Biodiversity Digital Twin: General Project Vision

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Background

The Biodiversity Digital Twin (BioDT) project brings together experts in high-performance computing, ecology and artificial intelligence to develop prototype digital twins (DT) that push the limits of predictive biodiversity modeling.

Objectives

1. Build and deploy a pre-operational BioDT technical platform for DT operation and access, using the LUMI supercomputer
2. Support interoperability of data and services through integration with biodiversity research infrastructures
3. Ensure interoperability of BioDT with Destination Earth (DestinE) and the European Data Infrastructure

The digital twins developed in BioDT are designed to serve a broad range of end-users (Fig. 1), following FAIR principles.

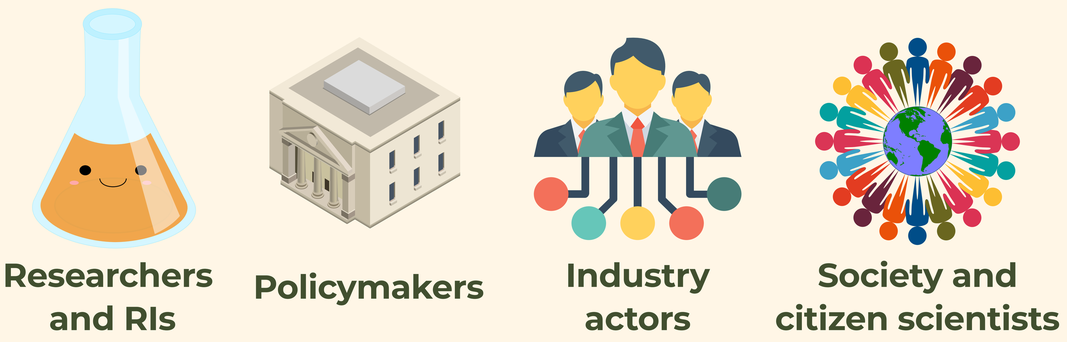

Fig. 1. BioDT end-user groups.

What is a digital twin?

BioDT adheres to the following definition:

A digital twin is a virtual representation of real-world entities and processes, synchronised with real-world data at a specified frequency and fidelity.

Strategic and policy links

The European digital twin landscape
DestinE-affiliated DT projects
e.g. ClimateDT, Digital Twin Ocean

Policy links

- EU Biodiversity Strategy 2030
- Kunming-Montreal Global Biodiversity Framework
- UN Sustainable Development Goals
- European Green Deal
- European Strategy for Data

Anticipated outcomes

Technology demonstrations of how DTs can:

- Provide novel infrastructure solutions to drive long-term biodiversity research
- Offer new tools and approaches to facilitate environmental decision-making
- Bridge existing gaps between ecology and high-performance computing
- Supply a unifying framework for collaboration between researchers, research infrastructures and stakeholders
- Follow the FAIR principles through a FAIR Digital Objects implementation

Project partners

Funded by the European Union