Griffith University Research Hub

Nominee: Griffith University Scholarly Information and Research
Head of Institution: Professor Ian O’Connor
Core Innovation: http://research-hub.griffith.edu.au - an open source, semantic web solution for capturing and exposing scholarly activity at a whole of institution level
Other Innovation: Driving change within the institution while leading best practice and adoption of new standards across the sector

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Griffith Research Hub

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Nominee
Griffith University does not have a university library in the traditional sense. Instead traditional library services are co-located with eResearch services within an organizational unit (Scholarly Information and Research) in the Division of Information Services.
http://www.griffith.edu.au/scholarly-information-research

Nominator’s Statement
International researchers looking for datasets, higher degree by research students looking for supervisors, industry looking for consultancy expertise and journalists looking for expert sources of information. These are just a few of the audience segments that have a critical need for a single, comprehensive view of a university’s research output.

In a culture that has rapidly transitioned from traditional research to more data-intensive research, characterised by data analysis and mining; patterns discovery; collaboration and the evolution of large databases and data archives, the Research Hub service has been developed as the first step in helping to make university research data more discoverable and accessible, while following open access and linked data best practice models.

One of the most compelling features of the Research Hub is the “linked” nature of the data. Users can browse from an article to a profile of one of its authors; from there they can browse to any of the projects the researcher is involved with and so on. By making the links between researchers, projects, groups, data collections and publications explicit, a much richer view is exposed nationally and internationally of the world class research work undertaken at Griffith University. Importantly this view showcases the highly collaborative and cross-disciplinary nature of Griffith research.
For years the accepted practice of libraries has been to focus on institutional (publication) repositories as the primary vehicle for the discovery of scholarly outputs. The Griffith Research Hub represents a next-generation solution that presents a comprehensive picture of the diverse scholarly outputs that contemporary researchers produce. Traditional government reporting has focused on the collection of publication metadata and has neglected these other content types. The challenge—and success—of the Research Hub has been in the development of a technical platform and best practices service that allow this metadata to be captured in a cost-effective and sustainable way.

In terms of current and future trends, an important objective has been to help to prepare researchers for new scholarly publishing paradigms, especially the integration of data with publications. All of this work ideally will lead to improvements in research quality and meet researchers’ needs as research becomes more data intensive.

In addition the benefits of this project extend far beyond Griffith University. In order to comprehensively describe research activities carried out in the Australian context, the ANDS-VIVO ontology was initiated, developed and led by Griffith University (https://github.com/anzsro/ands). The ANDS-VIVO ontology represents information about research activities mapped to commonly understood (and formally defined) sets of concepts within the higher education sector, e.g. a formal hierarchical vocabulary for describing fields of research used by the Australian Bureau of Statistics (https://github.com/anzsco/anzsco).

By detailing the relationships among those concepts, it can be used to reason about the entities within that domain, e.g. searches can be made broader or narrower based on hierarchical fields of research definitions. The great strength of the ANDS-VIVO ontology is the broad community acceptance of the shared vocabulary and taxonomy which models the domain of research activity in Australia, with the definition of activities, entities, their properties and relations being adopted by a wide variety of projects and institutions. Users of this ontology include institutions that have adopted very different software stacks, but valued the approach of a shared definition for research activity.

The Research Hub has provided a secure and flexible platform upon which Griffith University has been able to build a range of innovative solutions to support research, including DOI minting tools for datasets, semantically aware institutional data repositories and fuzzy disambiguation / reconciliation services. Ongoing development will see new functionality being developed and deployed in an agile fashion.

Published Mission Statement of Nominated Institution


Vision

Griffith University, a multi-campus, learning-centred, research university, will be acknowledged as an outstanding university that combines the best university traditions and values with the innovation necessary for success.

Ideally positioned in the fastest growing region in Australia, the University will build on its established reputation for responding creatively to local, national and global change by embracing diversity and nurturing innovation.
Mission
In the pursuit of excellence in teaching and research, Griffith University is committed to:

- Innovation
- Bringing disciplines together
- Internationalisation
- Equity and social justice
- Lifelong learning

for the enrichment of Queensland, Australia and the international community.

Challenge of Sustainably Automating Researcher Activity Profiles
In 2010 a joint NISO/DCMI webinar referred to the well-known axiom: “metadata is where the meaning is”\(^1\). What they meant is that metadata adds meaning to resources by creating specific statements about specific data. Unfortunately that meaning is all too often scattered across different systems, difficult to update and impractical—or even impossible—for the ordinary person to access and reconcile.

Like any large institution, Griffith University has information of varying quality, stored in a wide variety of enterprise systems, and—prior to the development of the Research Hub—no way of bringing that information together, linking it, and presenting it in a simple and seamless interface. The Research Hub has been designed as a “simple” solution that allows information to be brought together in one place and enhanced by the people to whom it matters the most, Griffith University researchers.

Griffith has only collected data about scholarly activity to meet its own internal business needs, e.g. government reporting, HR evaluation and promotion, security and audit. None of these reporting requirements have ever been reconciled against each other, and researchers are often asked to repeat data entry tasks pertaining to the same information in multiple systems.

Once entered, it is difficult or impossible for ordinary users to query those systems to retrieve their information. This has led to researchers being required to manually enter their data into web pages if they have wanted to create a staff profile. Faculties and research centres have to manually collate details of scholarly output if they wish to produce profiles.

Since reporting on data publishing activities is not yet mandated by any external authorities, the practice of storing and characterising data for the purpose of publishing has been ad-hoc and uncommon.

Previous attempts to profile research activity have failed because of the reason detailed above and because of the technical challenges involved in reconciling multiple relational database schemas against each other. Notably there were no policies in place to resolve issues with “dirty” or missing data.

**The Solution**

Unlike traditional approaches, the Research Hub dynamically aggregates information from multiple enterprise systems to expose Griffith’s extensive research activities and its researchers. This saves researchers from having to enter their data into “yet another system”.

The semantic smarts go beyond “simple aggregation”. The Research Hub can propose connections between a researcher and their top 5 research areas inferred from their publication and project history. It can automatically identify broader and narrower fields of research. The Research Hub can even help to identify collaborators based on co-authorship and co-investigation networks.

To ensure the greatest exposure of the 1000 researchers, 50,000 publications and 5,500 projects profiled in the system, the Research Hub has developed a “faceted browse” and search system with JavaScript driven usability enhancements to facilitate advanced querying on a wide variety of metadata attributes, full text indexes.

The portal features go beyond profiling academics and their publications; it also provides detailed descriptions of research datasets accessible to national and international research collaborators.

The information collected in the Research Hub is exposed to a wide variety of external harvesters, including Research Data Australia, the National Library’s Trove system as well as to be highly indexed by Google and other search engines.

By automating the enhancement of records available in the system, an acceptable minimum standard for all records can be sustainably achieved. Additionally we have found that researchers are far more willing to provide enhanced information for records that have met this minimum standard than they have been for more incomplete records. By encouraging researchers to enter data in systems of record, compliance with data capture for reporting is increased.

Significant policy development work was undertaken to formalise a variety of business rules that could be sustainably implemented in the solution. These included:

- Criteria for profile activation: only “research active” academics get a profile by default
- Workflows for other academics to request activation of their profile for their respective Research Dean to approve
- Annotations to mark profiles as being available for harvesting
Progressive enhancement of automated ingests to mitigate the impact of “dirty data”
Opt-Out rather than Opt-In model for inclusion in the Research Hub

Nature of the Innovation

Approach and Philosophy

- The Research Hub has been implemented as a “loosely coupled” system architecture which has been developed through the use and extension of several best of breed open-source components
- This approach extends to how we model the data within the system. Although all information in the system is modelled in the ANDS-VIVO ontology, the data is divided into a number of named graphs depending upon its source. By partitioning the data into separate named graphs on the basis of ingest source, we are able to implement custom business rules and policies based upon the provenance of the information. For example:
  - Because publication information is of very high quality and is verified by trained librarians, there is no requirement for it to be editable
  - Data sourced from HR, on the other hand, has a much greater proportion of dirty or out of date data. This data needs to be manually edited
  - Use of named graphs allows triples created by the edit interface to be stored in a separate graph. This main graph is designed to override data stored in the named graphs of lower layers

![Diagram of the system architecture](image)

Fig 3: Querying by way of the ontology will return triples from named graph 1 and 2 for properties A and B, because no corresponding triple exists in the user data entry graph. Because the user has entered property C, however, it is retrieved preferentially to any property that might have been automatically ingested.
A diagram outlining the information flow of the system is attached below:

Fig 4: The information flow between internal systems, the Research Hub and external systems. Information is drawn from multiple internal databases and the meta-directory (a kind of sign-on tree). The disparate information is then aligned and reconciled. Finally external services are queried on the basis of this collated information, and if needed, persistent IDs are generated in those external systems to be included in internal data.
Architecture

**Single Sign On** ([https://www.pingidentity.com/](https://www.pingidentity.com/))

Griffith University uses PingFederate to manage authentication to all enterprise systems. We implemented a bridge to Shibboleth ([http://shibboleth.net/](http://shibboleth.net/)) to enable this functionality. This has the additional benefit of providing access to Griffith University list management services. This allows for the creation of ad-hoc groups which can be given elevated privileges, delegated editing rights, or workflow approval roles.

**VIVO** ([http://vivoweb.org/](http://vivoweb.org/))

We chose VIVO as a semantic web front-end application because it allowed us to implement a Model View Controller (MVC) design pattern through its implementation of page templates, SPARQL queries and ontology editing features, along with a wealth of other administrative features. The user community of research institutions which has grown up around VIVO is not just a valuable information resource, but also works hard to ensure that innovative new features are rolled out quickly.


This is a Java framework for building Semantic Web applications with a comprehensive and well-documented API and easy deployment on a relational database backend for enterprise support.

**AJAX SOLR** ([https://github.com/evolvingweb/ajax-solr](https://github.com/evolvingweb/ajax-solr))

AJAX Solr is a JavaScript library for creating user interfaces to blazing fast open source enterprise search platform from the Apache Lucene project. Its major features include powerful full-text search, hit highlighting, faceted search, dynamic clustering, database integration, rich document (e.g., Word, PDF) handling, and geospatial search.


Jedox ETL facilitates the extract of data from a huge variety of SQL data sources, flat files, XML files, web services, and LDAP and other systems. The “extracts” from these systems are “transformed” to RDF, the language of the semantic web and “loaded” directly into the Jena triple store.

**MOAI** ([http://moai.infrae.com/](http://moai.infrae.com/))

MOAI is an Open Access Server Platform for Institutional Repositories. The MOAI software has a very flexible system for combining records into sets and publishing them via the Open Archive Initiatives protocol for metadata harvesting. It also comes with a simple yet flexible authentication scheme that can be easily customized. We use MOAI to enable harvesting of Griffith research data by a variety of external systems, including:
Research Data Australia:  
(http://researchdata.ands.org.au/search#!/p=1/tab=party/group=Griffith%20University )

NLA Trove:  

REPEC:  
http://ideas.repec.org/s/gri/fpaper.html

**Java Script widgets**

A variety of custom JavaScript widgets are to enhance and simplify both public browse and discovery as well as authenticated data entry and manipulation.

Notable widgets include:

- multi-select widgets that dynamically render display data based on Ajax calls, and perform automatic garbage collection, allowing them to gracefully handle tens of thousands of items.
- JavaScrip-based information visualization tools

A diagram outlining the architecture of the system is attached below:

![Component Model of the Research Hub](image)

**Fig 5:** The component model of the Research Hub demonstrating the loosely coupled architecture of the solution
Benefits of the Solution at Griffith University

A single institution-wide solution with comprehensive details of all research activity undertaken at Griffith University.

Easy to query in order to develop new functionality in external systems based on Research Hub data, e.g. currently developing a new institutional data repository where data submission form is automatically populated with metadata based on information about the user in the Research Hub.

Loosely coupled architecture allows the most powerful and flexible tools to be used just for the task for which they are most appropriate. This enables the ability to quickly and simply add new functionality to the solution. It also increases the fault tolerance of the system, since individual components can fail and be repaired without taking down the entire system.

The latent appetite online for Griffith Research content has been significant. Since being soft launched in mid-February 2012 there have been 177K pageviews across 30K unique visitors.

Despite the heavy traffic to the site, the extensive profiles, and the advance search and browse functionality implemented by the system, it still is a highly responsive system. Most pages return in
under 2 seconds, even though the system is run on relatively modest hardware. This is because of the extensive system of caching that has been implemented, and a system of cache refreshing when users undertake content editing activities.

While library IT solutions usually aim for fewer components to simplify ongoing IT support, the advantage of a well designed, loosely coupled system far outweighs the perceived benefits of a “conceptually simpler” solution. Development times have been greatly reduced by the selection of appropriate components, and performance of these components has exceeded expectations.

**Intended Clientele**

There are four broad audience categories which are the main clientele of the Research Hub:

1. **Internal Griffith Researchers**
   - Who wish to see their work profiled in the most effective fashion possible
2. **Potential Higher Degree By Research (HDR) students**
   - Who are interested in the type of work produced by HDRs at Griffith as well as the researchers available to supervise them
3. **Journalists / Commercial Consultancies / General Public**
   - Who are interested in expert opinions on research topics
4. **External Researchers / Potential Collaborators**
   - Who are looking for conference speakers, research datasets and potential research collaborators

The system has been through a number of rounds of usability testing with each of these groups to assess the suitability of the system for their needs. This has resulted in numerous enhancements which have been implemented in the last six months.

In a similar fashion, the project board has been instrumental in deciding the most appropriate policy settings for the solution to drive the greatest adoption among the target user community.

Regular analysis of both Google Analytics and support logs is undertaken to be able to report on the ongoing demand for the Research Hub. The Research Hub is directly integrated into the University’s ticketing system, allowing both internal and external users to log support jobs and provide feedback. This system also allows us to generate internal reports on use and uptake of the system. Usage of the system is consistent and trending higher.
Consistent feedback from users of the system has praised its “ease of use” and the “powerful search engine”. Indeed the search functionality we have developed is being considered for inclusion in V1.6 of VIVOweb core product, as is our approach to caching.

Example 1
(https://wiki.duraspace.org/display/VIVO/VIVO+v1.6+release+planning)

“If you need your VIVO to display all pages with more or less equivalent, sub-second rendering times, some form of page caching at the Apache level using a tool such as Squid will likely be in your future. Apache is very fast at displaying static HTML pages, and Squid saves a copy of every page rendered in a cache from which the page can be rendered by Apache rather than generated once again by VIVO.”

“Griffith University has implemented page caching and Arve Solland gave a talk on this and other aspects of the Griffith Research Hub at the 2012 VIVO conference.

Example 2:
(https://wiki.duraspace.org/display/VIVO/2012-12-06+Development+Call)

Extending search functionality .... following on the Griffith Research Hub example of adding additional facets to search results
Enhanced Services to Support Researcher Activities

- Increases the impact of research at Griffith University through the creation and publishing of DOIs for datasets based on existing data about research activities. Published datasets are linked to grant funding, publication, and investigator details.
- Inclusion of a DOI enables a persistent link to be made to a collection utilizing a standard that is widely used in the publishing industry and therefore recognizable and valued by researchers.
- The DOI enables the production of a citation that includes a persistent link to the collection record, thereby offering “return on investment” to researchers. Both the DOI and the citation element enable the researcher to make a link from their research output (e.g., journal article) to their research data – increasing the discoverability of the data collection and therefore its potential for re-use.
- DOIs facilitate the tracking of citations for reporting purposes.
- Automated ingests have been implemented so that they non-destructively merge updated enterprise information with user-supplied enhancements (using named graphs).

Fig: The faceted browse search engine allows users to simply drill down into the tens of thousands of potential results. Users can perform full text searches, or use custom widgets that have been designed to allow the user to filter and select from vocabularies thousand of items long.
Totally automated cross-walks to harvest endpoints, ensuring the latest, most up to date version of the information is always available to harvesters.

“Enter data once, use many times” principle in many different places.

Automated data aggregation along with the avoidance of repeated data entry make supporting the Research Hub a sustainable proposition, both in terms of the ongoing operational expenditure and the time cost for researchers to maintain their profile.

Advanced JavaScript widgets enhance data entry capabilities to make tasks simple and intuitive.

Automated tool for producing support material for grant application, e.g. the production of “Top Ten” publications within a field of research, which can be automatically queried from the system. This facilitates the submission of grant applications, tenure and promotion applications.

Allows prospective Higher Degree by Research students to identify and contact potential supervisors.

The benchmark performance of the Research Hub exceeds the pre-existing solution. For example, the existing non-public publications database took more than 4 minutes to respond to a query compared to less than a second for the same query in the new Research Hub search interface.

Whereas in the former system, each publication was an isolated atom of information with no links to other scholarly outputs, the Research Hub automatically makes explicit the links between data, researchers, their publications, projects and research group affiliations.

The Research Hub aggregates multiple “sources of truth” to a single location and representation (ANDS-VIVO ontology) and crosswalks this data using SPARQL queries to harvestable end-points for external systems, e.g.:
- OAI-PMH as RIF-CS schema (based on the International Standards Organisation (ISO) #2146) feed to Research Data Australia, or
- domain specific Research Papers in Economics (RePEc) feed

**Effective and Sustainable Innovation**

Progressive enhancement of centrally collected, authoritative data sources via self-service edits minimises the effort required by researchers to maintain up to date, high quality profiles.

Automating processes for record enhancement supports the sustainability of the operational system since the enhancements improve as many records as possible. This raises the base level of quality of all records. Interested researchers are then able to make strategic decisions about improving individual records to take them from “good” to “great”.

The success of automated integration and enhancement has demonstrated the importance of centralised research data management solutions to researchers. Whereas previously data entry into these systems was mandated but compliance was poor, researchers are now motivated to supply their data to these systems because it serves their own purposes, i.e. improved researcher profile. In so doing, the Research Hub has brought researchers’ self-interest into alignment with the University’s strategic research goals.

The Research Hub is a foundation of enabling infrastructure that has allowed the rapid development of new features and functionality, e.g.
Automated calculation of top fields of research based on publications and grant funding

Powerful yet simple search and browse tools which allow for richer data mining, improved discovery, flexibility

Faceted search and browse based on research activity metadata

Future Roadmap

- Inclusion of profile pages for Higher Degree Research students and their related scholarly output, e.g. posters, datasets, and theses
- Using Research Hub data and SPARQL queries to drive the auto-population of edit forms in the Institutional Research Data Repository with semantic data to improve the richness and meaning of user-supplied metadata, e.g. encouraging the use of the same set of research keywords across funding activities, data collections and publications
- Disambiguation and reconciliation service using fuzzy matching of text strings and data properties
- Information visualization, including temporal and geographic display of data in the Research Hub
- Data scraping and Named Entity Recognition (NER) of semi-structured data sources, e.g. institutional news feed

Measurable Impact on Library Clientele

- One of the most immediate benefits of the Research Hub has been the huge volume of traffic it has generated: more than 20,000 page views a month, with in excess of 80% of the traffic from sources external to the University
- 1011 researchers, 65 groups, 5579 projects, 50390 publications, 43 collections and 12 services
- More equitable: early career researchers get profiles, not just senior academics
- We are now beginning a program to track citations to data and publications as well as a more detailed analysis of the altmetrics of use of material profiled in the Research Hub
• Academic Services Librarians are actively promoting to their respective academic clients the importance of keeping their publication data up-to-date

Influence on the Practices and Standards of Librarianship in General
The community that has developed around the ANDS-VIVO ontology has enabled the marshalling of community requirements for future enhancements of the ANDS RIF-CS Schema (http://ands.org.au/guides/cpguide/cpgrifcs.html), the Research Data Australia Service (http://researchdata.ands.org.au/), and engagement with the National Library of Australia Trove service (http://trove.nla.gov.au/general/api). The lead role Griffith plays in this community has helped drive updates in the RIF-CS specification to bring it into line with the DataCite Metadata Kernel (http://services.ands.org.au/documentation/rifcs/guidelines/rif-cs.html#history).

Several of the enhancements and extensions made in the ANDS-VIVO ontology have been adopted by the international VIVO ontology maintainers and are now part of the shared vocabulary of a widely distributed and high impact, international research community (http://nrn.cns.iu.edu/).

All too often, standards and specifications are developed on a theoretical basis in advance of the applications that implement them. By diving into the practicalities of comprehensively profiling scholarly activity, Griffith’s Research Hub has provided a secure foundation from which to experiment with and advocate best practice in Open Access and research data management.

Potential for Replication or Adaptation Outside of Griffith University
• Open source + pre-existing documentation in addition to custom docs developed by Griffith University
• Existing communities around open source components

User and Implementer Documentation
• Open source:
  ▪ https://github.com/gu-eresearch
  ▪ https://github.com/anzsrc
  ▪ https://subsoft.rcs.griffith.edu.au/gitweb
• Conferences, community events and workshops
• Documentation
  ▪ Online FAQ: http://research-hub.griffith.edu.au/help
  ▪ Quick Start Guide: http://research-hub.griffith.edu.au/quick-start.jsp
  ▪ Install Script: https://bitbucket.org/prologic/vivo-playbooks
• Project and Development Team Blogs
**History of Development and Implementation of the Program**

The Research Hub history can be divided into three stages, both on the basis of the activities undertaken and the funding for development.

**Stage 1: NCRIS (National Collaborative Research Infrastructure Strategy) funded manual data curation**

Griffith was funded to conduct an environmental scan of the available research data that had resulted over a number of years from national competitive funding, e.g. Australian Research Council, National Health and Medical Research Council, and Australia Council. Griffith was also funded to deposit this data in a nationally federated system. Griffith identified large volumes of high priority research material and highlighted that the process model of manual data curation was not sustainable across the University as a whole.

**Stage 2: Nationally funded infrastructure development for a prototype automated system**

Based on the feedback from Stage 1, Griffith was funded to develop a “metadata store” solution to automate the harvesting of research data collection information to Research Data Australia (http://researchdata.ands.org.au/). The project team questioned the strategic value of focusing on harvesting alone and successfully attempted to automate data collection as well.

**Stage 3: Griffith funded development of sustainable enterprise system for profiling research data**

Based on the success of the initial ANDS-funded proto-type from Stage 2, it was recognized that it might be a suitable basis for an official research activity profile system. This project was successful. Post Stage 3, Griffith has focused on small innovative solutions that can be developed and deployed in an agile fashion.

Griffith University has managed to secure relatively substantial amounts of external funding for the development of the Research Hub by way of competitive grants:

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<tr>
<th>Legend for entries in table:</th>
<th>Grant ID:</th>
<th>Name:</th>
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<tr>
<td>Details:</td>
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**Identifying and describing Griffith University's research datasets and making metadata available to the Griffith research community and the Australian Research Data Commons**

- Assess research data resulting from ARC, NHMRC and Australia Arts Council grants
- Identify and describe research data associated with Griffith research projects in order to meet the criteria set out by the Australian Research Data Commons and the National Collaborative Research Infrastructure Strategy
- Consult with researchers to identify appropriate access to their research data (open, mediated, controlled, meta-data only, restricted) in line with Federal, State and Griffith’s data management policies, and accommodate any legal, ethical, security or other constraints over the lifecycle of the research data identified.
Griffith Research Hub
ANDS Metadata Stores Program supports the development of solutions for gathering, managing, and publishing metadata about research collections and other related entities, resulting in collection discovery and reuse.

ANDS funded a collaborative project between Griffith University and the Queensland University of Technology to develop a Metadata Exchange Hub. The Hub was to act as a metadata collection, manipulation and transmission agent across multiple sources of university research data (including data, human resources, finance and research management information systems). The overall objective was to develop a system to facilitate the collation of new research data held within research institutions, regardless of what repository solution or database is used, and to provide a central metadata feed to the Australian Research Data Commons (ARDC).

Griffith RDA Gold Standard Record Exemplars
This project is designed to investigate the issues of quality and richness of connections with respect to research data description records (using the Registry Interchange Format – Collections and Services, or RIF-CS standard) contributed to the Research Data Australia repository service.

The project will primarily investigate the issues around the quality and design of current Griffith records in Research Data Australia and new records; examining how connectivity, information sources, usability and discovery can be improved using all available tools and documenting the issues and processes involved in these activities to enable other institutions to benefit from this knowledge.

It will look at the process of quality improvement of record descriptions and produce up to twelve exemplar records within Research Data Australia, each demonstrating the highest quality of metadata and connectivity.

The external funding detailed above was intended for the development of platforms and datasets able to drive national collaborative research infrastructure goals. Griffith’s success in securing this funding and using it to develop an enterprise solution for breaking down data silos demonstrates the alignment between national goals to change the culture of research practice and Griffith’s internal business drivers to achieve the same end.

Through the alignment of Griffith’s internal business drivers with national eResearch goals, Griffith was able to achieve a much greater return on its internal infrastructure funding investment in the Research Hub.
Principal Players (Staff, Consultants) with Brief Biographical Statements

Dr. Vicki Pattemore
Chair, Research Hub Project Board. Dr. Pattemore has worked in Commonwealth, State and Local Government in a variety of States and Territories and joined Griffith as Director of the Office for Research in 2002. She is responsible for oversight of all of the Office’s research support functions, including research grants, research development, research policy, research data management and human and animal ethics.

Joanne Morris
Joanne is the Manager of eResearch Services at Griffith University and is responsible for managing a program of projects and services to support research data management and research in general, which includes the Research Hub. She has championed the implementation of semantic web and open source technologies as the basis of an enterprise solution for researcher profiles, and has managed the development of policies around aggregating and exposing research activity data from a variety of enterprise data silos. Joanne is committed to pursuing smart, innovative solutions to effectively and efficiently support research through the capture, analysis, management and sharing of research outputs.

Natasha Simons
Natasha is a Senior Project Manager within Scholarly Information and Research at Griffith University where she is responsible for the delivery of the Research Hub. Natasha is also a librarian who worked previously at the National Library of Australia where she was awarded the inaugural Kenneth Binns Travelling Fellowship. She holds a Master of Applied Science (Library & Information Management). She has presented a number of papers on the Griffith Research Hub including to the international repository community at the Open Repositories 2012 conference in Edinburgh, and national webinars hosted by Australian National Data service. She is a member of the Council of Australian University Librarians Research Advisory Committee.

Mark Fallu
Mark is the Technical Lead and Senior Business analyst at eResearch Services. He has been working on semantic web applications for researchers since 2007 and on the development of the Research Hub project for 2 1/2 years. Mark performed the initial product selection and has designed and overseen the implementation of a wide variety of enhancements to the Research Hub. Most recently he developed a fuzzy matching disambiguation and resolution service. He is currently working on the development of triple store based institutional data repositories.

Gerhard Weis
Gerhard is the Senior Software Engineer at eResearch Services. He has a Master of Information and Communication Technology and has worked extensively in high performance computing, information modelling and software solution engineering. Gerhard lead the design of the ANDS-VIVO ontology and developed a high performance ETL based approach to ingesting enterprise data. He is currently working on the development of triple store based data repositories for climate scientists and biodiversity researchers.
Arve Solland
Arve is a Senior Developer in eResearch Services. He has been working with semantic web development and the VIVO platform on the Research Hub project for more than 2 1/2 years, focusing on improving VIVO features, triple store integration, data ingests and front-end optimisation. He has given numerous presentations on Griffith’s VIVO implementation in forums such as at the annual VIVO Conference, CAIRSS Community Day and ANDS Community Day.

Before joining eResearch Services in 2010, Arve completed his MICT degree at Griffith University, and has been working in various Systems Consultant and Software developer roles in Norway and Australia for the last 9 years.

Samuel Wolski
Sam is a Web Designer and Developer in Griffith University’s eResearch Services Group. He is a Bachelor of Design graduate, majoring in Visual Communication Design. Within the eResearch Services Group he specialises in user interface and experience design, supporting the development of data visualisation, web-based applications and software. Currently he is focused on the Griffith University Research Hub and Research Data Self Storage projects, as well as working in a secondment position for Central Queensland University on the Quadrant Project Management web application.

He is experienced with a range of popular and emerging web languages (such as CSS3, HTML5, Javascript, JQuery, Ajax and PHP), as well as CMS frameworks, including WordPress and Drupal. At the moment his key interests are centered on the impact of semantic HTML5 use on the web, as well as leveraging device and browser capabilities to design new web-user interaction models.

Press Coverage

ANDS (Australian National Data Service) News
VALA Website

VALA Award: “The VALA Award, made biennially, is presented to the Australian library or information centre judged to have made the most innovative use of information technology during the previous two years.”
**Workshop Coverage**


“The outcome of the workshop was for staff to benefit from having and updating an online profile, enabling them to improve their visibility and to share their research.”

Ms Simons from the Research Data Services Unit walked through the process for updating profiles on the Griffith University Research Hub, please follow the links below to access the information.

- The Research Hub - [http://research-hub.griffith.edu.au](http://research-hub.griffith.edu.au)
- The following are examples that can be viewed to see how other researchers have enhanced their profile in the Research Hub:
  1. Rodney Stewart - [http://research-hub.griffith.edu.au/display/n250e91891d0332c7f1f6414e0a499699](http://research-hub.griffith.edu.au/display/n250e91891d0332c7f1f6414e0a499699)
  2. Elizabeth Kendall - [http://research-hub.griffith.edu.au/display/n889a9616e2b4e9d5e080ca5e6](http://research-hub.griffith.edu.au/display/n889a9616e2b4e9d5e080ca5e6)
  3. Wendy Moyles - [http://research-hub.griffith.edu.au/display/mba51c6b111248bb2a3f7747d1e7d6](http://research-hub.griffith.edu.au/display/mba51c6b111248bb2a3f7747d1e7d6)

Professor Paul Draper from the Queensland Conservatorium of Music discussed and demonstrated both internal and external sites which can be used to develop an individual's profile further. The following links will take you to the sites discussed.

*Griffith hosted:*

Publications
The earlier publications discuss the project funded by the Australian National Data Service (ANDS) to develop a “Metadata Exchange Hub”, which was the genesis for Griffith University’s Research Hub.

Journal Articles


Conference Papers


Works Which Cite Griffith


Mainline VIVO developers consistently reference developments at Griffith University as examples to follow for future VIVO enhancement, e.g.