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*Martens, C., & Anders, I. (2024). Dissemination Plan for the BITS Project.  
Zenodo. <https://doi.org/10.5281/zenodo.17822433/>*

**Authors:**

Claudia Martens (DKRZ)

Ivonne Anders (DKRZ)

# Dissemination Plan for the BITS Project

## Deliverable Details

Dissemination level	PU (Public)
Workpackage / Deliverable Nr	Workpackage 5, D 5.2
Due Date	M12, June 2024
Grant Institution / Grant Number	DFG, Project number 508107981
Authors	Claudia Martens, Ivonne Anders
Revision History	v1.0 (June 2024) v1.1 (December 2024)

# 1. Introduction

The BITS project (Blueprints for the Integration of Terminology Services in Earth System Science) aims to support the seamless adoption of terminology services within the Earth system science (ESS) community. By developing a standardized framework for the use, management, and dissemination of terminologies, the project seeks to strengthen interoperability, facilitate data exchange, and foster collaboration across scientific domains. To ensure that these outcomes are widely understood, adopted, and sustainably implemented, this dissemination plan outlines the strategic activities through which BITS will engage stakeholders, promote its results, and support long-term reuse.

The BITS dissemination strategy is guided by four overarching objectives: (a) increasing the visibility of the project's achievements; (b) promoting the use of the terminology services and tools developed within the project; (c) facilitating knowledge transfer to diverse stakeholders in ESS; and (d) ensuring the long-term impact, sustainability, and continued development of the project's outcomes. Stakeholders—including researchers, infrastructure providers, data managers, and software developers—will be addressed through academic publications, conference presentations at national, European, and international levels, training events such as workshops and webinars, and a variety of digital communication channels. In addition, strategic partnerships with established organizations and networks in the ESS domain will be leveraged to maximize outreach and ensure alignment with ongoing national and international initiatives.

Because the landscape of research infrastructures is evolving rapidly, particularly in Germany (e.g., within the National Research Data Infrastructure, NFDI) and at the European level, this dissemination plan is conceived as a living document. It is therefore initially delivered in Month 12, with an updated and expanded version scheduled for Month 18 to incorporate emerging developments. A continuous log of dissemination activities will be maintained throughout the entire project.

## 2. Objective

The overall goal of BITS is to develop a Terminology Service tailored to the Earth System Sciences, demonstrate its integration into two distinct data repositories, and disseminate the outcomes in a way that enables other stakeholders—particularly repository operators—to adopt and reuse the results. Achieving this requires a dissemination strategy built around two complementary approaches.

- The first approach focuses on assessing user needs. This includes understanding the requirements of researchers who seek to find relevant ESS data as well as data providers who wish to improve the semantic quality and searchability of their repositories. Activities such as surveys, interviews, and polls will therefore serve not

only to collect requirements but also to raise awareness of the project's goals and expected benefits.

- The second approach addresses the exploitation and uptake of the project's outputs. Once the Terminology Service and associated BluePrints are available, dissemination efforts will focus on encouraging adoption and supporting reuse by other actors. This involves more conventional dissemination channels such as publications, presentations, reports, and documentation, as well as guidance materials tailored to repository operators and technical staff.

Both approaches are inherently interlinked. The BluePrints can only be successful if they meet user needs, but users can only meaningfully assess and adopt them once tangible results are available. BITS therefore treats dissemination as an iterative and dialog-oriented process spanning the entire project duration. As part of the NFDI landscape, BITS places particular emphasis on sustainability, ensuring that its outputs remain useful beyond the project, can be integrated into national and international infrastructures, and continue to support FAIR data practices in the long term.

### 3. Target Audience

Three primary target audiences are central to ensuring the effective uptake and long-term relevance of the BITS outcomes: researchers, research infrastructure providers, and the broader interest-group community.

1. The first target group comprises researchers in Earth system science and related academic fields. These users benefit directly from standardized terminologies that enhance data findability, support cross-disciplinary collaboration, and streamline the use of different semantic artefacts within a unified Terminology Service. Dissemination to this group will rely predominantly on scholarly publications, conference talks, and training workshops that clearly communicate how BITS can improve research workflows and interdisciplinary data integration.
2. The second group consists of research infrastructure providers, including organizations and individuals responsible for developing and maintaining data repositories and associated services. Dissemination activities targeting this audience will emphasize the practical and technical aspects of integrating BITS components. Technical documentation, API descriptions, implementation guides, and direct collaboration will be crucial to ensuring that the Terminology Service is interoperable, adoptable, and sustainable within the broader research ecosystem.
3. The third target group includes interest communities and networks with a stake in Earth system science and research data management. This includes policymakers, infrastructure networks, working groups and interest groups within the NFDI, and international organizations such as the Research Data Alliance (RDA). For this audience, dissemination efforts will focus on raising awareness of the strategic

importance of standardized terminologies, highlighting the added value of BITS outputs for harmonizing research data practices, and participating in community-driven initiatives to align with broader standards and priorities.

Additional audiences—such as the wider academic community, policymakers, and the general public—are not excluded. However, the primary dissemination activities are specifically tailored to the three core groups described above to ensure maximum impact and relevance.

## 4. Dissemination Strategy

The BITS dissemination strategy provides the overarching framework for how project results are communicated and made reusable. Although this plan mainly describes concrete activities, formats, and timelines, the strategy itself focuses on enabling stakeholder engagement, transparency, and long-term adoption of the Terminology Service. To achieve this, BITS prioritizes direct interaction with the scientific community through conferences, workshops, and established networks, as these channels are most effective for fostering exchange and supporting uptake. Sustainable documentation and written materials ensure that outputs remain accessible beyond the project. Additional formats such as videos or newsletters are used selectively where they provide clear added value. The following tables summarise how this strategic approach is implemented in practice, including communication channels, responsibilities, and milestones.

**Table 1. Overview of Dissemination Activities**

Dissemination Method	Primary Target Audiences	Purpose and Academic Rationale
<b>Project Website</b>	Academic community, interest-group networks, general public, policymakers	Serves as the central, continuously updated communication platform; ensures transparency, accessibility of key materials, and sustained visibility across stakeholder groups.
<b>Printed Materials (Flyers)</b>	Academic community, thematic networks, general public	Provides concise, visually structured information suitable for distribution at conferences and events; supports awareness raising in non-technical environments.
<b>Short Videos and Multimedia Outputs</b>	Academic community, interest groups, non-specialist audiences	Offers an accessible format for communicating the relevance of terminology services; enhances engagement through visual and narrative explanations of BITS outcomes.

<b>Published e-Documents (Deliverables, Reports, Presentations)</b>	Academic community, research infrastructure providers, specialized interest groups	Communicate methodological progress, interim results, and technical insights; must be written in clear academic language to ensure wide usability across disciplinary boundaries.
<b>Academic Publications and Conference Contributions</b>	Academic community, research infrastructures, professional organizations	Disseminate peer-reviewed scientific findings; ensure academic credibility; foster international recognition and alignment with global research data practices.
<b>Workshops and Demonstrations</b>	Researchers, infrastructure providers, community organizations, policymakers	Provide spaces for dialogue, co-creation, and validation of results; enable feedback on partial and final outcomes; essential for refining BluePrints and supporting adoption.
<b>Technical Documentation (GitHub, Swagger, API Guides)</b>	Research infrastructure providers, technical specialists, software developers	Supplies all necessary information for implementing and reusing the Terminology Service; guarantees reproducibility, transparency, and interoperability in technical ecosystems.
<b>Newsletters and Mailing Lists</b>	Research infrastructures, interest-group communities	Facilitate regular, targeted updates; support community building and coordination of workshops, publications, or release announcements.
<b>Training Materials (Guides, Tutorials, Webinars)</b>	Research infrastructure providers, data managers, technical staff	Enable the practical application and reuse of BluePrints; strengthen capacity building and ensure long-term sustainability of project outcomes.

To ensure effective and coordinated dissemination of the BITS project results, the following table defines the roles and responsibilities of project partners and staff for BITS dissemination activities, clarifying who is responsible for content creation, technical documentation, training materials, and outreach to ensure coordinated and effective communication.

**Table 2. Overview of Roles and Responsibilities**

<b>Activity / Task</b>	<b>Responsible</b>	<b>Remarks</b>
Project website creation and maintenance	TIB for technical basis All for content	Updating content, publishing materials
Creation of templates	DKRZ	to be used in presentations

Creation of deliverables / reports	DKRZ, SGN, TIB Due to proposal	Content responsibility lies with the respective Project Partner
Scientific publications	All project partners	Joint coordination of content and authorship
Workshops and demonstrations	All project partners	Organisation, moderation, and content preparation
Technical documentation for the TIB TS API	TIB	Creation, maintenance, and publication of documentation
Training materials (guides, tutorials, webinars, videos)	All project partners / DKRZ	Creation and alignment based on the BluePrints
Coordination and alignment of dissemination activities	All project partners / DKRZ	Ensuring consistent communication strategies

To ensure timely progress and structured dissemination of BITS outputs, key milestones have been defined. These milestones provide checkpoints to assess achievements, plan upcoming activities, and maintain engagement with stakeholders throughout the project.

**Table 3. Milstones and Timeline**

<b>Milestone</b>	<b>Approx. Month</b>	<b>Purpose / Expected Outcome</b>
<b>Project initiation</b>	M1–M4	Establish communication channels, identify stakeholders, begin requirement gathering
<b>Early dissemination setup</b>	M5–M8	Launch website, prepare initial materials, set up update mechanisms
<b>Initial dissemination plan</b>	M12	Deliver first version of the plan, initiate first publications and presentations
<b>Mid-project update</b>	M18–M24	Review dissemination strategy, incorporate lessons learned, expand outreach channels
<b>Advanced dissemination and validation</b>	M25–M32	Conduct workshops, validate Terminology Service integration, distribute technical documentation
<b>Finalization and long-term integration</b>	M33–M36	Deliver final BluePrints and training materials, consolidate sustainability strategies, summarize outcomes for follow-up activities

These milestones not only structure project progress but also guide dissemination efforts and stakeholder engagement, ensuring that outputs are shared, validated, and adopted in a timely and effective manner.

## 4. Dissemination Activities Log

The following table contains all the activities that the BITS project members have carried out so far (as of December 2024).

Activity	Description (name, place, date)
Presentation / Talk	EUDAT Conference, Karlsruhe, 3 - 5 December 2024 “BITS - Terminologies in Earth System Science”
Poster Presentation	1 <sup>st</sup> Base4NFDI User Conference, Berlin, 20 - 21 November 2024 “BITS - BluePrint for the Integration of Terminology Services in ESS”
Poster Presentation	Joint Conference of the Society for the Preservation of Natural History Collections and Biodiversity Information Standards SPNHC-TDWG, Okinawa, Japan, 2 - 6 September 2024 “Earth Systems’s Biology Data FAIRification: Mobilizing SGN Collection Data for the BITS Terminology Service in Earth System Science”

M12

Website	News Item “BITS workshops for “Terminologies in Earth System Sciences” were exciting and interesting events with lively discussions” 30 May
Email	Announcement of Workshop Outcome in Zenodo via manually edited list for all Workshop Participants and Guests, 30 May 2024
Electronic Publication	Workshop Outcome (including presentations from invited speakers, survey results and our own presentations) uploaded in Zenodo: <a href="https://zenodo.org/communities/bits-project">https://zenodo.org/communities/bits-project</a> , 25 May 2024
Workshop II	Workshop as Side Event of NFDI4Earth Plenary, Dresden, 22 May 2024 Part II: “Gaps and Desired Applications”
Workshop I	Workshop as Side Event of NFDI4Earth Plenary, Dresden, 22 May 2024 Part I: “State of the Art and Existing Applications”
Flyer	Workshop Invitation: “Terminologies in Earth System Science - Can we close the Gaps?”
Website	New Item “The agenda for the Workshops on Terminologies in ESS during the NFDI4Earth Plenary in Dresden has been finalised”, 16 May
Newsletter Article	NFDI4Earth Newsletter: “Workshop on Terminologies in Earth System Science during the NFDI4Earth Plenary” April 2024
Email	Announcement of Workshop via a) manually edited list with Repository Manager in ESS b) manually edited list with ESS Agency representatives
Email	Announcement of Workshop via a) DFN-Listserv Forschungsdaten b) NFDI-Listserv TS4NFDI c) NFDI-Listserv NFDI4Earth Plenary
Website	Events Item Registration Form for the Workshops

Website	News Item “BITS presented two posters at the EGU General Assembly 2024”, 30 April
Presentation	EGU 2024, Vienna, 14 - 19 April “BITS - short Introduction”
Poster Presentation	EGU 2024, Vienna, 14 - 19 April “Benefits of Ontologies in Earth System Science”
Poster Presentation	EGU 2024, Vienna, 14 - 19 April “BITS: BluePrints for the Integration of Terminology Services in Earth System Sciences”
Website	News Item “Save the Date: Workshops on Terminologies in ESS during the NFDI4Earth Plenary in Dresden”, 5 March
Poster Presentation	RDA Deutschland Tagung, Potsdam, 20 February „Aufbau eines Terminologie Service für die Erdsystemwissenschaften“
Website	News Items “Save the date: the first meeting of the IG FAIRESST will be held on 16 January 2024, 10-11 am”, 2 January “New redirect from NFDI4Earth to ESS TS”, 2 February
<b>2024</b>	
Website	News Items “The SWEET Ontology is now included in the ESS Terminology Service”, 7 November “Join the new NFDI4Earth Interest Group FAIR ESS Terminologies (IG FAIRESST)”, 7 December 2023
Presentation / Talk	Helmholtz Metadata Collaboration HMC Conference 2023, Virtual Event, 10 - 12 October “The new Earth System Sciences Terminology Service (ESS TS)”
Website	News Item “New Domain-specific Terminology Service for the Earth System Sciences (ESS)”, 26 September
Website	Launch of Website (September 2023)
<b>2023</b>	