



Innovative Solutions for Digital Twin Challenges

BioDT School and Hackaton March 2025

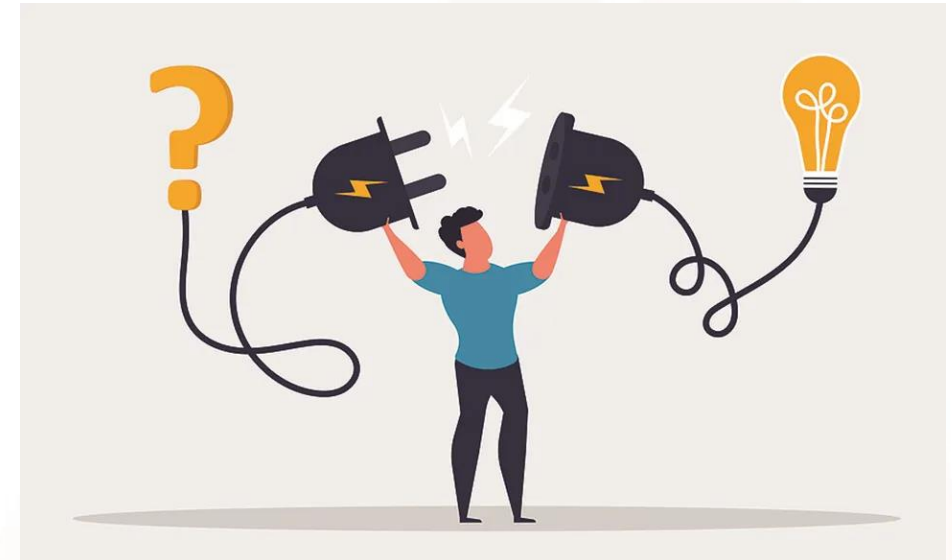
🔥 This session: combining knowledge of digital twins and the cultural ecosystem services to develop innovative solutions using DT technologies.

🔥 Outline:

- 🔥 Introduction (15 mins)
- 🔥 Break-out group activity (45 mins)
- 🔥 Group presentation (20 mins)
- 🔥 Wrap-up (10 mins)



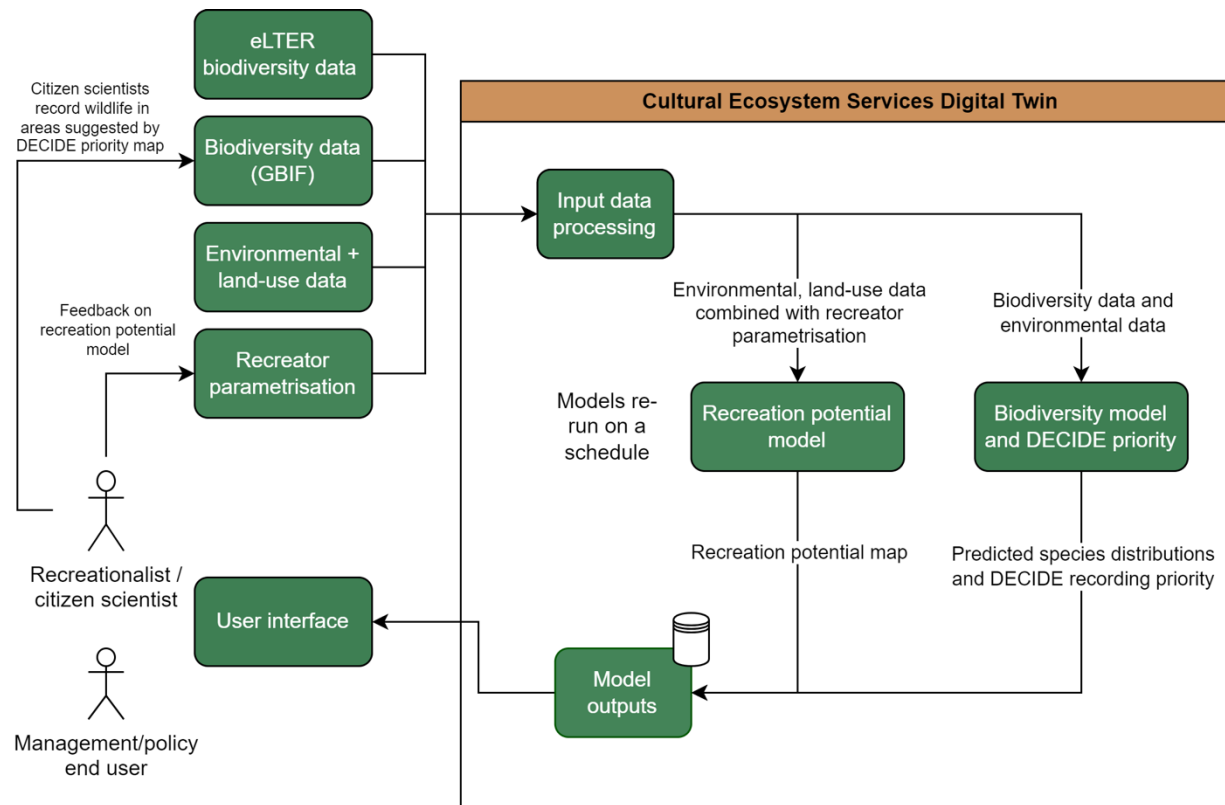
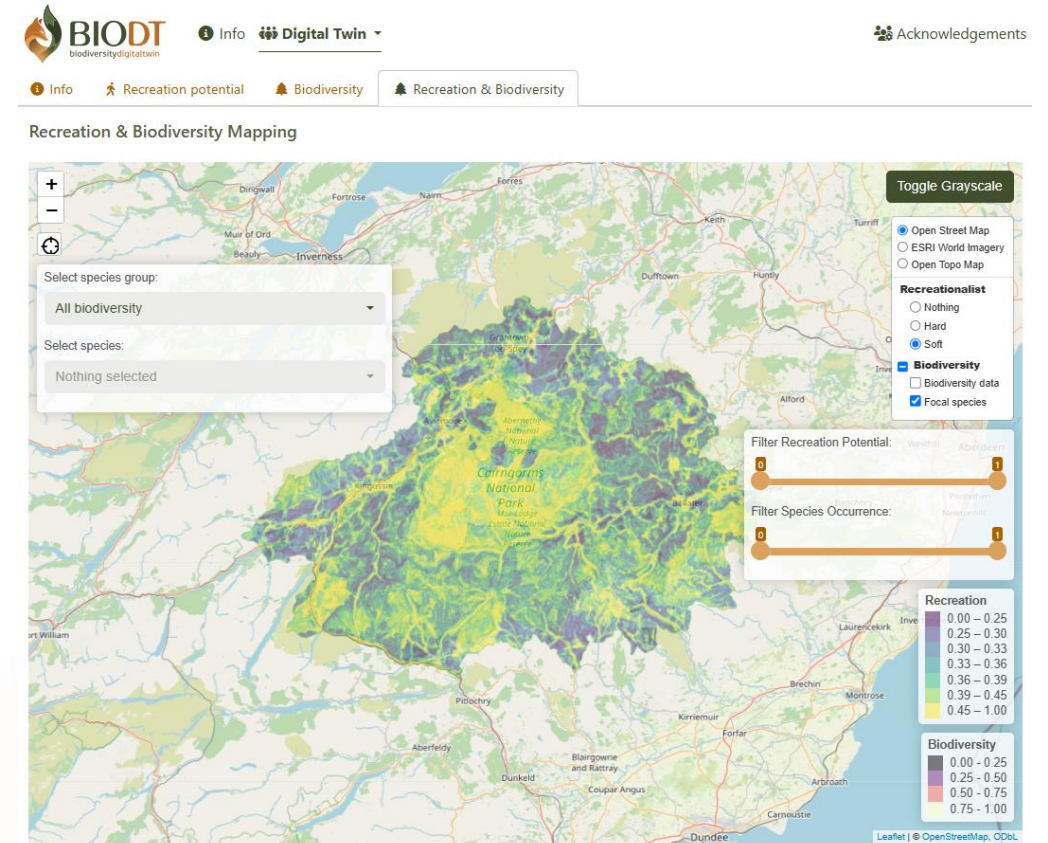
1. Apply what you have learnt about Digital Twins (Monday AM) and their design (Monday PM) think about problem solving and innovation in digital twins
2. Use the Cultural Ecosystem Services pDT as an example to innovate
3. Equip you with critical thinking skills for innovation in digital twins ready for the hackathon on Friday



2 components:

Recreation potential model

Biodiversity model



Challenge	Opportunity
Scalability	How might we create a scalable, generalizable approach?
Dynamic updates	What new data sources or technologies could improve the pDT? IoT sensors, satellite imagery, AI-driven analysis?
User Experience & Engagement	How might we make the system more interactive and engaging for users? Gamification, real-time feedback, augmented reality?
Ethical & Sustainability Considerations	What are the ethical and sustainability implications of our design choices? Data privacy, conservation impact assessments?

Imagine: your team has **three months**, a **five-person development team**, and support from the **BioDT project** to tackle one of four key challenges in this pDT:

1. Scalability

2. Dynamic Updates

3. User Experience

4. Ethical & Sustainability Considerations

- You have **45 minutes** to develop innovations for

- 🔥 Stage 1: Problem Analysis & Goal Setting (15 min)
 - Define the **specific problem** within your chosen challenge.
 - Set a **clear and achievable goal** for the 3-month project.
- 🔥 Stage 2: Solution Design & Resource Allocation (20 min)
 - Brainstorm **practical and innovative approaches** to address the challenge.
 - Consider necessary **technologies, datasets, and external support**
- Stage 3: Presentation & Reflection (10 min)
 - Prepare a **5-minute summary** of your strategy.

<p>Group 1: Scalability</p> <p>How can we adapt the Cultural Ecosystem Services pDT to function across diverse geographic locations and datasets?</p>	<p>Group 2: Dynamic updates</p> <p>How can we improve real-time data integration and responsiveness to environmental changes?</p>
<p>Group 3: User Experience & Engagement</p> <p>How can we make the Digital Twin more intuitive, engaging, and valuable to different stakeholders?</p>	<p>Group 4: Ethical & Sustainability Considerations</p> <p>How do we ensure the Digital Twin supports conservation efforts without encouraging harmful activities?</p>



Prototype Digital Twin:
Recreation and
biodiversity cultural
ecosystem services

- 🔥 As you prepare for the **hackathon on Friday**, think beyond the current pDT implementation. Use **critical thinking and innovation strategies** to:
 - **Identify gaps in existing DT designs**
 - **Propose new approaches to integrating and visualizing data**
 - **Develop solutions that enhance decision-making and sustainability**
- 🔥 By applying what you've learned about Digital Twins, you'll be well-equipped to innovate



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