# Does AI Dream of Electric People: Embedding Digital Humans into Environmental Digital Twins

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**Summary:**

This workshop session explores the potential and challenges of integrating social processes into Environmental Digital Twins (DTs), using marine carbon dioxide removal as a case study. Participants will discuss the relevance of social actors, ethical concerns, and the limitations of DTs in addressing complex, "wicked" societal problems. The session fosters interdisciplinary collaboration across environmental, social, and computer **sciences.**

**Abstract**

While Environmental Digital Twins (DTs) are gaining prominence in research agendas and attracting significant funding, they have also generated considerable scepticism and accusations of "hype." Yet, environmental DTs have been spotlighted as a critical step towards achieving the EU green transition. Can they genuinely aid society in addressing complex societal problems, some of which might be categorised as "wicked"?

To truly rise to the challenge of solving societal problems, DTs must account for the role of humans and how these challenges are shaped or altered by their responses and behaviours. Are these processes computable? How can we integrate social processes into Digital Twins, and more importantly, how can we do so responsibly and ethically?

In this provocative and engaging session, we aim to bring together a diverse group of scientists from environmental, social, and computer sciences to explore these questions. By focusing on the example of a DT for marine carbon dioxide removal (mCDR) via macro-algae, we will discuss the following topics:

- Which social processes and actors are relevant to embedding in a DT?
- How can these processes be integrated, and which ones should be prioritised?
- What ethical issues might arise from embedding social processes into DTs, and what roles do interpretation and biases play?
- What emergent behaviours might arise that cannot be anticipated from the knowledge of individual environmental and social components?
- Are we expecting too much from DTs as a technocratic solution to wicked societal problems?

The team of scientists in this session aims to produce a perspective paper on embedding human components into environmental digital twins for mCDR.