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Leveraging AI for Current Research Information Systems: Opportunities and Challenges

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CURRENT CHALLENGES OF CRIS

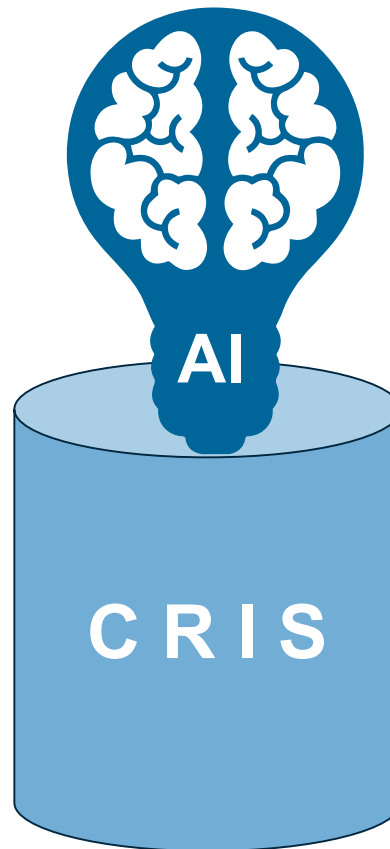
- Fragmented information
- Manual data entry
- Limitation of analytical capabilities

ETHICAL DIMENSIONS

- Transparency
- Accountability
- Ethical deployment

AI CHALLENGES

- Algorithmic bias and error
- Data Issues
- AI Safeguards
- Mitigation measures



ENDLESS OPPORTUNITIES

- Automating data handling
- Enhancing analytical capabilities
- Improving the user experience

RESPONSIBLE INTEGRATION

- Trust-building measures
- Addressing various implications openly
- User-centered approach

USER EXPERIENCE

- Automated Data Generation vs. Data Suggestion
- User Control and Customization
- Feedback mechanisms
- User training & support

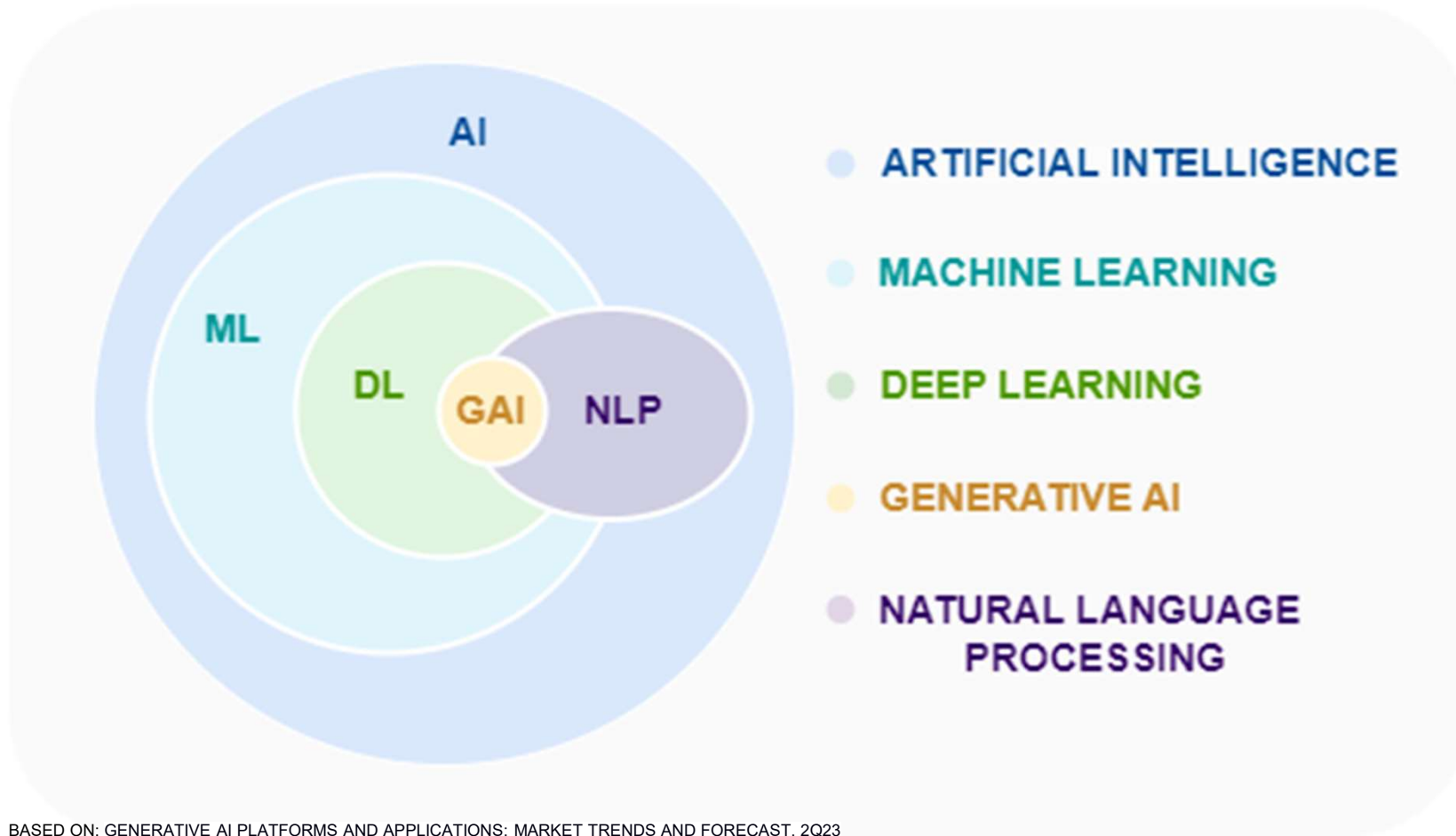


Interactive Poll

- Go to menti.com
- Access Code: 3981 0967



AI: Overview and Terminology



BASED ON: GENERATIVE AI PLATFORMS AND APPLICATIONS: MARKET TRENDS AND FORECAST, 2Q23

Requirements for Successful AI Integration



DATA ACCESS

Availability of data, including legal and ethical considerations



ACCURACY

The degree to which data correctly reflects real-world attributes



COMPLETENESS

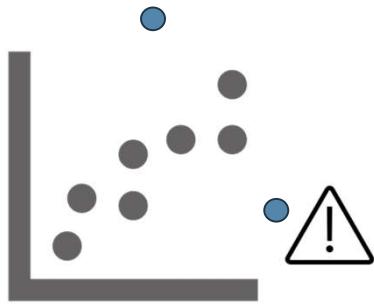
Ensuring no critical data is missing from the dataset



STRUCTURE

Explicit or implicit, discovered in pre-processing and learned by the model

Data Mining and Big Data Analytics



**PATTERN RECOGNITION
& OUTLIER DETECTION**



DATA VISUALIZATION



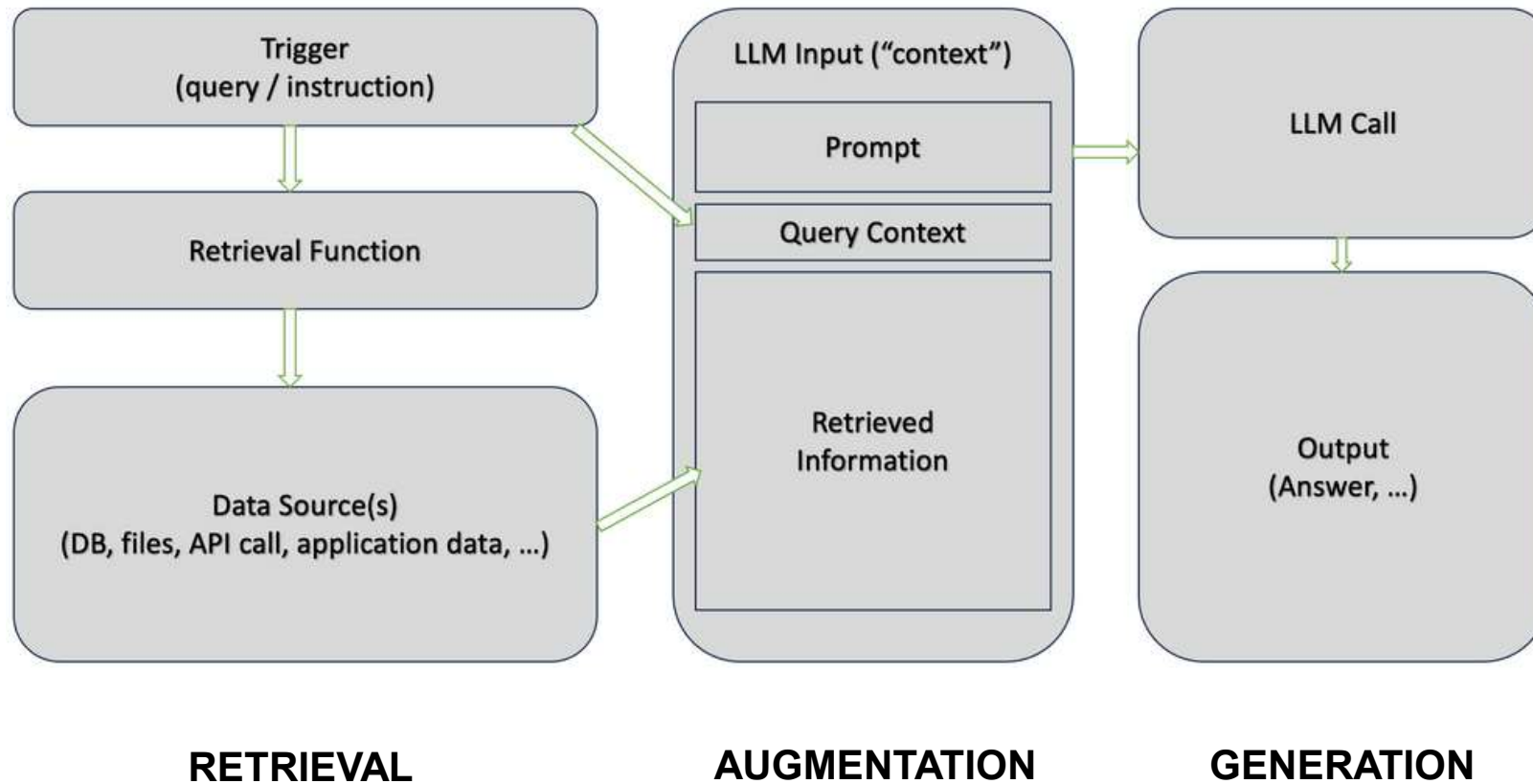
DATA ANALYSIS

The Role of Natural Language Processing (NLP)

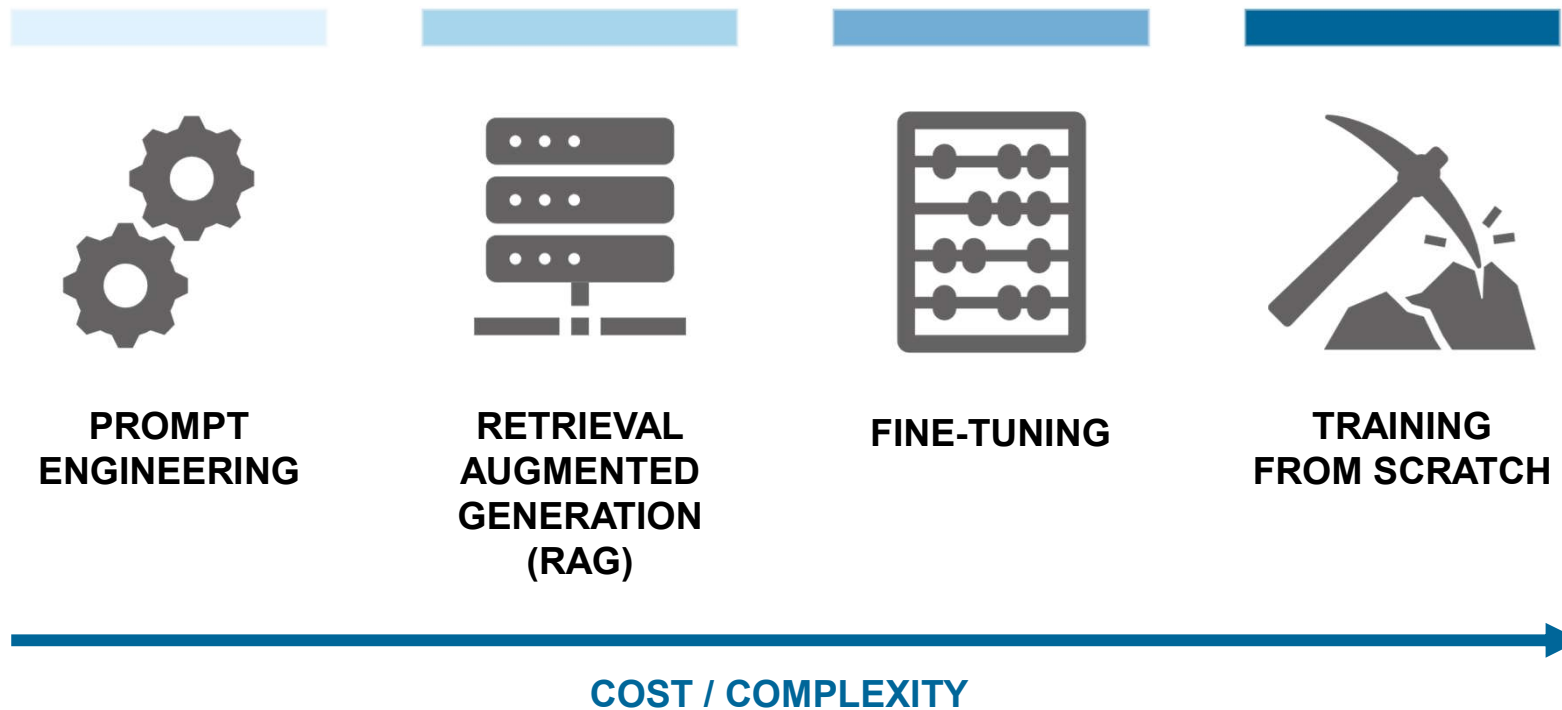


NLP bridges the gap between human language and computer understanding

Large Language Models (LLMs) and the RAG-Pattern



Customizing Large Language Models (LLMs)



Use Case: Improving Data Quality

DATA CLEANSING



Validation
Deduplication
Standardization

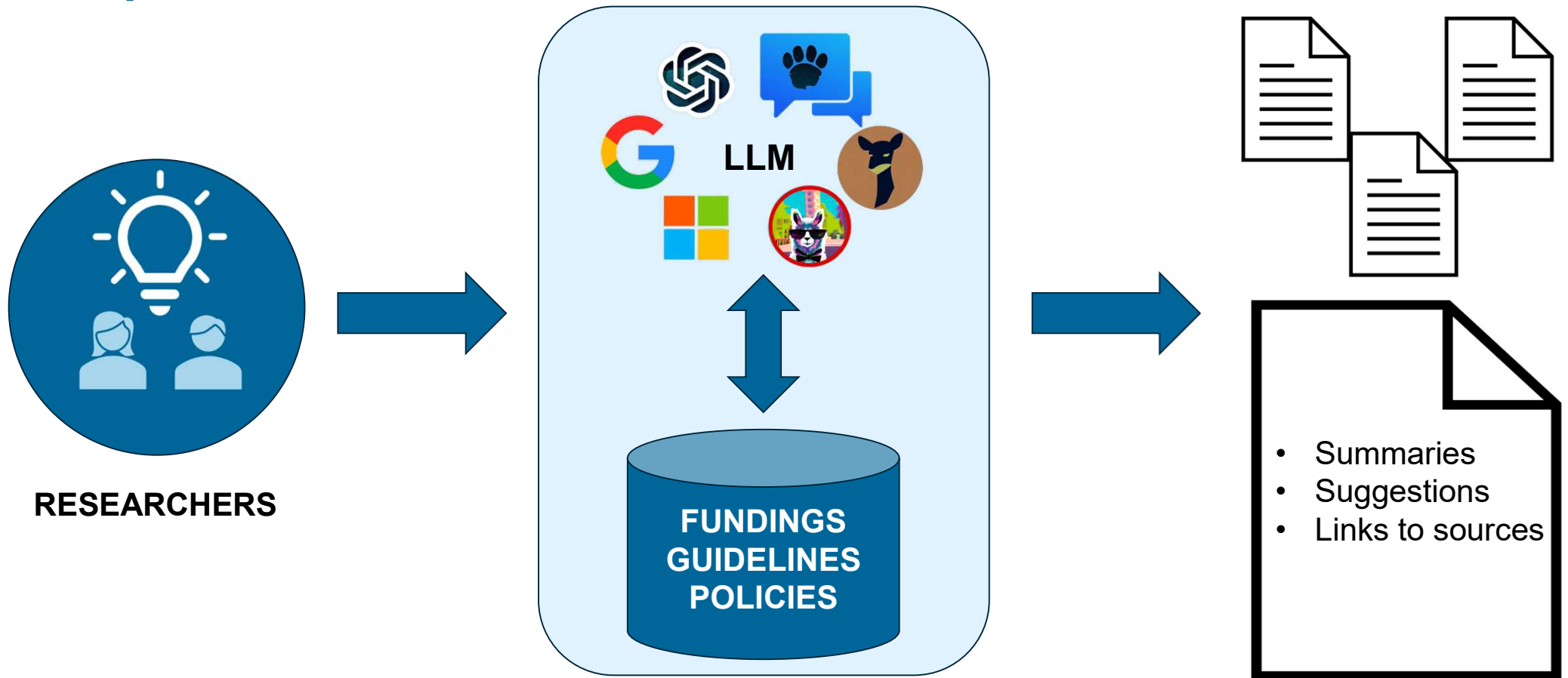
DATA ENRICHMENT



Classification tasks
Data Extraction

HIGH-QUALITY DATA ➡ **EFFECTIVE AI APPLICATIONS**

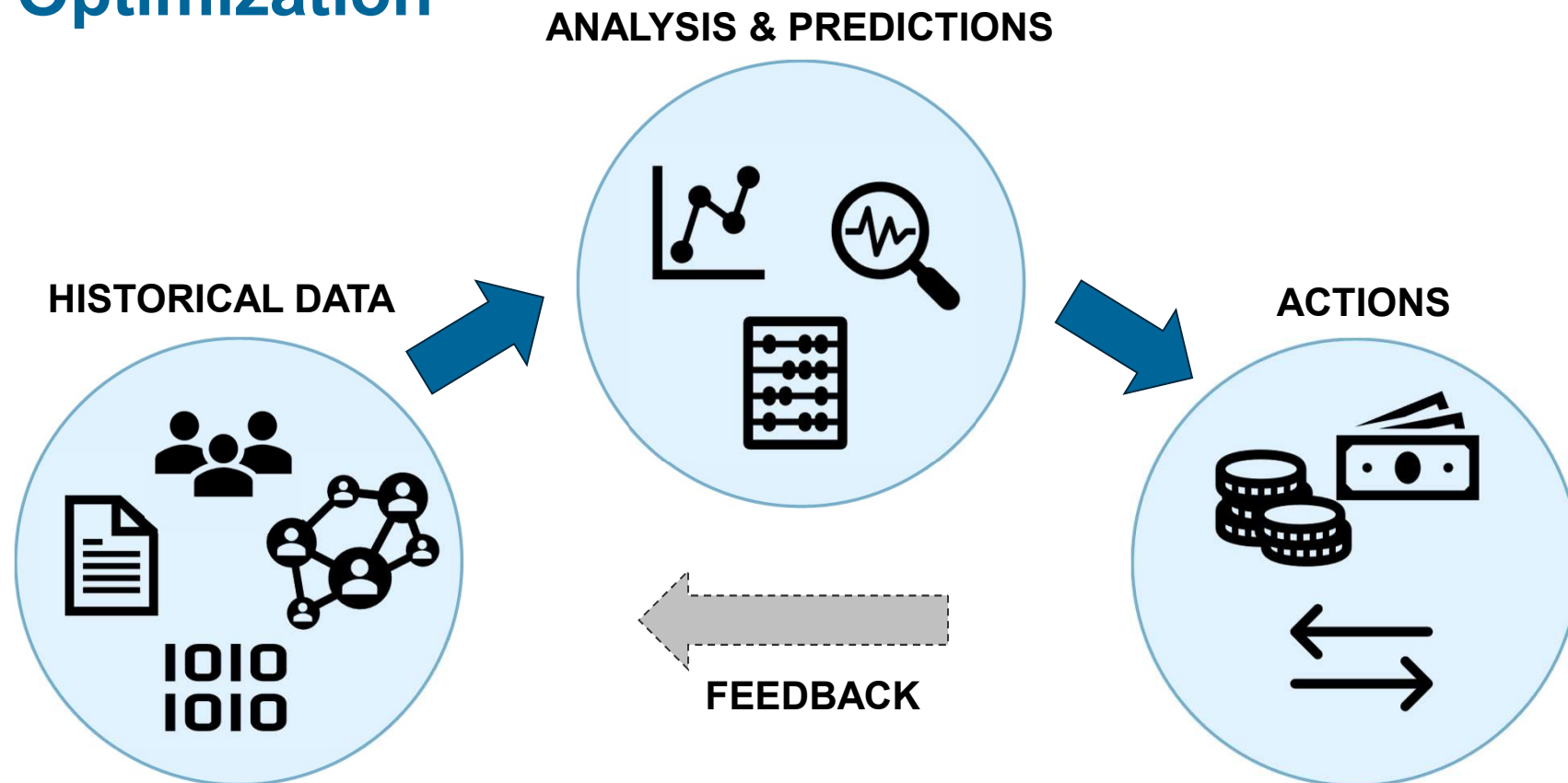
Use Case: Advanced Information Retrieval through AI-powered Chatbots



Use Case: Trend Analysis



Use Case: Predictive Analytics and Resource Optimization



Use Case: Personalized Recommendations



PUBLICATIONS

Research interests, journals by success rate, ...



NETWORK

Collection of previous Collaborations



FUNDING HISTORY

Previous successful utilized funding opportunities

DATA COLLECTION



CONNECT

Find possible collaborations



SUGGEST FUNDING

Identify relevant funding opportunities



FEEDBACK

Provide insights to improve the likelihood of success

RECOMMENDATIONS

Challenges

DATA ISSUES

Data Quality

Data Privacy

Security

Ownership



AI CHALLENGES

Algorithmic Bias

Accuracy / Hallucinations

Model Selection

Implementation strategies

Ethics Guidelines for Trustworthy AI: Ethical Principles



**Respect for
human autonomy**



Prevention of harm

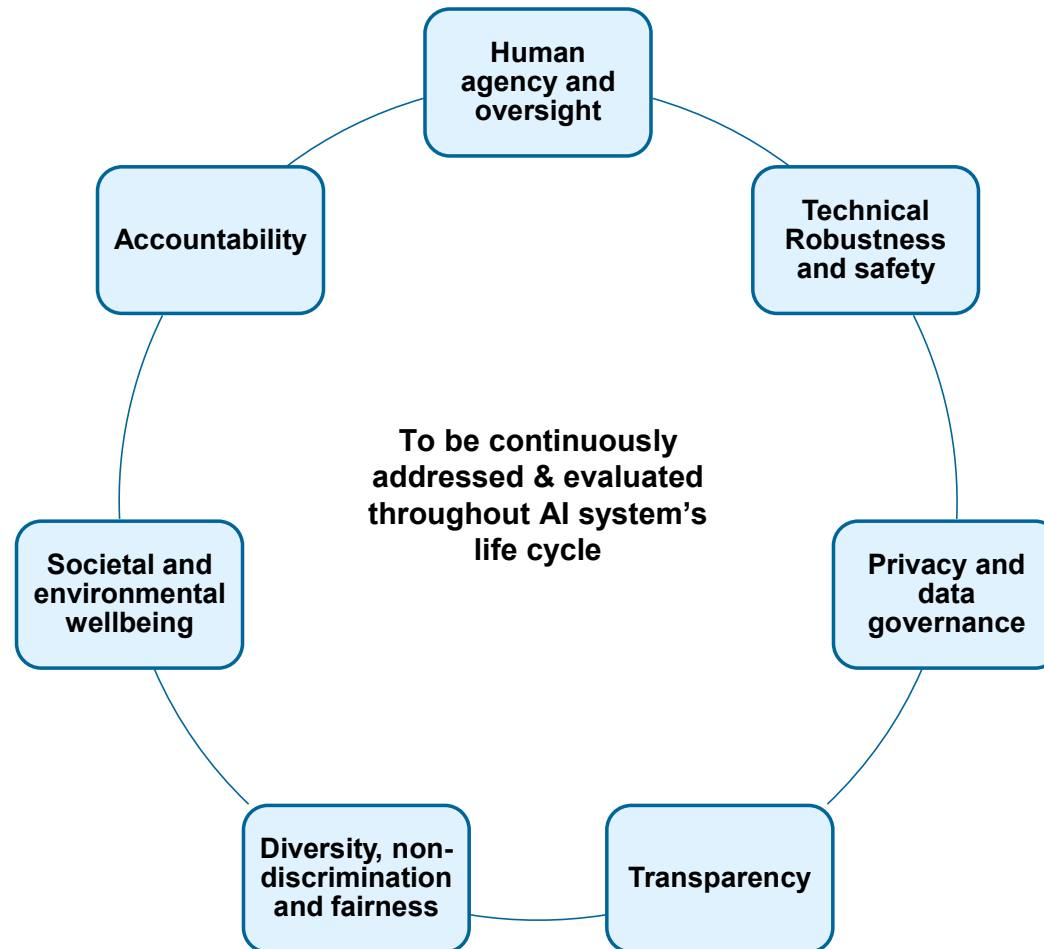


Fairness



Explicability

Ethics Guidelines for Trustworthy AI: Key Requirements



Conclusion: Balancing Opportunity & Responsibility

