

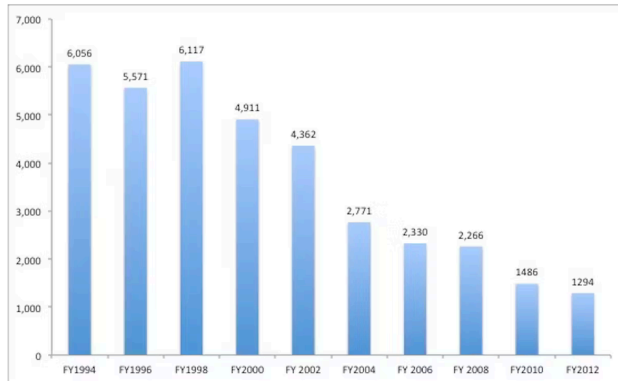
# Transforming Institutional Repository with Generative A.I.:

Boosting engagement and usage




Wong Woei Fuh PhD MBA  
iesResearch  
Singapore

# Usage



Average number of reference transactions per week for the 60 largest U.S. academic libraries: 1994-2012. Chart created by Donald A. Barclay, using data from the National Center for Education Statistics., CC BY



## Has the library outlived its usefulness in the age of Internet? You'd be surprised

Published: April 28, 2016 11:09am BST

Library space is changing. Penn State, CC BY-NC


Email 411  
X (Twitter) 2.8k  
Facebook  
LinkedIn  
Print

U.S. institutions of higher education and U.S. local governments are under extraordinary pressure to cut costs and eliminate from institutional or governmental ledgers any expenses whose absence would cause little or no pain.

In this political climate, academic and public libraries may be in danger. The existence of vast amounts of information – a lot of it free – on the Internet might suggest that the library has outlived its usefulness.

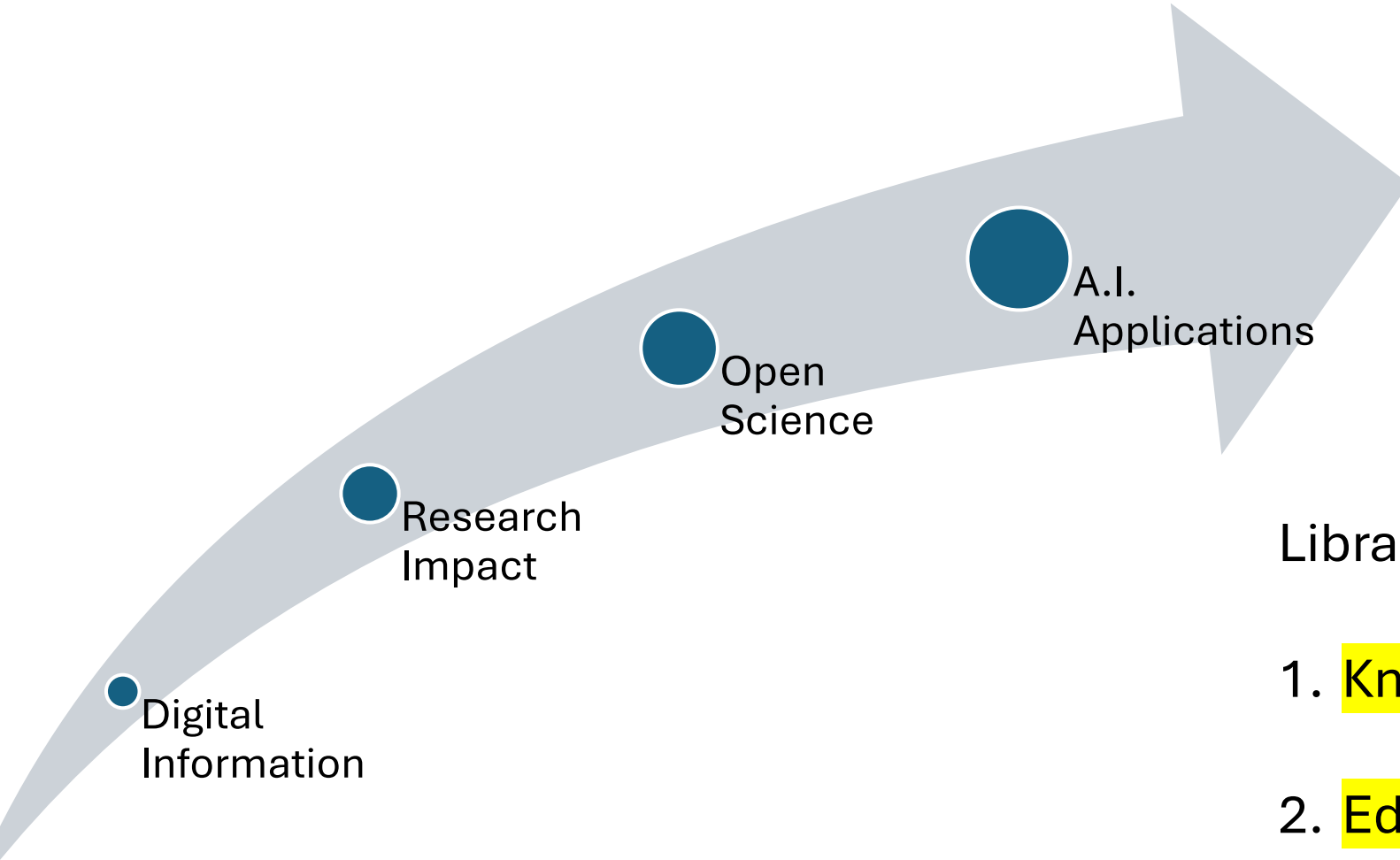
But has it? The numbers tell a very different story.

In spite of the findings of a survey in which Americans say they are using public

**Author**  
 **Donald A. Barclay**  
Deputy University Librarian, University of California, Merced

**Disclosure statement**  
Donald A. Barclay does not work for, consult, own shares in or receive funding from any company or organisation that would benefit from this article, and has disclosed no relevant affiliations beyond their academic appointment.

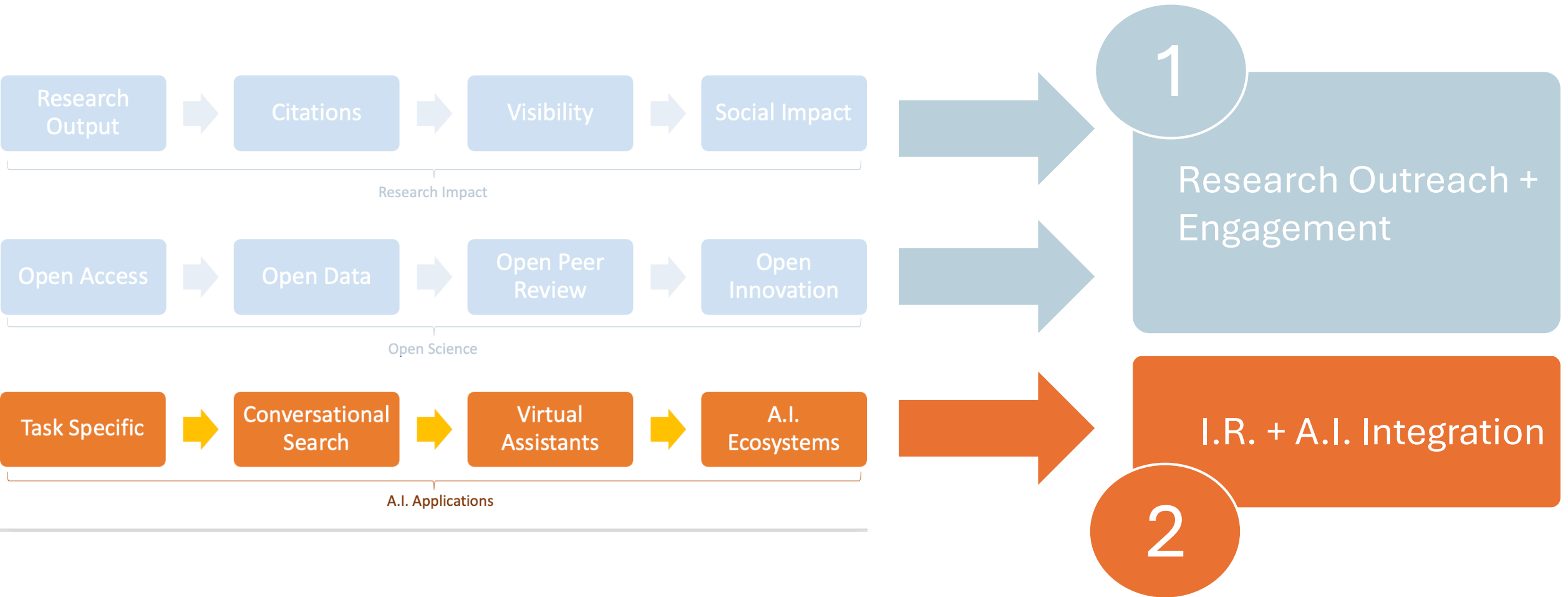
**Partners**



*Future ready means,  
“same roles,  
but different jobs!”*

Librarians' roles:

1. Knowledge Management & Access
2. Educational Support
3. Community & Cultural Engagement



Subscription-based  
Resources

Contents from  
Subscribed Tools

Institutional Repository/  
Data Repository

Free Web-based  
Contents

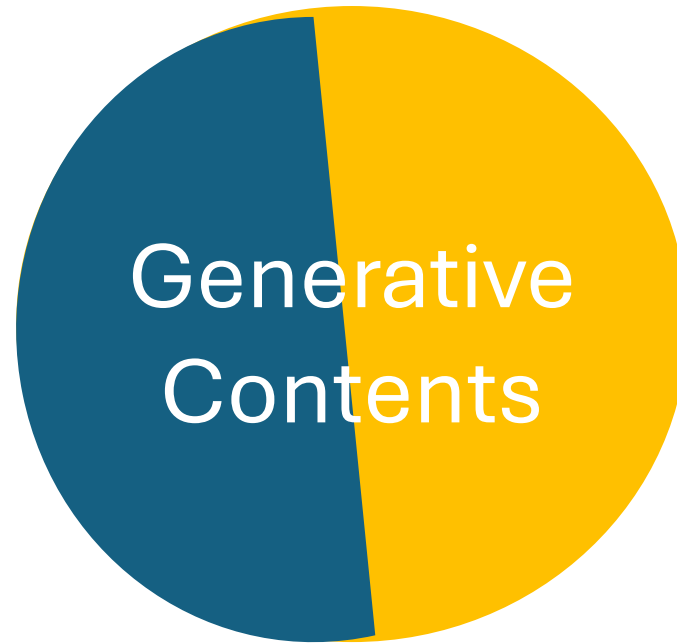
Contents from  
Free Tools

Open  
Access

Subscription-based  
Resources

Contents from  
Subscribed Tools

Institutional Repository/  
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> To drive usage

Free Web-based  
Contents

Contents from  
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Open  
Access

Subscription-based  
Resources

Contents from  
Subscribed Tools

Institutional Repository/  
Data Repository

+

Generative  
Contents



App

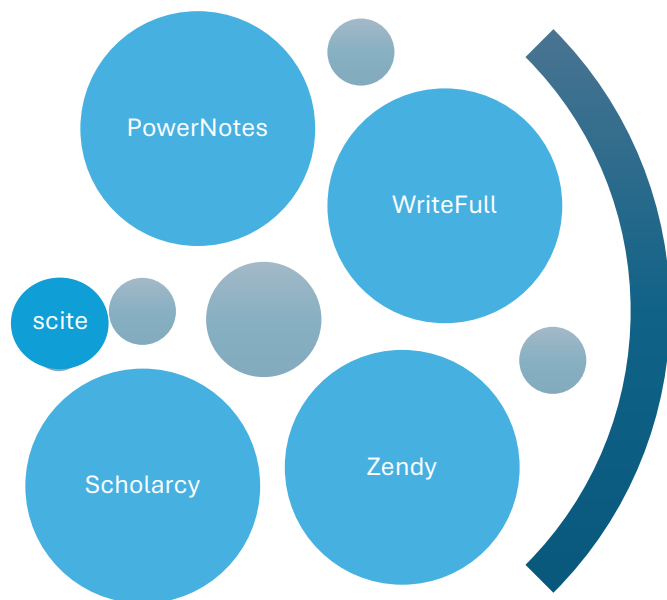


Free Web-based  
Contents

Contents from  
Free Tools

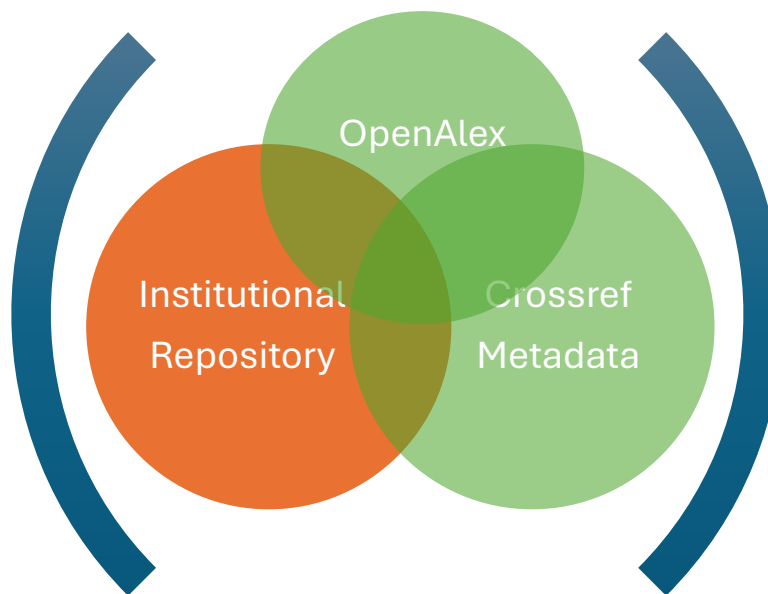
Open  
Access

## A.I. Multiverse



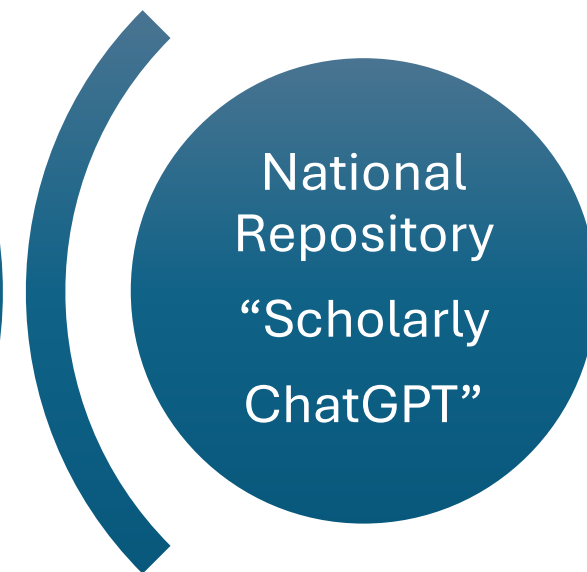
Streamline research and project management workflow with AI tools and enhance the AI literacy of every university stakeholders

## A.I. Knowledge Hub



Pilot **gen AI integration** of IR with global contents to improve the usage of every created or subscribed contents

## A.I. Scholarly Grid

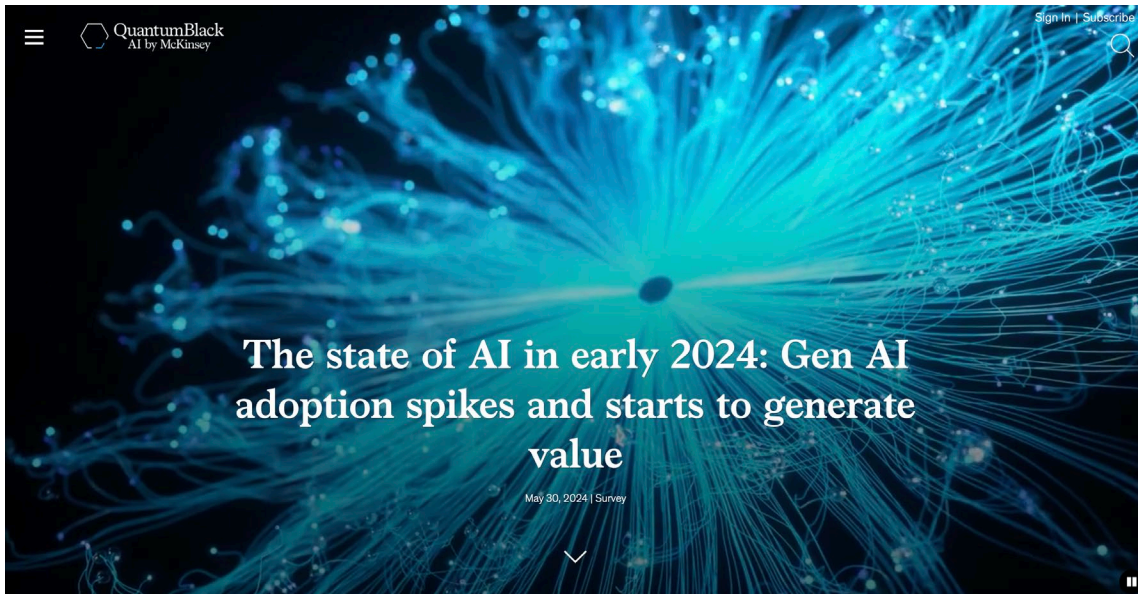


Expand the **gen AI integration** of IR at different national or regional level in supporting Open Science



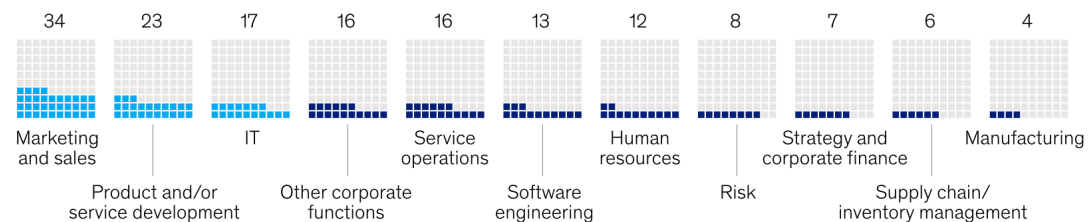
Are we ready for A.I. adoption?

Are we A.I. literate?



**Respondents most often report generative AI adoption in their marketing-and-sales, product- and service-development, and IT functions.**

**Respondents' organizations regularly using generative AI (gen AI), by function, % of respondents**



**Inaccuracy and intellectual property infringement are increasingly considered relevant risks to organizations' generative AI use.**

**Gen AI risks that organizations consider relevant,<sup>1</sup> % of respondents**



# Artificial Intelligence, Scientific Discovery, and Product Innovation\*

Aidan Toner-Rodgers<sup>†</sup>  
MIT

November 4, 2024

This paper studies the impact of artificial intelligence on innovation, exploiting the randomized introduction of a new materials discovery technology to 1,018 scientists in the R&D lab of a large U.S. firm. AI-assisted researchers discover 44% more materials, resulting in a 39% increase in patent filings and a 17% rise in downstream product innovation. These compounds possess more novel chemical structures and lead to more radical inventions. However, the technology has strikingly disparate effects across the productivity distribution: while the bottom third of scientists see little benefit, the output of top researchers nearly doubles. Investigating the mechanisms behind these results, I show that AI automates 57% of “idea-generation” tasks, reallocating researchers to the new task of evaluating model-produced candidate materials. Top scientists leverage their domain knowledge to prioritize promising AI suggestions, while others waste significant resources testing false positives. Together, these findings demonstrate the potential of AI-augmented research and highlight the complementarity between algorithms and expertise in the innovative process. Survey evidence reveals that these gains come at a cost, however, as 82% of scientists report reduced satisfaction with their work due to decreased creativity and skill underutilization.

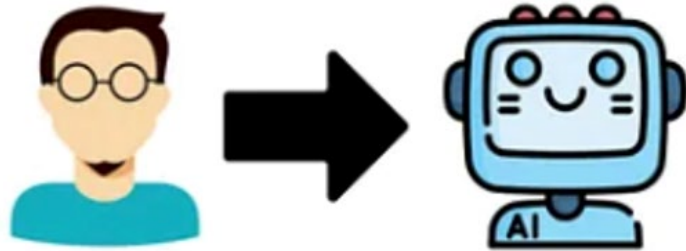
1. A.I. augments human expertise
2. Less experienced users need help
3. Shifting from creativity to evaluation tasks
4. Teaching is no longer content delivery
5. Best practices of research integrity

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<sup>†</sup>MIT Department of Economics; Email: [aidantr@mit.edu](mailto:aidantr@mit.edu); Website: [aidantr.github.io](https://aidantr.github.io)

## Automation



Replace human intelligence with artificial intelligence.

Three risks of overreliance on AI

1. Diminish critical thinking
2. Originality issues and falsification
3. Biases and misinformation

## Augmentation



Augment human intelligence with artificial intelligence.

Three human constraints without AI

1. Limited lifespan
2. Learning rate
3. Social network sizes

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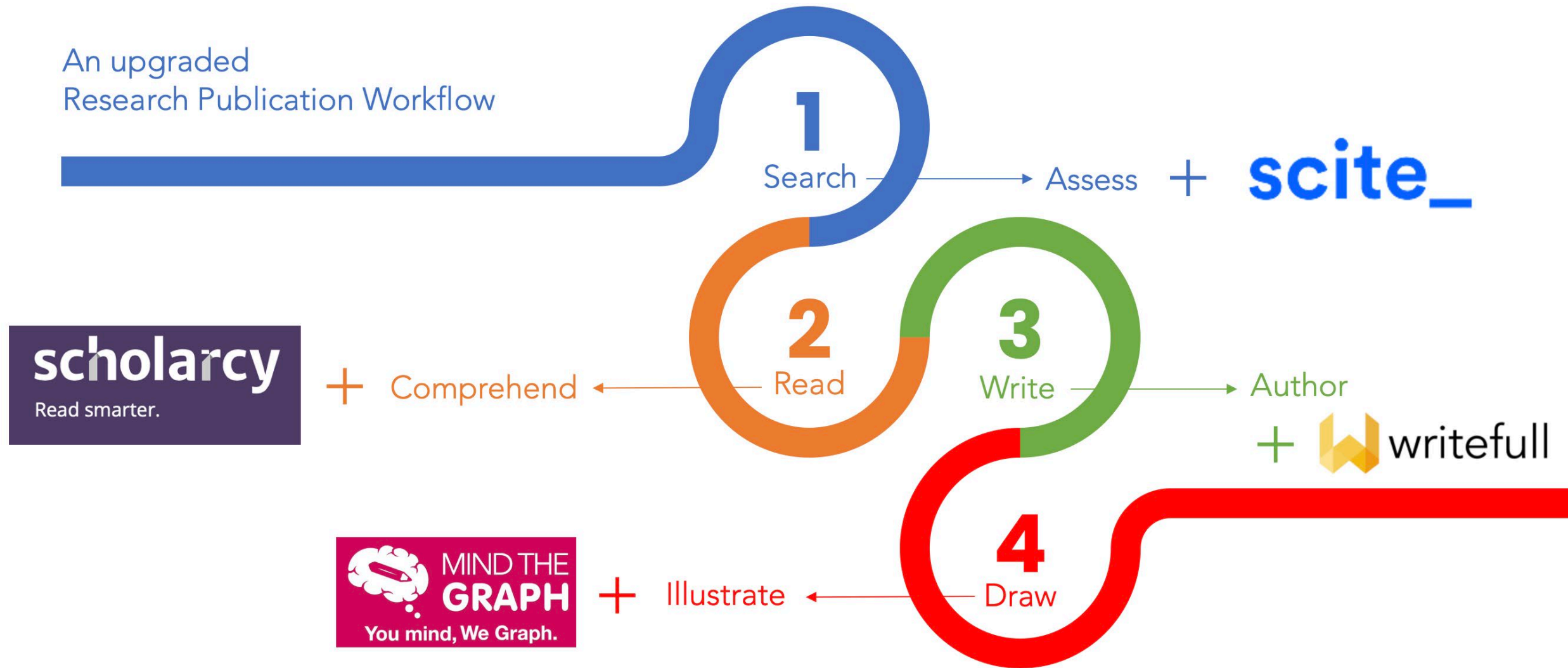
Opportunities to the Librarian

Are we ready for A.I. adoption?

Are we A.I. literate?

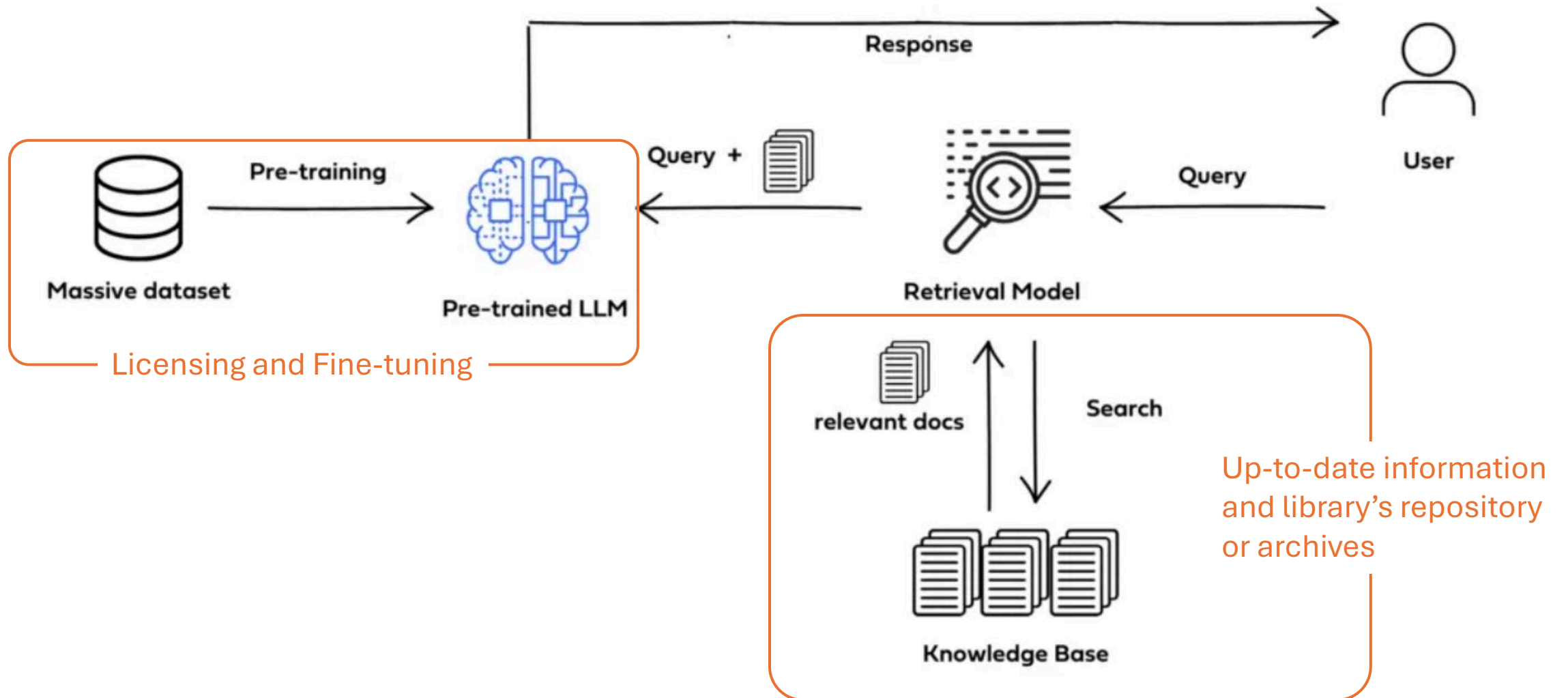
Let's go back to where we are now!

An upgraded  
Research Publication Workflow



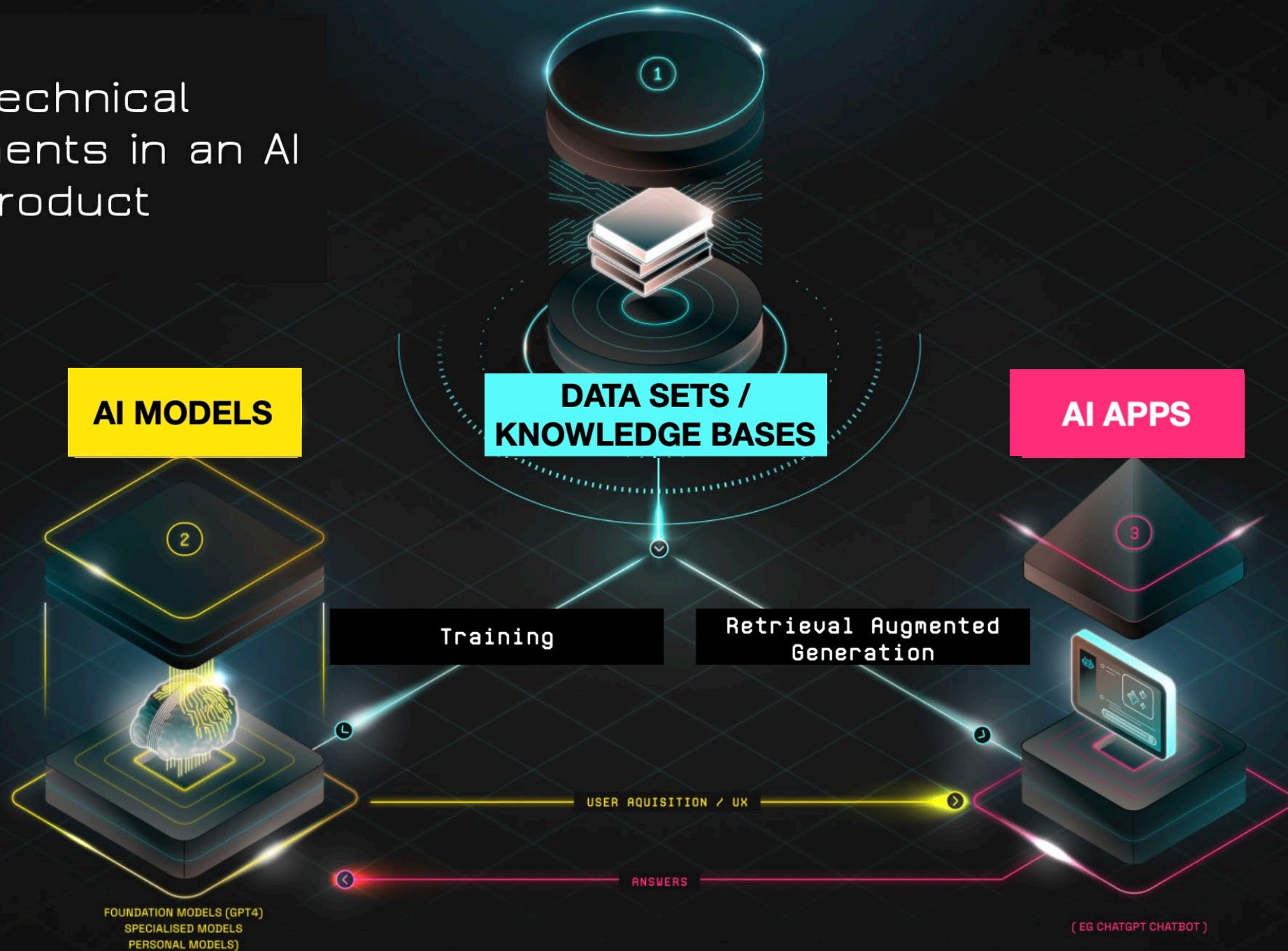


# RAG (retrieval-augmented generation)

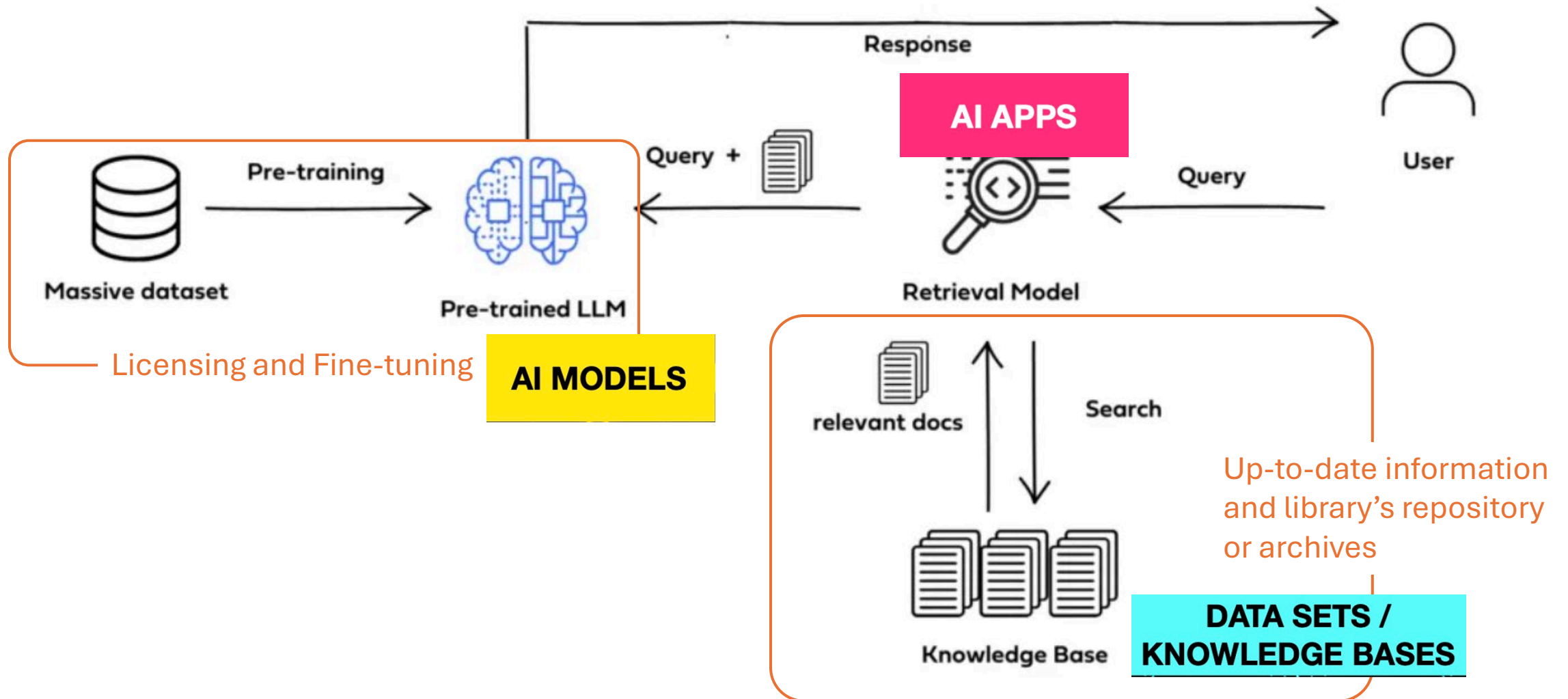




# 3 technical components in an AI product



# RAG (retrieval-augmented generation)



Subscription-based  
Resources

Contents from  
Subscribed Tools

Institutional Repository/  
Data Repository

+

Generative  
Contents



App



Free Web-based  
Contents

Contents from  
Free Tools

Open  
Access

Browse SearchKeyword SearchExpert SearchAI Search

+ AI

Clear

Help

For this semantic search, you can type in the word(s) you want to search in the form field Press 'Search' to get your results. Search result based on Title, Authors, Subject and Abstract, sorted by similarity score.


26901 Visitor

Current Database : AIDEMO (Total 66356 Bib)

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SearchLibrary catalog

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Home / AI Search

## AI Search

Search Phrase:

Search

- Both ELIB and MATRIX allow users to use keywords search, and A.I. search
- A.I. search provides results by understanding user’s intention.  
Examples:
  - For MATRIX: ”I want to read the social science book. What would you recommend?”, or “What is the best hospitality books?”
  - For ELIB: “Can you recommend some books on climate change and the environment?”

The screenshot shows a web browser window with the address bar displaying 'orwell.bookpro.link'. The page title is 'Search Documents' in blue. Below the title, there are several input fields and buttons. The 'Search Query' field is empty. The 'Collection ID' field has a dropdown menu with 'Select Collection' as the current selection. The 'Similarity Score (0-1)' field has a value of '0.5'. The 'Page No.' field has a value of '1'. The 'Records per Page' field has a value of '10'. At the bottom, there are two blue buttons: 'Search (Text Links)' and 'Search and Display in JSON'.

**Search Documents**

**Search Query:**

**Collection ID:**

Select Collection

**Similarity Score (0-1):**

0.5

**Page No:**

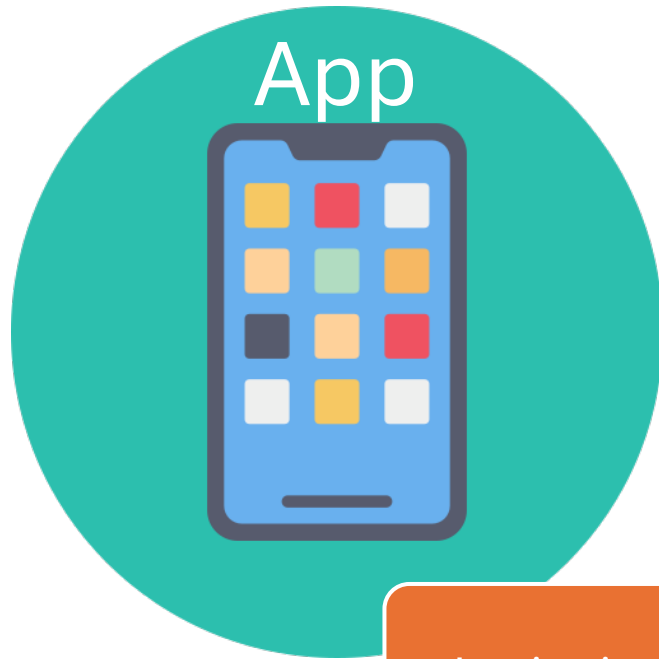
1

**Records per Page:**

10

Search (Text Links) Search and Display in JSON

- An integrated web portal that can search both ELIB (about Environment), and MATRIX (about Nursing)
- ELIB has about 2,000+ records, and MATRIX has about 1,900+ records
- Users can input search queries in natural language format > conversational search



Institutional Repository/  
Data Repository



## Today

1. Conversational search assistant
2. Automated literature review summary
3. Cross-disciplinary discovery
4. Quiz generation

5. Personalized research recommendation
6. Real-time citation assistant (plagiarism prevention)
7. Dynamic learning e.g. questioning and FAQ
8. Dynamic graphic abstracts

## Coming

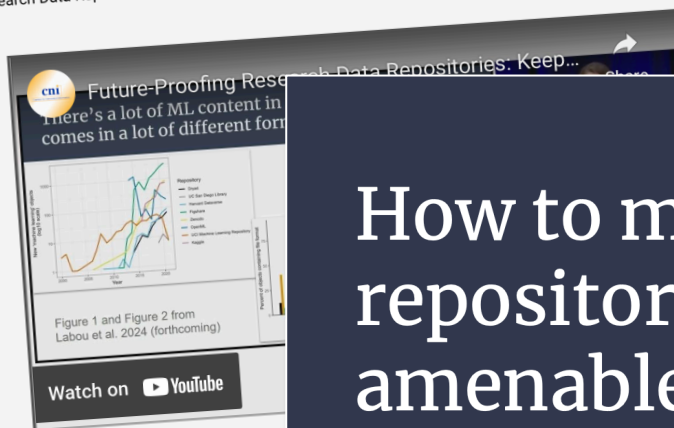
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## Future-Proofing Research Data Repositories: Keeping Up With the Machine Learning/Artificial Intelligence Revolution

[Home](#) / [Topics](#) / [Artificial Intelligence](#) / Future-Proofing Research Data Repositories: Keeping Up With the Machine Learning/Artificial Intelligence Revolution



Stephanie Labou  
Data Science Librarian  
University of California, San Diego



## How to make repositories more amenable to ML (and eventually AI) content

Unambiguous citations

Emphasize related resources

Clear licensing

**Rich(er) metadata**

Labels for compressed files

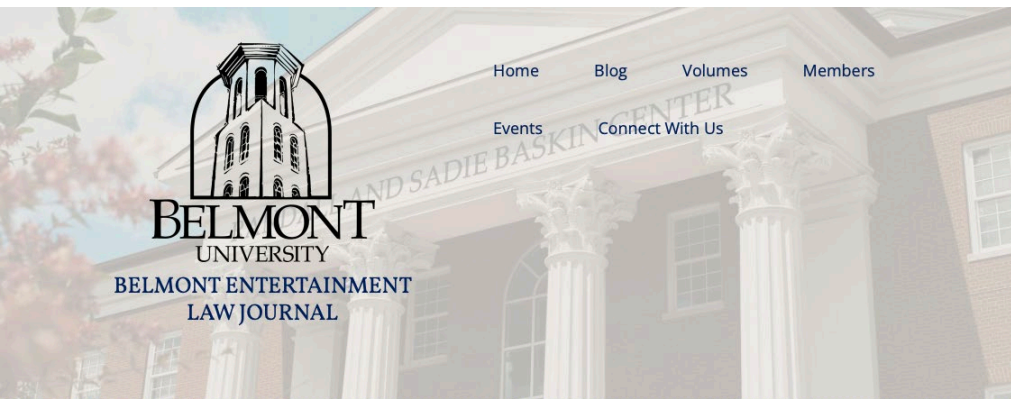
**Access at scale**



# Good citation practices with AI tools

- Cite as you write
- Cite the originals or primary sources
- Cite regardless it's paraphrasing or direct quote
- Cite your own work, appropriately
- Attribute to all types of media used (images, graphs, tables, audios, and videos)
- Implement disclaimers
- Understand the fair use doctrine
- And always keep a list of reference list, and stay updated!

# Starting to use disclaimers



NOVEMBER 4, 2022

## Based on true events: docudramas, disclaimers, and defamation

By: Melissa Bergmann, Senior Editor

In recent years, the “docudrama” genre has grown in popularity. A docudrama is a television series or film featuring dramatized depictions of real events. This genre includes series such as “Dahmer,” “Inventing Anna,” and “The Act.” Coupled with the recent growth in popularity in this genre is growth in defamation lawsuits filed by the real-life individuals depicted in these movies and television shows.

A defamation suit threatens HBO’s 2022 docudrama “Winning Time: The Rise of the Lakers Dynasty.” The series received rave reviews from audiences and critics, but actual members of the 1980’s Los Angeles Lakers basketball team, nicknamed the “Showtime Lakers,” are less than impressed. In a letter sent to HBO by his attorney, Jerry West (former Lakers basketball player, coach, and general manager) called his depiction in “Winning Time” a “baseless and malicious assault on [his] character.” While West has yet to file suit against HBO, the letter alludes to possible false light and defamation claims, which West

### Categories

Blog Posts

### Recent Posts

Author who inspired Mean Girls threatens legal action nearly two decades after its premiere

Legal rumors: can Liam Hemsworth successfully sue Miley Cyrus for defamation over “Flowers”?

Ye West’s legal issues amid anti-semitism controversy

Netflix is done being chill: streaming site cracks down

The story, all names, characters, and incidents portrayed in this production are fictitious. No identification with actual persons (living or deceased), places, buildings, and products is intended or should be inferred.

**Example:** Dr. Pat Jones works with another faculty member as part of his teaching at the local university as an approved outside activity. He and the other faculty member jointly prepare an article for publication in a scientific journal. He may use his official Government title but it **must** be accompanied by the following **disclaimer**, prominently placed so readers see it: ***Dr. Jones contributed to this article in his personal capacity. The views expressed are his own and do not necessarily represent the views of the National Institutes of Health or the United States Government.***



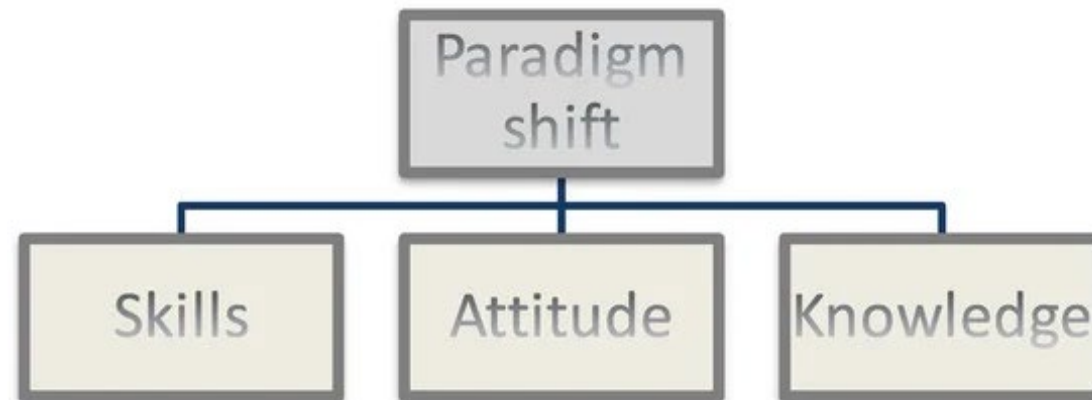
# Disclaimers Versus Disclosures

## Don't do the following

- Claiming AI-generated work as your own
- Rephrasing existing contents
- Concealing AI's role
- Failing to cite or citing incorrectly

## What to do when accused of AI cheating

- Stay calm and re-check all the facts and evidences
- Prove yourself by focusing on your best practices



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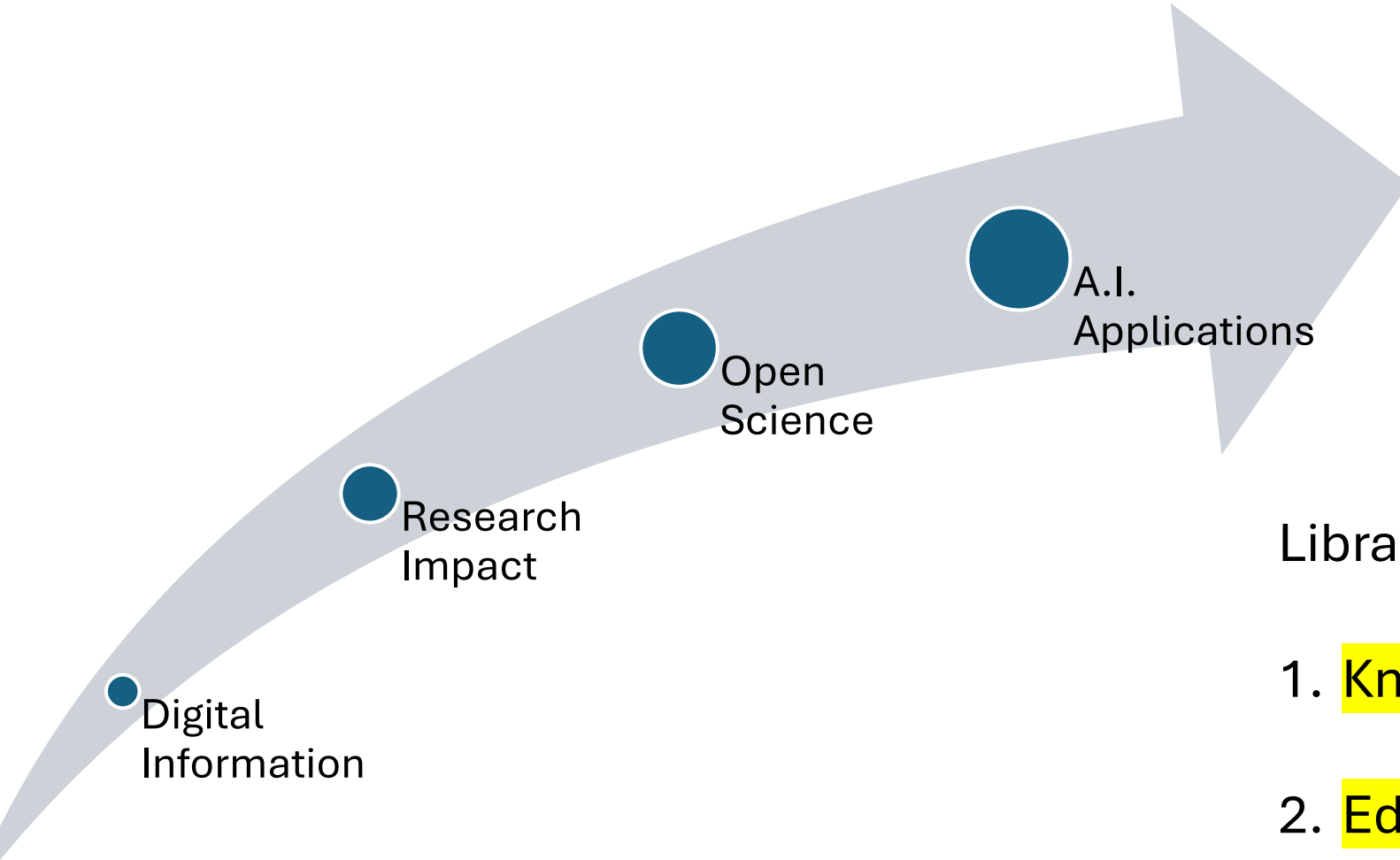
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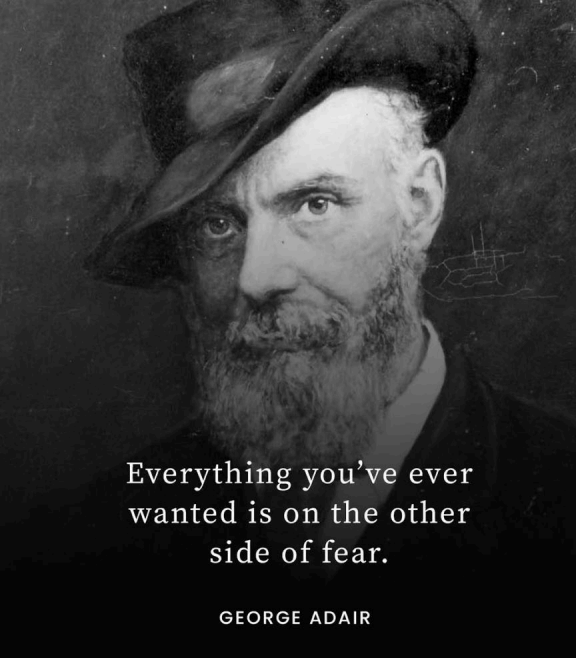
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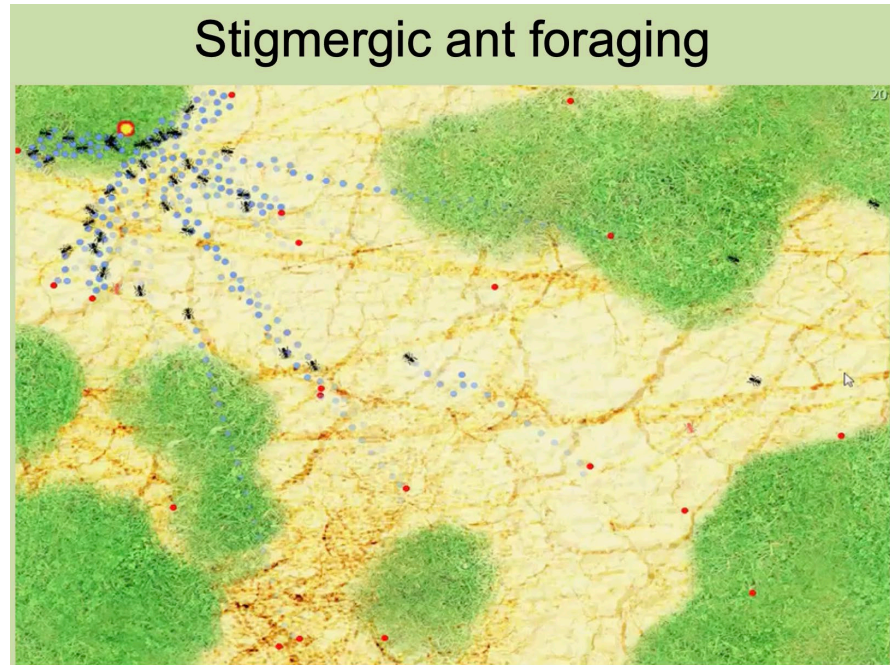


1. The A.I. you are using today is the worst you will ever use
2. A.I. is about augmentation, people before technology
3. A.I. needs data
4. A.I. adoption makes your role relevant
5. To see result, it's more than an implementation
6. The result is: democratization, collaboration, ambidexterity



## Stigmergy:

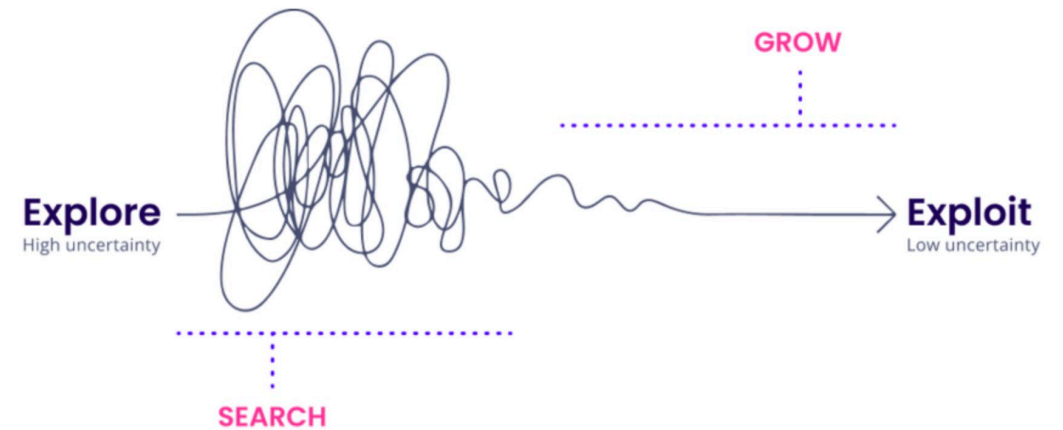
emergent cooperation!



More human-machine  
collaboration

## Ambidexterity:

A.I. for I.A. (innovation  
ambidexterity)



More human-machine  
collaboration

Less human-machine  
collaboration





# Thank You

<https://iesresearch.solutions>

