



POLICY BRIEF COMMON TEMPLATE

RESEARCH INFRASTRUCTURES

INTRODUCTION: PROJECT TITLE AND PROJECT OBJECTIVES

CALL: HORIZON-INFRA

TOPIC: HORIZON-INFRA-2023-TECH-01-01: New technologies and solutions for reducing the environmental and climate footprint of RIs (RIA)

PROJECT: GreenDIGIT: [Green]er Future [DIGIT]al Research Infrastructures (GreenDIGIT)
<https://greendigit-project.eu/>.

PROJECT: O1: Assess the status and trends of low impact computing within 4 DIGIT RIs (EGI, SLICES, SoBigData, EBRAINS) and wider ESFRI community, to produce recommendations and roadmaps for RIs green transition.

O2: Provide reference architecture and design principles, reflecting on the whole RI lifecycle and including the digital infrastructure components.

O3: Develop new and innovative technologies, methods, and tools for digital service providers within European Research Infrastructures.

O4: Develop and provide for researchers the tools to support the design and execution of environmental sustainability aware scientific applications with Open Science and FAIR data management considerations.

O5: Educate and support RI service providers and researchers about good practices on environmental impact conscious lifecycle management and operation of infrastructures and services.

University of Amsterdam <greendigit-coord@list.uva.nl>

POLICY IMPLICATIONS AND RECOMMENDATIONS

- **Implementation of research infrastructures.** *GreenDIGIT results, applications and tools are aiming to contribute to the digital Research Infrastructures (RI) environmental sustainability and energy efficiency. The initial/pilot implementation is expected by partner RIs (SoBigData, EBRAINS, SLICES, EGI). The further and wider implementation should be supported by EU, and in particular ESFRI and EOSC policies. Initial policy recommendations are produced by the project (refer to Deliverable D8.2).*
- **Access to research infrastructures.** *Not applicable.*
- **Funding of research infrastructures.** *Not applicable. However, the policy recommendations suggest including the Environmental Sustainability aspects and incentives into the funding proposals (recommended to be included in the future proposal template), what is currently reflected in the ESFRI Roadmap 2026 Environmental Strategy Questionnaire and Assessment.*
- **International co-operation of research infrastructures.** *Cooperation is enacted. Environmental sustainability must be based on wide cooperation between RIs and research organisations. The proposed Shared Responsibility Model for Sustainability (SRM4S) clarifies the need for cooperation between RI operators and researchers (refer to Deliverable D4.2).*
- **Employment and skills in research infrastructures.** *The project defined Green competences, skills and related knowledge based on the existing European Green Competences Framework and other relevant recommendations; this should be supported by a set of focused thematic tutorials. The first tutorials have been delivered at events organised by GreenDIGIT and partners (refer to Deliverables D10.2 and D10.3).*
- **Greening of research infrastructures.** *As the main goal, the GreenDIGIT project delivers multiple contributions to facilitate RI transition for environmentally sustainable operation (including all RI lifecycle stages) that are presented in a form ready for developing specific recommendations for Greening of research infrastructures – both technical and policy related.*
 - *This includes the Architecture Framework for RI Sustainability (AF4RIS), Shared Responsibility Model for Sustainability (SRM4S) outlining responsibilities and recommendations for RI operators, infrastructure researchers and general RI users/researchers, Metrics and environmental impact monitoring infrastructure, RI Lifecycle Model (RILM) and recommendations for compliance with the related European policies and regulations and with standards (refer to Deliverable D4.2).*
 - *The first policy recommendations and self-assessment questionnaire are developed as RI guiding framework and tools. The initial policy recommendations for greening RIs (refer to Deliverable D8.2) are across three complementary levels – Digital RIs, ESFRI and Horizon Europe, and Policymakers – with a synthesis matrix of these stakeholder roles and action areas across five steps: Assess, Define, Incentivise, Monitor, and Share. These preliminary recommendations will now be tested and discussed with key stakeholder groups in the next phase of the project (in the framework of WP9 “Policy recommendations, roadmap and assessment guide for green digital RIs”), with the aim of delivering the final policy recommendations.*
 - *To meet the needs of digital RIs identified by the project through the survey (refer to Deliverable D3.1), GreenDIGIT developed both an Environmental Impact Assessment Methodology and a Self-Assessment Questionnaire (refer to Deliverables D3.2 and D8.1). These tools enable RIs to benchmark their environmental maturity, define improvement targets, and develop action plans aligned with EU frameworks such as the CSRD/ESRS, ESPR, EED, WEEE. The questionnaire also supports traceability and audit readiness, helping RIs align internal policies with broader policy expectations*
 - *To bring the environmental sustainability awareness into the research process, the project defined the architecture and developed the researcher tools for energy and*

environmental aware scientific workflow management (which will be extended with the monitoring tools for RI operators).

- *Skills and training on Environmental Sustainability are developed for different groups and roles along the whole RI lifecycle stages (refer to Deliverables D4.2 and D10.2).*
- **Interaction of research infrastructures with industry.** *The sustainability and environmental impact metrics and infrastructure are developed in consultation with industry and with the partner SME Greenspector. Contacts are maintained with the European DigitalSME Alliance (refer to Deliverables D4.2 and D5.2).*
- **ERIC legal framework.** *Not applicable.*
- **Technology development, data and digital services, digitalisation.** *The following technical solutions have been proposed in the project and being implemented: GreenDIGIT Architecture Framework for Sustainability by Design, Common Information Model (CIM) for energy and environmental impact metrics definition and interoperability, monitoring infrastructure and supporting tools, EcoJupyter Dashboard to enable the researcher awareness and scientific workflow optimisation (refer to Deliverables D4.2, D5.1 and D5.2).*
- **Level of connection of your RI to EOSC.** *Compliant with EOSC Architecture and data sharing infrastructure, developed products, services and datasets will be registered and available via EOSC Marketplace and Zenodo (refer to Deliverables D4.2, D5.1, D10.3).*
- **Contribution to other research areas and to broader EU priorities.** *The GreenDIGIT results are targeted to contribute to EU and ESFRI-related Environmental Sustainability, Green Deal and the general SDG17 goals. The proposed initial policy recommendations are targeted for compliance with international and European standards, policies and regulations, ESFRI Environmental Impact Strategy (refer to Deliverables D3.1, D3.2, D8.2 and D8.1).*
- **Sustainability of research infrastructures.** *The project does not directly address the financial sustainability but stresses the importance of environmental sustainability in the sustainable RIs operation. This is to be achieved by including sustainability aspects in the RI policy by partner RIs and recommendations to the wider RI community. The EC should consider including environmental sustainability aspects and incentives in the R&D program funding and assessment (refer to Deliverables D3.2, D8.2 and D8.1).*

Referred GreenDIGIT deliverables

D3.1 RIs Landscape review, best practices analysis and identification of needs within the ESFRI RIs (M9)

D3.2 Environmental Impact Assessment Methodology and Guidelines for RIs (M18)

D4.2 Architecture definition, life cycle model and requirements specification for sustainable RI (M12)

D5.1 Reproducible platform design with a web-based Virtual Research Environment (M18)

D5.2 Energy measurement and impact assessment framework and methodology and developer tooling (M18)

D8.1 Self-assessment questionnaire (M18)

D8.2 First Policy recommendations (M18)

D10.2 Definition of the competences and skills for sustainability and environmental impact awareness and a set of training modules (M12)

D10.3 Dissemination and Exploitation Report about Period 1, and Plan for Period 2 (M18)
