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## Libraries and AI: Maturing responses and remaining uncertainties

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University of Sheffield, UK



University of  
**Sheffield**



IFLA Special Interest Group  
**Artificial Intelligence**

The maturing response to AI

# We have a long history with AI and information

Examples:

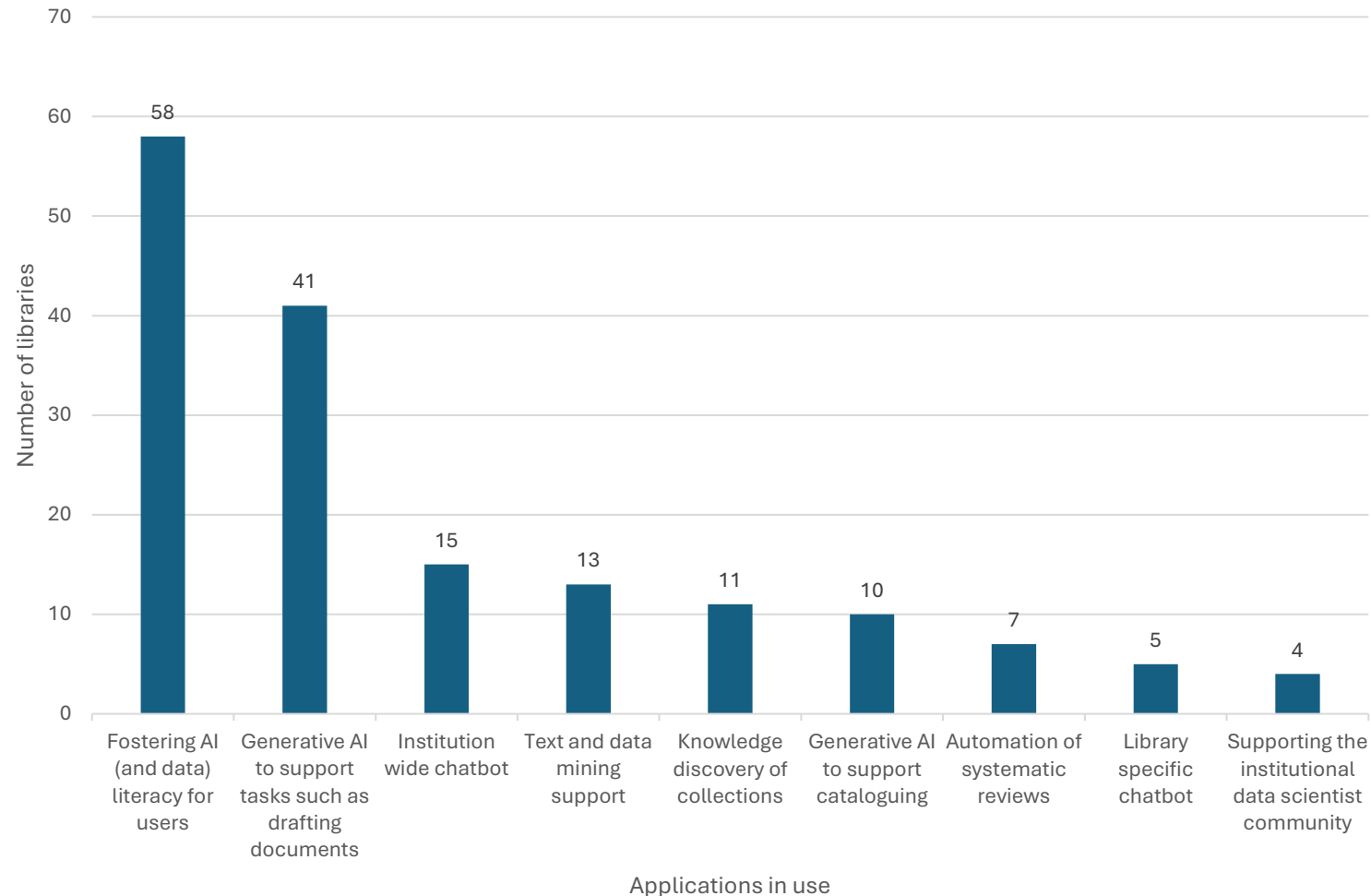
- Spam filtering
- Translation
- Search
- Platform recommendation
- Plagiarism detection
- Predictive text
- Transcription and captioning

Many benefits in terms of access to knowledge

But also familiar problems:

- Inaccuracy
- Bias e.g. which languages translated
- Privacy concerns around recommendation
- Filter bubbles

# Results from 2025 CILIP member survey (N=162)



<https://www.cilip.org.uk/general/custom.asp?page=AISurveyReport2025>

# Emerging library AI use cases

- *AI literacies in academic skills*
- *Generative AI use for everyday tasks*
- AI based search within library collections
  - Licensing of AI tools on publisher platforms
  - CoPilot agents
  - Retrieval Augmented Generation (RAG) links LLM to a reliable corpus [[recently compiled list of examples](#)]
  - Model Context Protocol (MCP) a standard for connecting AI chatbots and local information resources – [being used at [Yale](#)]
  - Advice on (non)use of AI- based tools like SciSpace or Consensus
- Many experiments with creating metadata using AI
  - OCLC or Exlibris – in familiar systems
  - In national libraries: wide range of uses over long period, because of scale of data/ dark collections [[Mergel and Schmidt \(2025\)](#), [AI4LAM](#)]
- AI chatbots [e.g. [Stanford](#)]
- AI in backend data processing or reducing the barrier to coding apps

# AI in library workflows

[Clarivate report](#) on

- Metadata creation and cataloguing
- Course reading list and syllabus support

*“Reduced effort in first-pass preparation tasks, particularly in metadata transcription, normalization, and syllabus parsing.*

*Improved consistency and standardization...*

*Faster progression from intake to usable records or reading lists, with fewer manual steps required to reach review-ready outputs.*

*Reallocation of staff time from routine data entry toward higher judgment work, validation, and exception handling.”*

## TIME AND EFFICIENCY

### 30-60%

Reduction in time spent on manual, repetitive work

- Course list creation reduced from 15-45 minutes to 2-5 minutes
- Metadata transcription reduced from hours to minutes for draft records

## ACCESS AND AVAILABILITY

### 50-60%

Of reading lists immediately available after AI processing

- Same-day availability common for:
- Course materials already held by the library
  - New acquisitions processed with AI-assisted metadata

## THROUGHPUT AND CAPACITY

### 2-4X

Increase in feasible workload without additional staff

- Hundreds of metadata records per day enriched in backlog projects
- Courses supported proactively that were previously out of scope

## QUALITY AND OVERSIGHT

### 70-90%

Of AI-generated output accepted with minor edits

# ALA Guidance on the Use of Artificial Intelligence in Libraries

- Links AI to enduring library ethical principles
- Identifies issues for Collections, public services, technical services and administration

American Library Association  
Guidance on the Use of Artificial Intelligence in Libraries  
Prepared by the ALA Artificial Intelligence Policy Working Group

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# ACRL model of AI competencies for library workers

- Mindsets: Curiosity, Scepticism, Judgment, Responsibility, Collaboration
- Ethical considerations: equitable access; fair design; protection of autonomy, privacy, cultural diversity; accountability; wider social impacts
- Knowledge and understanding: basic knowledge of technologies, staying current, critically evaluate sources on AI, AI policy awareness
- Analysis and evaluation: explain technologies; evaluate benefits/ risks
- Use and application: apply AI

**Contents**

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Guiding Mindsets - 3  
Competencies - 3  
1. Ethical Considerations - 3  
2. Knowledge & Understanding - 5





# IFLA Entry point to Libraries and AI

Internet Manifesto Annex I

May 2025



IFLA Entry point to libraries and AI

<https://www.ifla.org/news/release-of-ifla-entry-point-to-libraries-and-ai-document/>

# The library's role

1. Developing or licensing AI for library services
2. Inputting to the development and training of (public interest) AI
3. Advising library users on the choice and usage of safe and responsible AI services
4. Highlighting data, algorithmic and AI literacy as a dimension of information and wider digital literacy among users and the public
5. Advising on the use of AI within the wider organisation within which the library sits
6. Advocating for responsible uses of AI in society and appropriate regulation

# 14 Questions librarians should ask about AI: part 1

1. What is the nature of the benefits concerning knowledge access and creation? Is the effort/cost of delivering them justified in relation to library priorities and alternative solutions?
2. What is the level of accuracy, timeliness and impartiality of information output by AI and how is the level of accuracy explained at the point of use?
3. What safeguards are in place to minimise bias and the reproduction of damaging stereotypes and assumptions?

# 14 Questions librarians should ask about AI: part 2

4. How are diverse knowledge systems and cultural and linguistic diversity protected/promoted through the AI?
5. Is the availability of AI to some bad actors promoting misinformation or censorship?
6. Are the benefits available equitably, including aspects of digital inequality and accessibility?
7. Is the application transparent in a socially meaningful way? Is it defined who owns responsibility for errors made by AI and their impacts?

# 14 Questions librarians should ask about AI : part 3

8. How are users' data managed to ensure their privacy and security?

9. Has the AI service been developed in a way that has not made use of illegitimately accessed works?

10. How have local and societal stakeholders been (or will they be) involved in the development and implementation of the AI, ensuring the right of communities to data sovereignty (i.e. to maintain ownership, control, and governance over data about themselves and their cultural heritage)?

# 14 Questions librarians should ask about AI : part 4

11. How is it ensured that users retain agency in their interactions with AI? What is the impact on skills and confidence of users?

12. What are the impacts on human employment, including potential job displacement or the use of precarious labour?

13. What is the environmental impact of the whole lifecycle of the AI service, including power demands and water use?

14. If the developer is a third party, what is their business model and their approach to responsible operations?

# Scenarios for discussion

- **Scenario 1. Supporting library users to adopt generative AI responsibly**
- **Scenario 2. Library staff use of generative AI**
- **Scenario 3. Using AI to support metadata creation for library material**
- **Scenario 4. *Licensing an AI service from a publisher – under review – comments welcome!***
- **Other scenarios available @** Ethics Scenarios Of Artificial Intelligence For Information And Knowledge Management And Library Professionals. University of Sheffield. Dataset.  
<https://doi.org/10.15131/shef.data.15147411.v1>

Remaining challenges are  
significant

# 1. Changing Information Behaviour with LLMs

# LLM chatbots: ChatGPT etc

- Gives answers
- Conversational search, in natural language
- Personalisation
- 24/7 availability
- Emotional support
- Inaccuracy
- Lack of citation
- Deceptive character: sycophancy, laziness
- Bias: because of training data over-represents Western material
- Cognitive offloading
- Functionality disappearing into the background



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*Health Promotion International*, 2019;34:1032–1044

doi: 10.1093/heapro/day052

Advance Access Publication Date: 7 August 2018

Perspectives

OXFORD

Perspectives

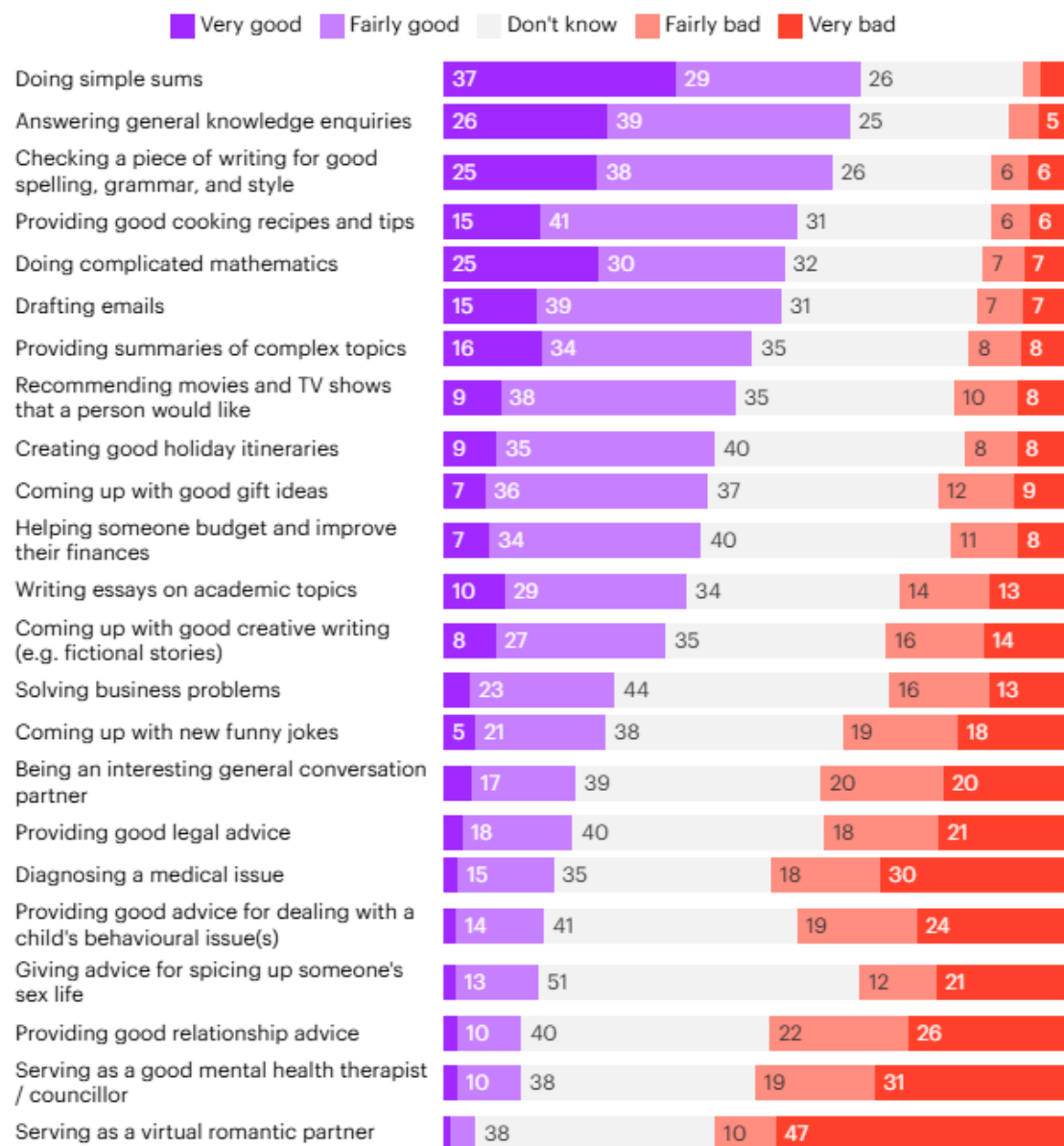
# A guide to policy analysis as a research method

Jennifer Browne<sup>1,†</sup>, Brian Coffey<sup>2,†</sup>, Kay Cook<sup>3</sup>, Sarah Meiklejohn<sup>4</sup>, and Claire Palermo<sup>4,\*</sup>

<sup>1</sup>Department of Public Health, School of Psychology and Public Health, Latrobe University, Bundoora

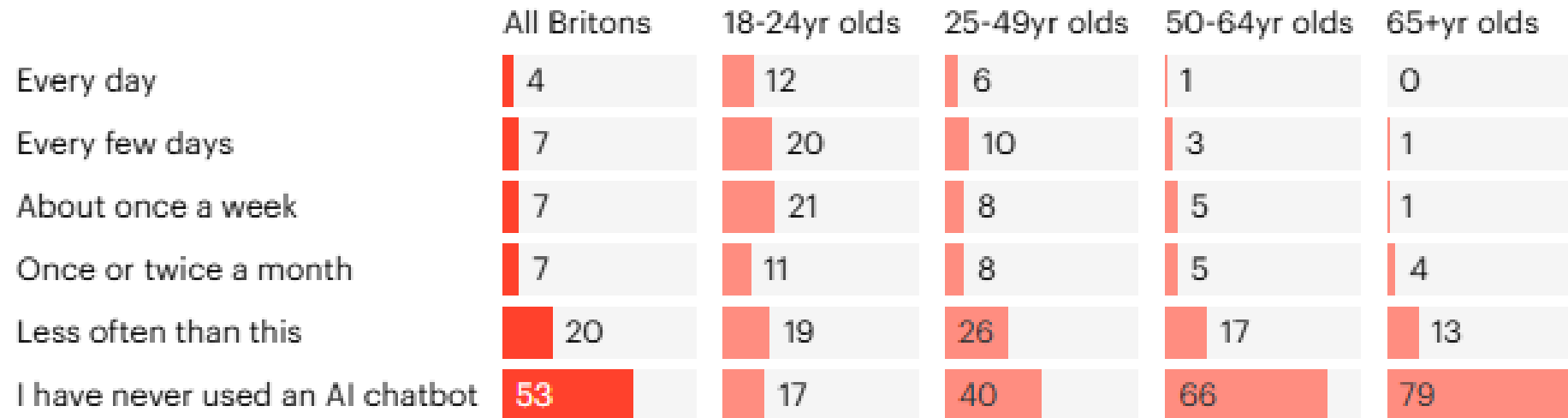
## What do Britons think AI chatbots are good at?

Thinking about AI chatbots like ChatGPT, Deepseek, and others that people can access online, do you think they would be good or bad at each of the following? %

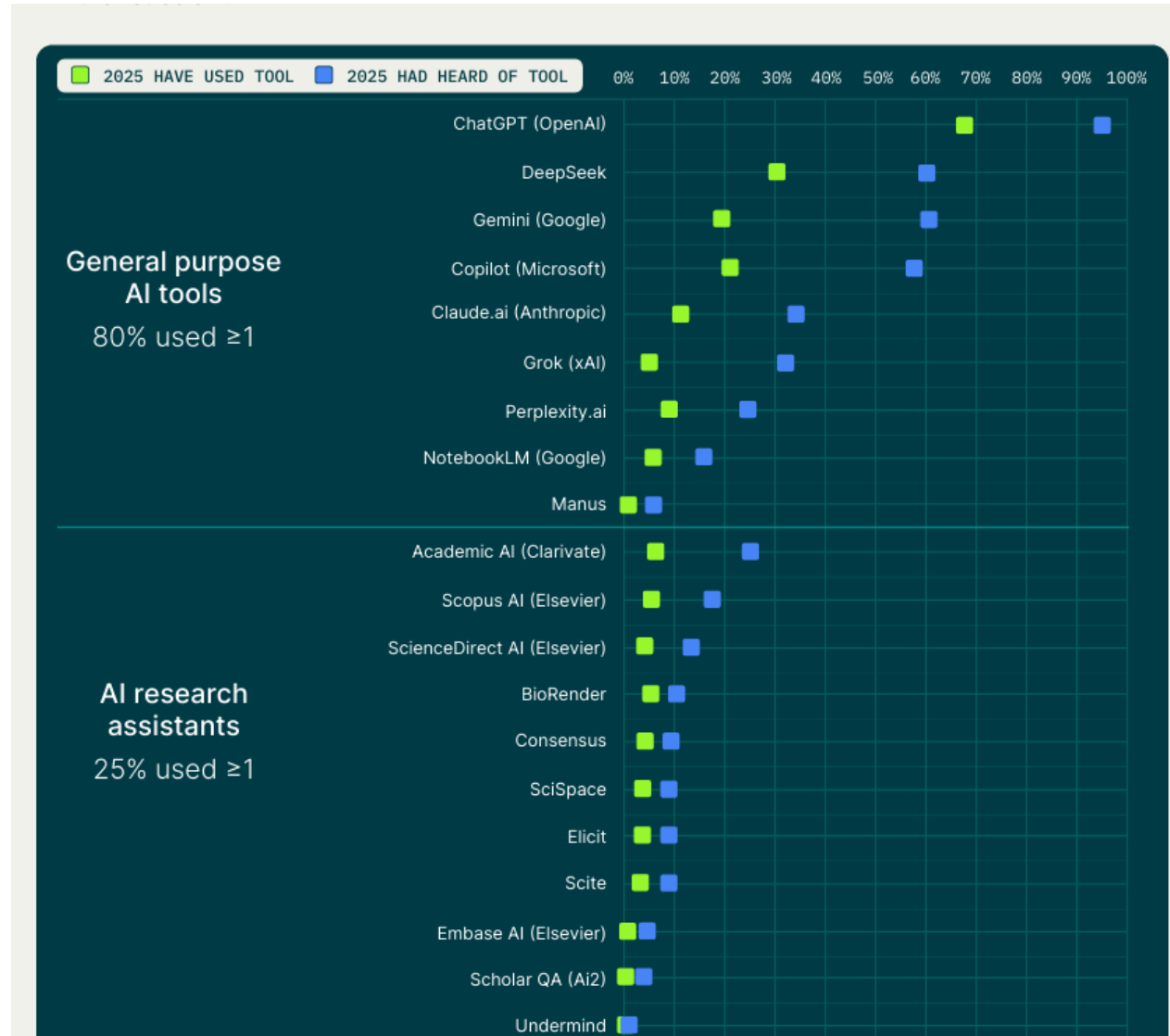


# Half of 18-24 year olds say they use AI chatbots on at least a weekly basis

How often, if at all, do you use AI chatbots like ChatGPT, Deepseek, and others? %

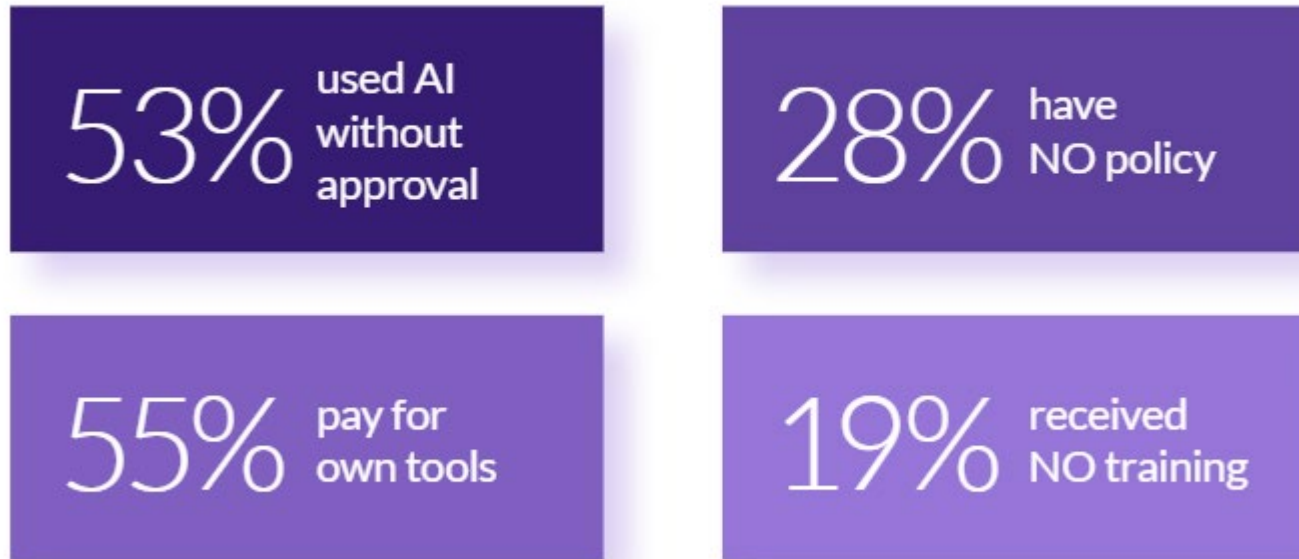


# From Wiley research on researcher use of LLMs



# A governance crisis

## The Governance Crisis



LexisNexis (2026) The future of work report, <https://lexisnexis.widen.net/s/szpcvtln8p/us-ln2026futureofworkreport>

# How information behaviour is changing: anecdotal

- Fall in use of library resources and enquiries
- Requests for non-existent, hallucinated sources
- Use of AI Chatbots as search engines, at least for “low stakes” searches
- Reliance on overviews rather than originating sources – reducing traffic for authoritative sources
- Use without realising it is AI
- “Shadow” use of AI = a governance crisis?
- Expectation of faster, fuller results of queries
- Decline of criticality, cognitive off loading
- New or reinforced inequalities in access, eg age and sex

## 2. Framing the complex sustainability issue

# THE TIMES



Wednesday August 2 2023 | thetimes.co.uk | No 74164

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My \$8 billion ugly sandals  
Anna Murphy on Birkenstocks

winter  
ists  
INSIDE TIMES2

The 7 ways to boost your brain (at any age)

## AI can help medics spot more breast cancer cases

Halving human workload may yield better results

Tom Whipple Science Editor  
Eleanor Hayward Health Correspondent  
Artificial intelligence has been shown

journal Lancet Oncology, builds on previous research by showing how this might practically work. In the past decade, studies have



## Badenoch: Car targets could stall investment

Steven Swinford Political Editor

Kemi Badenoch has warned cabinet colleagues that electric vehicle targets being imposed on the industry could damage investment in Britain.

The government is planning to fine carmakers from next year unless a fifth of new vehicles sold produce zero emissions. The rule, to be introduced in January, will require at least 22 per cent of a company's new car sales in the UK to be emission-free models, rising each year to 80 per cent by 2030.

Companies that breach the mandate will have to pay \$5,000 for every non-zero-emission car sold in the UK. Toyota, which employs 3,000 people in Britain and sells more than 200,000 cars a year, has called the proposed

## On ness

olt from the right



## AI tool could help prevent one in five heart attacks

Kat Lay Health Editor

Thousands of lives could be saved every year by using an artificial intelligence tool that performs better than doctor in predicting whether patients will have a heart attack, a study suggests.

The technology from the University of Oxford, based on 40,000 patients in British hospitals, can spot people with early heart problems that are missed or CT scans reviewed by the human eye.

Those people could start preventive treatment, such as statins, cutting their risk of suffering or dying from a heart attack or stroke in the next decade. The AI tool is being piloted in five hospitals and researchers hope it can be introduced more widely.

About 350,000 people a year in Britain have a cardiac CT scan, the stan

# NHS will use AI to prevent another Lucy Letby scandal

By Laura Donnelly  
and Michael Swales

THE NHS will use artificial intelligence in an attempt to prevent the next Lucy Letby scandal.

The technology will scan data across the health service in real time, to trigger rapid inspections when alarm bells ring. The early warning system will detect signs of serious failings in care, including injuries, abuse, avoidable deaths and other incidents that could slip through the net.

When concerns are raised, the

watchdog, the Care Quality Commission (CQC), will deploy specialist inspection teams to investigate.

Letby, 35, from Herefordshire, was convicted of murdering seven babies and attempting to kill seven others while working at the Countess of Chester Hospital in 2015 and 2016. A number of experts have questioned the verdict.

A Whistleblower said: "It is an early warning system where there is no room for human error: once the trend is spotted, they will send in human teams to investigate. When we look back at cases like (Lucy) Letby, alarm bells should

have been ringing about deaths at Countess of Chester long before they were, with other scandals like (Harold) Shipman, the patients were there, the system is always here did no-one get it?"

The rollout, part of a 10-year health plan for the NHS, will start later this year in maternity. Wes Streeting has just announced a national investigation aimed at growing public concern over avoidable baby deaths.

The Health Secretary said: "While most treatments in the NHS are safe, even a single lapse that puts a patient at risk is one too many. Behind every

safety issue is a person – a life altered, a family devastated, sometimes by heart-breaking loss." He added: "By embracing AI and introducing world-first early warning systems, we'll spot dangerous signs sooner and launch rapid inspections before harm occurs."

The new Maternity Outcomes Signal System will launch across NHS trusts in November and will flag higher-than-expected rates of stillbirth, neonatal death, and brain injury, prompting urgent local investigations. The approach aims to avoid a repeat of tragedies like those seen in Manchester,

Telford and East Kent, where babies went unhealthily for years, costing hundreds of avoidable deaths.

Officials said the interventions to boost patient safety was on behalf of those who had endured unnecessary suffering at the hands of the NHS. Where necessary raised, they will be investigated quickly, without waiting for complaints, whistleblowing or formal inspections to begin.

However, the use of big data could trigger concerns from privacy campaigners who have objected to the use of Palantir, which will support the pro-

gramme. The watchdog was headed by Peter Thiel, a US Republican party donor, and is best known for its work with intelligence and military agencies in the US. In the UK, it built the Covid dashboard, which use data on vaccines, virus deaths and hospitalisations tracked daily during the pandemic, and in 2022 won the contract for the NHS Federated Data Platform, which links patient records across services.

All data used will be handled securely and in line with patient privacy rules, the Department of Health and Social Care said.

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NEWS	
Whitty signed off on Covid care home plan	
Profile: Chris Whitty was responsible for government guidance that was believed to have triggered the spread of Covid into care homes. He	

NEWS	
Some towns have 20pc on disability benefits	
The welfare system has grown so that in some towns, one in five people receive disability benefits, analysis found. The number of people claiming	

COMMENT	
Annabel Denham	
Reeves only needed	

WORLD	
Iran repairing bombed nuclear enriching site	
Iran is already repairing the nuclear site on the UN insists it could be enriching uranium for a bomb "in a matter of months". Satellite images show work	

BUSINESS	
Fiscal crisis warning on high UK borrowing	
Britain is among Western nations threatened with a fiscal crisis as state spending balloons and investors lose their appetite for government bonds.	

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## AI is a green curse as well as a blessing

The amount of energy used by data centres is staggering

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## The ugly truth behind ChatGPT: AI is guzzling resources at planet-eating rates

*Mariana Mazzucato*



## Microsoft's emissions jump almost 30% as it races to meet AI demand

Increase from 2020 to 2023 highlights challenges of meeting climate goals while investing in infrastructure



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## The carbon footprint of AI

Researchers estimate that the AI industry could consume as much energy annually as a country the size of the Netherlands by 2027. We take a look at the details.

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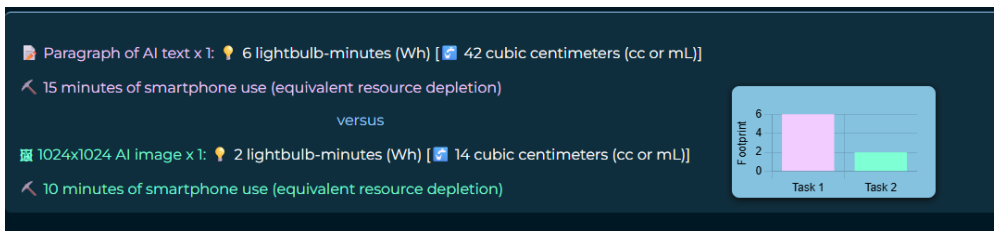
## Boom or bubble? Inside the \$3tn AI datacentre spending spree

Investment in these vast warehouses is huge but some worry the debt-fuelled exuberance will backfire



# Frame 1: Framing as impact of individual prompt

The screenshot shows the 'What Uses More?' app interface. At the top, it says 'Compare the environmental footprint of digital tasks'. Below this are sections for 'About this app' and 'How to use this in the classroom'. The main configuration area is divided into 'Units' and two task columns: 'First task' and 'Second task'. The 'Units' section has dropdowns for 'Energy units' (set to 'lightbulb-minutes (Wh)') and 'Water units' (set to 'cubic centimeters (cc or mL)'). The 'First task' section has dropdowns for 'Task' (Paragraph of AI text), 'Local energy source' (Coal-powered (West Virginia)), 'Local data center climate' (Cold (Norway in winter)), 'Prompt complexity' (Single), and 'Number of prompts' (Single (zero-shot)). The 'Second task' section has dropdowns for 'Task' (1024x1024 AI image), 'Local energy source' (Solar-powered (California)), 'Prompt complexity' (Simple), 'Number of prompts' (Single (zero-shot)), 'Local data center climate' (Cold (Norway in winter)), and 'Quantity'.



- Using AI does lead to GHG emissions, power and water usage
  - Impact is chiefly from “inference” (not training the model)
  - Diffusion models are worse than LLMs,
  - Larger models are worse
  - Impact shaped by where the data centre is
- For a single generative AI prompt probably impact is very low – except with video production (Masley, 2025)
- A human performing same task might have much more environmental impact (Tomlinson, 2024)

<https://what-uses-more.com/>

# Does that use a lot of energy?

Compare the daily energy consumption of different products and activities

Gaming console (Xbox Series S)

Gaming console (Xbox Series X)

Streaming Netflix

Streaming YouTube

1 hours 0 minutes

Home internet (WiFi)

1 hours 0 minutes

ChatGPT median query

1 queries

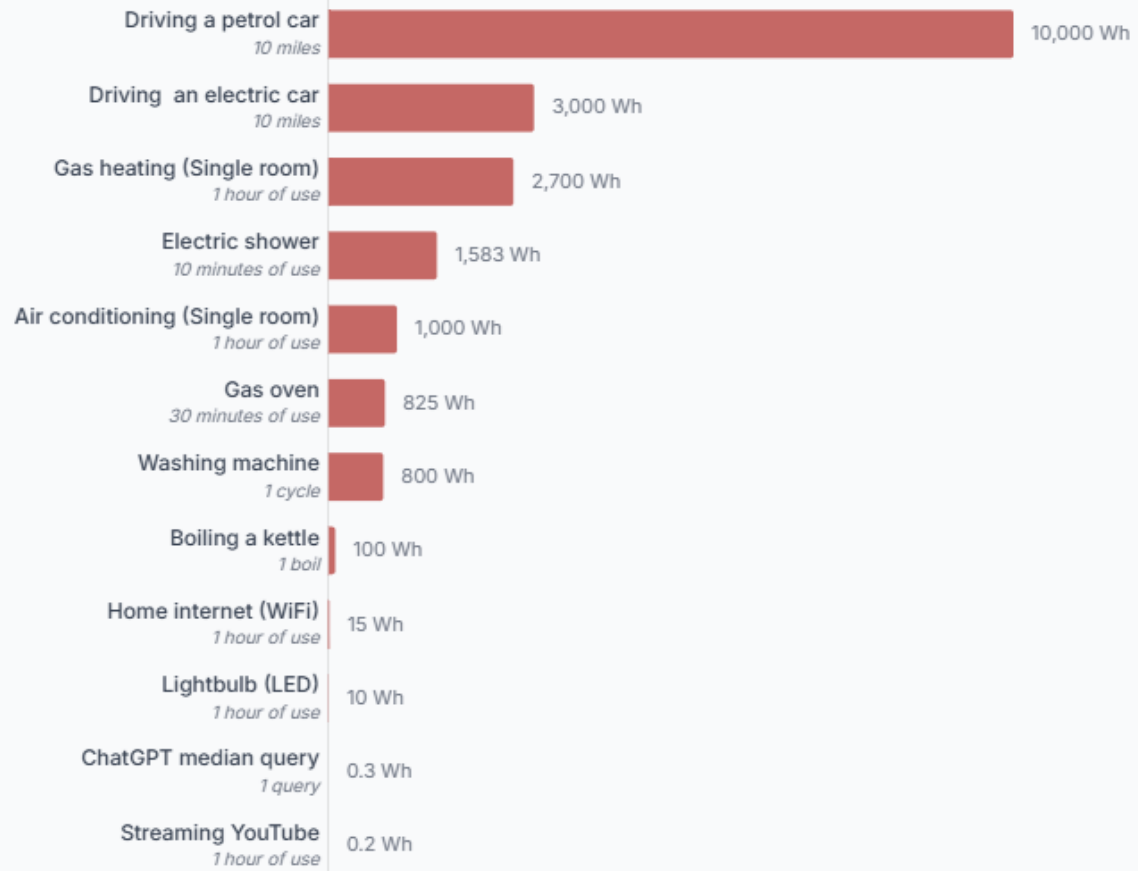
Reading on a Kindle

## Kitchen appliances

...

## Energy consumption

Estimates measured in watt-hours (Wh).



# Frame 2: Information failure frame

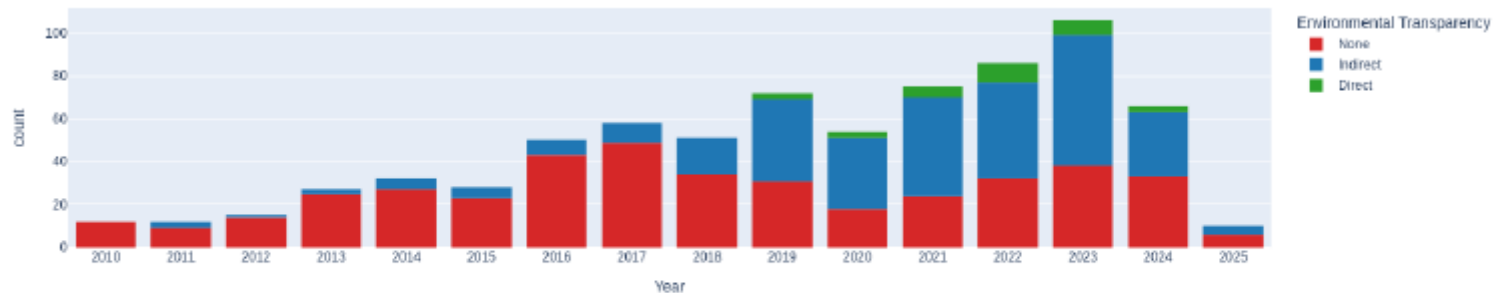


Figure 1. Environmental Impact Transparency of Notable AI Models by Release Year<sup>27</sup>

- Charts some of source of the urban legends around environmental impact
  - Source: Luccioni, S., Gamazaychikov, B., da Costa, T. A., & Strubell, E. (2025). *Misinformation by Omission: The Need for More Environmental Transparency in AI*. arXiv preprint arXiv:2506.15572.
- “Without more disclosure from companies, it’s not just that we don’t have good estimates—we have little to go on at all.” (O’Donnell and Crownhart, 2025)

# Full hardware and software life cycles

Figure 2: Life cycle of generative artificial intelligence

## Infrastructure build

Scope 3



Includes raw material extraction, equipment manufacturing, transportation, and data center construction.



## Training

Scope 2\*



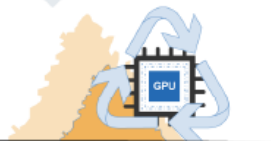
## Use and deployment

Scope 2\*



## Disposal

Scope 3



Scope 2 Indirect purchased emissions

Scope 3 Indirect emissions from all other activities

⚡ Electricity use

💧 Water use

\* Scope 1 (direct) emissions may occur if a company uses their own on-site generation equipment

- It's the wider impacts and “infrastructural harms” that should be of more concern

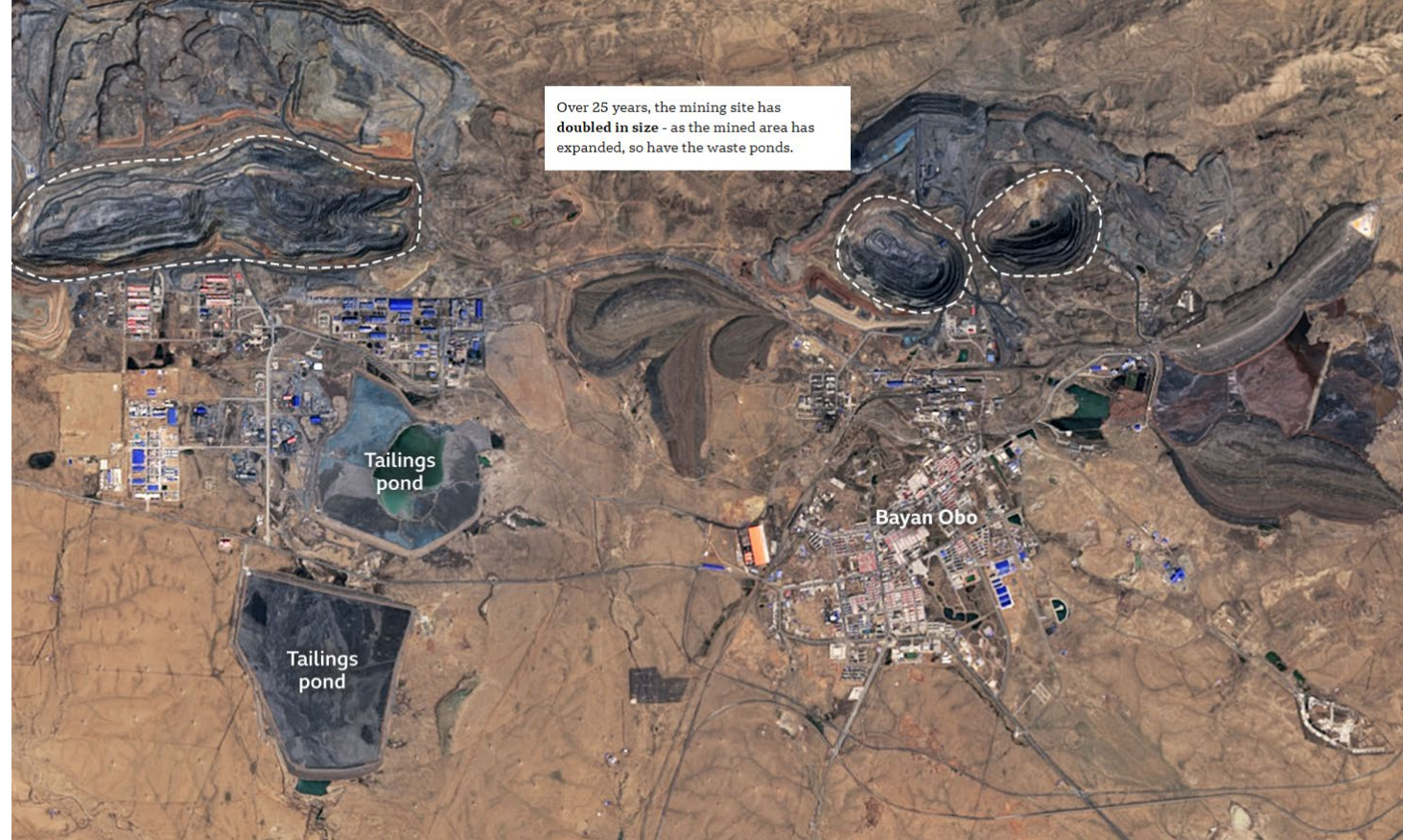
# Frame 3: Making environmental impact of digital visible framing



*(Credit: Liam Young/Unknown Fields)*

- Maughan, T. (2015). The dystopian lake filled by the world's tech lust, BBC, <https://www.bbc.co.uk/future/article/20150402-the-worst-place-on-earth>

# Frame 4: Geopolitical framing



- “This dominance [in Rare Earth mining] gives Beijing huge leverage - both economically, and politically, such as when it negotiates with US President Donald Trump over tariffs. But China has paid a steep price for it.”
- Bicker, L. (2025). Poisoned water and scarred hills: The price of the rare earth metals the world buys from China. BBC, <https://www.bbc.co.uk/news/resources/idt-66cdf862-5e96-4e6e-90b8-a407b597c8d9>



# Frame 5: Elemental framing and empowerment

- From MOSACAT a Chilean activist group against data centre construction / other activism against lithium mining
- *“I’ve heard about ‘Derechos Digitales’ [Chilean digital rights organisation], but we didn’t include that aspect in our struggle ... Water impresses people more quickly... The other thing [about digital rights] is like ‘you are seeing ghosts where there are none’ ... It’s easier for them to understand and feel the effects on water. You will not be able to flush the WC, have a shower, wash your clothes.”*
- Part of a longstanding struggle (in which withholding of information central)
- Links to SDGs’ emphasis on social justice
- Queries “human-centric AI”



Lehuedé, S. (2025). An elemental ethics for artificial intelligence: water as resistance within AI’s value chain. *AI & SOCIETY*, 40(3), 1761-1774.

Urquieta, C. and Dib, D. (2024). US tech giants are building dozens of data centers in Chile. Locals are fighting back. Rest of World, <https://restofworld.org/2024/data-centers-environmental-issues/>

# Frame 6: AI (in general), if governed effectively, can positively impact climate change (Stern et al., 2025; IEA 2025)

1. Improved management of complex systems, including energy systems
  2. Acceleration of technology innovation, e.g. for clean tech
  3. Modelling and influencing behaviour change towards sustainable behaviours
  4. Forecasting extreme weather etc
  5. Managing responses to climate change
- “However, letting markets determine the applications and governance of AI can prove to be risky. Governments have a critical role in ensuring that AI is deployed effectively to accelerate the transition equitably and sustainably.”
  - Rebound effects not accounted for

# What can we do as ...

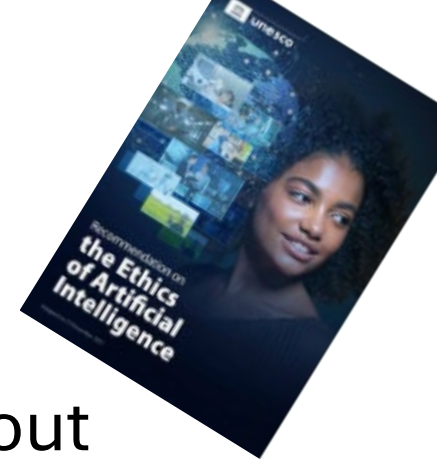
- Individuals

- Consider our environmental impact across all activities
- Make choices about use of AI based on what is known about environmental impact

- Professionals

- Prefer open source, smaller or task specific AI
- Ask about the full environmental impact of any application we use/ license
- Request transparent information from suppliers
- Advocate for data centre practices that minimise impact

# Societal challenges of generative AI



- Violates copyright by using our text and data on the Internet as training data – threat to notion of authorship
- Threatens jobs
- There are inequities in access to best AI
- Was developed by exploiting very low paid workers to detoxify content
- Reveals the disruptive power in the hands of Big Tech companies

It is both about

- How to use it ethically?
- But more broadly ask questions about how ethical was its creation?
- Critical IL has never been more needed!

A short article on this is available @  
[https://doi.org/10.31235/osf.io/  
kmuyx\\_v1](https://doi.org/10.31235/osf.io/kmuyx_v1)

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# 3. The strategic challenge

# AI is a unique strategic challenge

- AI's use has spread outside institutional control – the same issue of the “dark” use of AI applies in other contexts
- The nature of AI as a technology
  - AI is inherently hard to understand & even designers cannot fully understand/ control answering
  - Commercial secrecy around AI
  - AI has a wide range of applications in different areas – for different types of usage
  - AI changes rapidly, eg evolution of ChatGPT – coming likely arrival of Agentic AI
  - AI increasingly embedded in all systems: eg Google overviews or Adobe summarisation
  - Yet library system vendors relatively slow to adopt
- The fundamental threats to skills/ jobs produce a defensive professional reaction – it is hard to construct a balanced response



# Where does AI fit into the wider sense of information crisis?

- Information overload – “AI slop”, but AI filtering
- Social media filter bubbles and biases – AI filtering, but AI moderating
- Active disinformation from malicious actors – deepfakes, but AI fact checking
- Commercial surveillance
- Government censorship
- Inequities in digital access and skills
- International inequities in access
- Increasing cybersecurity issues

# Emergent strategies for libraries

# Information gathering tactics

## External:

1. Horizon scanning on the technology
2. Scanning educational technology trends – including new entrants to field
3. Studying education sector best practice
4. Ideation work to imagine tasks we would like AI to take on

## Internal:

- Changes in information behaviours and attitudes among user groups
- Staff use and attitudes

# Workforce development tactics

1. Recruiting new staff with specialist AI skills
2. Upskilling existing staff
  - Joint attendance at an external course. Participating as a group in one of the free online courses or MOOCs.
  - A reading group to study recent publications on AI.
  - Staff newsletter articles explaining AI concepts
  - Professional conferences and webinars.
  - Individual experiment. Giving staff time to explore AI for their own role could be a useful tactic to raise their confidence. Experiences could be shared in team meetings.
  - An internal conference themed on AI. As understanding grows, bring all staff together to think about AI applications.

# Organisational tactics

1. Policy development. This could be a general statement about the stance of the library towards AI or a more specific one such as about criteria to be used to evaluate AI products, such as licence terms, expectations around interoperability, confidentiality, and cost. It is likely to mention ethics issues, giving a local definition of how the library will use AI responsibly. AI may or may not be incorporated in the main library strategy.
2. A communications strategy. Communicating clearly to library users and staff about the stance of the library towards AI is key to maintaining trust.
3. Either a senior or and expert member of staff is given a leadership role to coordinate activity.
4. A working group. Brings together expertise and energy from across library staff to support the lead. It is a forum to help form strategic direction. The terms of reference and resourcing of this group are a critical point of decision.
5. A community of practice. A looser group, probably encompassing colleagues from other parts of the institution, brought together to share knowledge and practical experience in an informal way.

# Relational tactics

## Internal

1. Aligning to what is happening in the institution
  - Collaborating with other units, eg IT
  - Collaborating with researchers
  - Working with users, eg students

## External

1. Aligning to what is happening in the sector
2. Collaborating with other organisations
  - Which types of organisation?  
E.g. OpenAI agreement with Edinburgh
  - *How to build collaborations?*

# Proof of concept projects

- An exhibition about AI using books and other resources in the collection, but perhaps also including posters about institutional work with AI
- A project focussed on applying AI to library content, such as to enhance metadata about a special collection
- An audit of local data resources to identify issues of data quality and ownership responding to the stress on data management as a foundational element (Webb, 2025)
- Involvement in a wider project across the institution, such as through contributing data or expertise

# Futuring tactics

- Develop/ discuss scenarios
  - Less concerned with being “right” than prompting challenge to current paradigms
  - A common approach is to get stakeholders together to analyse current trends (using PESTEL framework or similar) and create a quadrant/ set of four scenarios based on two key variables
    - Eg the direction of technology development/ the development of AI governance
  - Leads into backcasting, work on “weak signals”, future wheels
- ACRL/CNI (2024)
- IFLA Trends report
  - IFLA Weak signals report

# Your vision

What is the future vision for the AI enabled library?

# Visions

- The paradigm of the intelligent library
  - From searching to find a text to read to interacting with the full text of the library collection
- Chatting to a special collection
- The automated library: Humans only need to do human centric tasks
- The living systematic review
- The AI-free library
- The library as AI sandbox

**Cox, Andrew (2024). A framework for libraries to respond strategically to Artificial Intelligence. The University of Sheffield.**

**<https://doi.org/10.15131/shef.data.26067841.v1>**

Also explained @ <https://doi.org/10.29173/elucidate847>

# Resources

- Cox and Thelwall (2025) book in Routledge CRC press *AI for everything* series
- DOI:  
10.1201/9781003545163

