Potsdam Institute for Climate Impact Research

DESTINY – AI for living evidence in climate & health

Jan Minx *(on behalf of the entire DESTINY team)*

ICASR Meeting

9 July 2025

Funded by Wellcome

Leibniz Association

DESTINY

Digital Evidence Synthesis Tool Innovation Yielding Improvements in Climate & Health

DESTINY will co-develop a **new generation of digital evidence synthesis tools (DESTs)** and showcase their **transformational power** for the delivery of rigorous **living evidence** in climate and health **that matters** to policymakers and other evidence users.

PIK
Potsdam Institute for Climate Impact Research
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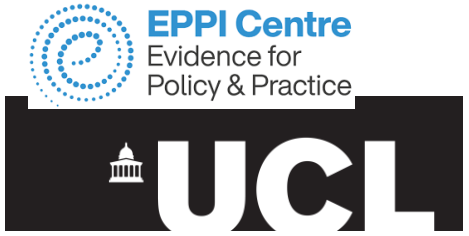
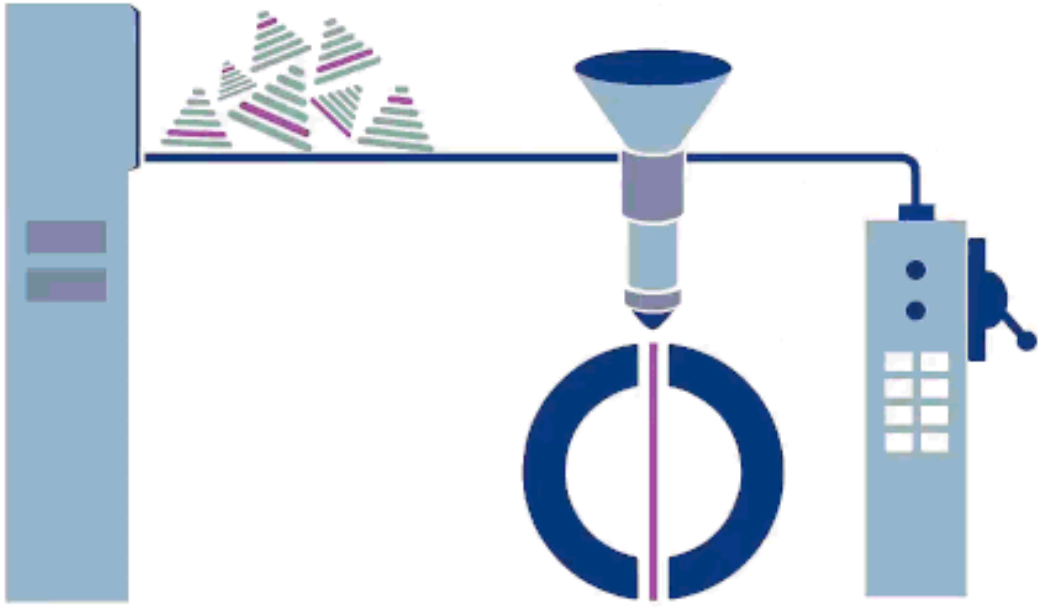
DESTINY consortium

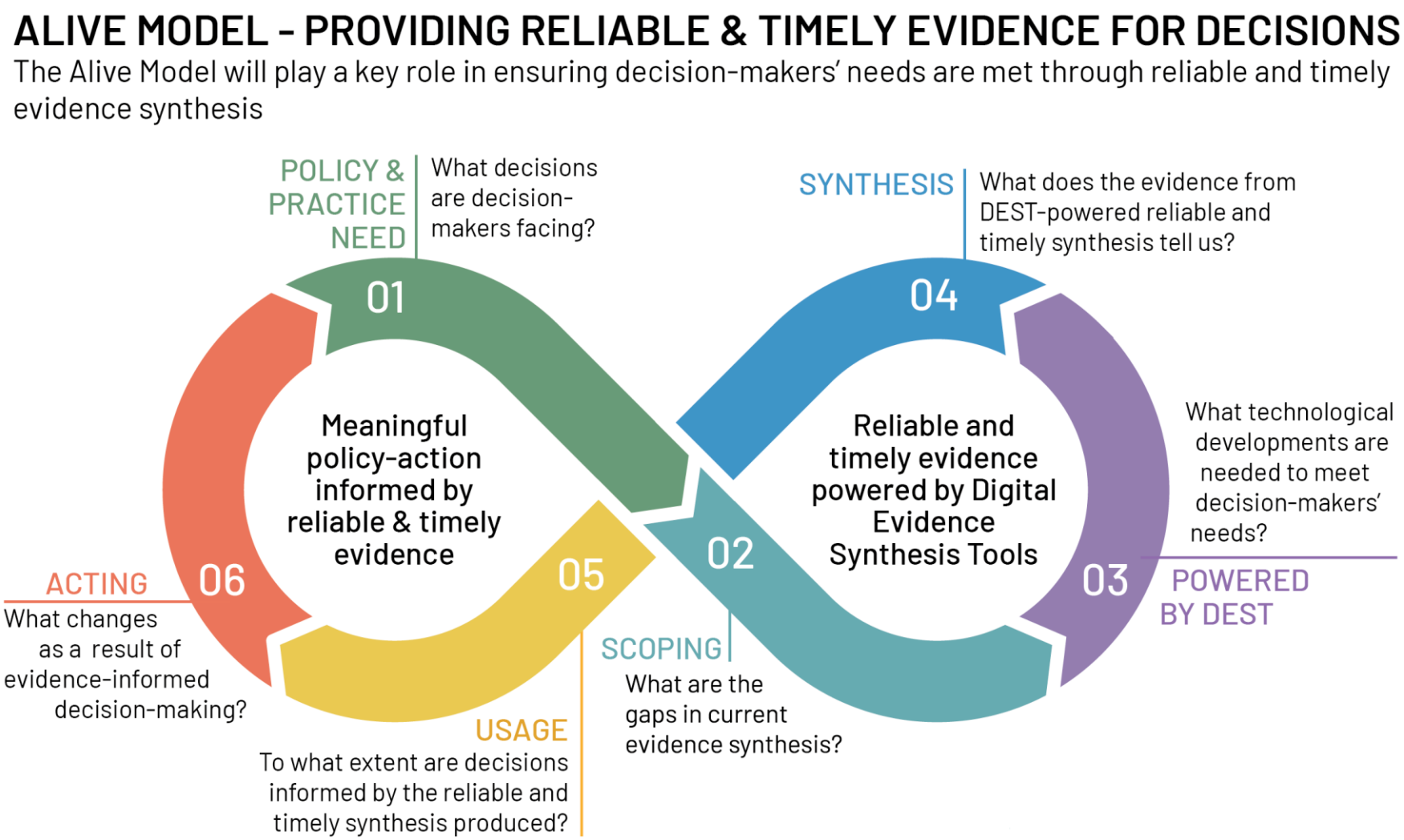


DESTINY – living evidence for climate & health



- **New DESTs** – Use AI to create faster, cheaper, and more useful evidence synthesis tools (WP2).
- **Responsible Use** – Ensure safe and responsible DEST applications without compromising standards (WP3).
- **Impact Through Co-Production** – Work with decision-makers to apply DESTs in key cases (WP1, WP4).
- **Mainstreaming DESTs** – Help users, producers, and funders establish best practices (WP5).

Co-producing DESTs for living evidence



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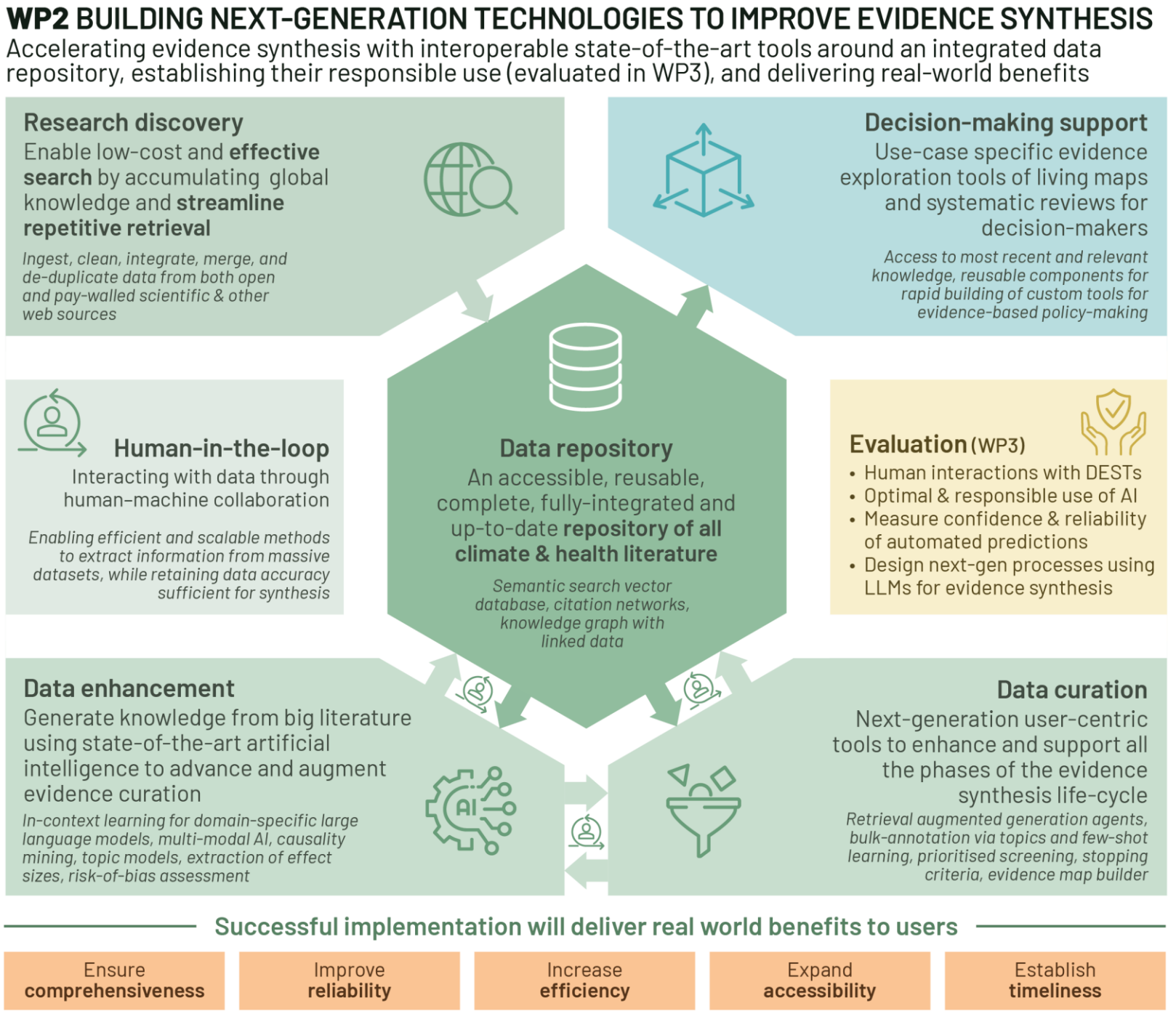
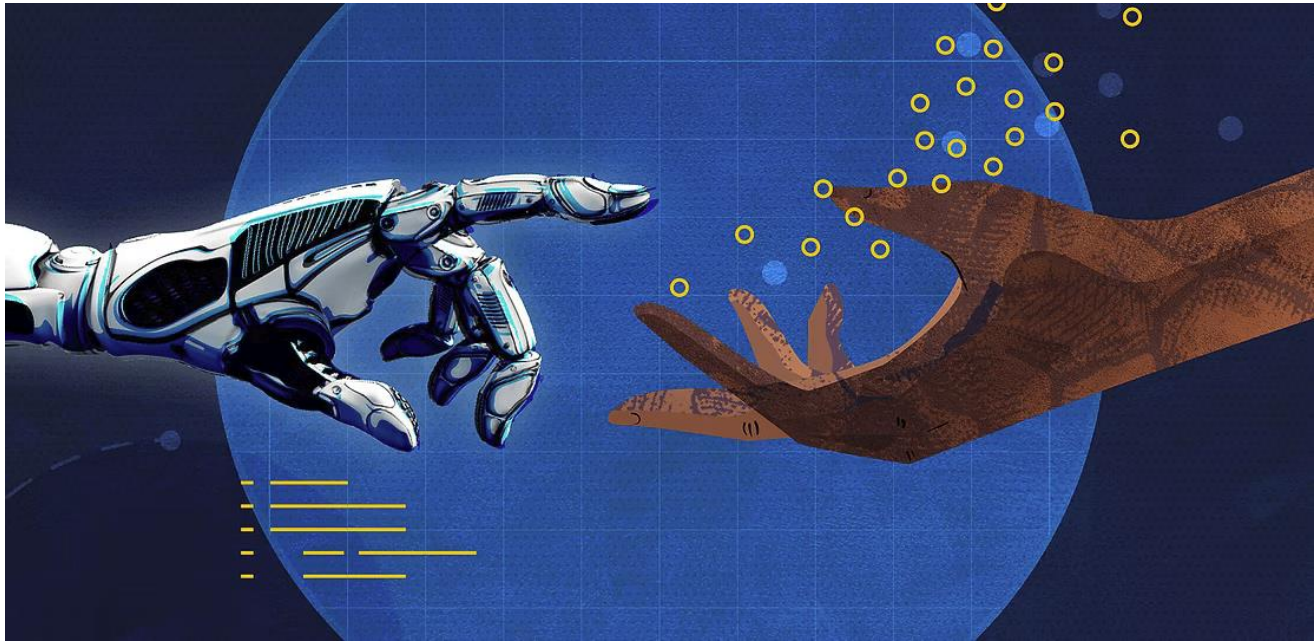
Building the next generation of DESTs



The current frontier is AI….

…and we broadly know how to cross it

The NEXT FRONTIER is TRUST

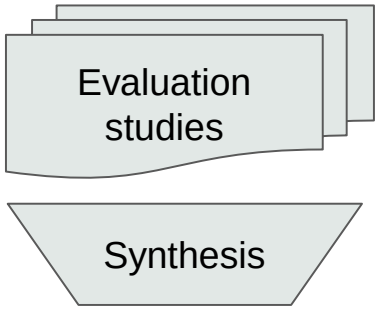


Evaluation is key!

Performance evaluation

What works and how well?

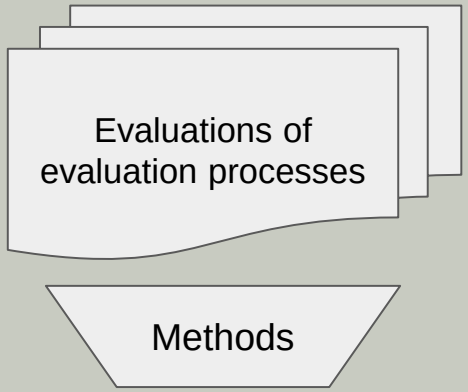
- Which tasks traditionally done by humans can we automate and how well?
- How well can LLMs automate RoB assessment?
- Under which conditions does automation work better/worse?



Process evaluation

How to use DESTs responsibly in the wild?

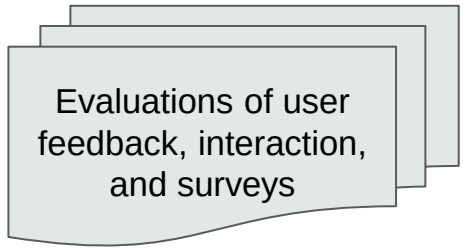
- How can we reliably estimate performance in live reviews?
- How can we best allocate human annotation resources to stay within acceptable error risks?
- How to safely conduct evidence synthesis with automation?



Human evaluation

How effective and useful are DESTs?

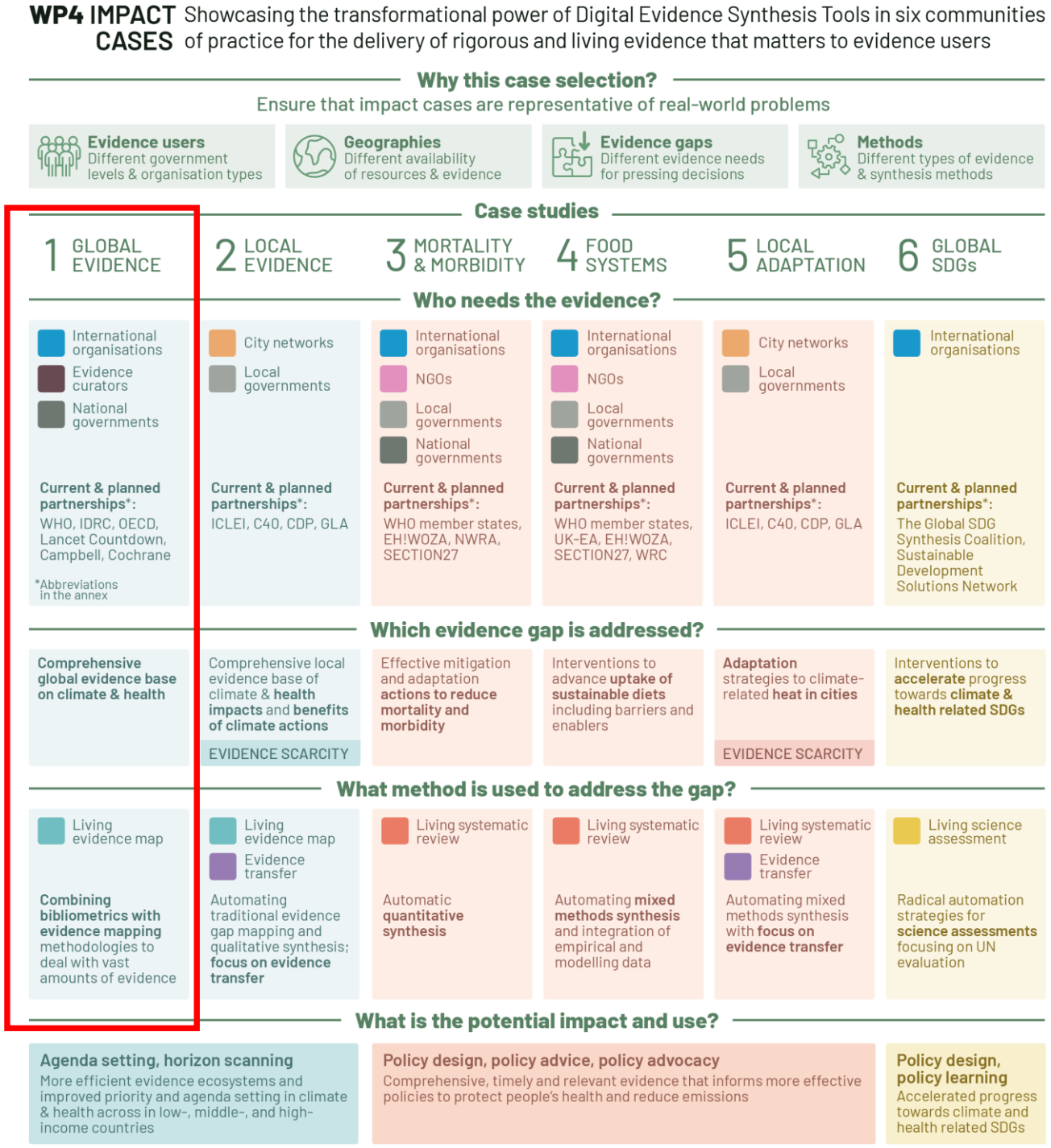
- Do humans behave differently when using these tools?
- What levels or error risk are tolerable/desirable?
- How does the use of DESTs affect our results?
- Evaluate real-world effectiveness and usefulness of our tools



Six DESTINY Impact Cases

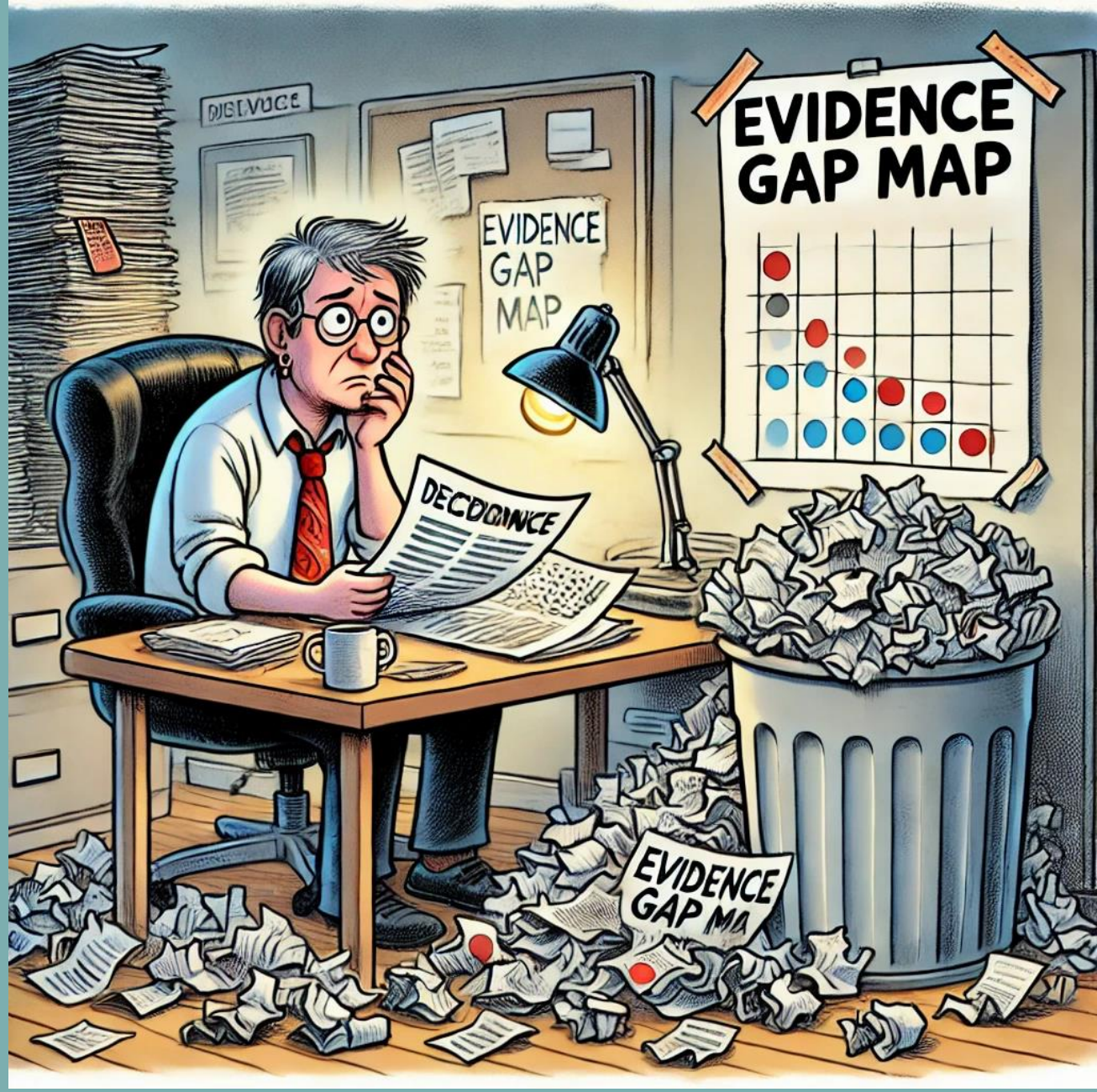
Case selection:

- Evidence synthesis gaps
- Evidence user groups
- Evidence synthesis methods
- Geographies
- Evidence scarcity and evidence transfer



MOTIVATION

Evidence (gap) maps are very useful, but usually only used once – because they are very specific and quickly outdated.



AMBITION

Create a comprehensive, global, living, multi-purpose evidence map in the field of climate & health

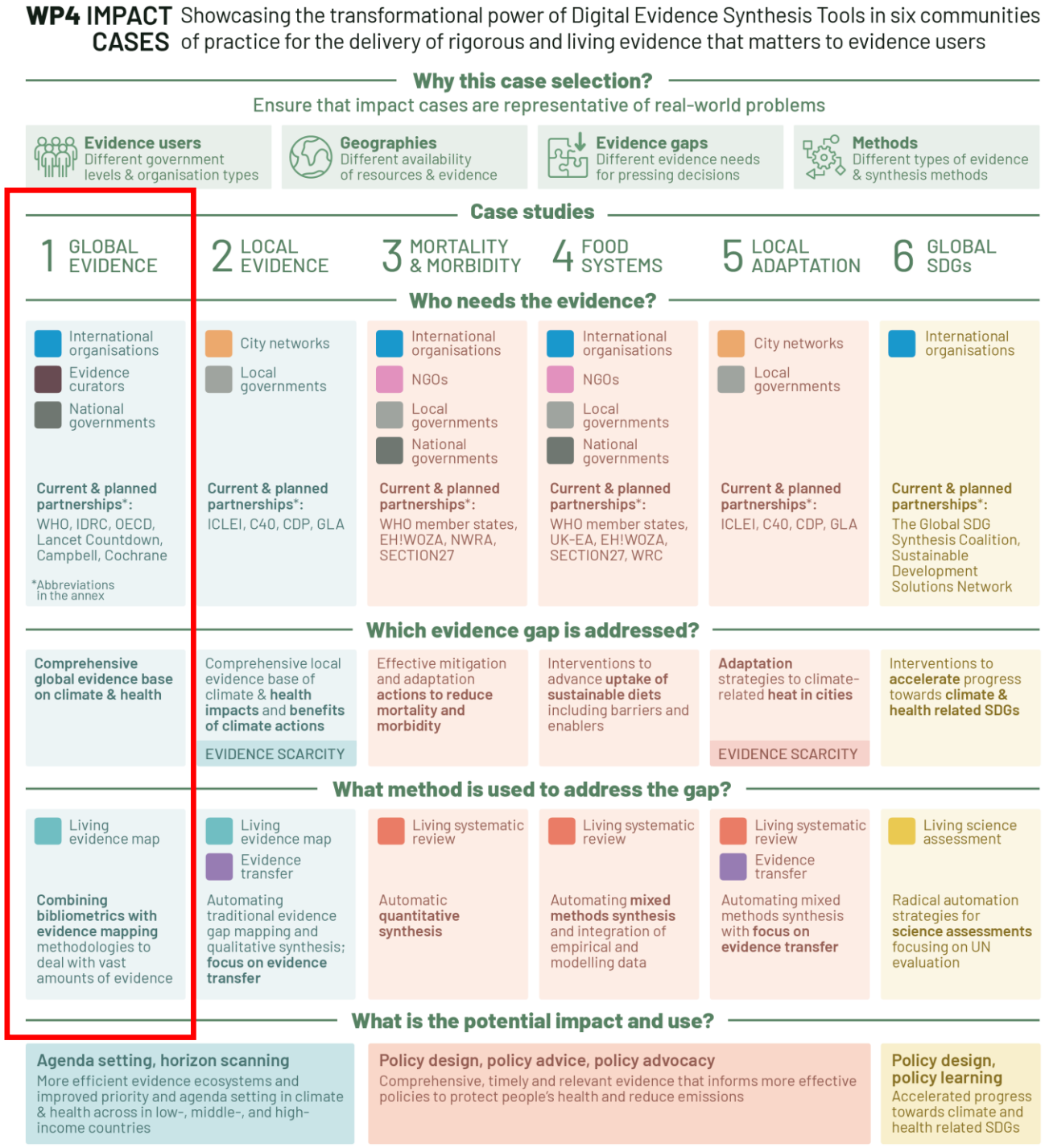
› Driven by user needs

› Easy to use/ easy to find stuff

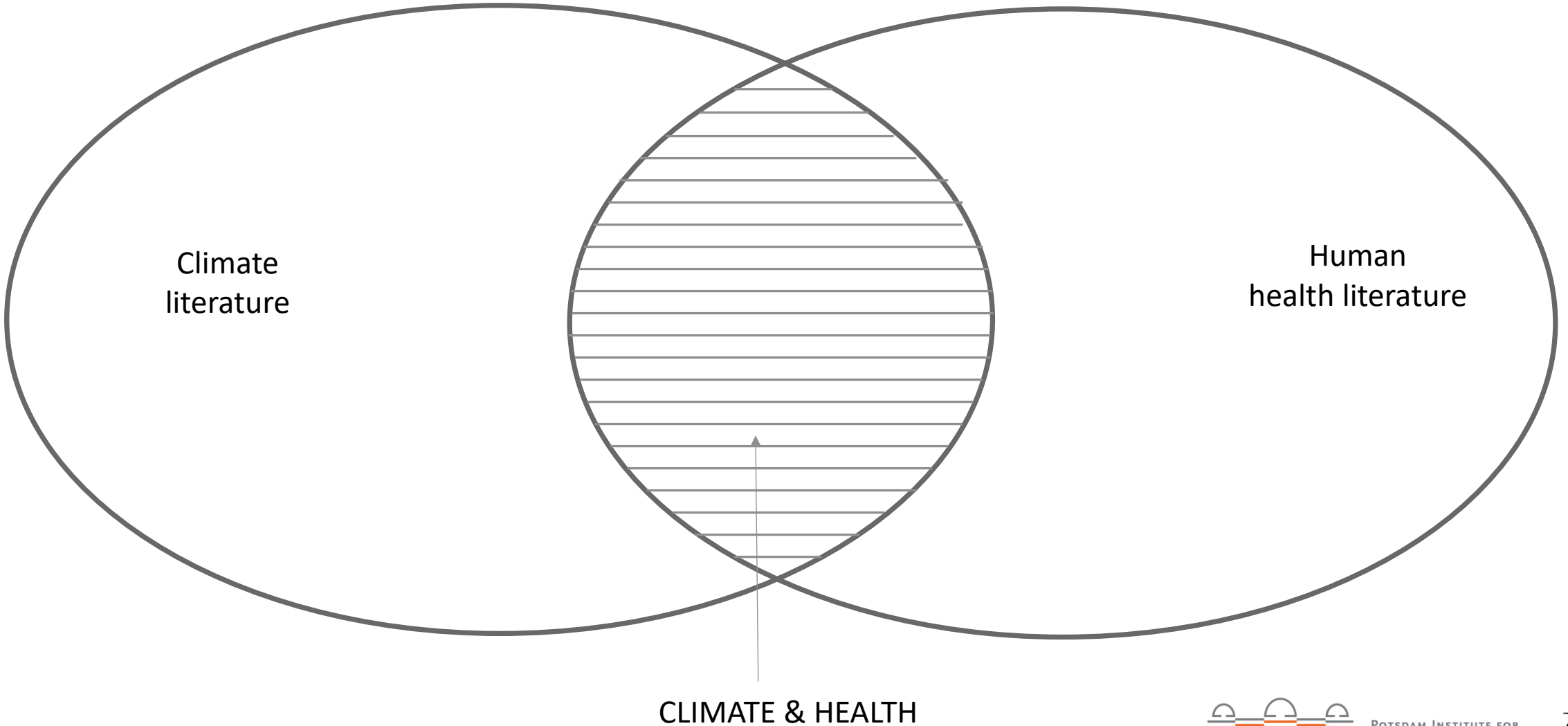
› Daily updated

› One-stop shop: peer-reviewed, grey lit, multi language

› AI for enhanced meta-data



Our CURRENT scope in simple terms



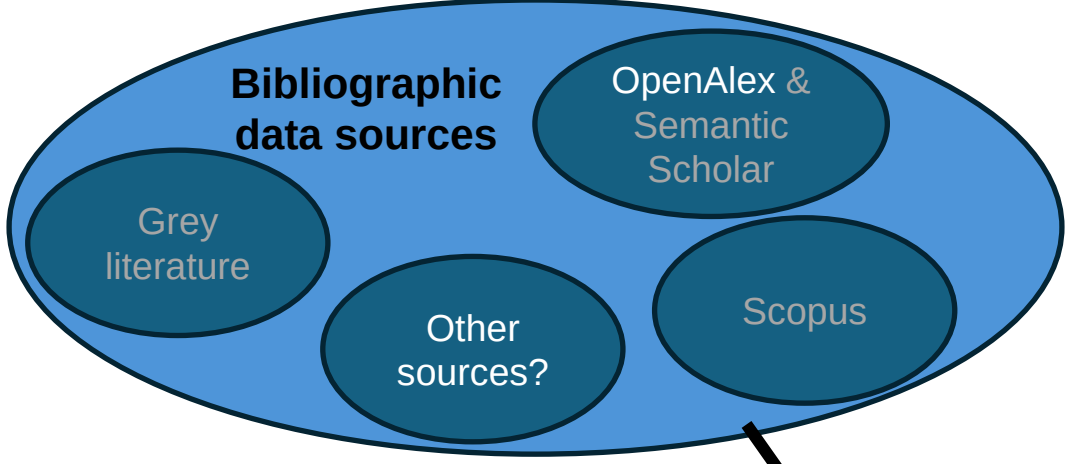
Extensible data architecture for a continually-updated (living) repository serving DESTINY, SOLACE-AI, LEADing and other project repository needs.

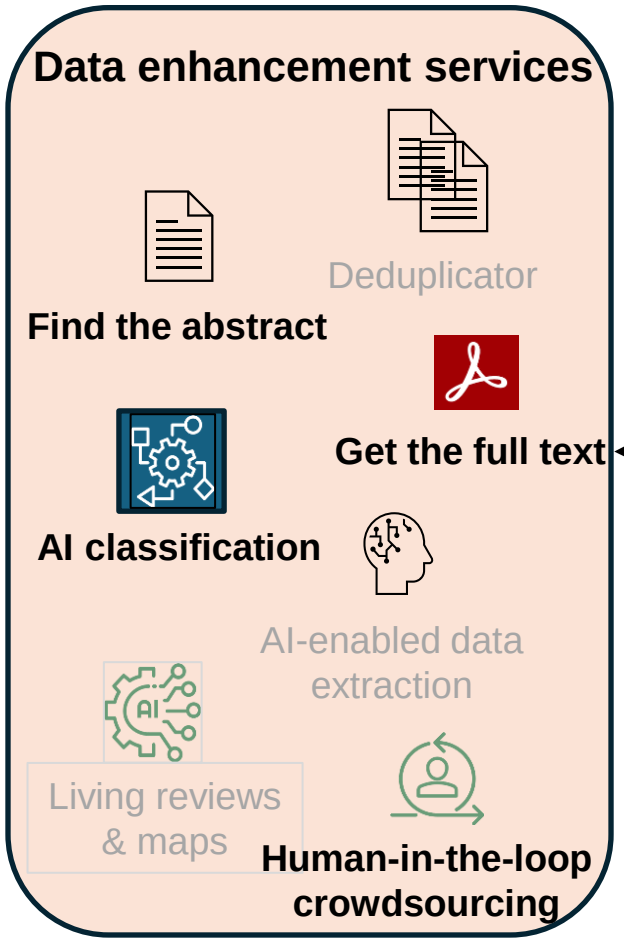
A **meta repository** contains as much bibliographic data as possible (OpenAlex++).

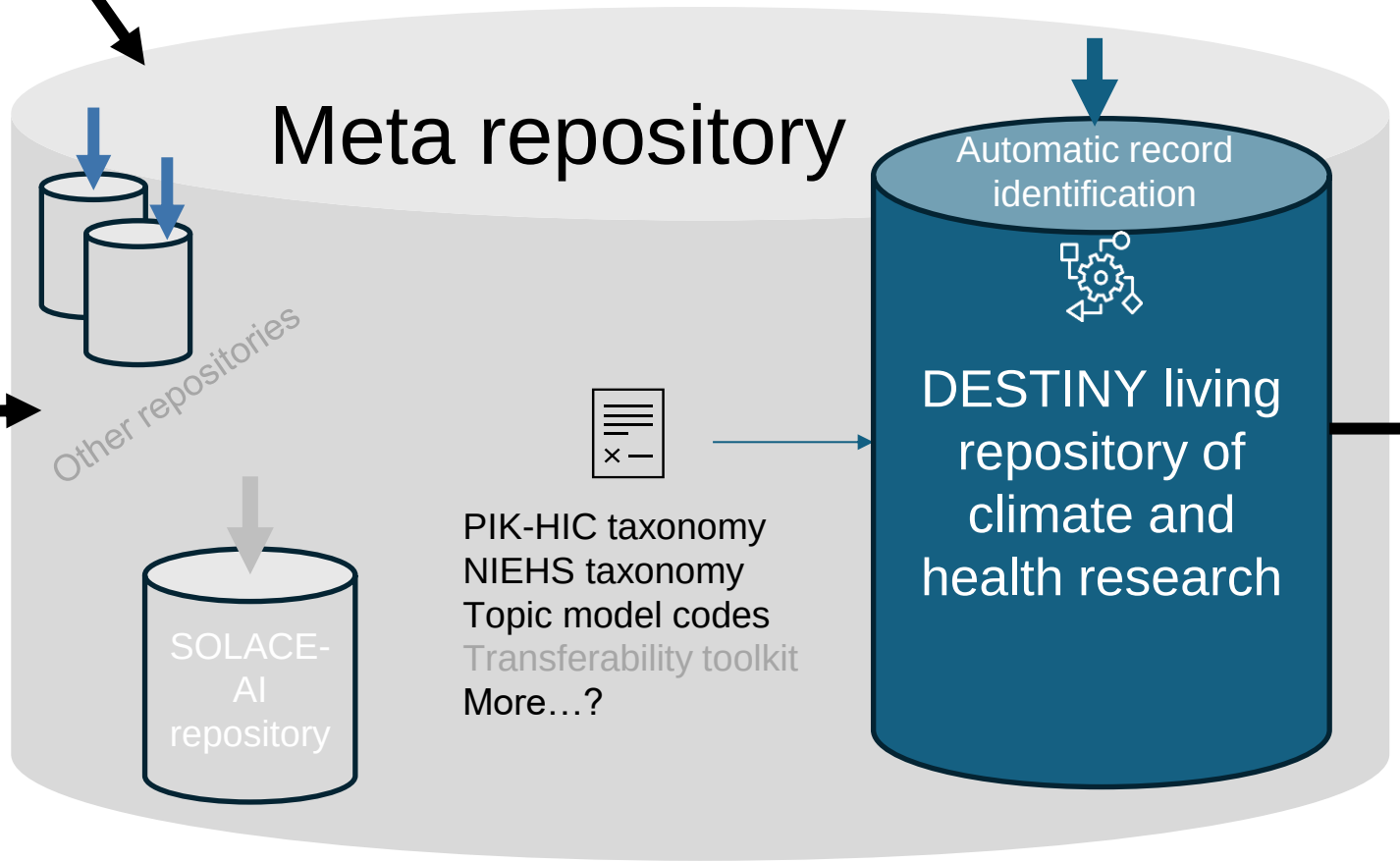
Any number of **specific repositories are defined** within the meta repository by a 'tag' being applied to a record. (e.g. a search result and / or ML classification)

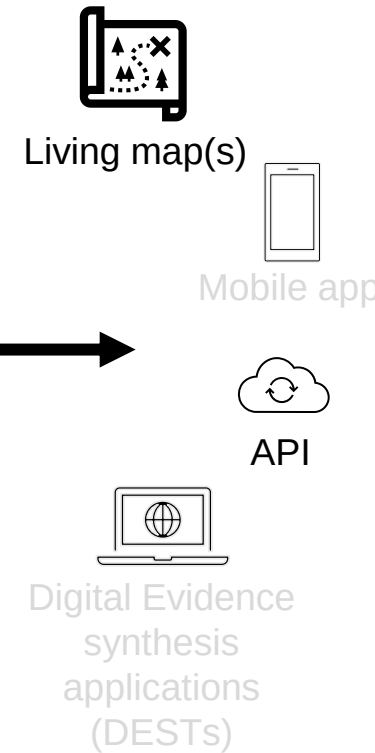
A modular **suite of services** increasingly enhance those data for specific topics

A suite of **APIs and digital evidence synthesis tools** enables user interaction

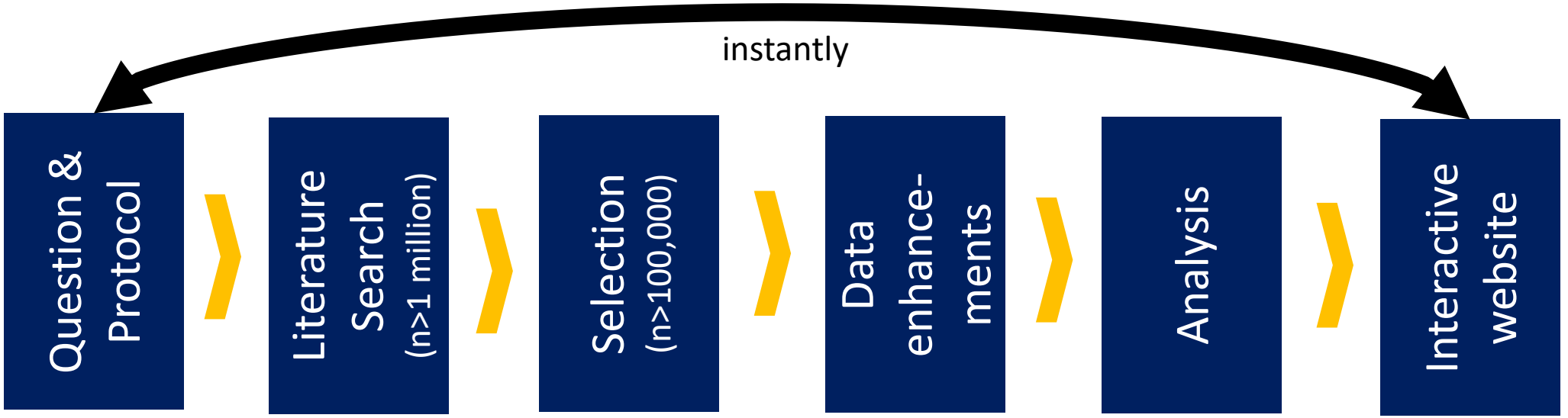








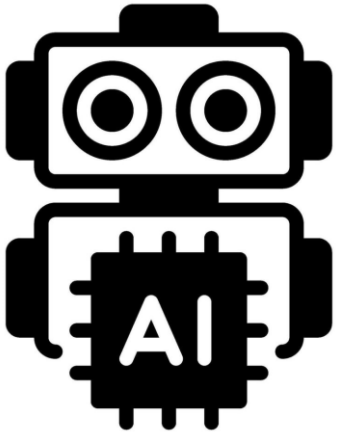
FULLY AUTOMATED ML PIPELINE

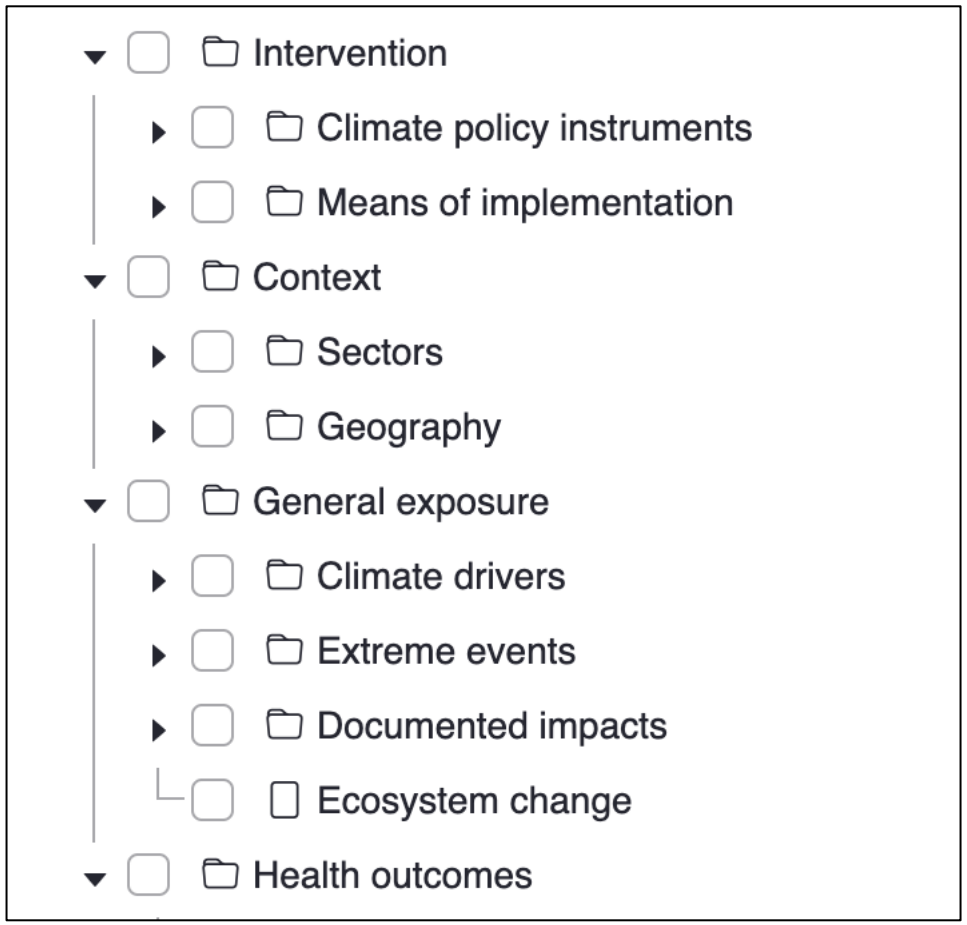


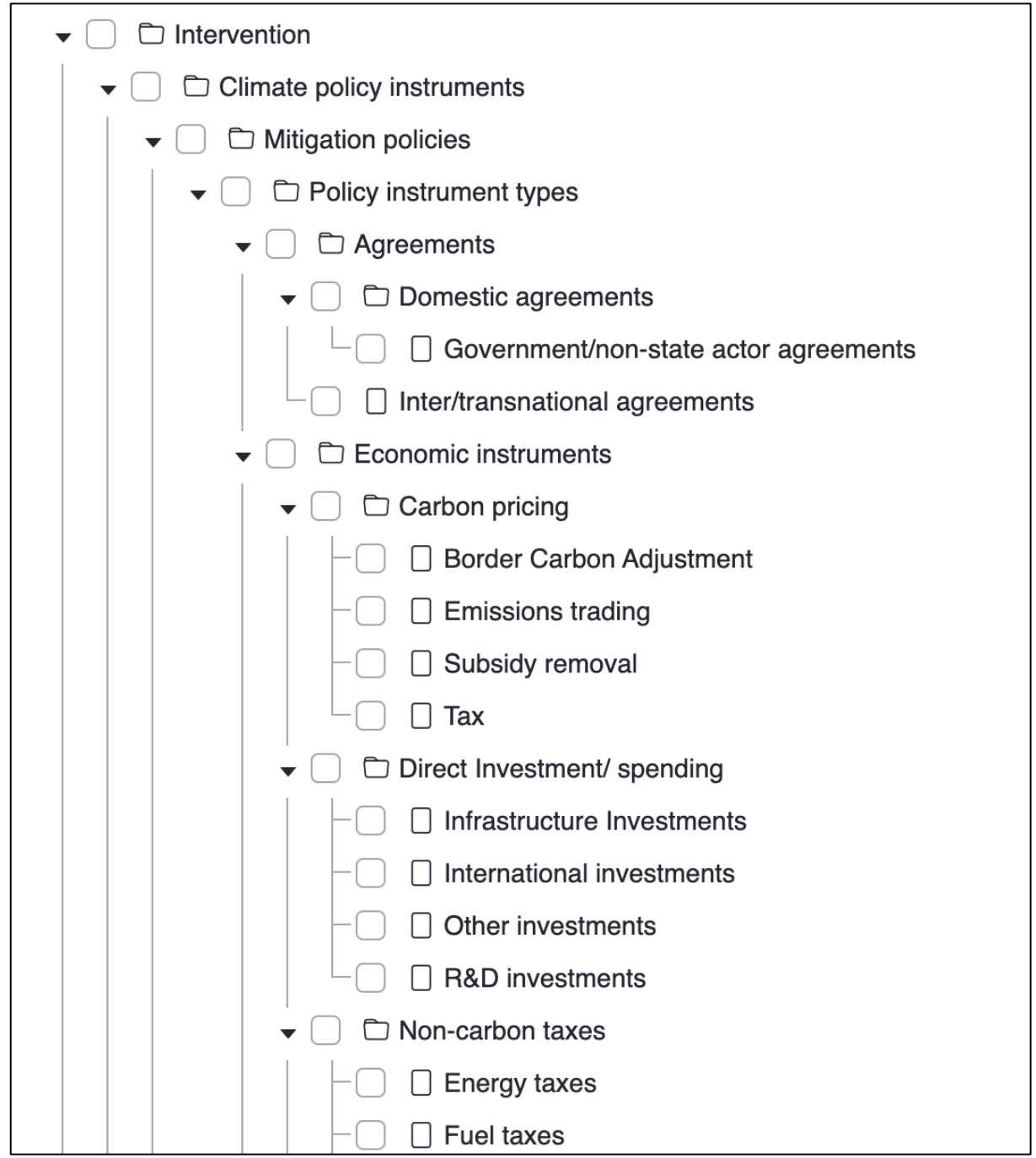
- Bibliographic databases
- Broad string around climate, weather & health outcomes

- Mitigation, adaptation, impacts
- Climate & health taxonomy
- Location extraction

- Evidence on climate, weather & health
- Inclusion classifier and LLM




Intervention
Climate policy instruments
Means of implementation
Context
Sectors
Geography
General exposure
Climate drivers
Extreme events
Documented impacts
Ecosystem change
Health outcomes


Intervention
Climate policy instruments
Mitigation policies
Policy instrument types
Agreements
Domestic agreements
Government/non-state actor agreements
Inter/transnational agreements
Economic instruments
Carbon pricing
Border Carbon Adjustment
Emissions trading
Subsidy removal
Tax
Direct Investment/ spending
Infrastructure Investments
International investments
Other investments
R&D investments
Non-carbon taxes
Energy taxes
Fuel taxes

DESTINY

- Home

REPOSITORY OVERVIEWS

- Keyword Search
- Dashboard
- DESTINY Taxonomy

DEMO VISUALISATIONS

- Demo Page 1: Bar Chart
- Demo Page 2: Pie Chart
- Demo Page 3: Hierarchical Vi…
- Demo Page 4: Attribute Cross…

Settings Menu

Select a color theme

viridis

Maximum Number of Items Displayed in Plots

10

2 100

Maximum Length of Labels in Plots

DESTINY Dashboard

Whole database overview

Total Records

1,416,535

↑ 2913

Total Enhancements

6,585,364

Most recent update

2025-06-22

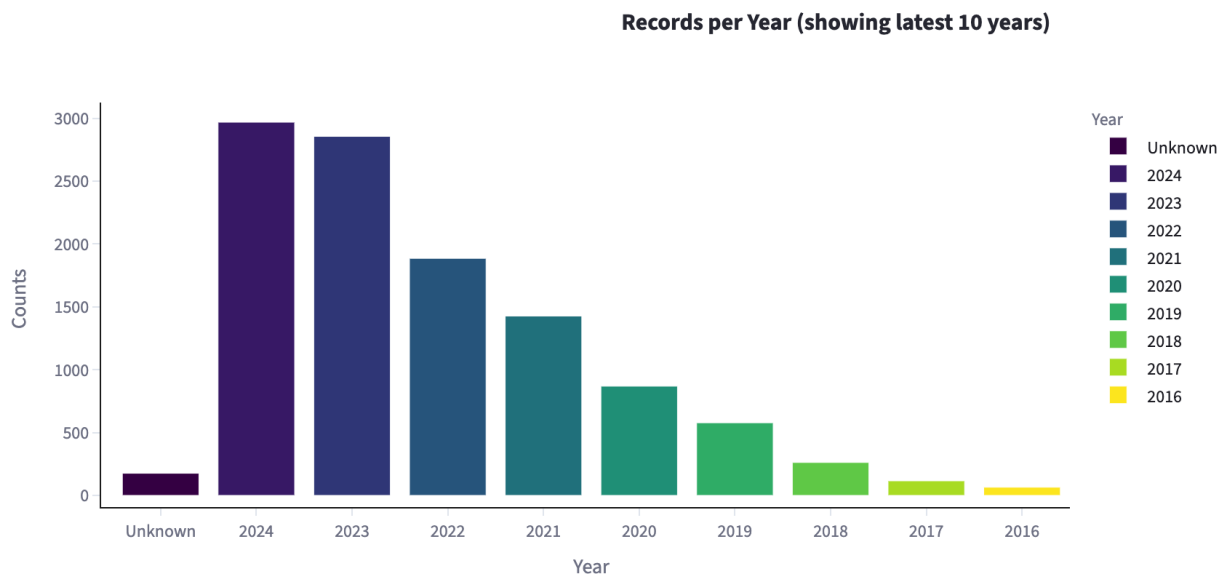
Codeset

Choose Type

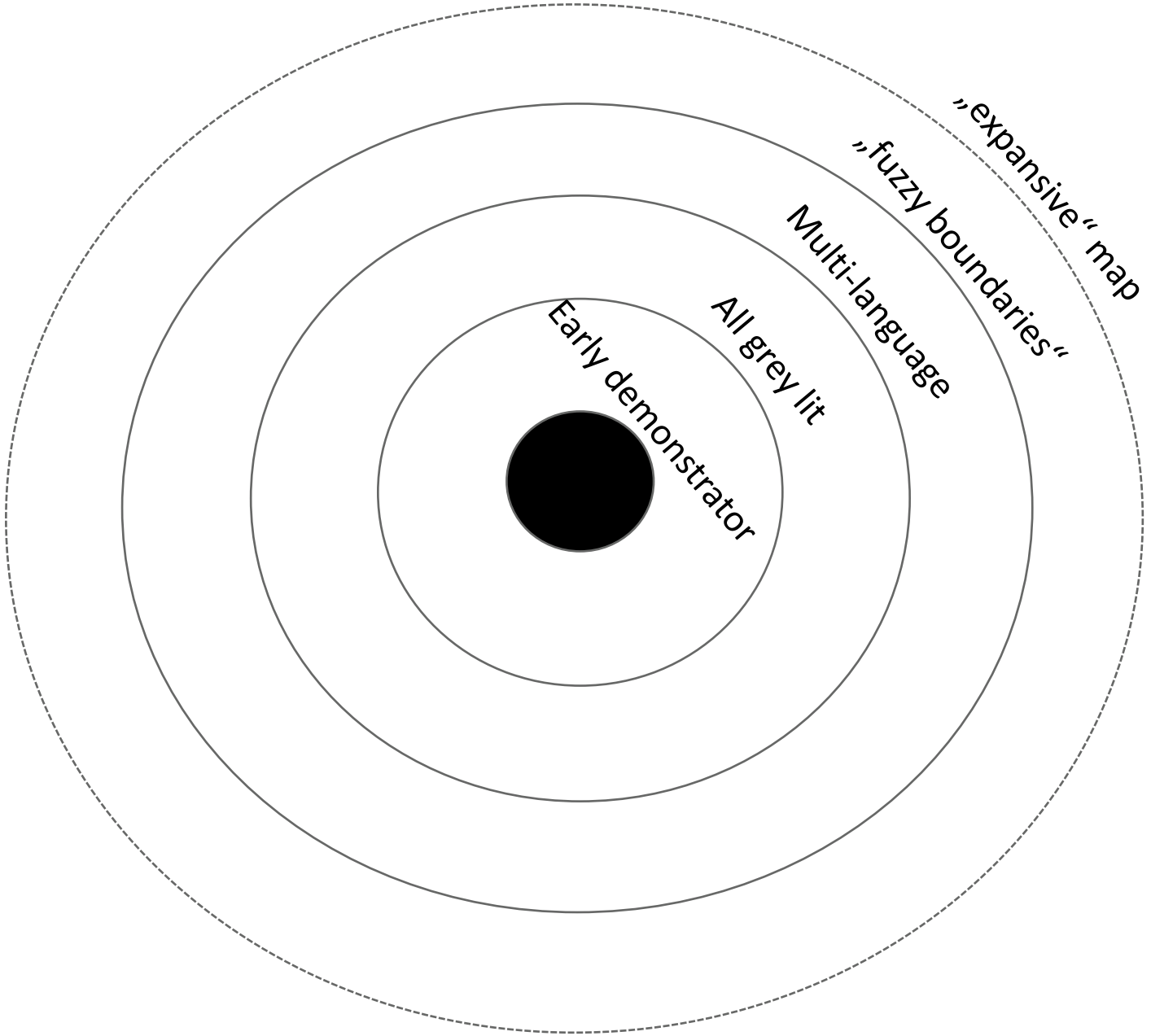
- ANTD
- ST_tree

- Intervention
  - Climate policy instruments
  - Means of implementation
- Context
- General exposure
- Health outcomes
  - Cancer
  - Cardiovascular Impact
  - Dermatological Impact
  - Developmental Impact
  - Diabetes/Obesity/Overweight
  - Infectious Disease

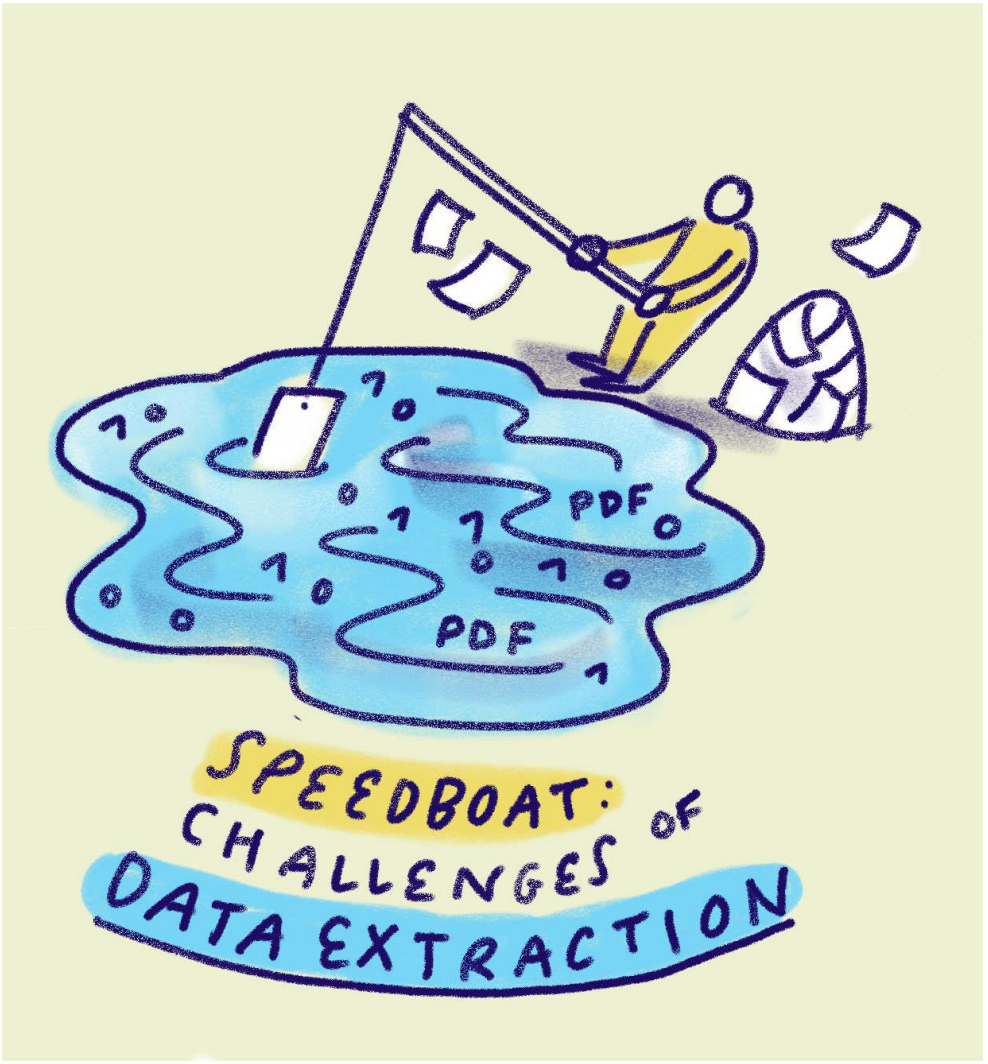
Yearly Record Distribution



PATH FORWARD – this map is living and will evolve dynamically!



Next focus projects: towards synthesis and UI development



This all is not for a project – it is a community project!

Cape Town Consensus

On Transforming Evidence Synthesis to Improve Lives

Cape Town Consensus Charter

(Last updated on 1 July 2025)

We commit to **transforming evidence synthesis to improve lives.** Alongside our own individual and organizational efforts, we commit to building and sustaining – together – the Evidence Synthesis Infrastructure Collaborative (hereafter the Collaborative) as a vehicle for this transformation. We commit to a strategic shift of power to the Global South and more generally to locating **equity** – in its many dimensions – at the heart of the infrastructure, the processes and outputs enabled by it, and its impacts on people. Embracing this once-in-a-generation opportunity for impact, we will **follow the five steps in the ESIC roadmap** – and the 'SHOW ME the evidence' principles – to achieve this vision and make the Collaborative a cornerstone of the global evidence architecture.

1) Build a better **evidence synthesis infrastructure** to serve everyone

We will co-create a distributed infrastructure governed, funded and delivered using a collective impact framework. The infrastructure will include: 1) engaging with users to understand needs and respond to 'windows of opportunity'; 2) sharing and reusing data; 3) safely and responsibly using AI; 4) making synthesis more timely, relevant and affordable; and 5) sharing capacity. In Cape Town we agreed that: 1) we see key principles reflected in the proposed solutions (e.g., collaboration among this 'community of communities,' equity including leadership from the Global South, and agility in how we co-develop ways of working together); 2) we have already seen significant alignment happening during the six months of the planning process and we will benefit from regular ongoing communication, an agile coordination team, a lean governance function, and an overall commitment to adapt and evolve over time; 3) we need to pursue further alignments using a 'nothing about us without us' approach, by leveraging the strengths of regional, language and sectoral networks, and by foregrounding transdisciplinary and intersectoral perspectives; and 4) we need to be alert to unintended consequences and risks.

2) Make user-centred **evidence synthesis** the norm

We will make evidence synthesis more timely, relevant and affordable. We will support equitable global provision, coverage of all societal challenges, and integration into users' preferred sources of information. In Cape Town we agreed that: 1) we need to better engage neglected sectors and interest holders in the process, and acknowledge their different traditions of evidence synthesis and use, different capacities, and different needs; 2) we must systematize and innovate in evidence synthesis, including in co-production with citizens and in operationalizing the idea of 'evidence for big decisions' (or 'policy-scale' evidence synthesis).

3) Work with **intermediaries** who support decision-makers

We will support evidence intermediaries with: a) actionable insights about what has been learned from around the world and how these findings vary by groups and contexts; b) open reusable data 'on tap' that can be rapidly contextualized; and c) quality assurance for the data being shared. These evidence intermediaries include evaluation units in UN agencies and operations teams in

ICASR

International Collaboration for the Automation of Systematic Reviews

Thank you!

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