

Research Information Management

Towards a common standard for exchanging research information

Briefing paper

March 2010

Universities rely on accurate and reliable research information to support strategic planning, manage the research process and improve reporting to external bodies such as funders. This briefing outlines recent developments to help UK universities effectively manage research information.

Research information – administrative information about researchers, projects, outputs and funding that arises from the research process and from managing grant applications – is currently fragmented. It is spread across different systems (in university departments such as finance and human resources, in institutional repositories or with external bodies such as research funders or the Higher Education Statistics Agency (HESA). It is also stored in incompatible formats.

By communicating research information more effectively between systems, the process of sharing data becomes more efficient, duplication of effort is reduced and information becomes more accurate. This in turn gives a truer picture of the current situation, provides universities with reliable information on which to base their strategic plans, and enables them to report on their research more easily.

Meeting the UK's research information requirements

At a time when universities are considering investment in research information systems and the market for providing these solutions is in its infancy, there is an opportunity to consider options that will meet university needs long-term in areas such as:

- Strategic management of research: mapping, benchmarking, assessing the costs and benefits of collaboration, etc
- Providing funders with information about research outputs and outcomes
- Presenting evidence relating to the research they host – a requirement of the Research Excellence Framework (REF)

JISC, the Higher Education Funding Council for England (HEFCE), the Research Councils and others are helping to develop an infrastructure to connect university- and nation-wide

data, improve the management of UK research information and provide guidance, support and opportunities to work together. To this end JISC is currently funding a significant programme of work between 2009 and 2011.

The Research Councils have commissioned a joint Research Outcomes project intended to collect and share research information. In 2009 HEFCE funded a feasibility study into a shared Research Management and Administration System (RMAS), anticipating further work in this area. Nationally and internationally, various initiatives are underway to bring together information about individual researchers stored in a variety of locations, to identify inconsistencies and improve the reliability of this data.

Identifying a common standard

A consensus is emerging amongst experts in universities, national funding bodies and funding councils on the value of a common standard to share research information. The aim is to prevent duplication of effort, remove the need for continual modifications to technological solutions for information exchange, and enable universities and national bodies to plan on the basis of a shared understanding of the research domain.

JISC commissioned the Exchanging Research Information in the UK (EXRI-UK) project to document and promote this emerging consensus, examine how research information is exchanged and consider how such exchanges might be supported. The project made recommendations, drafted a roadmap for sharing research information for the UK, and reviewed two main approaches to encoding research information, described below.

CERIF (Common European Research Information Format):

a data model that can be used to describe the research domain, including relationships between researchers, funders, institutions, projects and their outputs. CERIF is a European Union recommendation to member states. Developed under the aegis of the European Commission, care and custody of CERIF has since been handed to euroCRIS, a not-for-profit organisation dedicated to the promotion and development of research information systems.

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Linked Data, unlike CERIF, is not a data model but an approach to encoding information on the web so that it carries semantics. This can be done by using the Resource Description Framework (RDF) language or embedding elements into web pages to give them meaning. Linked Data relies on common ontologies – mutually agreed classifications used to describe an area of interest. In the case of research, these might convey information about individual researchers, their work, or changes to their responsibilities over time. The UK Government is using the Linked Data approach, for example in the www.data.gov.uk initiative.

CERIF and Linked Data are similar, complementary approaches. However, there are significant differences in the way they encode relationships. EXRI-UK reviewed these approaches against higher education needs and recommended that CERIF should be the basis for the exchange of research information in the UK. CERIF is currently better able to encode the rich information required to communicate research information, and has the organisational backing of EuroCRIS, ensuring it is well-managed and sustainable.

The EXRI-UK report concluded that:

'...there are great potential benefits of a standard format for exchanging research information. It will allow cooperation between researchers, between institutions and research organisations and between research funders, within and beyond the UK. It will allow the rationalisation of data about what research is being funded and is taking place across the UK and the querying of that data by individuals, stakeholders and government.'

In January 2010 experts from universities, national bodies and representative organisations met informally to discuss and reach consensus about the best direction for the future. The meeting brought together representatives from the Research Councils, Wellcome Trust, HEFCE, HESA, Association for Research Managers and Administrators (ARMA), Universities and Colleges Information Systems Association (UCISA) and Universities UK. There was broad support for EXRI-UK's recommendations.

As higher education is undergoing a period of somewhat unpredictable change, progress toward a common exchange format will be challenging, nevertheless, a sense of common direction is a significant achievement and should lay the foundations for more efficient and effective research information management in the UK.

Next steps

HEFCE and the Research Councils now need to assess whether the adoption of a UK standard can benefit investment in ongoing systems development (for the REF and Research Outcomes project respectively) and consider the EXRI-UK recommendations in the context of their responsibilities as public sector organisations.

Universities need to consider the EXRI-UK recommendations, specifically those relating to CERIF, in their procurement and other investment decisions for 2010 to 2011. Advice on this is available from JISC infoNet, along with support in using an 'impact calculator' to assess the costs and benefits of adopting this approach.

JISC plans to commission work to address EXRI-UK recommendations to:

- Document evidence to support a business case for using an open standard such as CERIF
- Harmonise the lexicons and vocabularies used to describe research outputs
- Review the medium-term potential to adopt a Linked Data approach using CERIF as the data model

Further Information and Advice

Exchanging Research Related Information report:
<http://ie-repository.jisc.ac.uk/448/>

Information on the work of JISC and others in the area of research information management:
www.jisc.ac.uk/whatwedo/themes/informationenvironment/researchinfomgt

HEFCE feasibility study into a shared Research Management Administrative System:
<http://as.exeter.ac.uk/rmas/>

Information about CERIF and EuroCRIS:
www.EuroCRIS.org

Research information management guidance and tools from JISC infoNet:
www.jiscinfonet.ac.uk/research

Technical advice and support from UKOLN:
www.ukoln.ac.uk