

# Beyond boundaries: Harnessing technological innovations

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# Changing library landscape

## *Systems*

- Library Management System**
- Digital Library Systems/E-resources**
- Learning Management Systems**
- Research Management Systems**
- Discovery systems**
- Single Sign-on & Self checkout/24 hr opening**
- Online communications systems (Zoom, etc)**
- Augmented Reality Systems**

## *Environmental factors*

- Artificial Intelligence**
- Internet as a means of Content Delivery**
- Mobile and IoT**
- Open source**
- Open Access**
- Analytics and Metrics**
- Automation & Robotics**

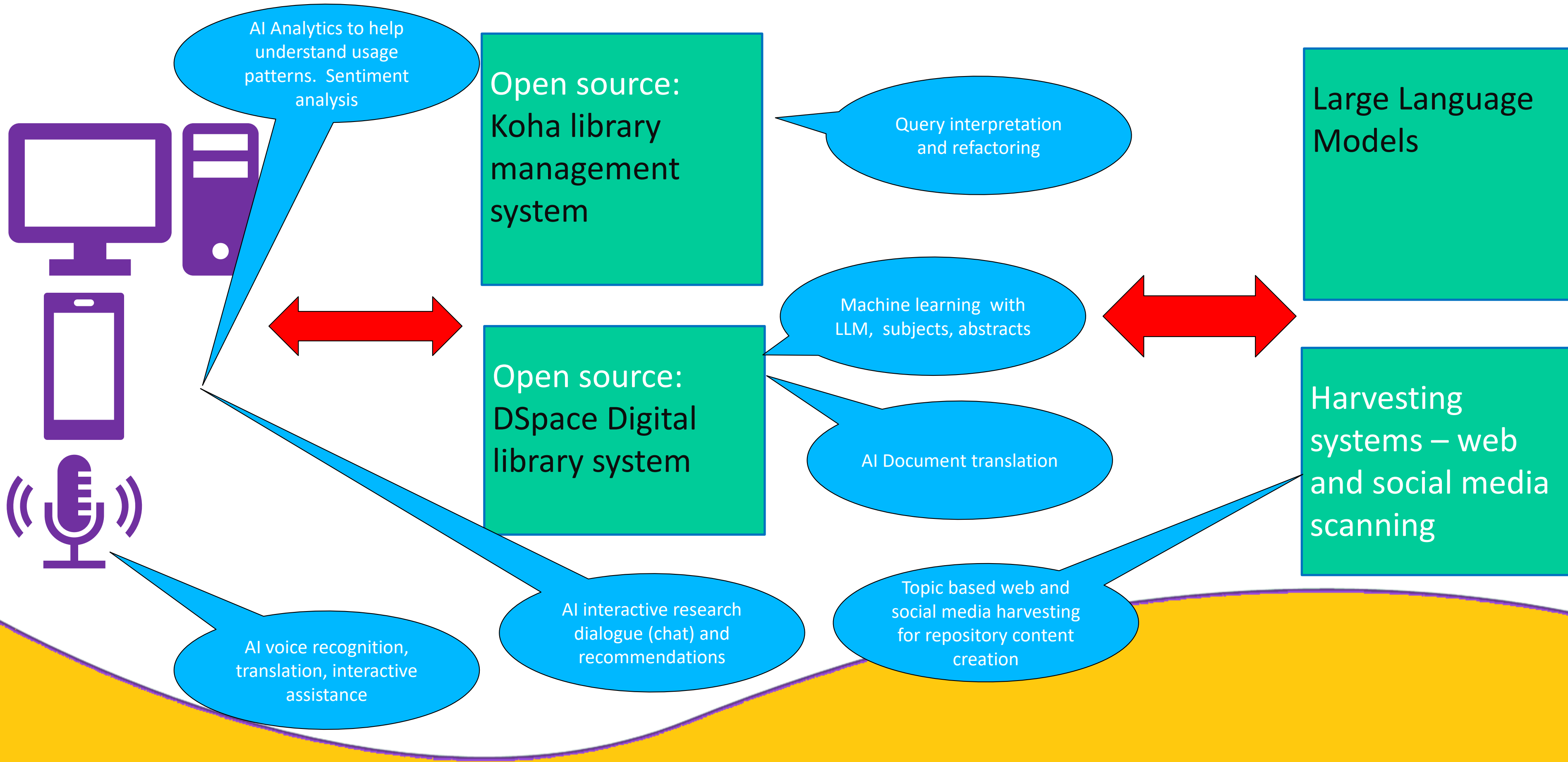
# Trust, the library and Artificial Intelligence

## Opportunity

- Libraries as a trusted institution
- Libraries as educators in Research and AI
- Libraries using AI to enhance information delivery and service
- Embedding trusted AI in library systems

## Threat

Generative AI as an alternative to library services



# Cloud and Web: A rich online research ecosystem

## Web resources

### Well established:

Web of Science

Scopus

Google Scholar

Crossref / DataCite → DOI metadata

ORCID → researcher identifiers

### New players

•OpenAlex → bibliographic knowledge graph

•OpenCitations → citation graph

•Lens / Semantic Scholar → discovery interface

## Cloud with an international footprint

Amazon

Google

Microsoft

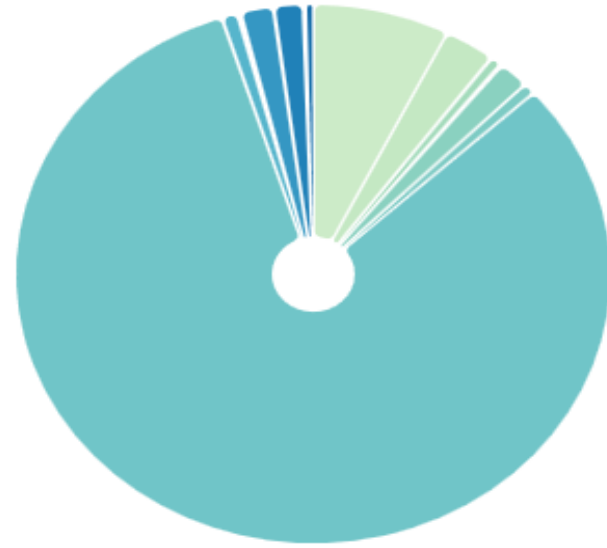
Wasabi (object storage only)

## Online services

Server hosting for library systems

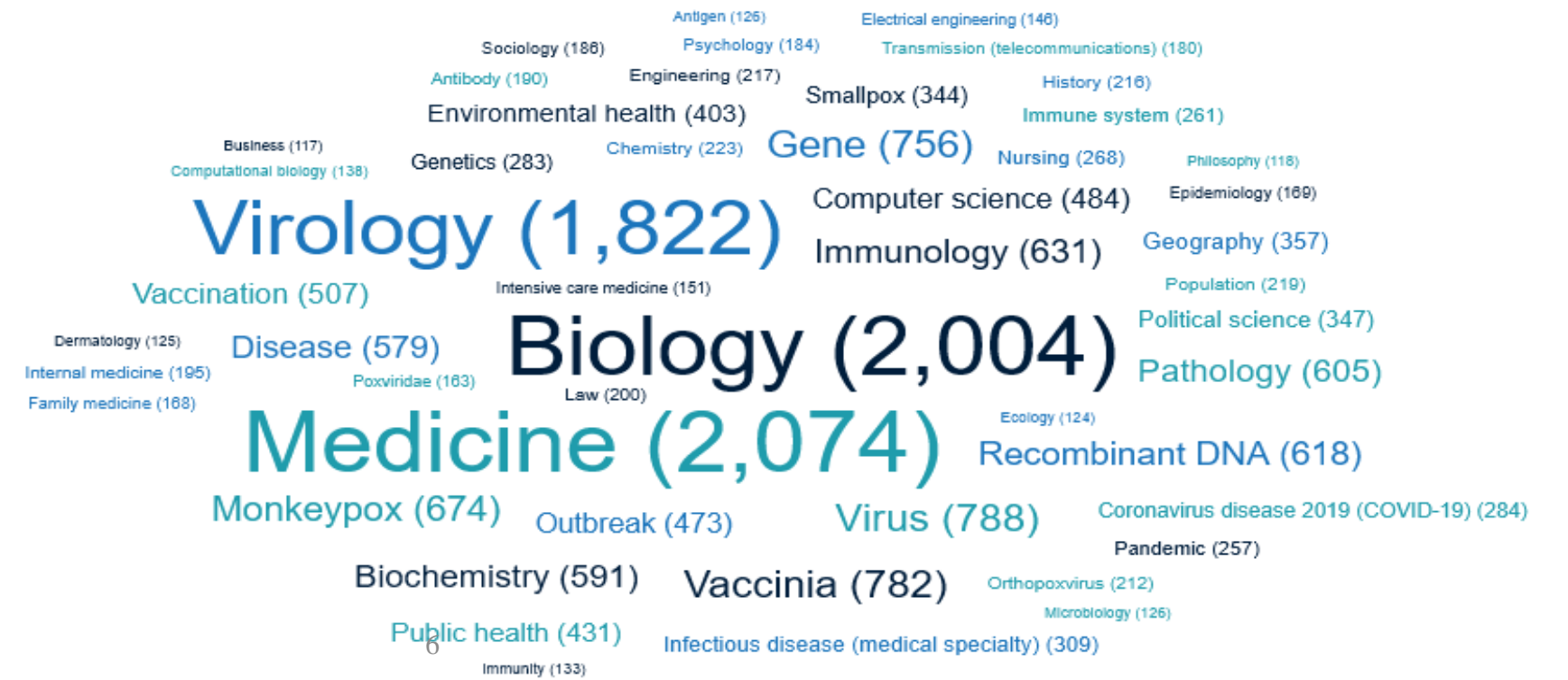
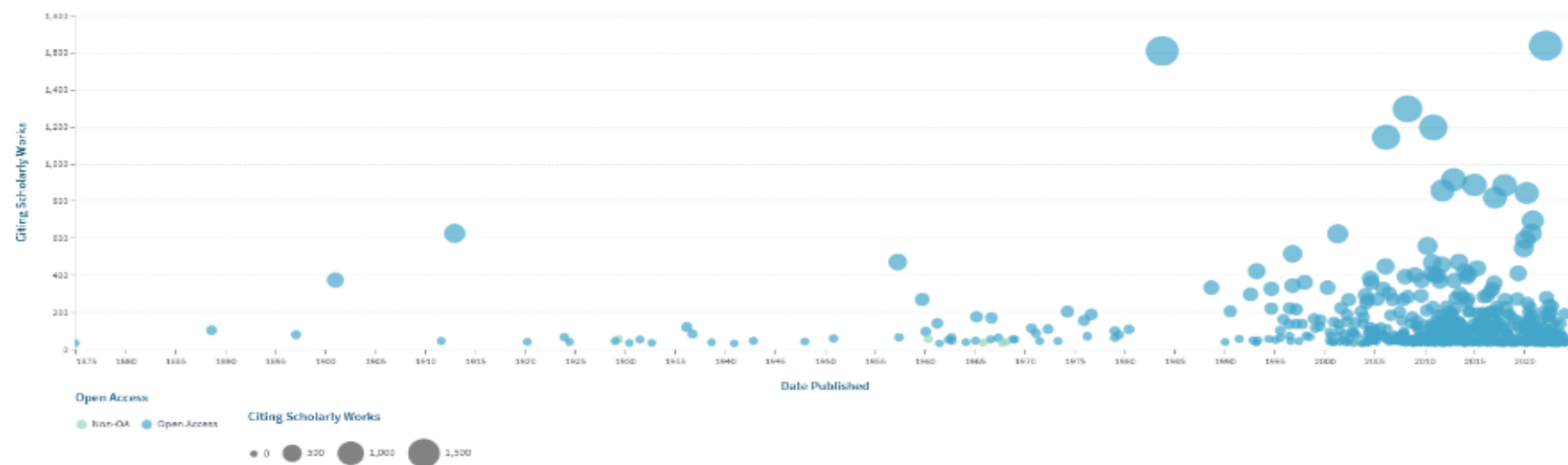
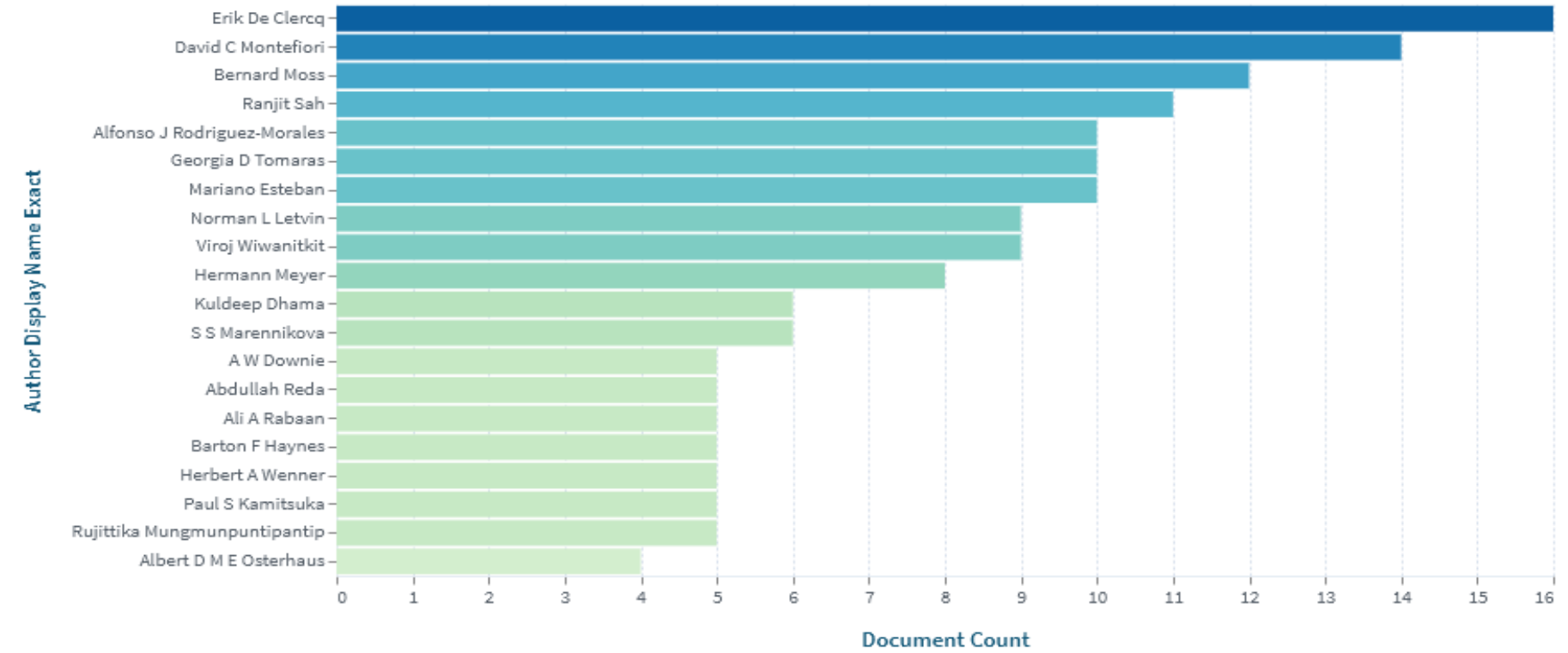
GenAI leasing and development

Document storage at scale



### Legend

- Book
- Conference Proceedings
- Dissertation
- Journal Issue
- Other
- Report
- Book Chapter
- Conference Proceedings Article
- Editorial
- Letter
- Preprint
- Review
- Component
- Dataset
- Journal Article
- News
- Reference Entry
- Unknown Document



# Language and AI

Google translate supports

**East Asian:** Chinese (Simplified & Traditional), Cantonese, Japanese, Korean.

**Southeast Asian:** Vietnamese, Thai, Indonesian, Malay, Filipino (Tagalog), Burmese, Lao, Khmer, Ilocano.

**South Asian:** Hindi, Bengali, Punjabi (including Shahmukhi script), Tamil, Telugu, Kannada, Malayalam, Gujarati, Marathi, Nepali, Sinhalese, Assamese, Bhojpuri, Dhivehi, Dogri, Konkani, Maithili, Meiteilon (Manipuri), Mizo.

**Central/Western Asian:** Kazakh, Kyrgyz, Tajik, Uzbek, Pashto, Persian, Kurdish (Sorani), Armenian, Georgian, Mongolian

Threat

Investment in enabling AI  
excludes some groups

Risks of errors and bias

- Reduce linguistic boundaries in access to Research
- Increase access across cultural boundaries

# Generative AI

## Opportunity

- Extend access deep into Asia-Pacific research through multi-lingual machine learning and abstract extraction

## Threat

Generative AI replaces deep research and deep reading

# Taking control of the Generative AI

- Generative AI introduced a whole new element of communicative ability
- Taken in isolation the responses can be very problematic
- The worst effects can be contained by **taking control** of the process by techniques such as:
  - Verifying responses against intents
  - Retrieval Augmented Generation (RAG)
  - Post generative content auditing (faithfulness testing)

# Data Depth and Big Data

## Opportunity for libraries

- Continue the creation of rich cultural and research resources
- Exploit techniques of RAG to leverage LLM's to enrich metadata (Machine learning )
- Improved search results through use of analytical metadata

## Threat

- Exploitation of public research by AI bots toward creation of large language models remains the preserve of the

# Cultural Heritage and AI

## Opportunity

- Reach out to local cultural institutions
- Build digital heritage to preserve digital heritage
- Share skills in the region
- Leverage open source and build local skills "own the resource"
- Partner where possible to share skills

## Threat

- Lack of investment
- AI "anxiety"
- Lead time in building the "rerequisites"
- Digital repositories
- Digital cultural assets

WORKSHOP

# Deep Dive into Large Language Models

Understanding LLMs | Training & Applications | Ethics & Challenges

# How IFLA IT Section is working with Asia/Pacific libraries

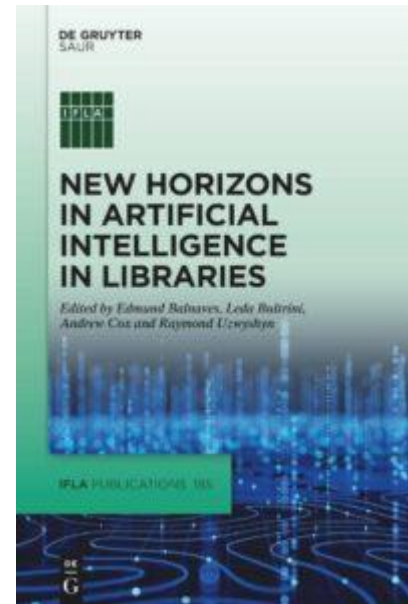
IFLA Regional Division

The Information Technology Section has collaborated in a series of four Symposia on Robotics and AI.

A further symposium is planned for November in Dubai

The IFLA AI SIG is active in the area of Artificial Intelligence

# New Horizons in Artificial Intelligence



The AI toolset: *(more than GPT!)*

- \* *Machine learning toolkits (many in opensource)*
- \* *Large language models ( can be run locally)*
- \* *Analysis of analytics - usage patterns, potential purchase recommendations*
- \* *AI and robots*

