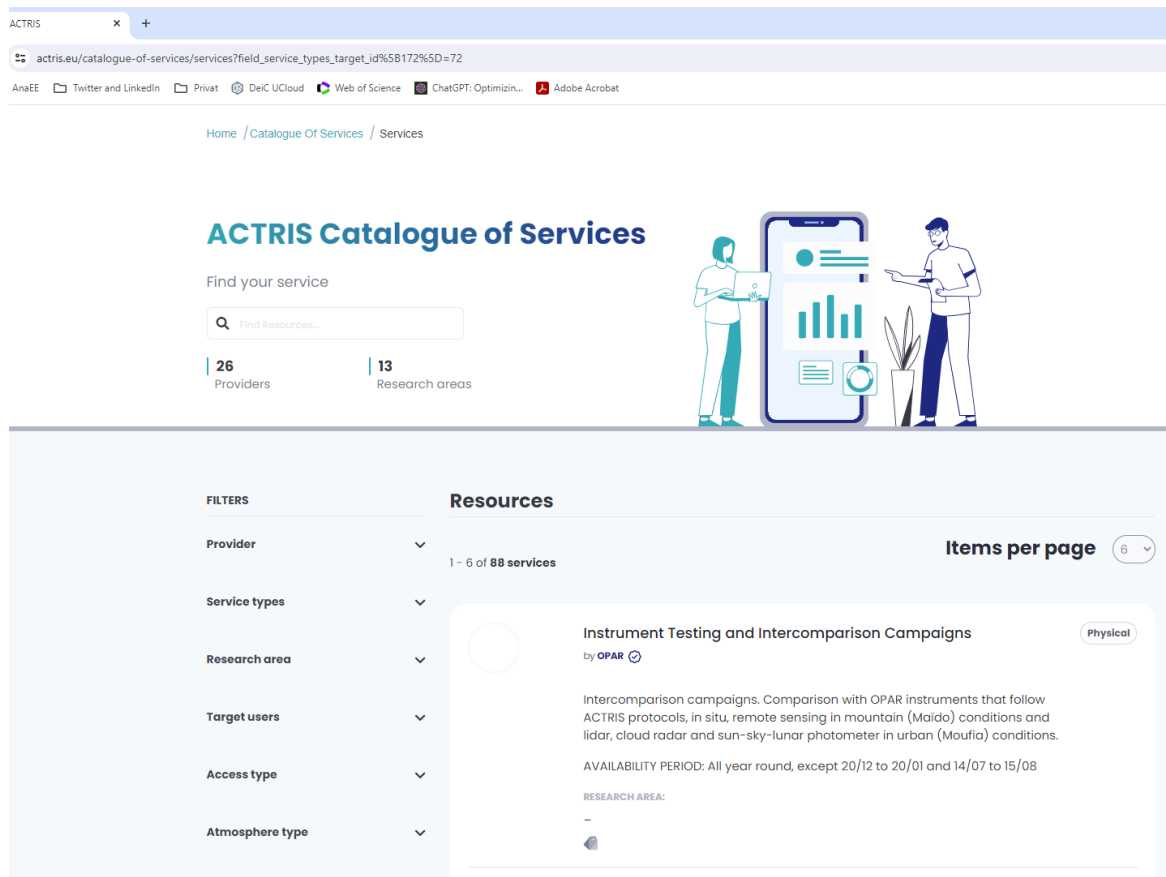


Figure 5.5 Example of how the “Research Infrastructures” search filter is shown in the AgroServ Catalogue of Services.



The screenshot shows a web browser window with the URL `test.isia.cnrs.fr/catalog/2/services`. The page title is "Service Catalog". Below the title, there is a "Filter" button and a navigation menu with dropdowns for "Free text", "Keywords", "Scientific domains", "Scientific Subdomains", "Research Infrastructures", and "Country". A search input field is present below the filters. The "Country" filter is expanded, showing a list of countries with checkboxes: Austria, Belgium, Czechia, Denmark, Finland, France, Germany, Greece, Israel, Italy, Netherlands (the), Norway, Poland, Portugal, Serbia, Spain, Sweden, Switzerland, and United Kingdom of Gr... Below the list are "Apply" and "Reset" buttons. A message on the right states "There are 202 results". At the bottom, there is a grid of service images, including a person in a lab, a plant, and a microscope.

Figure 5.6 Example of how the “Country” search filter is shown in the AgroServ Catalogue of Services.



ACTRIS Catalogue of Services

Find your service

Find Resources...

26 Providers | 13 Research areas

FILTERS

- Provider
- Service types
- Research area
- Target users
- Access type
- Atmosphere type

Resources

1 - 6 of 88 services

Items per page 6

Instrument Testing and Intercomparison Campaigns Physical

by OPAR

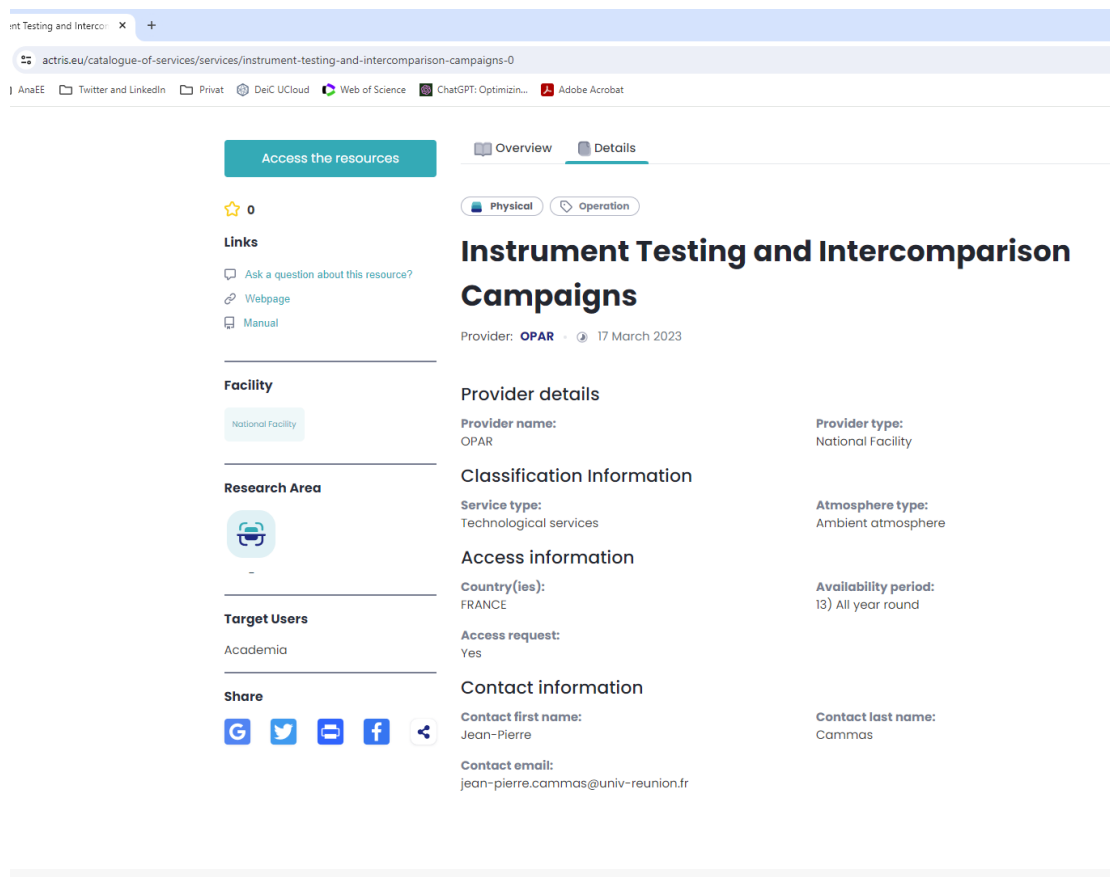
Intercomparison campaigns. Comparison with OPAR instruments that follow ACTRIS protocols, in situ, remote sensing in mountain (Maïdo) conditions and lidar, cloud radar and sun-sky-lunar photometer in urban (Moufia) conditions.

AVAILABILITY PERIOD: All year round, except 20/12 to 20/01 and 14/07 to 15/08

RESEARCH AREA:

-

Figure 5.7 Example of how individual services are shown to the user in the ACTRIS Catalogue of Services (overview page).



The screenshot shows a web browser window displaying the detailed page for the service 'Instrument Testing and Intercomparison Campaigns' on the ACTRIS Catalogue of Services. The page is organized into several sections:

- Header:** Includes 'Access the resources' button, 'Overview' and 'Details' tabs, and category filters for 'Physical' and 'Operation'.
- Links:** A section with a star icon (0) and options to 'Ask a question about this resource?', 'Webpage', and 'Manual'.
- Facility:** A section with a 'National Facility' tag.
- Research Area:** A section with a microscope icon and a minus sign.
- Target Users:** A section with the text 'Academia'.
- Share:** A section with social media icons for Google+, Twitter, LinkedIn, Facebook, and a share icon.
- Provider details:** A section with 'Provider name: OPAR' and 'Provider type: National Facility'.
- Classification Information:** A section with 'Service type: Technological services' and 'Atmosphere type: Ambient atmosphere'.
- Access information:** A section with 'Country(ies): FRANCE' and 'Availability period: 13) All year round'.
- Contact information:** A section with 'Access request: Yes', 'Contact first name: Jean-Pierre', 'Contact last name: Cammas', and 'Contact email: jean-pierre.cammas@univ-reunion.fr'.

Figure 5.8 Example of how individual services are shown to the user in the ACTRIS Catalogue of Services (detailed page).

6. Adapting the PASS access management tool and integration with ISIA

Transnational Access (TA; physical, remote or hybrid) to services in the IRISCC Catalogue is likely to be requested by users in three ways, based on the specifics of the access programme defined in T.7.3:

- anytime by placing a service request through the IRISCC Catalogue to the PASS TA management platform;
- in response to an annual call for access or a rolling call with no fixed end date on the PASS. Links to the annual/rolling call will also be provided on the IRISCC Catalogue of Services and the IRISCC webpage;
- in response to a dedicated call for access on the PASS, launched to promote specific research that is of interest to the scientific community to tackle particular science or societal challenges related to climate change risks. Links to the dedicated/topical calls will also be provided on the IRISCC Catalogue of Services and the IRISCC webpage.

All requests for TA to the IRISCC services will be handled by the WP8 Team with the support of the PASS web tool. PASS enables the central management of access and helps to automatize as much as possible the workflows established for the access process with the control of each step. A technical solution is needed to ensure the integration of the PASS access management tool with the IRISCC Catalogue of Services in ISIA. This solution will be studied in parallel with the development of the Catalogue and the access programme. Taking into account the particular details of the yet-to-be-defined access programme, as well as the metadata model and tags for the services in the IRISCC catalogue, the integration with PASS will ensure that service requests placed through the Catalogue (for instance, by clicking on a 'request the resource' button) will guide the users/requests in one of the following ways, depending on the available technical solutions:

- Users will be directed to the specific application form of the relevant call under which TA to the requested service is offered. The form will retrieve service information and enable users to directly fill in all the needed information to consent to proper evaluation based on the relevant access mode for selection.

- Option 2: Users will be prompted for the compilation of a pre-application form on the PASS platform to add basic preliminary information (eligibility issues) on top of the service requested. The WP8 Team will screen the request and convert it into the full application form of the relevant call for the user to fill in all the needed information to consent to proper evaluation.

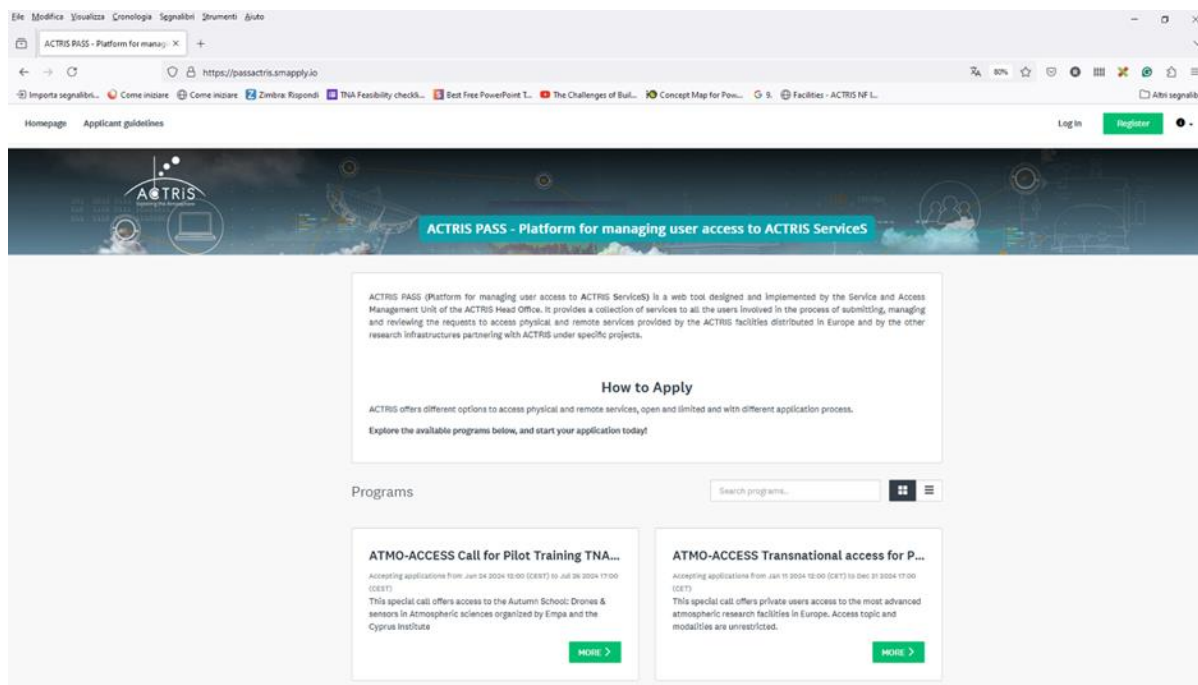


Figure 6.1. The PASS platform is used e.g. by ACTRIS to manage the transnational access (TA) calls.

7. Metadata collection

Similar to the other existing service catalogues currently available on ISIA, IRISCC service providers must have an interface in ISIA dedicated to their own facility and the services they provide, to which only invited users will have access. They must be able to update information about facilities and services via dedicated forms (Figures 7.1, 7.2, and 7.3). These forms are the single-entry points for entering facility and service information and allow automatic dissemination to the various catalogues, for example AgroServ, CatRIs and any other catalogue with an API to automatically update the data. With single-point entry, service providers only have to register information once, while the information can be retrieved for multiple catalogues of services. The information can then be updated automatically and periodically according to the needs of IRISCC.

The IRISCC Catalogue of Services should preferably provide the opportunity to fill out and upload a .csv template with all mandatory data fields to avoid the need for a lot of copy-pasting from each service provider into the online form.

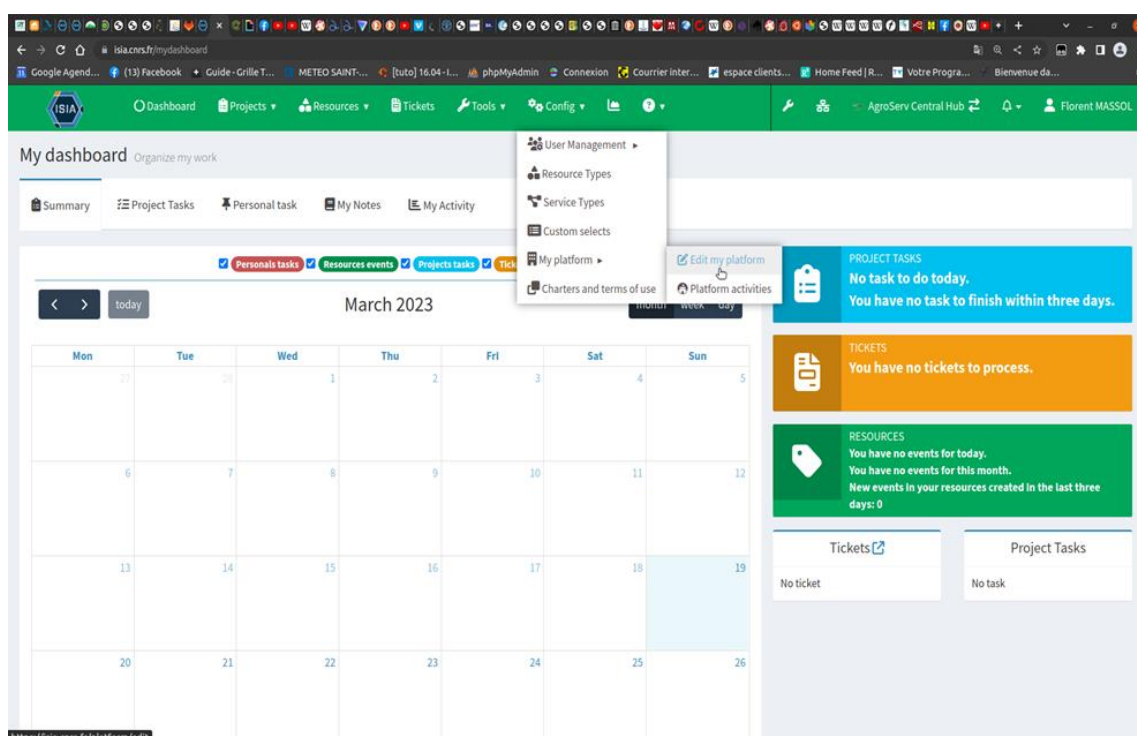


Figure 7.1 Screenshot from existing AgroServ Catalogue of Services. Note that a new version will be released during summer 2024 with a different and more user-friendly design.

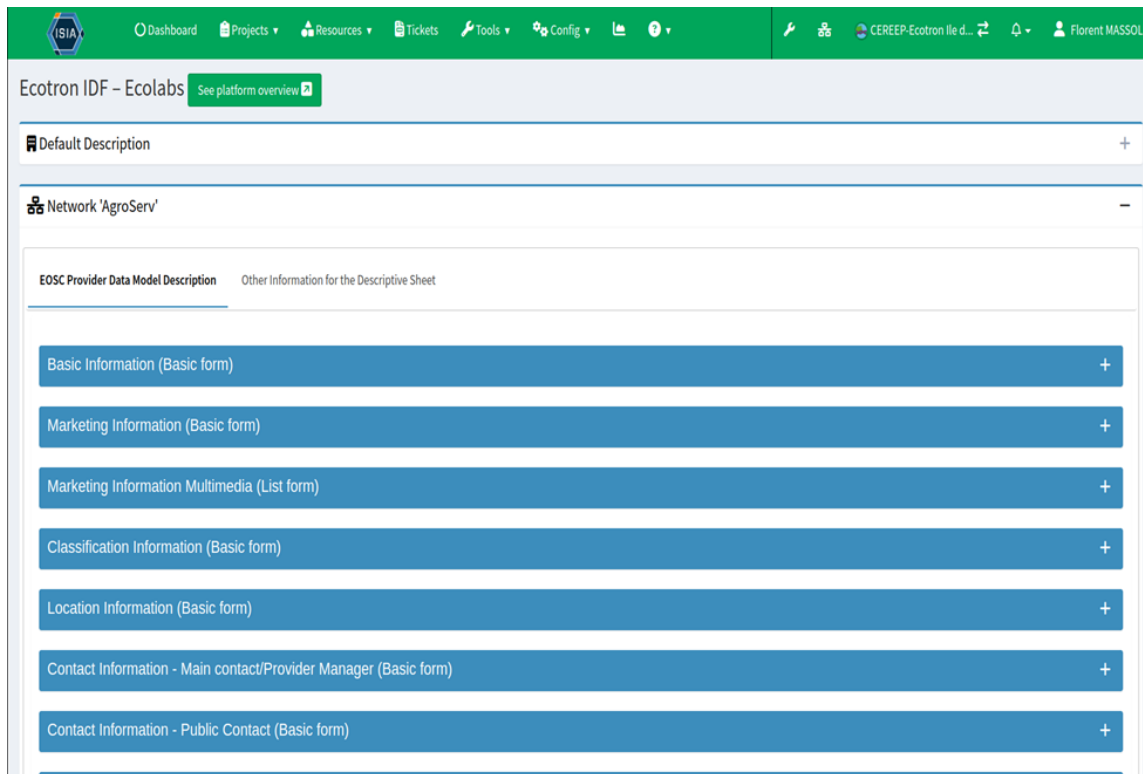


Figure 7.2 Screen shot from existing AgroServ Catalogue of Services showing the types of metadata to be provided from each service provider.

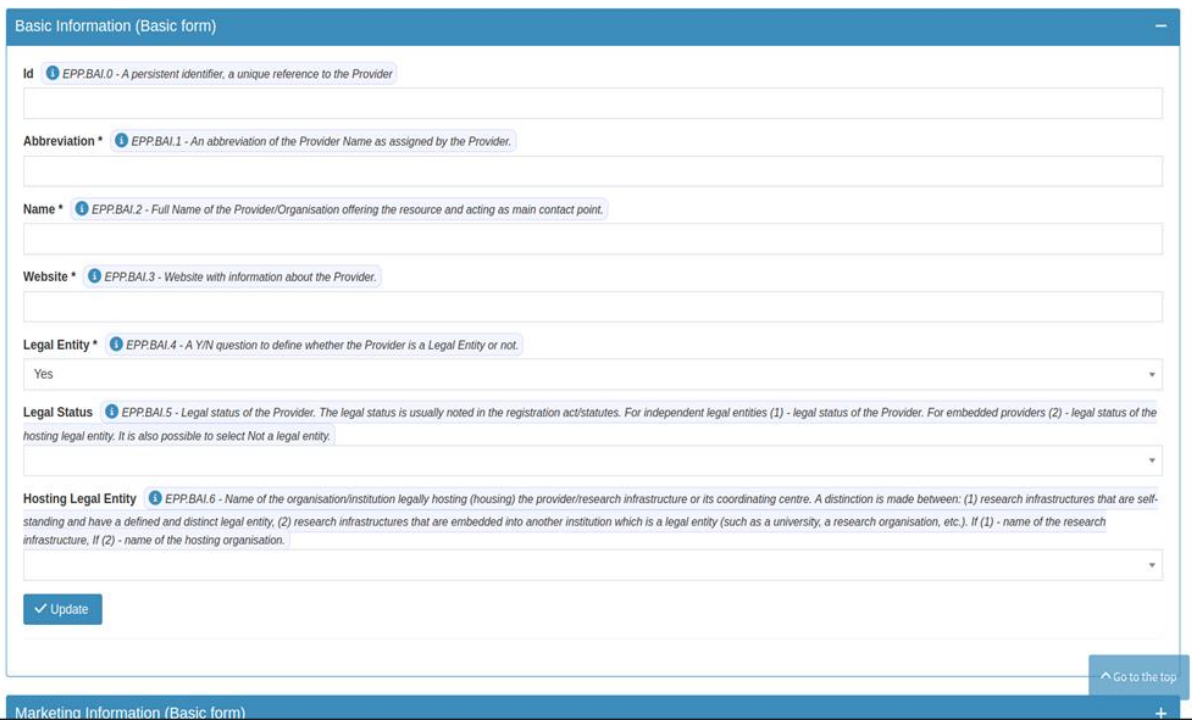


Figure 7.3 Screen shot from existing AgroServ Catalogue of Services showing metadata fields for “basic information” to be provided from each service provider.

8. Conclusions and next steps

As outlined in section 1 of this report, the IRISCC Catalogue of Services will be built using existing technologies and expertise within the IRISCC consortium, i.e. it will be hosted on the ISIA platform by CNRS, France, which already hosts service catalogues of AnaEE France, AnaEE ERIC and the EU-INFRA SERV project AgroServ. Access to services will be managed using the PASS platform currently used by the ACTRIS ERIC. This requires the development of a technical integration between ISIA and PASS.

As AgroServ has already been built to provide access to service across multiple RIs, this report focuses on which requirements for the IRISCC Catalogue of Services may need to be adapted to the specific needs of IRISCC. The requirements for the design of the IRISCC Catalogue of Services will evolve over the course of IRISCC for the 2nd and 3rd releases but at this early stage of the IRISCC project this report lists the technical requirements for the 1st release (M12 – March 2025) in details within each section of the report. In summary:

- In building the metadata schema for the additional information needed in IRISCC, existing vocabularies within the IRISCC consortium should always be used if possible (section 2).
- The IRISCC Catalogue of Services must be able to handle all the different types of access identified for IRISCC (section 3).
- The existing metadata schemas from AgroServ to describe additional information on facilities and services need to be adapted to the necessary description of facilities and individual services in IRISCC (section 4).
- Search filters need to be adapted for IRISCC. In particular for the first release of the Catalogue of Services, the two core search filters should be “System” and “Risk”. Other improvements of the current handling of search filters for AgroServ are also requested for IRISCC (section 5)
- A technical solution allowing integration of the PASS access management tool and ISIA is needed (section 6).
- An online web interface for service providers to allow updating required information is requested. In addition, preferably the web interface should provide the opportunity to fill out and upload a .csv template with all mandatory data fields for service providers (section 7).

Based on these technical requirements, the next steps are to: first define the mandatory metadata fields for IRISCC service providers from the EO SC-based model and second, to

define the additional information required for the descriptions of facilities and individual services in IRISCC. Then developers can make the necessary adaptations of ISIA and services providers can start filling out either online form or a simple .csv template (if possible) to populate the online web Catalogue of Services. Concurrent with this development, the study and implementation of a technical solution for the integration of the PASS access management tool and ISIA should be initiated.

Further, a more detailed technical requirements for the design of the IRISCC Catalogue of Services will arise as the planned work and developments of new and integrated services in IRISCC progresses. This report therefore cannot represent a final list of technical requirements for the design of the IRISCC Catalogue of Services but merely a starting point for the development at the earliest stage of the IRISCC project. The technical requirements and the development of the Catalogue of Services will be a continuous, iterative process throughout the IRISCC project period among the work package activities in IRISCC and the developers of the web interface. This report will therefore be used as a starting point of a “living” document that is continuously updated over the course of IRISCC to reflect the different stages of the development of the IRISCC Catalogue of Services.