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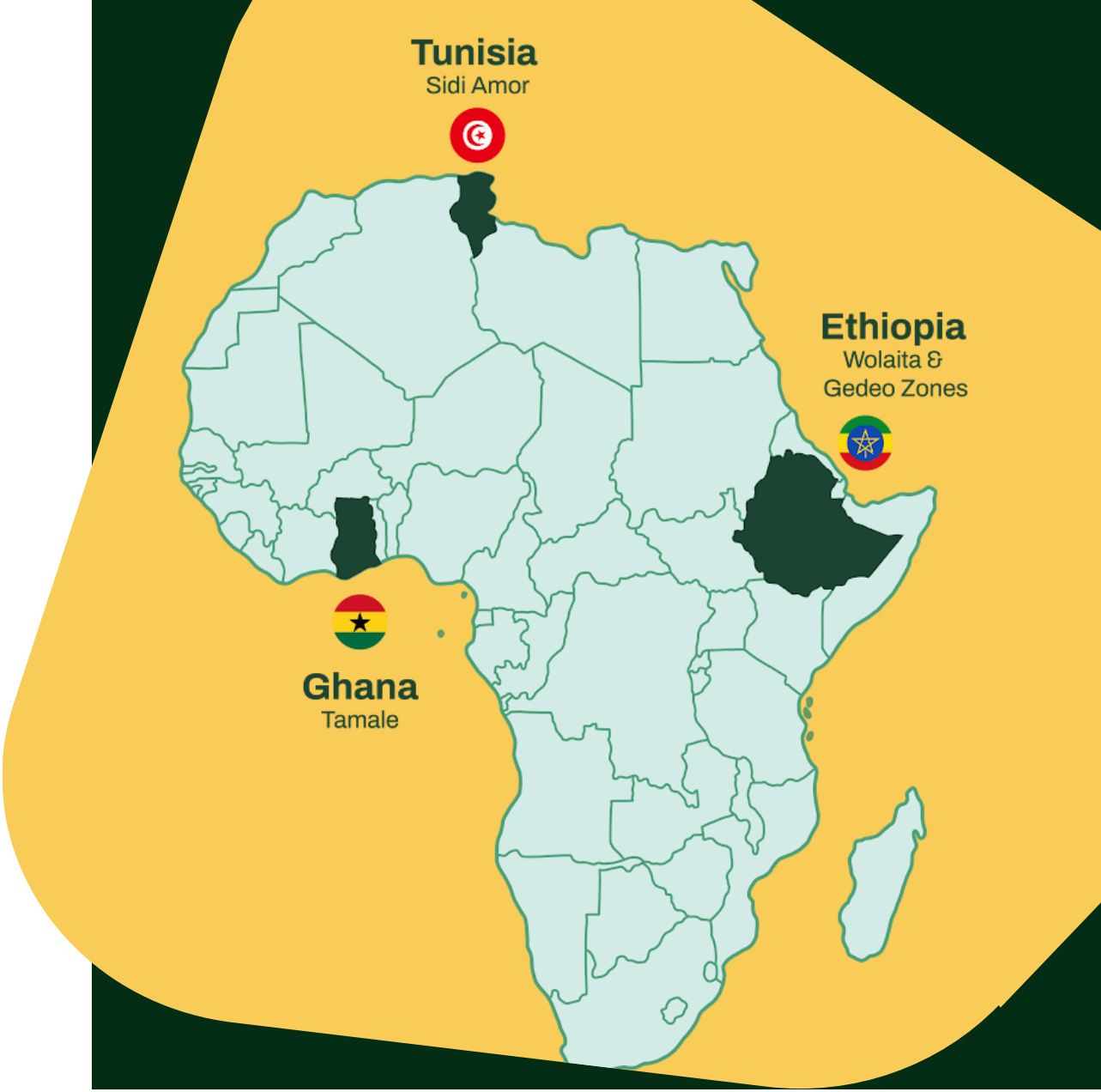
AID: Agroforestry Intervention Design Tool for Climate Resilience

Guiding Agroforestry in the Water-Energy-Food-Ecosystems (WEFE) Nexus Systems

Michele Berlanda – Center for Sensing Solutions, EURAC Research

About the project

- EU-funded project supporting African communities to adapt to climate change
- Partnership across Europe, Africa, and beyond
- 3 main Living Labs and additional pilot sites in partner countries
- Combining agroforestry, data, and digital innovation



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Software Context

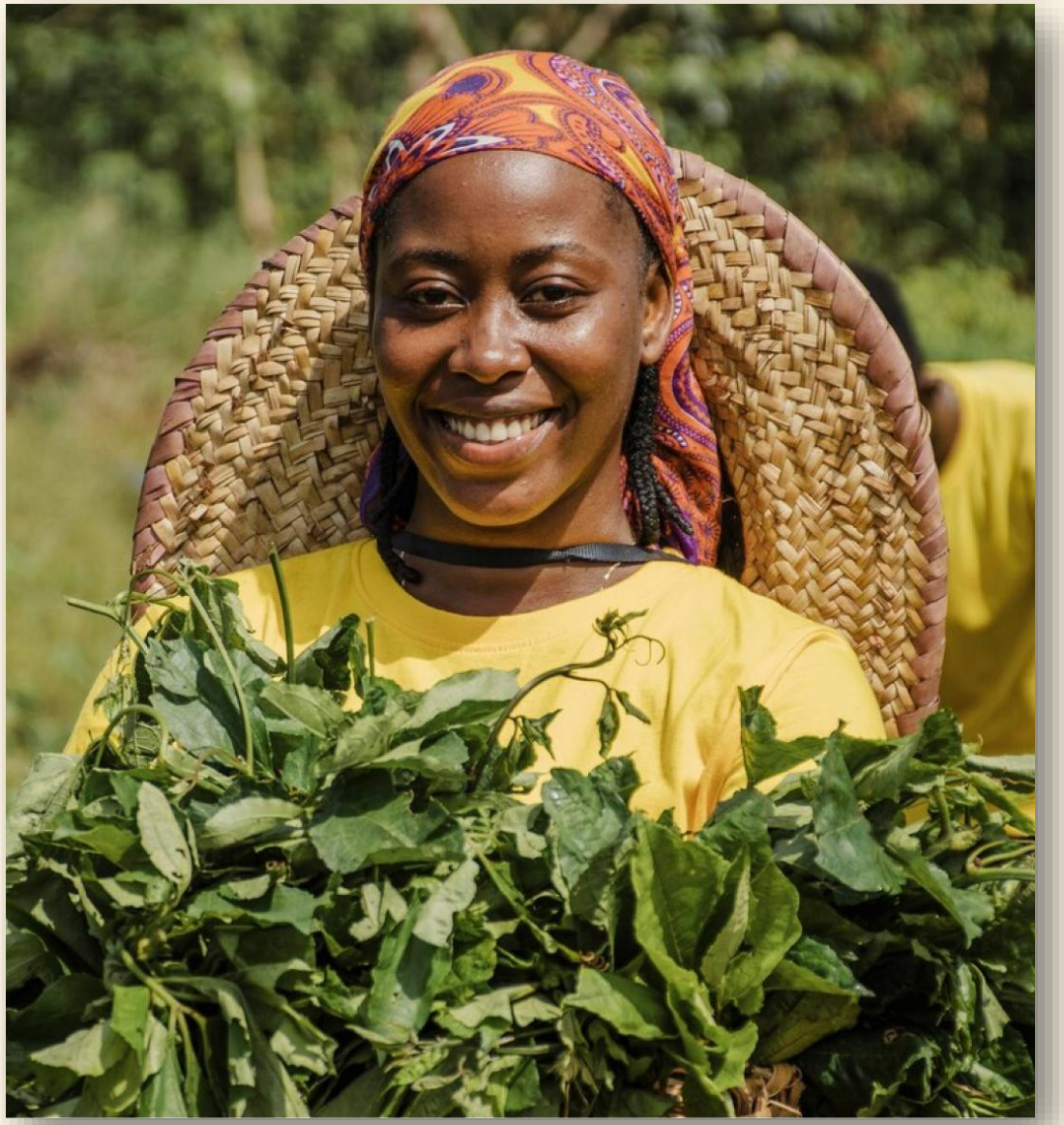
A Complex Environment

Heterogeneous stakeholders landscape

Multiple partners and distributed software solutions

Sparse and fragmented data

Living Labs as real-world testbeds aiming for scalability



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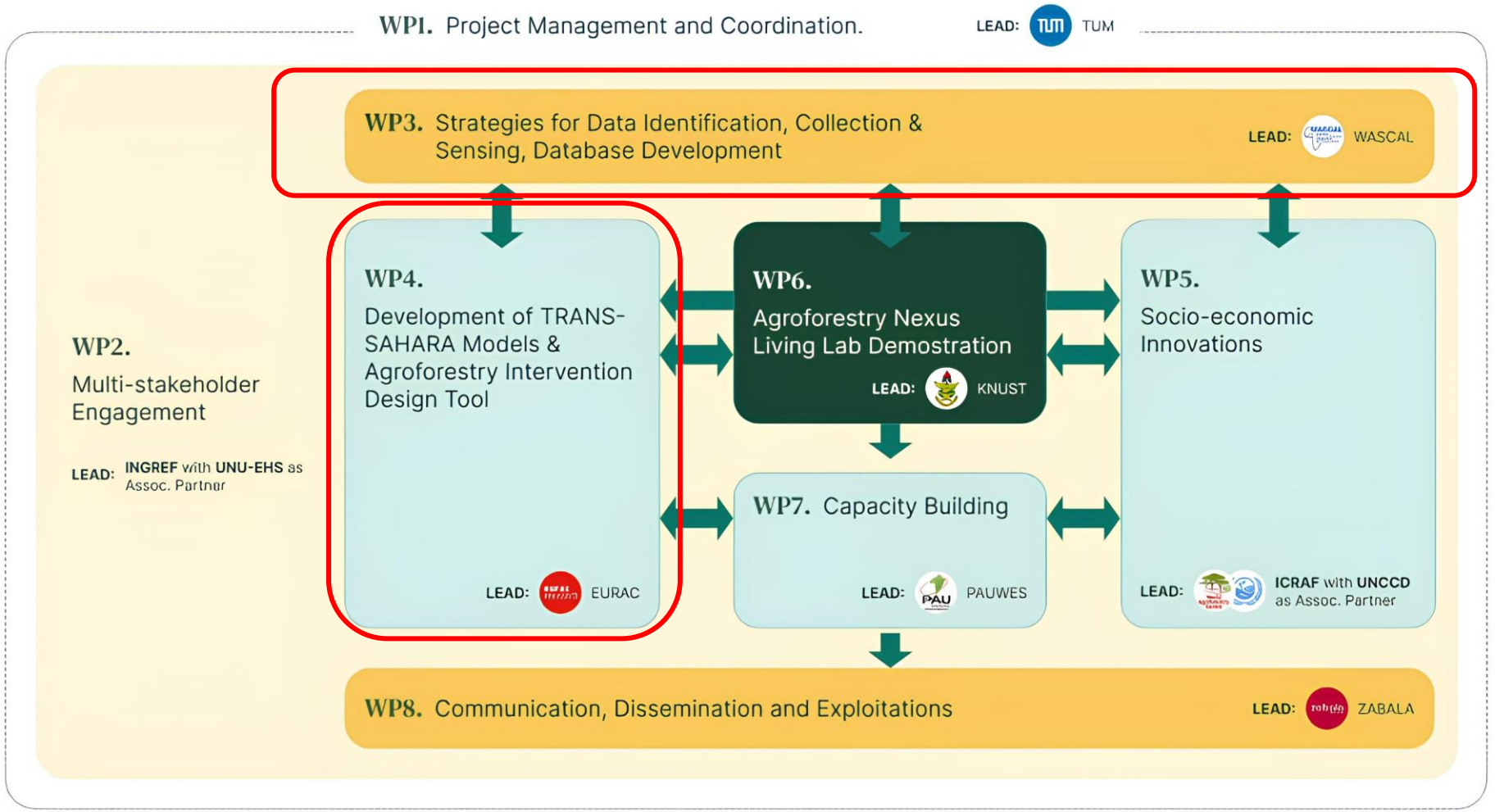
From Challenges to Digital Solutions

How software can enable FAIR, inclusive, and data-driven research in this context

How Software Enables Research in TRANS-SAHARA



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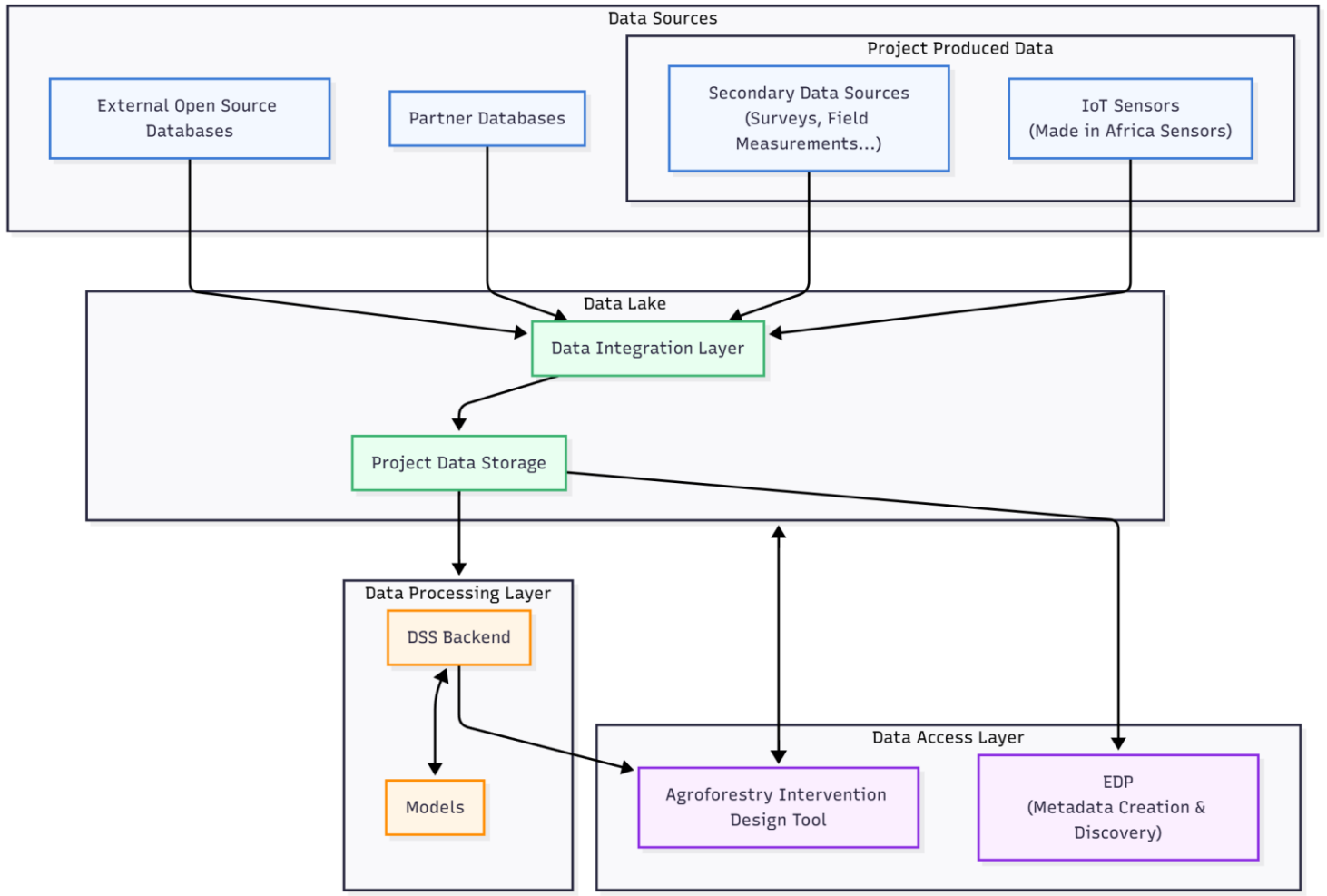
Data Management System & IoT

- IoT sensors designed and produced in Africa
- Distributed data lake integrating multiple heterogeneous sources
- Metadata creation and management via EURAC's EDP Portal



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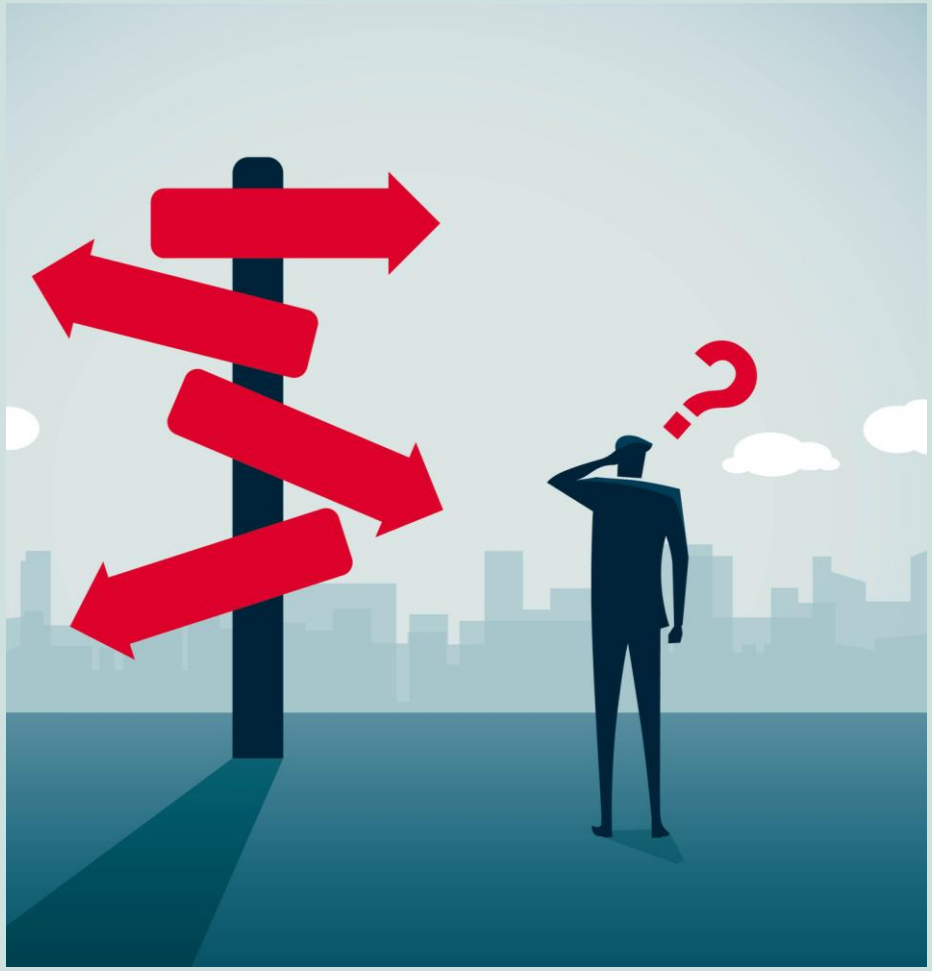

AID Tool: Accessible Decision Support for All Stakeholders

- User friendly interface between users and models for an accessible analysis
- Web-based for easy access and configuration
- Connects data, models, intervention analysis and results in one solution
- Generates multi-level reports for researchers, policymakers and farmers

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AID Tool User Flow

01. Access & Configure Living Lab

02. Select Models & Set Parameters

03. Run Analysis & Model Interaction

04. Visualize & Compare Results

05. Report, Iterate & Save

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Designing for Transparency, Reproducibility, and Access

- Low-code design to enable reproducibility and researcher contributions
- Microservice architecture for flexibility, modularity and clear ownership
- Open-source to ensure transparency, reproducibility and adaptability
- Web-based to avoid installation barriers
- Usability-driven to work within complex stakeholder systems

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True ethics in software lie in empowerment — helping people make better choices, not making them on their behalf