Research Information Management and Open Science

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Welcome to CLSTL 2019!

International Conference on Changing Landscape of Science & Technology Libraries

Event Date
28th February to 2nd March 2019
Index for today’s talk

— What Research Information Management (RIM) and Current Research Information Systems (CRIS) are
— euroCRIS: a brief introduction
— Mapping the RIM landscape worldwide
— A case study in Open Science: snakebite-related research
Some readings I read in 2021 that made me feel like I levelled up

2. Clarifying CRIS/RIM/RIS concepts

There was an explosion of institutional repositories in the 2010s, after which discussion moved to this new class of systems sometimes called CRIS (Current Research Information Systems) / RIM (Research Information Management) and RIS (Research Information Systems).

I never had a clear understanding of this area as this class of software because unlike say Central index Discovery systems, they seem to be very broadly defined in functionality and the scope and responsibility for them spanned the whole institution - covering not just the library but also the research office and more leading to great complexity.

Like many academic librarians, my understanding of what is going on in other parts of the institution can be limited....

Comparing across institutions seemed to be tricky, while there were software names people threw around like Elsever's Pure, Exlibris's Esploro, Digital Science's Symplectic Elements, Vivo and the now seldom mentioned Converis by Clarivate I found it really hard to grasp what was going on.

This is where the OCLC report - Research Information Management in the United States published in Nov 2021 comes in handy.

http://musingsaboutlibrarianship.blogspot.com/2021/12/some-readings-i-read-in-2021-that-made.html
November 2021

Research Information Management in the United States

By Rebecca Bryant, Jan Fransen, Pablo de Castro, Brenna Helmsutler, David Scherer

The Research Information Management in the United States two-part report series provides a first-of-its-kind documentation of RIM practices at US research universities that presents a thorough examination of RIM practices, goals, stakeholders, and system components.

Research information management (RIM) is a rapidly growing area of investment in US research universities. While RIM practices are mature in Europe and other locales in support of nationalized reporting requirements, RIM practices at US research universities have taken a different—and characteristically decentralized—course. A complex environment characterized by multiple use cases, stakeholders, and systems has resulted.

This report provides a landscape overview of the state of research information management in the United States, makes sense of the complexity, and offers recommendations targeted at University leaders and other institutional decision makers.

We hope that the information presented in this report can support library leaders in talking about RIM systems and practices with institutional stakeholders and to advocate for the role of the library in this work.

Part 1 - Findings and Recommendations  Part 2 - Case Studies

Reporting requirements, RIM practices at US research universities have taken a different—and characteristically decentralized—course. A complex environment characterized by multiple use cases, stakeholders, and systems has resulted.

Part 1—Findings and Recommendations

This report provides much-needed context for institutional leaders to examine their own local practices by proposing:

- A summary of six discrete RIM use cases
- A RIM system framework
- Recommendations for RIM stakeholders


What RIM and CRIS Systems are

Current research information system

A current research information system (CRIS) is a database or other information system to store, manage and exchange contextual metadata for the research activity funded by a research funder or conducted at a research-performing organisation (or aggregation thereof).[1]

CRIS systems are also known as Research Information Management or RIM Systems (RIMS).[2][3]

Features

The data model underpinning a CRIS relies on a set of basic entities as defined by the Common European Research Information Format (CERIF) model maintained by the non-profit organisation euroCRIS.

The links connecting these entities provide a standardised semantic layer that provides consistency to the data model. The basic CERIF entities are people, organisations, projects and outputs (publications, research data, patents). Further second-level entities in the comprehensive snapshot of research provided by CERIF are for instance funding, research facilities and equipment or skills.

https://en.wikipedia.org/wiki/Current_research_information_system
euroCRIS: promoting the use of CERIF

Main features of CERIF

CERIF (the Common European Research Information Format) is:

- A concept about research entities and their relationships – Specification (Conceptual Level)
- A description of research entities and their relationships – Model (Logical Level)
- A formalization of research entities and their relationships – Database Scripts (Physical Level)
What is Research Information Management?

Let’s start with a publication –

[PDF link](http://dx.doi.org/10.1136/bmjgh-2017-000636)
Metadata for a journal article is kept in the institutional Research Information Management System (CRIS) for reporting purposes – including plenty of contextual information not usually available elsewhere.
Research Information Management Systems

This may include information on:

- affiliations
- related research outputs (dissertations, patents)
- funded projects
- associated datasets
- research facilities
- ...
Research Graphs: Providing the Research Context...

Research Graph Schema

Research Graph schema is an accessible meta-model for connecting research objects. This schema is designed to provide a practical approach to construct large scale graphs from a distributed network of scholarly works, by following these design principles:

- **Inexpensive metadata harmonisation** by providing a simplified data model,
- **Efficient storage and compute** by providing a lean model that enables highly efficient graph algorithm on graphs more than 100M nodes, and
- **Ease of use** for developers and data scientists, making the Research Graph model highly accessible and interoperable.

This schema enables the rapid development of local, national, or domain-specific research graphs with a trade-off between practicality and completeness.

https://researchgraph.org/
... and (much-needed) System Interoperability

CRIS systems are also known as Research Information Management or RIM Systems (RIMS).[2][3]

Contents [hide]
1 Features
2 Use case
   2.1 Research assessment
   2.2 Research administration
   2.3 Open Science implementation
   2.4 Business intelligence
3 See also
4 References
5 Further reading
6 External links

Features [edit]

The data model underpinning a CRIS relies on a set of basic entities as defined by the Common European Research Information Format (CERIF®) model maintained by the non-profit organisation euroCRIS.

The links connecting these entities provide a standardised semantic layer that provides consistency to the data model. The basic CERIF entities are people, organisations, projects and outputs (publications, research data, patents). Further second-level entities in the comprehensive snapshot of research provided by CERIF are for instance funding, research facilities and equipment or skills.

System interoperability lies at the core of CRIS operation, both from an internal and an external viewpoint. Internally, information is exchanged between the multiple information-gathering systems at institutions (HR systems, project management tools, finance management systems, etc.) and the one-stop-shop CRIS where all the institutional research information is kept. From an external interoperability perspective, metadata need to be exchanged between the systems at research-performing organisations where the research is actually conducted and the systems run by research funders and governmental bodies in charge of research assessment processes.[4] By providing a standard approach to information description, the CERIF model becomes a key feature for enabling this system interoperability.

https://en.wikipedia.org/wiki/Current_research_information_system
... and (much-needed) System Interoperability
and (much-needed) System Interoperability

'Bottom-up' and 'top-down' (CERIF-based) research information exchange

Our partners
The FRIS (Flanders Research Information Space) program has been established as close cooperation between the Department of Economics, Science and Innovation and the knowledge institutions in Flanders. With each of them, the Flemish government concluded the necessary agreements to allow data delivery from their systems to the FRIS portal. In this way, the institutions remain the authentic source of their own data, and the exchange of information no longer will be based on ad hoc collecting a set of data for FRIS.
Why research information is important

Abstract:

Nowadays, there is full consensus that the promotion of Science, Technology and Innovation (STI) has a positive impact on the economic growth of a country. In Peru, the National System of STI doesn't have enough information for decision-making, because it doesn't have an information system to manage (collect, systematize, store and communicate) the data generated during execution of each activity carried out. In this context, CONCYTEC (public body in charge of the development of policies, regulations and promotion of activities related to the STI) is planning to build a tool to cover this need, project that has financial support from the World Bank.

To fulfill this task in order to cover the needs of all the actors involved in STI in the country, a study was carried out at a national level to know the current state of the processes and the computer supports of the research centers, research institutes and universities of the country to know their needs, and be able to pursue a common goal.
Mission
"To promote collaboration within the research information community and advance interoperability through CERIF"

Members outside Europe:
Australia - Brazil - Canada - China - Colombia - India - Iran - Israel - Malaysia - Nigeria - Pakistan - Peru - South Korea - US

200+ members from 45 countries (mainly Europe)
**Title:** IRINS: The Indian Research Information Network System

**Authors:** Kannan P, Siva Shankar, Kimidi

**Keywords:** research information management; current research information systems; Indian Research Information Network System (IRINS); Information and Library Network (INFLIBNET) Centre; India

**Issue Date:** 20-Nov-2019

**Publisher:** euroCRIS

**Series/Report no.:** Autumn 2019 euroCRIS Strategic Membership Meeting (WWU Münster, Germany, Nov 18-20, 2019)

**Conference:** Strategic Membership Meeting 2019 – Autumn (Münster)

**Abstract:** With 93 implementations listed in the euroCRIS DRIS as of Nov 2019, the Indian Research Information Network System (IRINS) is the default research information management service in the country. Developed by the Information and Library Network (INFLIBNET) Centre in collaboration with the Central University of Punjab, IRINS is a free, web-based platform providing information on persons (researchers)...

**Description:** 15 slides. – Presentation delivered within the "Emerging CRIS infrastructure" session

**URI:** http://hdl.handle.net/11366/1236

**Appears in Collections:** Conference
euroCRIS: fostering collaboration
RIM survey report (Dec’2018)

Practices and Patterns in Research Information Management: Findings from a Global Survey

Rebecca Bryant
OCLC Research

Anna Clements
University of St Andrews and euroCRIS

Pablo de Castro
University of Strathclyde and euroCRIS

Joanne Cantrell
OCLC

Annette Dortmund
OCLC

Jan Fransen
University of Minnesota, Twin Cities

Peggy Gallagher
OCLC

Michele Mennielli
DuraSpace and euroCRIS

https://doi.org/10.25333/bgfg-d241
(Broad) RIM Landscape in India*

- Indian RIM landscape very poorly captured in the survey snapshot
- There will be further survey iterations in order to explore identified trends in RIM evolution
- Joining the euroCRIS DRIS (Directory of Research Information Systems) can be considered in the meantime

* As presented in March 2019 at the CLSTL Gandhinagar, http://events.iitgn.ac.in/2019/CLSTL/
(Updated) RIM Landscape in India
IRINS instances in operation (Dec’2021)

AUTHORS
Pablo de Castro, Siva Shankar Kimidi, Nalan Kanna

AUTHOR ASSERTIONS
Conflict of Interest: No  Public Data: No

The paper describes the rapid arising of a national-level research information management infrastructure (RIM) in India as a case study for a bottom-up Current Research Information System (CRIS) implementation strategy. Less than a year and a half after its first launch, the Indian Research Information Network System (IRINS) has become a...
Why is a snapshot of the international RIM landscape relevant?

The world’s poorest people are the most vulnerable to climate change. This includes both farmers who grow wheat to feed their communities, and poor urban consumers who would suffer the most from food shortages and price hikes.

Because we’re often talking *global research challenges*
Institutions collaborating with International Maize and Wheat Improvement Center

444 collaborating institutions

578 co-authored publications
Institutions collaborating with International Maize and Wheat Improvement Center

- 444 collaborating institutions
- 578 co-authored publications
RIM Case Study: Snakebite-related Research

November 2021

A health crisis that could be prevented

India’s silent but deadly killer

India suffers more snakebite fatalities than any other country, and many are children. Why has the country’s huge pharmaceutical industry failed to tackle this neglected tropical disease?

BY ALEXIA EVCHENNE & ROZENN LE SAINT

https://mondediplo.com/2021/11/13snakes
Snakebite-related Research: Funded Research Projects (UK)

- Developing a cocktail of enzyme inhibitors to universally treat haemotoxicity caused by snakebite
  - MRC award to Liverpool School of Tropical Medicine and Nicholas Robert Casewell

- Development of a novel therapeutic to treat snakebite induced necrosis in sub-Saharan Africa
  - MRC award to Liverpool School of Tropical Medicine

- Rational design of rapidly translatable, highly antigenic and novel recombinant immunogens to address deficiencies of current snakebite treatments
  - UKRI award to Liverpool School of Tropical Medicine and Stuart Ainsworth

- Health in a changing climate: the dynamic challenge of snake bite in South Asia
  - MRC award to Liverpool School of Tropical Medicine and David Laloo

https://gtr.ukri.org/search/project?term=snakebite
‘Dimensions’: a quick way to get a global snapshot

All publications and citations together with rich contextual information – freely available for personal, non-commercial use

ACCESS FOR FREE

https://www.dimensions.ai/products/free/
Snakebite-related research: a global snapshot

Retrospective hospital-based study on snakebite envenomation in Sudan
Huda Khalid, Rasha S Azrag
2021, Transactions of the Royal Society of Tropical Medicine and Hygiene - Article
BACKGROUND: Snakebite statistics are lacking in Sudan despite the high estimated burden. In this study we aimed to describe the incidence of snakebite envenomation and death in Sudan and to show the e...
more

Analysis of snakebite data in Volta and Oti Regions, Ghana, 2019
Baba Geesay, Abdoulive Taal, Momodou Kailis, Magdalene Akos Odikro, David Agbopoe, Ernest Kanu
2021, Pan African Medical Journal - Article
Introduction: globally about 5.4 million people are affected by snakebite annually leading to 2.7 million cases of snakebite envenomation and 81,000-130,000 deaths. In sub-Saharan Africa, the burden of ... more

The Burden of Snakebite in Rural Communities in Kenya: A Household Survey.
Gaby M Oome, Jennie van Olshout, Benjamin Waldmann, Dorothy Okemo, Aukje K Mantel-Teeuwisse, He...
2021, American Journal of Tropical Medicine and Hygiene - Article
Annually, about 2.7 million snakebite envenomings occur worldwide, primarily affecting those living in rural regions. Effective treatment exists but is scarce, and traditional treatments are commonly ... more
Snakebite-related research: India

Title, Author(s), Bibliographic reference - About the metrics

**Incidence & management practices of snakebite: A retrospective study at Sub-District Hospital, Dahanu, Maharashtra, India**
Rahul Gajbhiye, Shagufta Khan, Pratibha Kokate, Iranna Mashal, Sunita Kharat, Sanjay Bodade, Arun Yada... 2019, The Indian Journal of Medical Research - Article
This study was undertaken to know the incidence and management practices of snakebite envenomation at the First Referral Unit - Sub-District Hospital, Dahanu, Maharashtra, India. Retrospective analysis... more

**Analysis of snakebite data in Volta and Oti Regions, Ghana, 2019**
Baba Ceesay, Abdouille Taal, Momodou Kalisa, Magdalene Akos Odikro, David Agbope, Ernest Kenu 2021, Pan African Medical Journal - Article
Introduction: globally about 5.4 million people are affected by snakebite annually leading to 2.7 million cases of snakebite envenomation and 81,000-138,000 deaths. In sub-Saharan Africa, the burden of... more
Snakebite-related research: most prolific researchers

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<td>José Marian Gutierrez</td>
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<td>Bruno Lomonte</td>
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<td>University of Newcastle Australia, Australia</td>
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<td>Narel Y Paniagua-Zambrana</td>
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<td>Julian White</td>
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## Proyectos

Mostrando 2 ítems coinciden con "serpientes"

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<td>Bruno Lomonte Vigliotti, Fabián Bonilla Murillo, Mahmood Sasa Marín, Natalia Ortiz Chaves, Arturo Chang Castillo, Cecilia Díaz Orellana, Adriana Alfaro Chinchilla</td>
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## PROYECTOS

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<td>ANÁLISIS INFORMÁTICO DE DATOS OBTENIDOS POR ESPECTROMETRÍA DE MASAS TOP-DOWN DE VENENOS DE SERPIENTES CORALES DE COSTA RICA</td>
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<td>SÍNTESIS Y CARACTERIZACIÓN DE DERIVADOS ANÍONICOS DEL ÁCIDO 3-AMINO-5-NITROBENZOICO: EVALUACIÓN DE SUS PROPIEDADES SURFACTANTES, SU ACTIVIDAD INHIBITORIA Y SU ACTIVIDAD ANTIMICROBIANA</td>
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VIDWAN: a National Experts Portal in India

https://vidwan.inflibnet.ac.in/
VIDWAN: a National Experts Portal in India

Dr Robin Doley
Professor
Tezpur University

https://vidwan.inflibnet.ac.in/profile/48120
1. Search for novel anti-platelet and anti-thrombin peptides from Indian viper venom (Daboia russelii): Purification, characterization and evaluation of its anti-thrombotic potential

   Funding Agency: **DBT**  
   On-going  
   PI  
   ₹ 60.796 lakhs  
   2018 - 2021

2. Isolation, identification and characterization of marker proteins from the venom of Naja kaouthia and Bungarus fasciatus of North East India for development of rapid diagnostic tool for identification snakebite in North East India

   Funding Agency: **ICMR**  
   On-going  
   PI  
   ₹ 38.53580 lakhs  
   2018 - 2021

Study for label free optical detection of snake venom protein using Surface Plasmon Resonance technique

   Funding Agency: **DST**  
   On-going  
   Co-PI  
   ₹ 47.521 lakhs  
   2018 - 2021

https://vidwan.inflibnet.ac.in/profile/48120
VIDWAN: a National Experts Portal in India

1. Search for novel anti-platelet and anti-thrombin peptides from Indian viper venom (Daboia russelii): Purification, characterization and evaluation of its anti-thrombotic potential
   - Funding Agency: DBT
   - On-going, PI: ₹ 60.796 lakhs
   - 2018 - 2021

2. Isolation, identification of marker proteins from the venom of Bungarus fasciatus of North East India and development of rapid diagnostic kit for snakebite in North East India
   - Funding Agency: ICMR
   - On-going, PI: ₹ 38.53580 lakhs

Study for label free optical detection of protein using Surface Plasmon Resonance Spectroscopy
   - Funding Agency: DST
   - On-going, Co-PI: ₹ 47.521 lakhs

Doctoral Theses Guided

- 2019
  Expression and characterization of Kunitz inhibitor from the venom of Bungarus flaviceps
  Tezpur University, Dr. Simran Kaur

- 2016
  Studies on the crude venom and purified three-finger toxin of Naja kaouthia from North East India
  Tezpur University, Dr. Diganta Das

- 2016
  Proteomics of Indian Daboia russelii venom (Irula) and characterization of a major protein
  Tezpur University, Late Dr. Maitreyee Sharma

Read More

https://vidwan.inflibnet.ac.in/profile/48120
How to improve an IRINS instance

CONTENT

• Non-English research publications
• Research collaborations (also with Industry)
• **Funding information**: funded projects and their associated research funders
• Connection to full-text files (openly available whenever possible)

INTEROPERABILITY

• Technical: Interoperability guidelines based on CERIF model
• Social: establish contact with research administration colleagues (project proposals and management)
The Role of Current Research Information Systems (CRIS) in Supporting Open Science Implementation: the Case of Strathclyde

Pablo de Castro

Abstract

CRIS systems are playing an increasingly relevant role in the implementation of Open Access and Research Data Management (RDM) policies at research-performing organisations. This is not just because of the deep insight these systems provide into the workflows that underpin the institutional research activity, but also because they allow an effective teamworking across institutional research support units, which critically include research libraries.

This article describes the way the institutional Pure CRIS is used at the University of Strathclyde in Glasgow to support the implementation of Open Science in collaboration with the researchers themselves and with the institutional Research Office. In terms of training, which is in itself an important and often challenging part of the effort towards Open Science implementation, the key objective is to make researchers aware that all the seemingly independent processes they’re being asked to carry out on top of their research activity are interconnected and are part of the same drive towards openness and digital science.

Finally, the paper describes the international collaboration networks for the realisation of Open Science that the University of Strathclyde is involved in and some of the areas where this cross-institutional collaboration is taking place.

Keywords

Open Science; Research Information Management; Open Access; Research Data Management; Scholarly Communications; Current Research Information Systems (CRIS); Institutional case studies

http://hdl.handle.net/11366/691
Thanks!

Questions?

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http://orcid.org/0000-0001-6300-1033