BIODT
biodiversitydigitaltwin

Introduction to BioDT

Objectives, Scope and Expected Results

BioDT Webinar Series (04 April 2023)

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Funded by
the European Union

Project background and high-level goals

Trust-IT Services
communicating to markets

COMMpla
Communication Platforms and Online Solutions

SENCKENBERG
world of biodiversity

GBIF
Global Biodiversity Information Facility

LifeWatch ERIC

Naturalis Biodiversity Center

CSC

ECMWF

UK Centre for Ecology & Hydrology

TNO innovation for life

UFZ
HELMHOLTZ
Centre for Environmental Research

BAYER

umweltbundesamt

UNIVERSITY OF HELSINKI

Swansea University
Prifysgol Abertawe

UNIVERSITY OF OSLO

MANCHESTER 1824
The University of Manchester

JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

VSB TECHNICAL UNIVERSITY OF OSTRAVA

KTH
VETENSKAP OCH KONST

UNIVERSITY OF TARTU

MARTIN-LUTHER-UNIVERSITÄT
HALLE-WITTENBERG

Biodiversity Digital Twin for Advanced Modelling, Simulation and Prediction Capabilities

Project Information

BioDT

Grant agreement ID: 101057437

DOI

10.3030/101057437

Start date
1 June 2022

End date
31 May 2025

Funded under
Research infrastructures

Total cost
€ 11 059 061

EU contribution
€ 11 059 061

Coordinated by
CSC-TIETEEN TIETOTEKNIIKAN KESKUS OY
Finland

Source: cordis.europa.eu

BioDT will be used to:

- Better observe spatiotemporal changes in biodiversity
- Improve our understanding of mechanisms underpinning these changes
- Push limits of predictive biodiversity modelling

BioDT will provide infrastructure to:

- Drive long-term biodiversity research
- Help maintain commitments to protect biodiversity
- Safeguard societal resilience in the face of global change

EU Biodiversity Strategy 2030

E.g. reversing pollinator decline

Kunming-Montreal Global Biodiversity Framework

December 2022: historic package of measures for addressing biodiversity loss

UN Sustainable Development Goals

Zero Hunger, Good Health and Well-being,
Climate Action, Life on Land

European Green Deal

Climate change resilience

European Strategy for Data

Contributing to a single European market for data

Objective 1: Build and deploy pre-operational BioDT platform

- Platform established on LUMI
- Prototype DTs focusing on four Use Case groups
- Model development and validation
- Platform generalised to serve user needs beyond consortium

Species response to environmental change

- Biodiversity dynamics
- Ecosystem services

Genetically detected biodiversity

- Crop wild relatives and genetic resources for food security
- DNA detected biodiversity, poorly known habitats

Dynamics and threats from and for species of policy concern

- Invasive species
- Endangered species

Species interactions with each other and with humans

- Disease outbreaks
- Pollinators

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Outcome	Description
1	Prototype platform available *as service*
2	Several case studies
3	Improved model predictive performance
4	Increased model accuracy and precision

Objective 2: Integration with biodiversity RI platforms and workflows

- Interfaces, user authentication and access
- Interoperability: data, software, practices
- Uptake, new user communities, training

GBIF

The Global Biodiversity Information Facility (GBIF) is an international network and data infrastructure providing open access to biodiversity data.

LifeWatch ERIC

LifeWatch ERIC is the e-Science European infrastructure for biodiversity & ecosystem research.

eLTER

The Integrated European Long-Term Ecosystem (eLTER) focuses on critical zone and socio-ecological research.

DiSSCo

The Distributed System of Scientific Collections (DiSSCo) is a Research Infrastructure (RI) for Natural Science Collections.

Objective 2: Integration with biodiversity RI platforms and workflows

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- Interoperability: data, software, practices
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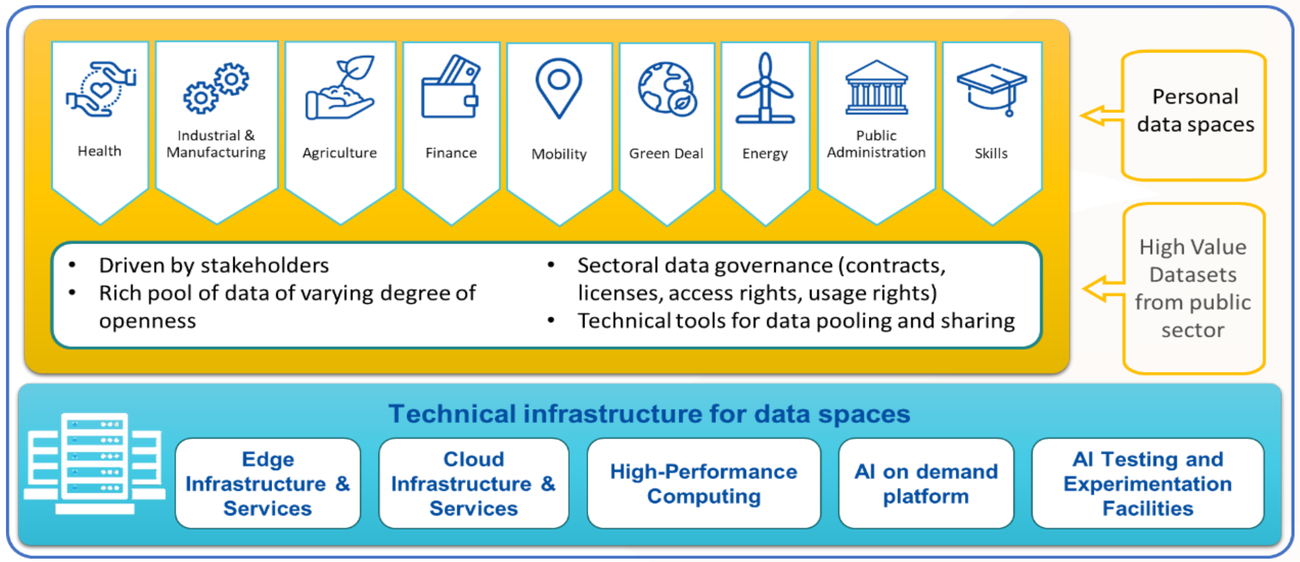
Outcome	Description
1	APIs for feeding data to/from BioDT platform
2	FAIR datasets using cross-RI standards and FDOs
3	Quality indicators (e.g. FAIRness)
4	Training materials and interoperability workshops

Objective 3: Interoperability with DestinE and European DT initiatives

- Cross-DT synchronisation and showcases
- Integration with EOSC and ELIXIR
- Harmonised data and data governance (EU Data Spaces)
- Contributing to EU ability to adapt actions / policies



Source: digital-strategy.ec.europa.eu

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Outcome	Description
1	Ingestion of DestinE data by BioDT
2	Provision of agglomerated, analysis-ready data by BioDT
3	Shared service catalogue, DTs available to EOSC users
4	Leveraging ELIXIR infrastructure (e.g. Tools Platform)

Target groups

	**Biodiversity RIs, RI nodes, data providers and researchers** RIs, universities, research organisations; the end-users that will contribute to developing the DT, enhancing its use cases, and testing its functionalities
	**Policy makers** EU, Member States, Local governments, intergovernmental organisations (UNESCO, FAO, etc.)
	**Industrial actors incl. SMEs** Sectors related to biodiversity, such as agri-food, tourism, healthcare.
	**Civil society and citizen scientists**


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