



The LifeWatch ERIC Biodiversity
& Ecosystem eScience Conference

PLOVDIV, BULGARIA

7-10 JULY 2026

From microbiomes to climate action: co-
creating reproducible analytics through the
Microbes4Climate Transnational Access
Programme

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Why microbiomes matter

“The microbiome is the community of microorganisms living in a specific environment, together with their genetic material, functions, interactions, and the surrounding environmental conditions” *Berg et al., Microbiome (2020)*

Microorganisms are key components of ecosystems

Influence soil fertility

Regulate nutrient cycling

Support plant health

Contribute to carbon storage

Increasingly embedded in EU policies and strategic initiatives

EU Soil Strategy

Nature restoration law

EU Biodiversity Strategy

Farm to Fork Strategy

Blue Bioeconomy Strategy

Diversity of data to study microbiomes



DNA
sequencing



Metagenomics



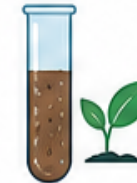
Metatranscriptomics



Environmental
observations



Climate
variables



Soil
chemistry



Remote
sensing



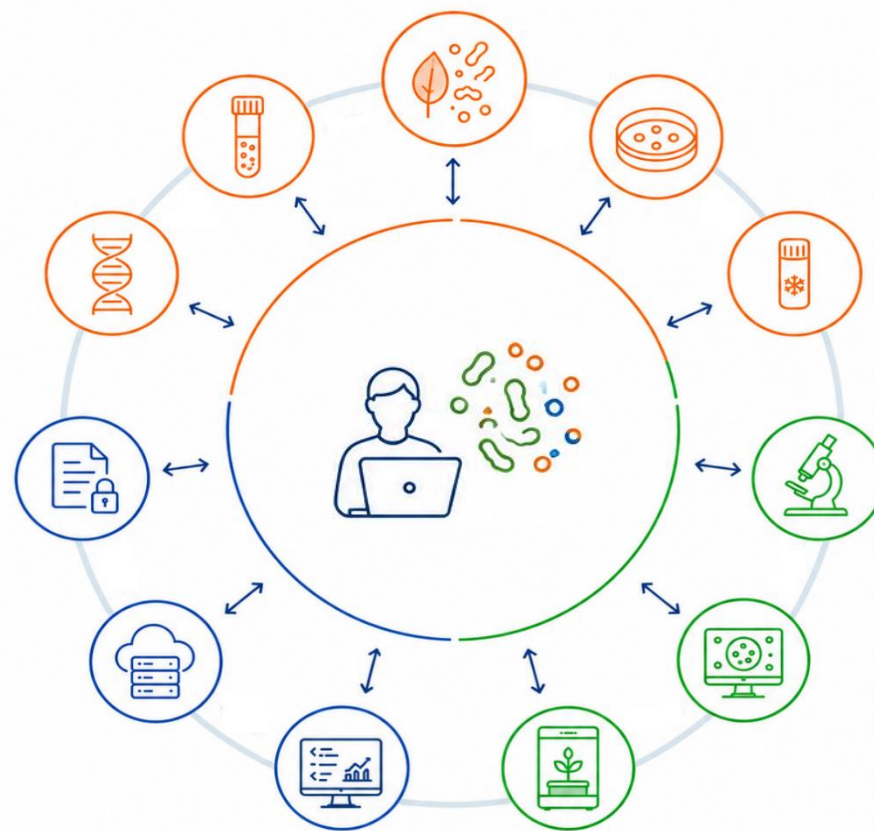
Plant
phenotyping

Large and heterogeneous datasets | Different formats | Distributed data repositories | Complex computational workflows

The challenge is no longer generating data, but integrating, analyzing, and reproducing complex analyses in a FAIR and transparent way.

This requires robust computational infrastructure and close collaboration between interdisciplinary teams (eg., domain scientists, data experts, IT specialists)

No single infrastructure is enough





Microbes4Climate

Connecting Research Infrastructures



31 partners

23 beneficiaries,
7 associated entities &
1 associated partner

Start/End date
Feb 2024/Jan 2029
60months

5 Research Infrastructures

MIRRI-ERIC, EMPHASIS,
LifeWatch-ERIC, AnaEE-
ERIC, ELIXIR

Total budget
(EUR)
14 494 818.43

**Project
Coordinator**



1

Develop and refine frameworks and tools to facilitate access to data and data services essential for research on microbiome and climate change.

2

Enhance the integration of services offered by multiple Research Infrastructures.

3

Simplify access to a suite of efficient services (physical, remote, or virtual), aimed at supporting curiosity-driven research on microbiome and climate change.

4

Provide comprehensive training and scientific/technical assistance to both RI staff and researchers/users to maximise the benefits of the available services and resources.

5

Promote active engagement from the target user communities and ensure the long-term sustainability of services developed during the project lifetime



TNA Catalogue

- 1 Supply of biological resources
- 2 Preservation of biological resources
- 3 Isolation of microbial resources from soil and plant samples
- 4 Identification and characterisation of microbial resources
- 5 Soil and plant characterisation technologies
- 6 On-site access to facilities for microbial discovery
- 7 On-site access to facilities for controlled plant cultivation and phenotyping
- 8 Big Data & Machine Learning infrastructure and tools
- 9 Remote consultancy

Services

- Free access to specialised services across European Research Infrastructures
- One application to combine complementary expertise and facilities
- Interdisciplinary research : at least 2 services from 2 different RI.

Co-creation of reproducible microbiome analytics

Scientific question



**Co-creation
(Researchers and Ris)**



**Reproducible analytical
workflow / VREs**



**Reusable digital
services**

Co-created with:

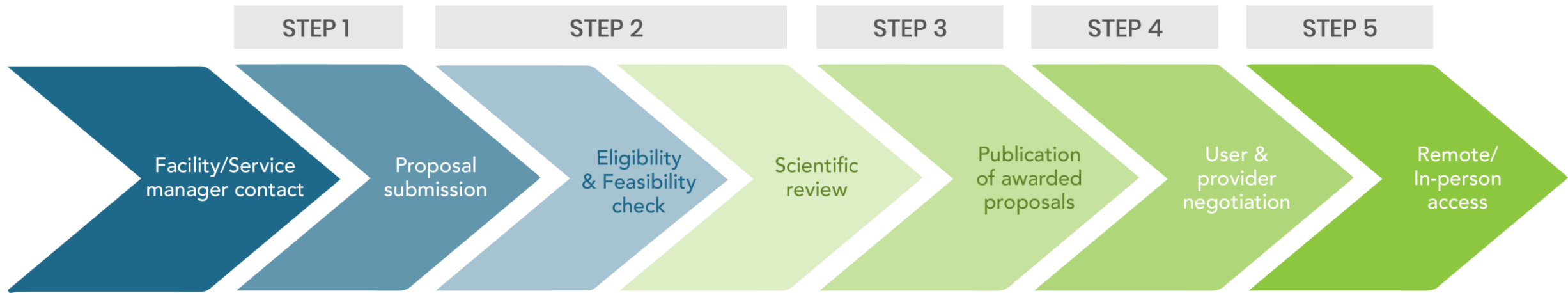
- Researchers
- Research Infrastructures (MIRRI-ERIC, AnaEE ERIC, Emphasis)
- LifeWatch ERIC experts (IT, data, scientific and training teams)

TOPICS of current collaborations:

- Hidden microbial diversity
- Plant-microbe interactions
- Paleomicrobiology
- Multi-omics integration
- Single-cell genomics



Every scientific collaboration contributes not only new knowledge, but also reusable analytical capabilities for the research community



How to Access a TNA Call

- **TNA catalogue of Services:** https://cwe.microbes4climate.eu/?page_id=286
- **Apply here:** https://cwe.microbes4climate.eu/?page_id=160

 **Interested in applying?**
The next TNA Call opens in Autumn 2026

Contact us:
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1

Microbiome research is increasingly interdisciplinary, data-intensive, and computationally demanding.

2

Meeting these challenges requires integrated Research Infrastructure services.

3

Microbes4Climate brings complementary services together through a single Transnational Access programme, enabling researchers to build interdisciplinary research workflows.

4

LifeWatch ERIC transforms interdisciplinary microbiome analyses into reusable workflows and Virtual Research Environments, enabling researchers to reproduce, adapt and build upon existing analytical methods



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THANK YOU!

Questions?

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