

The AI4CRIS working group: Leveraging Artificial Intelligence to Enhance Research Information

“any [natural] intelligence that performs an activity that can be improved by being performed by another [artificial] intelligence, will eventually be replaced by the latter”.

<http://hdl.handle.net/11366/2656>



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Introduction: AI for research information

Definition of Artificial Intelligence (AI)

Simulation of human intelligence in machines that are programmed to think and learn.

Overview of Current AI Trends

AI is revolutionizing various sectors, including healthcare, finance, and, of course, research

Importance of AI in Modern Research

Ability to process vast amounts of data and identify patterns makes it a powerful tool for enhancing research efficiency and innovation.
Highlight the transformative potential of AI in the research domain

Benefits Observed

AI has significantly improved research outcomes, leading to increase accuracy and substantial time savings.

Introduction: AI in knowledge production

AI revolutionizes research by:



Funding: optimize resource allocation by identifying promising research areas and predicting project success.



Scientific outputs: AI accelerates research pace, helps discover patterns and trends, and facilitates interdisciplinary collaboration.



Standards and infrastructures: creating new standards and protocols for ethical AI use and enhancing data accessibility.



Legal adjustments: Addressing IP rights, data protection, and liability issues.



International collaboration: Facilitating communication, data sharing, and project management globally.

Introduction: Importance of integrating AI for research

1 Enhancing data management and accessibility

Making it easier for researcher to find and utilize information.

2 Improving research collaboration and networking

Connecting researchers with similar interests and facilitating knowledge sharing.

3 Driving innovation and efficiency in research processes

Allowing researchers to focus more on creative and strategic tasks rather than mundane data handling.

Potential use cases: Some examples to start with...

... Compiled from CRIS2024 conference

High quality data (validation, deduplication, standardization) → Effective AI applications

1 Data management and classification

- Researchers profile automatization, research groups and projects classification, emerging areas of research, etc
- Predictive analytics
- Resource optimization

2 Intelligent agents

AI-Powered chatbots, referral systems, personalised recommendations, etc.

3 CERIF enhancement

- Semantic enrichment
- Automated data integration
- Enhanced collaboration networks
- Quality assurance and peer-review



... so why not create a working group?

AI4CRIS Working Group – Objectives



Explore AI applications that enhance data management and streamline workflows in research information



Identify key use cases for AI integration in research information systems



Address challenges institutions face when implementing AI technologies



Foster discussion around best practices and ethical considerations

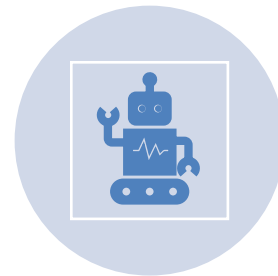


AI4CRIS Working Group – A collaborative approach



- **Facilitate** knowledge exchange through events, surveys, and online platforms
- **Develop** AI-driven solutions tailored to the euroCRIS community
- **Ensure** members stay at the forefront of AI advancements in research management

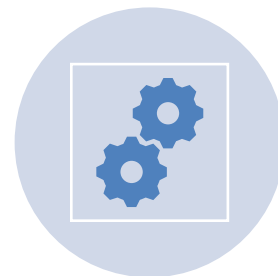
AI4CRIS Working Group – Focus areas



Data Quality Enhancement:
Leveraging AI for improved data entry, validation, and integrity



Advanced Analytics:
Utilizing machine learning and natural language processing for deeper insights



Workflow Optimisation:
Automating routine tasks to increase efficiency



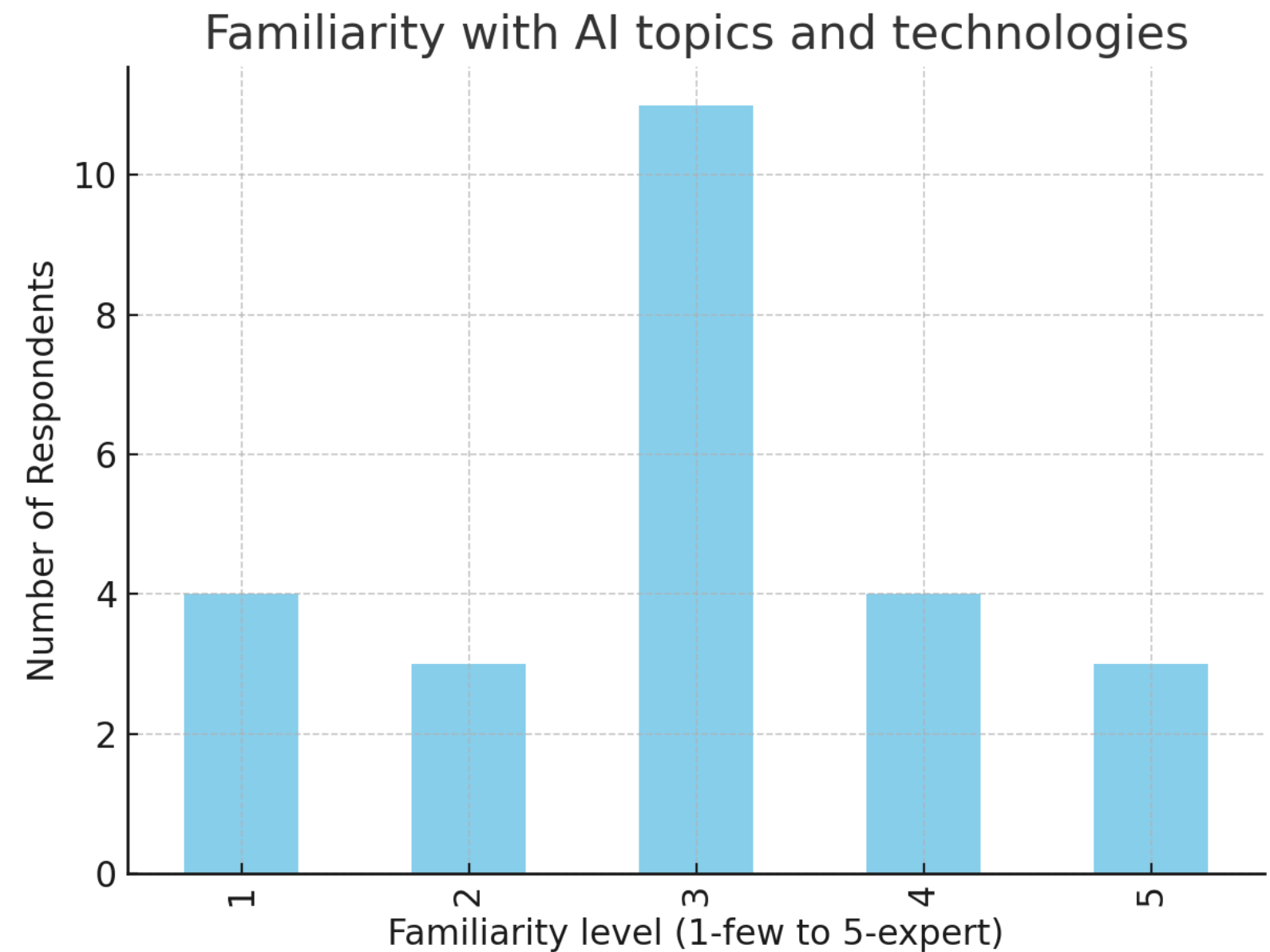
Ethical AI Implementation:
Addressing privacy concerns and ensuring responsible AI use

Online Survey – Results (1/4)

How would you rate your familiarity with AI topics and technologies?

Average Rating:

2.96

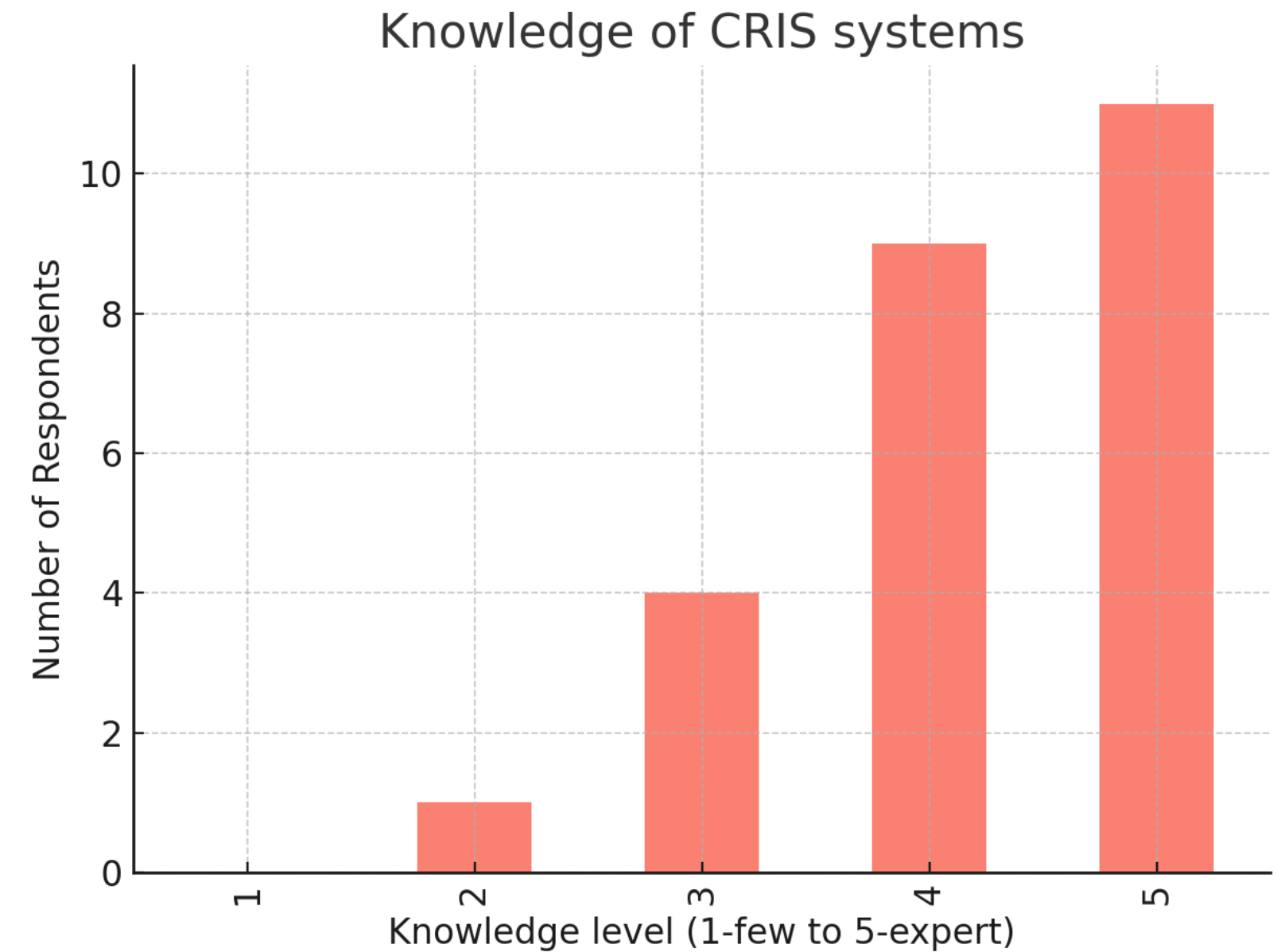


Online Survey – Results (2/4)

How would you rate your
knowledge of CRIS systems?

Average Rating:

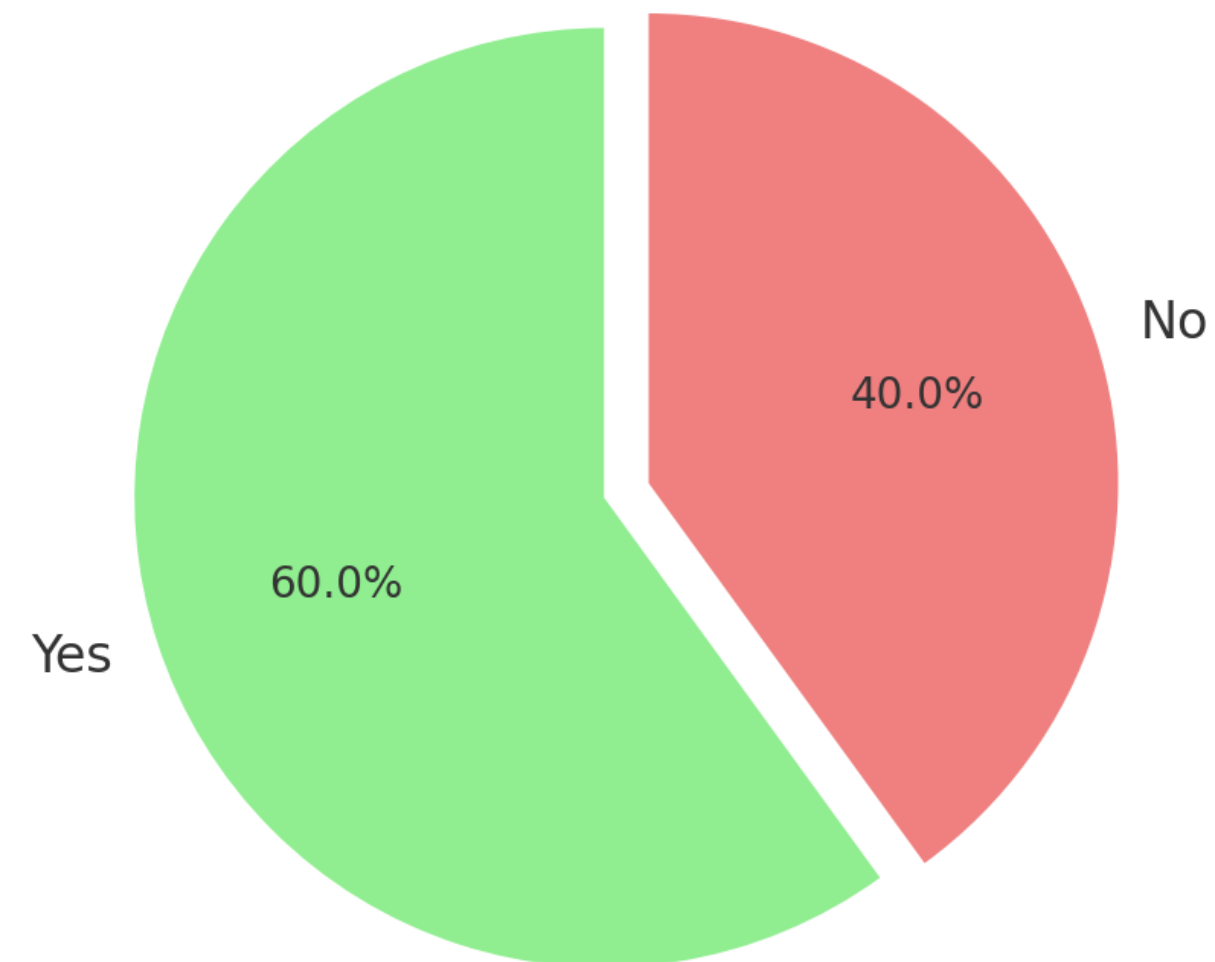
4.20



Online Survey – Results (3/4)

Is your institution currently working on integrating or has already deployed AI into its CRIS?

AI Integration in CRIS



Online Survey – Results (4/4)

What specific AI-related use cases are currently being implemented in your organisation?

- **Data extraction and metadata generation** (funding documents, CVs, multimedia)
- **Utilization of AI tools and assistants** (Claude Tools, Croissant, Microsoft Copilot)
- **Workflow optimization and automation for routine tasks**
- **AI for classification and topic modeling** (fingerprints/SDGs in Pure, clustering of research information, classification of papers)
- **Development of new AI tools** (prototyping classification and annotation tools)

What are the objections, obstacles or limitations?

- **Technical challenges** (data quality and integration, infrastructure/architecture, finding the right AI models, temporary classifications, human input still necessary)
- **Organizational readiness** (need to fix basics first, exploratory phase/early stages of adoption, not currently prioritized)
- **Knowledge and awareness gaps** (lack of internal expertise, unawareness of risks)
- **Security and compliance concerns** (internal processes and security requirements, data privacy issues)
- **Dependence on external vendors**
- **User acceptance and control over personal data**

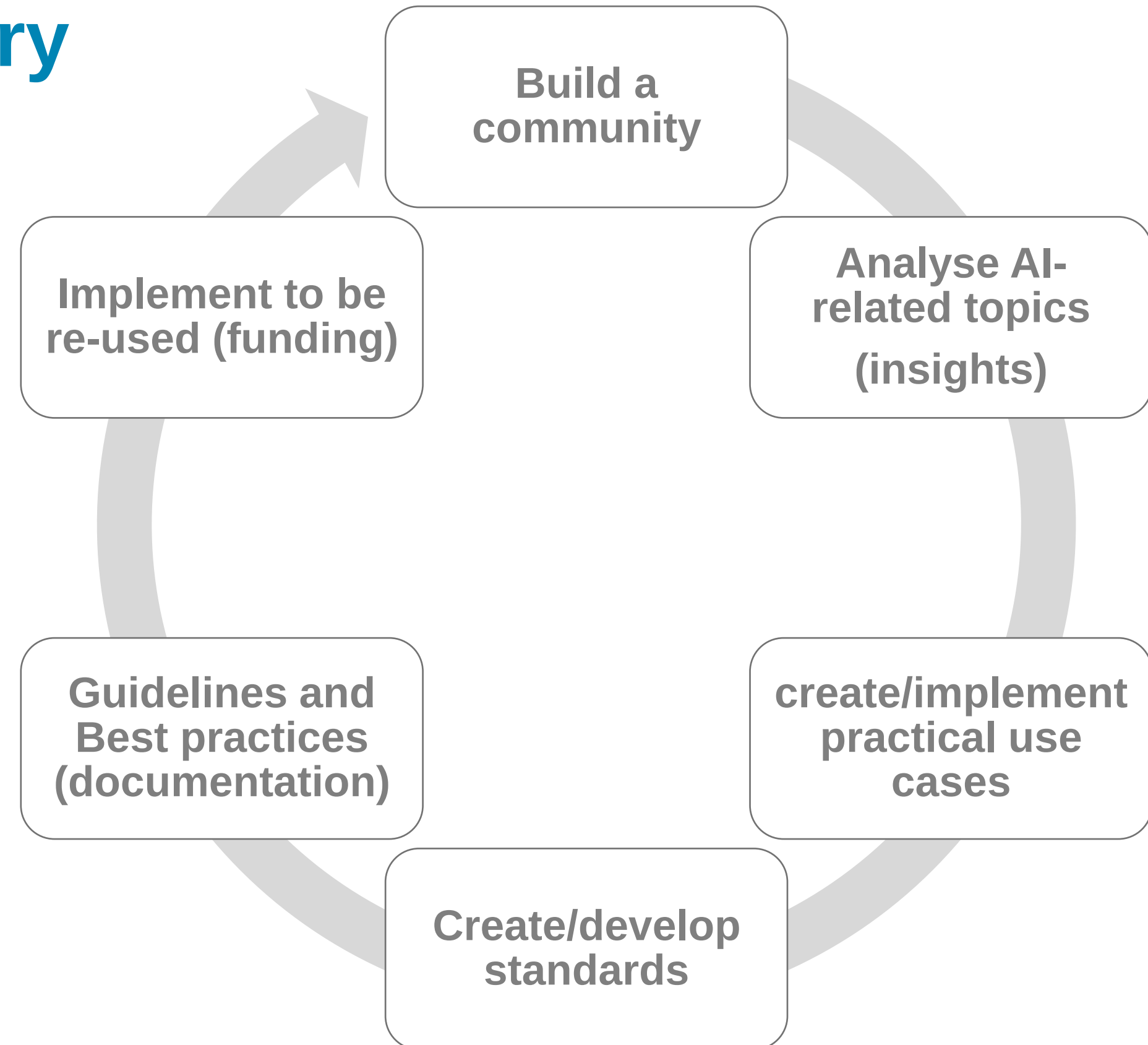
First meeting – Questions made to 18 participants to the first group meeting (Oct,22).

- 1) What specific goals do you hope to achieve through your participation in this group?
- 2) How do you anticipate benefiting from being a part of this working group?
- 3) What key topics or issues are most important for you to address in this group?
- 4) How can you contribute to this group's efforts?

First meeting – Summary

Ideas from the participants:

- **Engagement:** Share ideas and best practices; set standards for ethics and security.
- **Use Cases:** Improve data quality with narrative CVs and classification.
- **Resources:** Promote cost-effective, open-source AI solutions.
- **Trust:** Advocate for explainable AI.
- **Research:** Integrate AI in data management.
- **Standards:** Ensure reproducibility and manage system load.
- **Expertise:** Share specific experiences.
- **Collaboration:** Support practical implementation through teamwork.



First meeting – What specific goals do you hope to achieve through your participation in this group?

- **Community Insights:** Gain awareness of the current AI-related activities within the community and understand what others are implementing in AI for research information.
- **Exchange of Ideas:** Share and gather ideas, challenges, and best practices for AI applications in research information.
- **Use Case Definition:** Establish initial use cases, with specific interest in areas like narrative CVs and data classification (FoS, SDGs).
- **Cost and Resource Sharing:** Explore cost-sharing opportunities for AI implementations and resource utilisation.
- **Networking and Inspiration:** Build connections with other institutions and gain inspiration for innovative AI applications.
- **Practical Applications of AI:** Enhance understanding of AI applications, specifically focusing on improving data quality and defining institution-specific use cases.

First meeting – How do you anticipate benefiting from being a part of this working group?

- **Community of Practice:** Develop a supportive network for shared learning and knowledge exchange.
- **Guidance on Standards:** Contribute to the development of best practices and standard use cases for interoperability.
- **Ethics and Security Clarity:** Gain clarity on ethics, security, and other foundational prerequisites for AI use.
- **Applicability to Own Context:** Tailor insights to specific institutional contexts, improving AI alignment with local needs and situations.
- **Understanding Motives:** Deepen understanding of different use cases and the reasoning behind them.

First meeting – What key topics or issues are most important for you to address in this group?

- **Ethics and Security:** Establish ethical guidelines, data privacy protections, and security standards for AI in research information.
- **Cost and Accessibility:** Discuss costs associated with AI adoption and the need for open-source, explainable AI algorithms.
- **AI in Data Management:** Identify roles for AI in knowledge graphs, data classification, data quality improvements, and entity recognition.
- **Trust and Transparency:** Address trust issues with AI “black box” models, especially regarding vendor-controlled AI.
- **Reproducibility and Training:** Consider strategies for retraining AI models and ensuring reproducible outcomes.
- **Technical Standards and Load Management:** Create technical standards for AI integration, with insights into system load by AI tools on CRIS databases.

First meeting – How can you contribute to this group's efforts?

- **Technical and CRIS Expertise:** Offer technical skills and specific knowledge to aid in discussions and implementations.
- **Use Case and Challenge Sharing:** Share personal use cases, implementation challenges, and relevant experiences (e.g., fingerprinting, SDGs, routine automation).
- **National-Level Contexts:** Provide insights into national-level use cases, especially for workflow and data management improvements.
- **Practical Implementation Support:** Participate in the description and potential implementation of use cases that align with group goals.

How to participate

Join to the AI4CRIS!!



- Be a pioneer in integrating AI for research information
- Collaborate with experts on AI and innovators in research information
- Your expertise can drive the evolution of Research information systems
- **Next steps**
 - Next group meeting in January 2025 (tbd)
- **Contact us!!** ai4cris@eurocris.org



Thank you!