

THE ECOSYSTEM OF EVIDENCE

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Artificial intelligence and digital transformation
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How to build a responsive and rigorous evidence synthesis infrastructure in health and care organisations through harnessing AI

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Conflicts of interest

- Health Foundation do not have any conflicts of interest.
- Health Equity Evidence Centre, Queen Mary University of London, currently use EPPI-Reviewer software under a paid licence.

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Background

- Organisations delivering or commissioning health and care services or organisations aiming to inform or influence the system need to efficiently leverage high-quality research
- Expansion of artificial intelligence has created more opportunities in this space **but also risks**.
- Spectrum of AI use ranges from well-evaluated AI-assisted priority screening to generative AI producing summaries. More recent developments such as ESIC are aiming to automate the process end to end.
- Many organisations are eager to adopt AI. Staff are likely already using generative AI.
- But substantial uncertainty and concerns about use of AI remain, including risk that deep thinking and critical dialogue between individuals is devalued.

The Health Foundation

The Health Foundation, an independent charity that funds and commissions research and uses it to drive better policy, needs to be able to draw on evidence promptly and be assured it's robust.

- What evidence have we previously generated on this topic?
- What have other groups or research found?
- Where are the gaps?
- What should our position be and do we need to undertake more work?

Aims



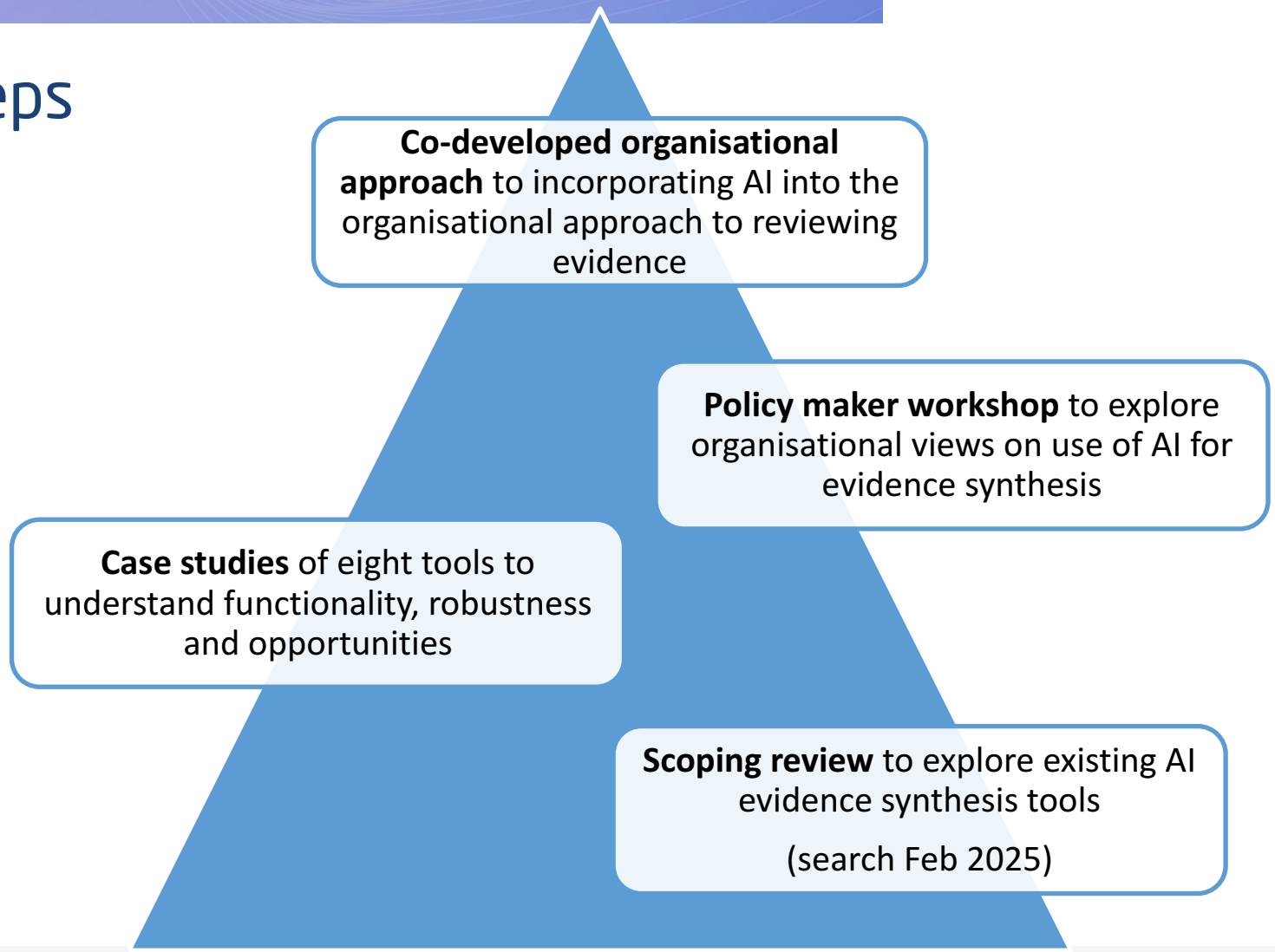
Majority of research has focused on use of individual AI tools or specific research questions, rather than how to build a robust AI-assisted organisational infrastructure.



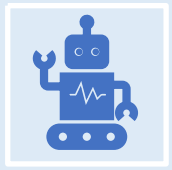
We aimed to explore how health and care organisations can build AI-assisted evidence synthesis infrastructure using the Health Foundation as a case study.

Methods

Four key steps



Results



Scoping review

- 65 AI tools and 25 open-source models or machine learning (ML) algorithms identified.

- Most tools focused on screening and extraction. Rapid increase in research on general-purpose large language models



Case studies - In-depth review of ASReview, ChatGPT, Claude, Copilot, Elicit, EPPI-Reviewer, Scite and TERA.

- Evidence-specific tools varied with most offering quicker priority screening and data extraction

- General-purpose LLM (e.g. ChatGPT, copilot) were quicker but poor at synthesising evidence and prone to errors

- Elicit only evidence synthesis specific tool across the whole evidence synthesis process, but robustness is uncertain.



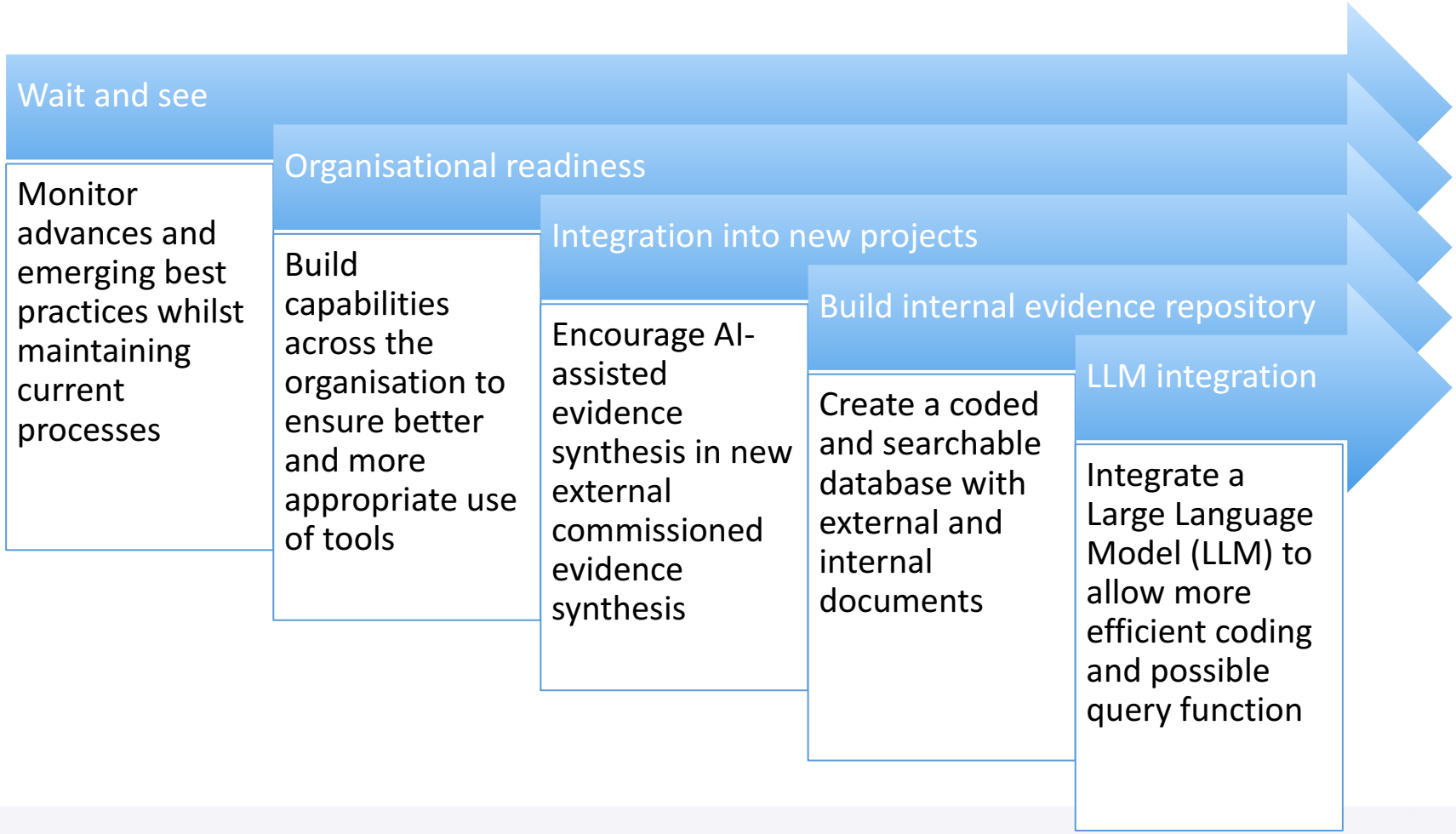
Stakeholder workshop with 25 senior policy makers

- Policy makers and stakeholders cautiously optimistic about use of AI

- Risks highlighted need for proper oversight, ongoing monitoring, ownership of outputs by users and full disclosure.

Results

Organisational approach to incorporating AI into evidence synthesis



Results

Build internal evidence repository

- Develop and agree a framework of the key priority areas
- Code existing internal documents, potentially assisted by a Large Language Model
- Add external evidence through database search, priority screening and coding
- Add grey literature and develop a process for regularly updating repository
- Develop process for mobilising evidence repository

Conclusions

AI is changing how organisations navigate evidence.

Increasing large volume of evidence exploring tools and techniques, but organisations are struggling to design infrastructure to support these

The precise approach will depend on the organisational context and structures, but is likely to be sequential, focus on culture, awareness and upskilling and require both internal and external content experts.

Where do we go from here?

The Health foundation are exploring potential from supporting wider initiatives, such as ESIC and cautiously building its own AI driven infrastructure.

Future reflections

- Rapidly evolving area – how do organisations keep up, build internal infrastructure which will not be superseded?
- Organisational culture – many staff may already be using generative AI for evidence synthesis, how to educate, inform and monitor?
- Proportionality – how to build tools which are proportionate to the needs to the user?
- Quality assurance – AI-assisted evidence synthesis has efficiency advantages but there are reputational risks if staff publish outputs which are later found out to contain AI generated errors
- Critical dialogue – generative AI can reduce opportunities for teams to critically debate topics or iteratively refine an outputs, missing out on shared learning and consensus building