Facilitator Notes: BioDT School Session

Title: Innovative Solutions for Digital Twin (DT) Challenges
Duration: 1.5 hours
Audience: Participants of BioDT School & Hackathon
Objective: Equip participants with problem-solving and innovation skills for DT technologies in cultural ecosystem services.

Session Outline & Facilitation Guide

1. Introduction (15 mins)

- **Purpose:** Reinforce learnings from previous sessions on DTs and their design.
- **Key Talking Points:**
    - Recap DT fundamentals and their role in Cultural Ecosystem Services.
    - Explain the **two components**: Recreation Potential Model & Biodiversity Model.
    - Frame the session: Participants will tackle **one of four key DT challenges**:
        1. **Scalability**
        2. **Dynamic Updates**
        3. **User Experience**
        4. **Ethical & Sustainability Considerations**
    - **Facilitation Tip:** Ask open-ended questions to encourage engagement:
        - "What are some common challenges in scaling DTs?"
        - "Why is real-time data integration critical for DTs?"

2. Break-Out Group Activity (45 mins)

Goal: Develop innovative solutions for a DT challenge within a **3 to 6-month project scope**
Structure:

- **Stage 1: Problem Analysis & Goal Setting (15 mins)**
    - Each group selects a challenge.
    - Define the **specific** problem within that challenge.
    - Set a **clear, realistic goal** for their 3-month project.
    - **Facilitation Tip:** Encourage groups to be specific (e.g., instead of "improving scalability," define "handling 10x more users with real-time data streams").
- **Stage 2: Solution Design & Resource Allocation (20 mins)**

    - Brainstorm practical, innovative approaches.
    - Identify necessary **technologies, datasets, and external support**.
    - Consider feasibility and impact.
    - **Facilitation Tip:** Challenge participants with guiding questions:
        - "How does your solution improve scalability/user experience?"
        - "What datasets or external tools will you need?"
- **Stage 3: Presentation & Reflection (10 mins)**
    - Prepare a **5-minute summary** of the strategy.
    - Highlight:
        - The problem tackled
        - The proposed innovation
        - Implementation plan
    - **Facilitation Tip:** Encourage groups to explain **why** their solution is innovative and feasible.

3. Group Presentations (20 mins)

- Each group presents for **5 minutes**.
- Open the floor for **Q&A and feedback** (encourage peer discussion).
- **Facilitation Tip:** Keep presentations focused and structured—intervene if discussions drift.

4. Wrap-Up & Next Steps (10 mins)

- **Summarize Key Takeaways**:
    - What were the most innovative ideas?
    - What challenges did teams face?
    - How does this activity prepare them for the **hackathon on Friday**?
- **Encourage Reflection:**
    - "What strategies will you take forward to the hackathon?"
    - "What gaps still exist in DT solutions?"
- **Final Thought:** Think beyond current DT implementation—**how can we push the boundaries of digital twins?**