Ethical Issues of the Organization and Management of Research Information

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About research information management systems

Research information management

- Research information = information about research
- Data, information and knowledge about organizations, persons, performance, facilities etc.
  - Projects, activities, outcomes, structures, individuals, infrastructures, equipment, facilities, and more
- Assessment, monitoring
  - Key performance indicators
  - Knowledge organization
  - Decision making

RIMS – or CRIS

- Software that aggregate, organizes, and processes metadata related to research activities
- Primary objectives:
  - to generate valuable and dependable knowledge about research
  - to assist research institutions in providing funding information and facilitating reporting processes
- A particular kind of knowledge organization systems, understood as a generic term for tools designed to support the organization of knowledge and information in order to make their management and retrieval easier
- A marketplace with a large variety of providers, systems, and solutions

Pure

Clarivate Analytics

DSPACE CRIS

VIVO connect share discover

euroCRIS THE INTERNATIONAL ORGANISATION FOR RESEARCH INFORMATION

(1) The challenge of ethics

Doing good science in a good manner

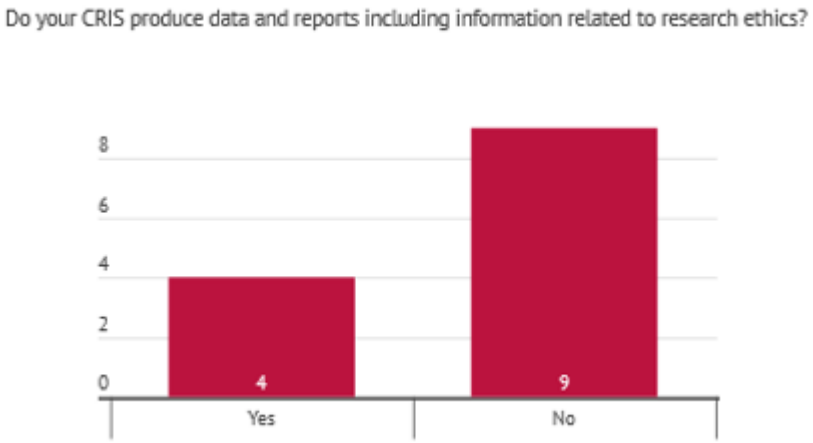
- Research ethics provides concepts and recommendations of “right” and “wrong” scientific practice, especially norms of conduct that distinguish between acceptable (responsible) and unacceptable scientific behavior.
  - Academic interest in research ethics and research integrity is steadily increasing, above all in medical and health sciences.
- Main issues are falsification and fabrication of research data, informed consent, patient safety, plagiarism and conflict of interest.
  - Regarding technologies and infrastructures, a growing body of research reveals recurrent themes and dimensions of ethics, such as privacy, security, autonomy, justice, human dignity, control of technology and balance of power.

A double challenge for CRIS

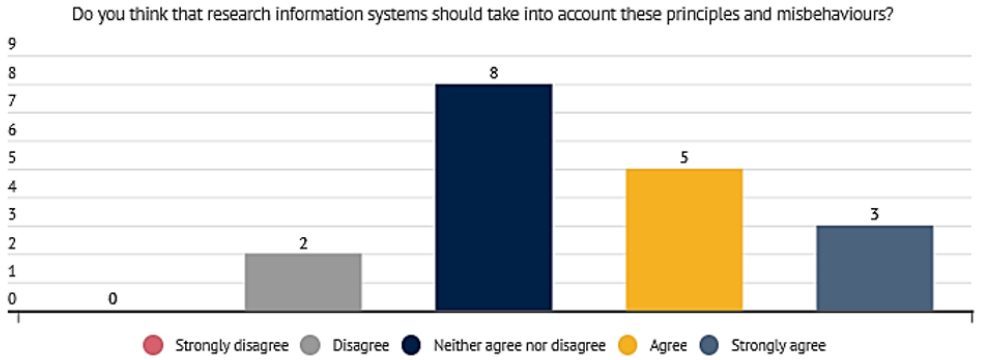
- Research ethics is highly relevant for the evaluation, the monitoring and the governance of research activities
- Research ethics is a double challenge for CRIS
  - The CRIS data models should be able to represent ethical aspects of research.
  - The design, implementation and functioning of CRIS should be compliant with usual ethical standards of scientific research.
- CRIS as a special case of KO systems

The potential of CRIS

Most CRIS do not provide ethics-related assessment



But they should…



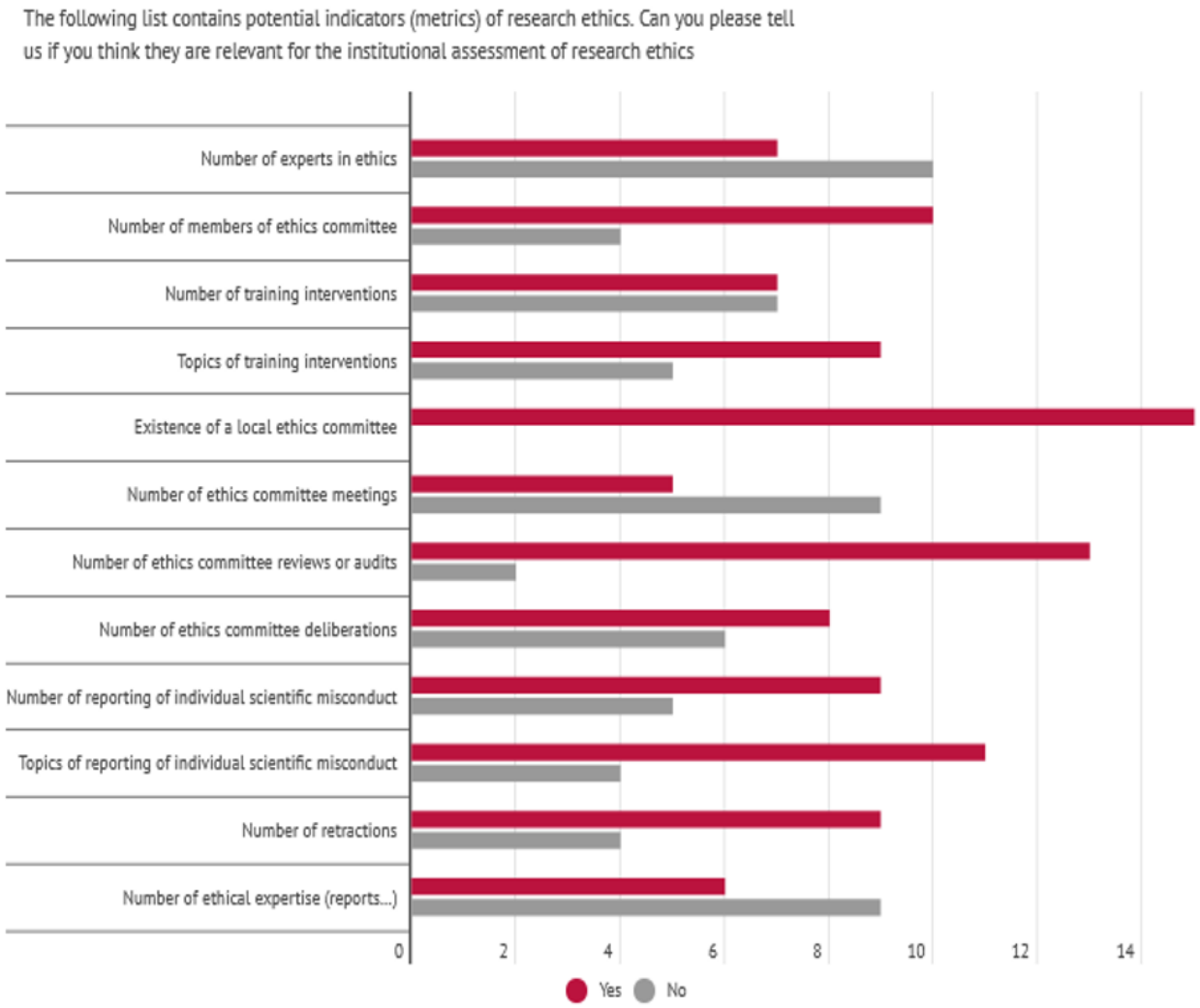
(2) Representing research ethics

Handling ethics

Survey results

- Research information management systems can represent at least partially ethical practice; yet, so far, institutions often do not make use of these features to support their research performance.
- Indicators on ethics-related activities (the existence of an ethics committee, the number and outreach of ethics programs…) pose little or no ethical or legal problem.
- Recording information about individual misconduct may be much more harmful.

Relevant metrics



- Existence of a local ethics committee
- Number of ethics committee reviews or audits
- Topics of reporting of misconduct
- Number of members of ethics committee

Insights

Potential indicators

Element	Indicator
Person	*Ethics expert*
	Member of ethics committee
Event	*Training session*
	Meeting of ethics committee
Organization (structure)	*Ethics committee*
Output	*Advice of ethics committee (audit)*
	Individual report (problem)
	Retraction of a paper (withdrawal)
Skills	*Ethics expertise*

Challenges

- Standardization of classification and terminology
- Priorities and common ground
- Update of data models

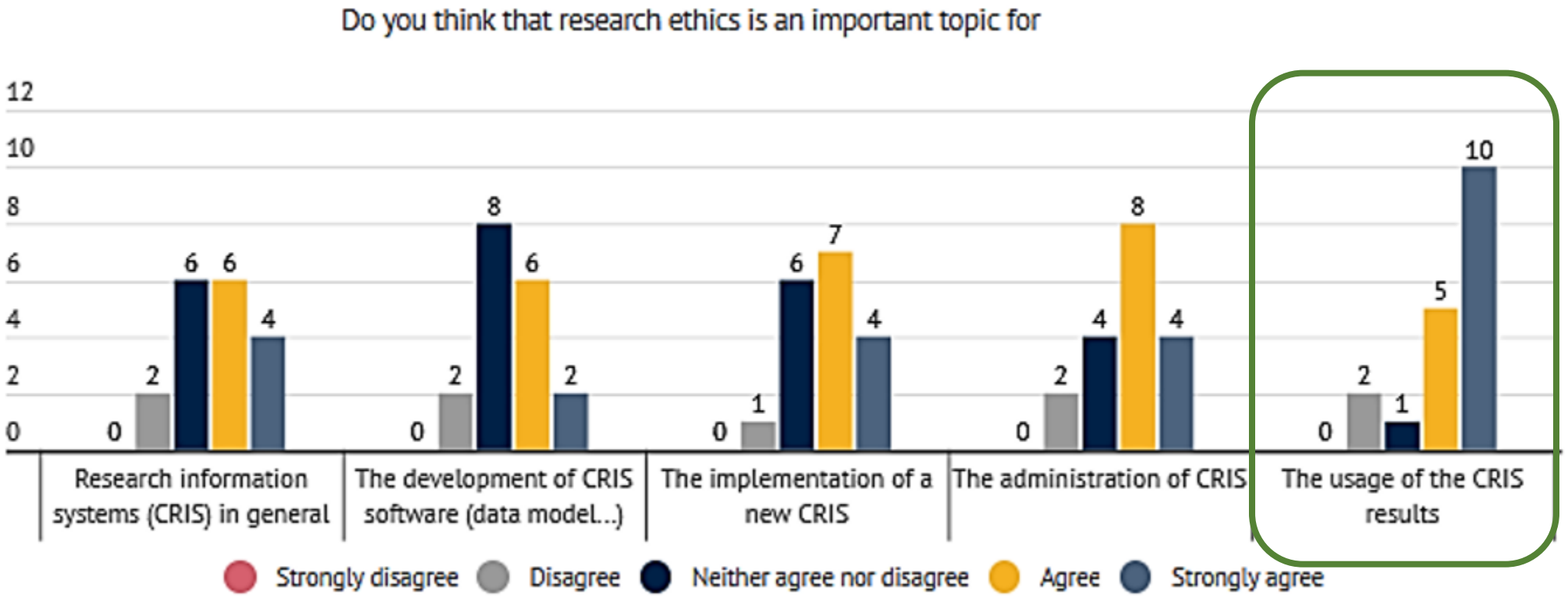
(3) Compliance with ethical requirements

Ethical usage

Survey results

- Lack of data reliability and security and uncontrolled (re)use of CRIS data are considered as significant risks for organizations and persons.
- Concerns have been raised about potentially harmful implementation, the risk of political surveillance (cooperation with China), and biased (offensive) terminology.

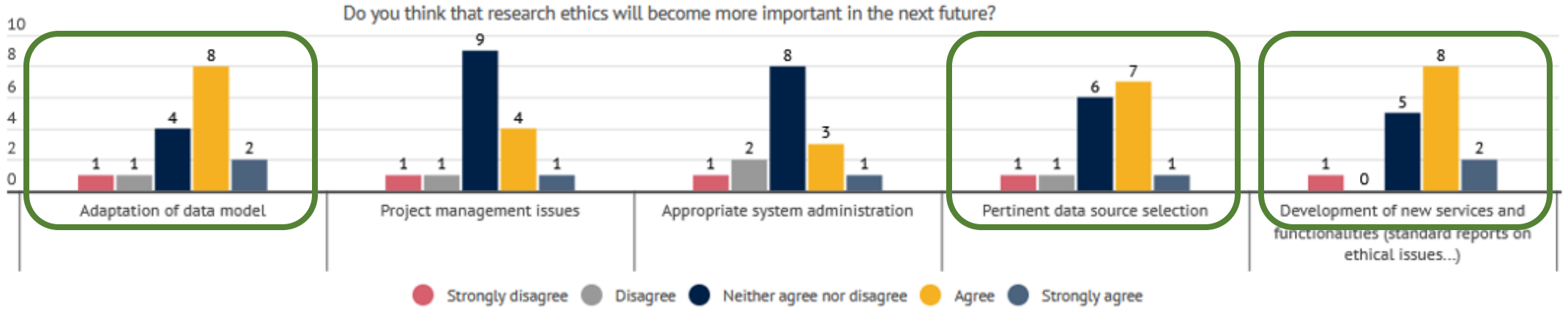
Main relevance for CRIS: the usage of results



Two groups of problems

- The survey revealed a concern related to data transparency and access rights.
- There are two groups of problem areas.
  - One concerns sensitive data, data loss, including intellectual property and personal data issues.
  - And then there is the implementation side, which is much fuzzier - you can hurt people by implementing software incorrectly.

Priority action: development of new services, adaptation of data model and selection of data sources



(4) The impact of open science

What does DORA mean for CRIS?

The vision of DORA

To advance practical and robust approaches to research assessment globally and across all scientific disciplines.

Objectives:

- Raise awareness
- Facilitate implementation
- Catalyze change
- Improve equity

International and national initiatives

➢ Targets: *research funders*, *publishers*, *research institutions* and *researchers*

- American Society for Cell Biology (2012). *San Francisco Declaration on Research Assessment (DORA)*. https://sfdora.org/read/
- Coalition for Advancing Research Assessment (2022). *Agreement on Reforming Research Assessment*. https://coara.eu/
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- European Council (2022). *Brno Declaration on Fostering a Global Ecosystem of Research Infrastructures*. https://www.icri2022.cz/post/brno-declaration-on-fostering-a-global-ecosystem-of-research-infrastructures
- UNESCO (2021). *Recommendation on Open Science*. Paris. https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en
- Académie des sciences (2022). *Critères pour une évaluation transparente et rigoureuse des chercheurs et de leurs équipes*. Paris, Institut des Sciences. https://www.academie-sciences.fr/fr/Rapports-ouvrages-avis-et-recommandations-de-l-Academie/criteres-pour-une-evaluation-transparente-et-rigoureuse-des-chercheurs-et-de-leurs-equipes.html
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- French Open Science Committee (2022). *Paris Call on Research Assessment (OSEC)*. Paris. https://osec2022.eu/paris-call/
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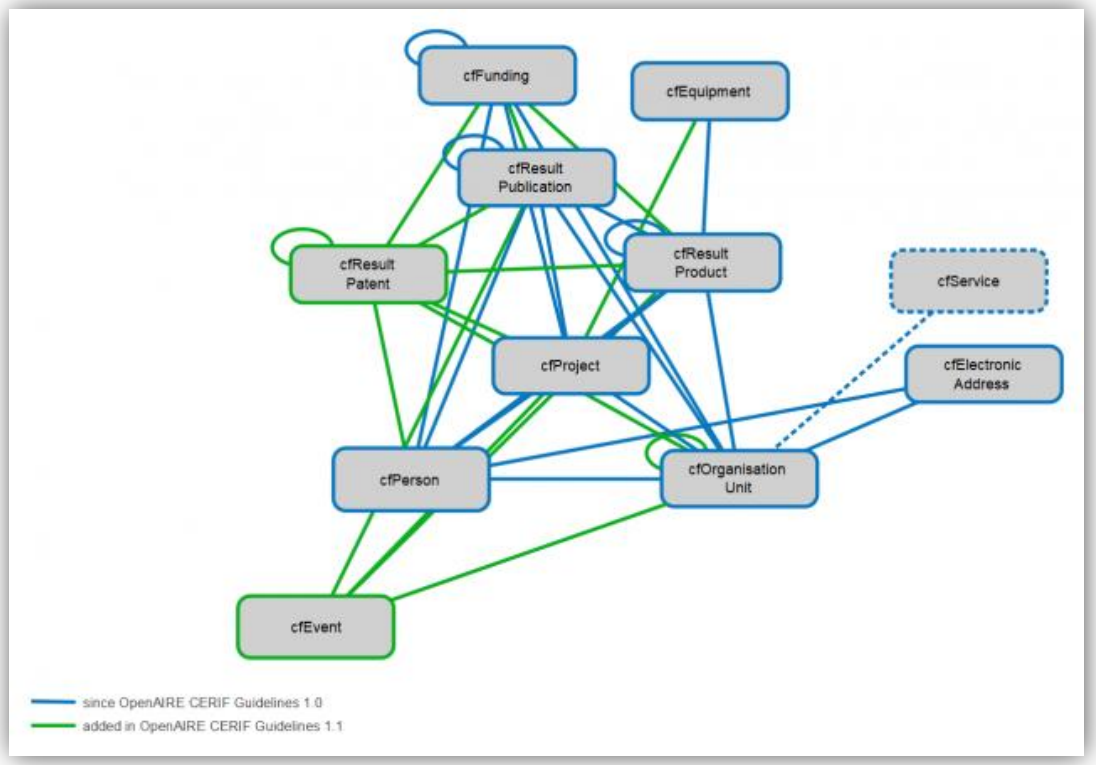
Main purpose of these initiatives

- Against quantitative metrics
- Against journal-based metrics

- Independent and discipline-specific quality assessment
- Inclusion of the whole output
- Valorization of open access
- Community support for change

More diversity: other data

- Social media, public media
- Research data and other material
- Audio/video products
- Reports, working papers, preprints…
- Patents
- …



- Issues: selection, metadata, identifiers…

More diversity: other metrics

- Qualitative indicators of research impact (peer review)
  - *Community-led curation and annotation* (C. Tatum, GraspOS)
  - *Responsible use of quantitative indicators*
- Not only output but also practice
  - *Professional conduct of research*
  - *Fostering a culture of open science*
  - Openness of research (*early sharing and open collaboration*)
- Reproducibility of results
- Originality of ideas
  - *Need to assess research on its own merits*
  - *Results beyond the state-of-the-art*
- Respect of the variety of scientific disciplines, research types, research career stages and roles

Different processing

- Transparency
  - Keeping the data collection and analysis processes and transparent to allow the assessees to test and verify the results
  - Communication: *Be explicit about the criteria*
  - Control (and restriction) of usage
  - *Inappropriate manipulation of metrics will not be tolerated*
- Interactivity (supporting different modes of assessment)
- Open data

Other governance

- (More) community control (stewardship)
- Open source
  - Community-driven development
- Respect of all communities
- Sustainability
  - No vendor lock-in

(5) CRIS as an ethical infrastructure

Being ethical

Survey results

- The disparity between ethics committees and CRIS remains significant.
- The debate regarding ethics, transparency, integrity, and the advancement of research evaluation has not fully caught up with the ongoing discussion about enhancing research information management systems.
- Members of ethics committees appear to be convinced of the value of CRIS in their work, indicating a strong possibility of acceptance for these systems in this community.

Towards ethical CRIS – a proposal*

A CRIS should be considered as ethical if and insofar it is

- beneficial to, and respectful of, people and the environment;
- robust and secure;
- respectful of human values;
- fair; and
- explainable, accountable and understandable.

* Based on Morley, J. et al. (2020). From What to How: An Initial Review of Publicly Available AI Ethics Tools, Methods and Research to Translate Principles into Practices. *Science and Engineering Ethics*, 26(4), 2141–2168. https://doi.org/10.1007/s11948-019-00165-5

What does this mean?

- From an ethical point of view, a CRIS is not morally good in itself.
- Based on our survey data and on other studies on ethics of information systems, the implementation and management of CRIS should pay attention to five points:
  - A careful and consensual (acceptable) choice of indicators;
  - The selection of reliable sources of information;
  - Compliance with the legal framework (RGPD), with secure and, if possible, anonymized processing;
  - Strict control of access to this data;
  - Strictly supervised use.

(6) Perspectives

ERaCRIS proposal (ANR DFG FRAL 2023)

A new proposal

- A Franco-German cooperation
  - ANR and DFG call in SS&H
- Ten Higher Education and research organizations
  - French leader: University of Lille
  - German leader: Fernuniversität Hagen
- 22 scientists
- 2024-2026
- Resources required: € 1.6m
  - Including two PhDs, three postdocs and other positions

- Connecting fundamental and applied research
  - Including CRIS providers (VIVO, 4science) and relevant networks (euroCRIS, DINI, SFSIC GER GENIC) and initiatives (CoARA, RDA, EOSC, KFiD…).
- Fostering interdisciplinarity
  - Information sciences and digital humanities (information systems, knowledge organization, usage of data and systems…), computer sciences (databases, business systems), philosophy (digital ethics), economics (strategic dimensions of information infrastructures), and sociology (social practice, norms).
- Promoting interculturality

Five objectives

- To provide a precise, valid and exhaustive catalogue of measurable key performance indicators of research ethics that can be translated into data models of research information management systems.
- To assess responsible research information management, i.e., the analysis of the development, implementation, governance, and usage of these systems from an ethical point of view.
- To provide insight on the impact on CRIS of recent initiatives to transform research assessment.
- To investigate the CRIS ecosystem from an ethical point of view (roles and responsibilities of stakeholders, security of CRIS data in the context of vertical integration of infrastructures and of “surveillance publishing”…).
- To provide opportunities and useful information to contribute to and foster the communication between ethics and CRIS communities.

Further reading

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Thank you

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