

# VIVO

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share  
discover

## THE VIVO PROJECT



EUNIS conference  
June 14, 2023



Anna Guillaumet  
Manager [SIGMA A.I.E](mailto:Anna.guillaumet@sigmaaie.org)  
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[orcid.org/0000-0002-1944-5259](https://orcid.org/0000-0002-1944-5259)  
[VIVO](#) vice-chair  
[euroCRIS](#) board member



Dr. Bruce Herbert  
Professor at Texas A&M  
[VIVO](#) Chair



Dr. Dragan Ivanovic  
Professor at University of Novi Sad  
[VIVO](#) Tech Leader  
[euroCRIS](#) board member

# INDEX

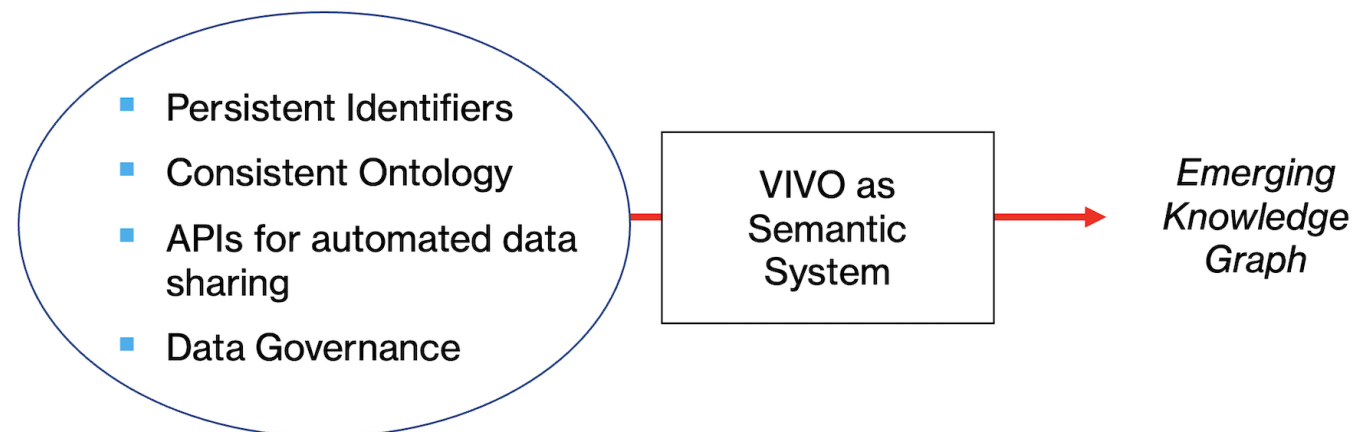
- (1) RIM/CRIS systems
- (2) The VIVO community
- (3) VIVO software and the Ontology
- (4) VIVO use cases
- (5) Innovation in the VIVO community
- (6) Conclusions

## The RIM/CRIS systems

- Research data should be used by research organizations for strategic decision-making.
- To do this, research organizations have implemented or purchased Research Information Management (RIM) systems or Current Research Information Systems (CRIS), to support the aggregation, curation, and utilization of diverse data on institutional research activities
- RIM/CRIS systems provides significant value for research institutions: integrate local, internal data with external, global data, with new efficiencies and insights across the organization, as well as the potential for regional, national, and transnational sharing and benchmarking.
- There are several types of RIM/CRIS systems that are designed to support different functions, use cases, and workflows. At the global scale (e.g., ResearchGate, Google Scholar), national scale (e.g., NARCIS), or regional scale (e.g., Florida ExpertNet, Ohio Innovation Exchange), while others serve specific disciplinary communities (e.g., DIRECT2Experts) or individual institutions (e.g., VIVO, DSpace-CRIS, Symplectic Elements, Pure)
- RIM/CRIS systems support several use cases, including reputation management, research assessment, expertise discovery, data reuse, research intelligence and data analytics, and compliance.

**VIVO** as a CRIS/RIM system, acts as a **hub of data** siloed in local and external systems through four strategies:

- (1) The consistent use of persistent identifiers (PIDs) for people, objects, and institutions
- (2) The use of reasonably consistent data models or ontologies across the systems
- (3) The incorporation of application programming interfaces (API), so that data can be harvested and shared automatically;
- (4) Community support for the development of a good data governance policies that balances openness and security



# The VIVO Community

## Open Source Community Supported program

- ✓ Software built by, for and with communities to showcase the scholarly activity, manage research discovery, experts finding, network analysis, and assessment of research impact, etc.
- ✓ Identifying common needs
- ✓ Affordable
- ✓ Institutions own and control their data
- ✓ Easily extended to support additional domains



<https://www.lyrasis.org/Pages/Main.aspx>



## VIVO Core Values



### OPEN SOURCE

VIVO, and all VIVO components are provided as open source. Download at GitHub.

VIVO and all components of VIVO are open source. **Download from GitHub.**

USE

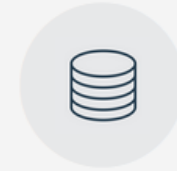


### OPEN COMMUNITY

The VIVO community is open to everyone. You can follow the work of VIVO at the VIVO wiki.

The VIVO community is open to everyone. You can follow VIVO's work on our wiki.

JOIN



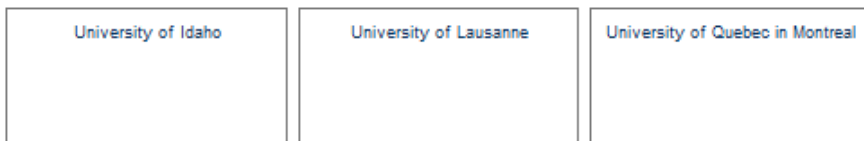
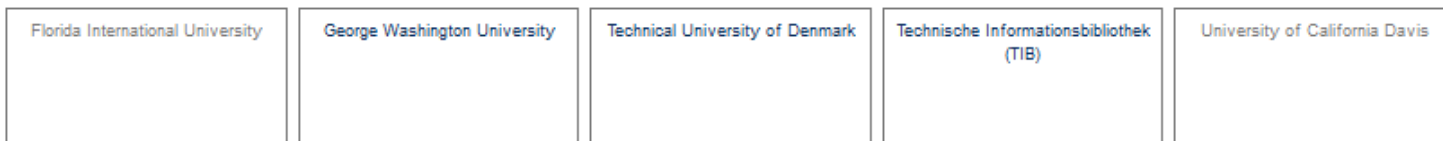
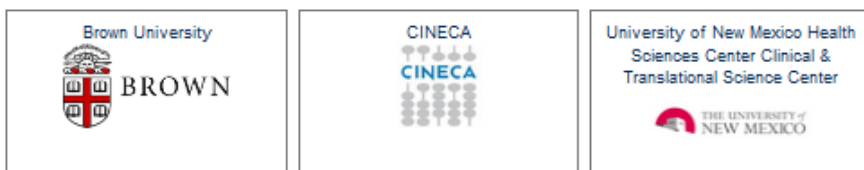
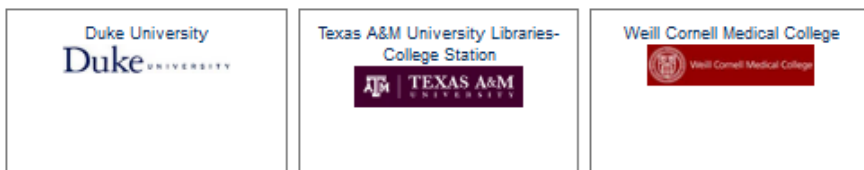
### OPEN DATA

VIVO produces Linked Open Data which is easily shared and combined across VIVO sites.

VIVO produces linked open data that can be easily shared and combined across all VIVO sites.

SHARE

## Member-Supported Community



### VIVO Service providers:



### VIVO Strategic partner (MOU):



### Other partners:



## Leadership Group

Define the strategic direction  
(+officers)

## Committers Group

Developers in charge of the maintenance  
and evolution of the VIVO base code.  
Technical Lead

## Users Groups

Community-created groups with common  
interests, grouped by region or zone:

- North American User Group
- German User Group
- Iberoamerica User Group

## Interest Groups

Groups created by the community to support  
initiatives but without limited time

## Task Forces

Groups created by the community with a  
specific and finite objective in time

## VIVO Sites and numbers

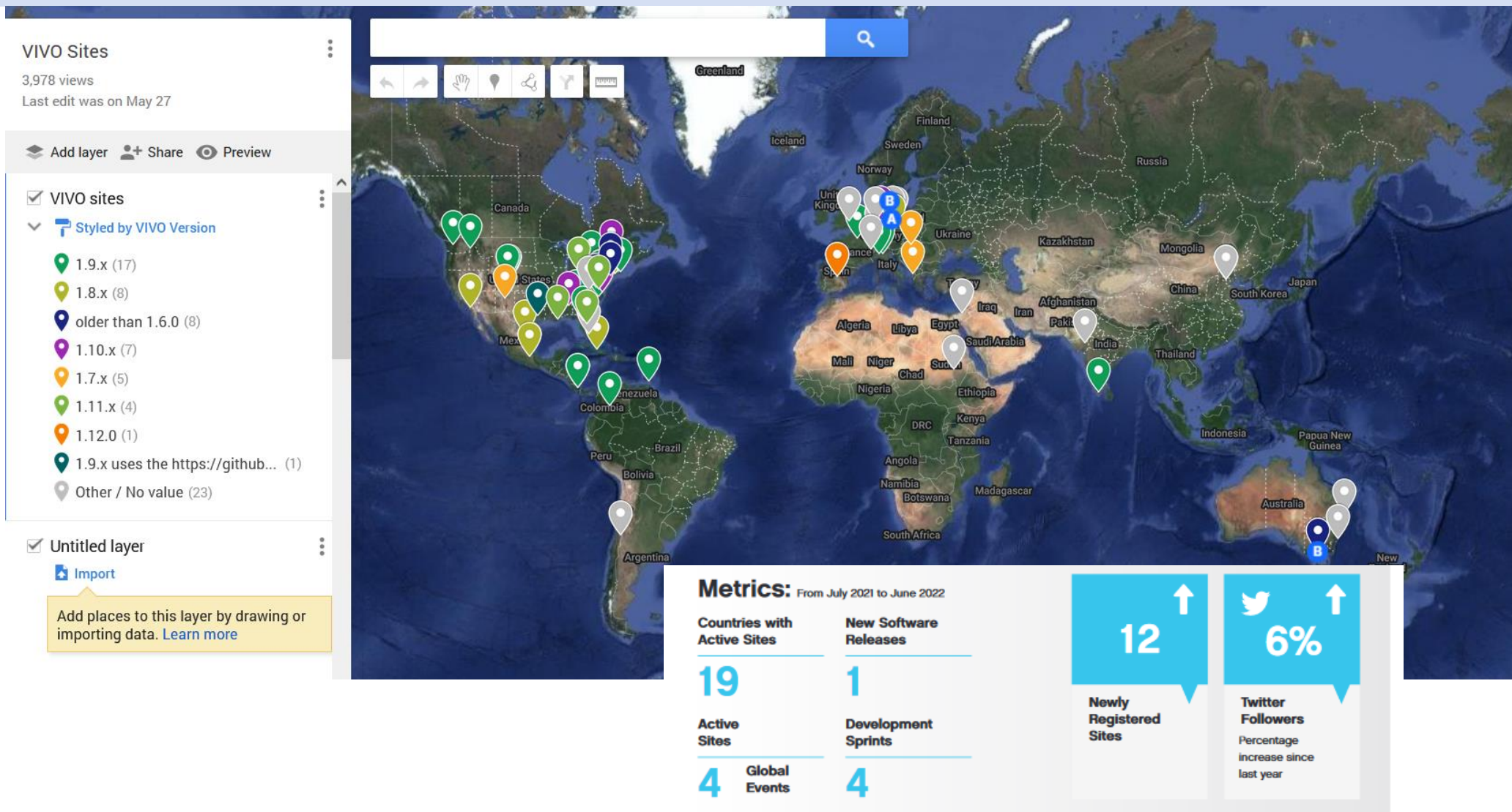
Access the  
interactive  
VIVO map  
and the  
annual report!

**+60**

institutions  
and agencies

**+20**

countries  
implementing  
VIVO



**Members**

3 Platinum | 4 Gold | 3 Silver | 7 Bronze | 1 Supporter | 1 Contributor

## 2021-23 Community Events

- VIVO 2021 conference (Virtual) – 252 attendants, most international, from 32 countries worldwide
- North American User Group Meeting
- Launch of the Spanish-speaking User Group Meeting with more than 600 attendants
- VIVO track at the [CRIS2022](#) (15th International Conference on Current Research Information Systems, Dubrovkin, Croatia).
- German VIVO-Workshop, June 2022
- 1st OECD MARIAD Webinar: Data Information Models for Scientific Research, June 2022
- VIVO Talks: a webinar series at the Berlin University Alliance

**12th Annual | VIVO Conference 2021**  
June 23-25 · On-line

VIVO conference registration is...  
There is no...

**VIVO** connect share discover  
Lanzamiento de la Comunidad  
**VIVO en español**  
27 de mayo 14:00 GMT  
Seminario Web  
**VIVO: Un sistema de gestión de la investigación en el contexto de la Ciencia Abierta**  
Conozca las posibilidades que ofrece VIVO, su adopción y aclare sus dudas acerca de este sistema.  
El seminario web es **gratuito, en español y está abierto a todas las personas interesadas en asistir.**  
Inscripción <https://bit.ly/vivoespanol>  
LYRIS SIGMA LA Referencia SENACYT  
IICA UNA uc3m Universidad Carlos III de Madrid

## Software evolution

- New versions are released periodically with relevant improvements such as multilanguage, accessibility and gender perspective, performance improvements, security, etc.
- VIVO core refactoring

## Usability and Utility

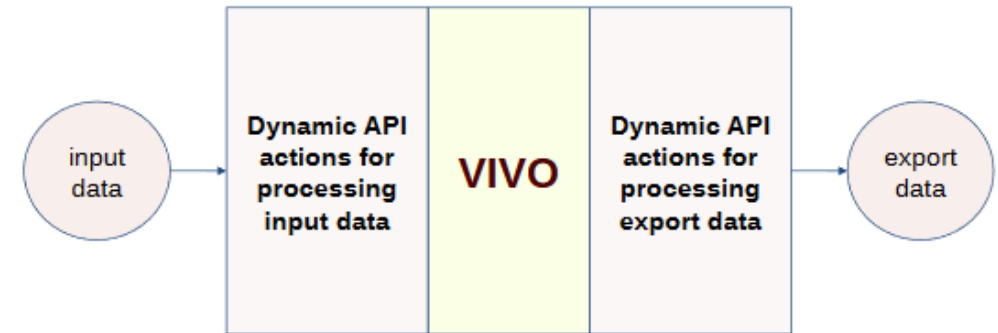
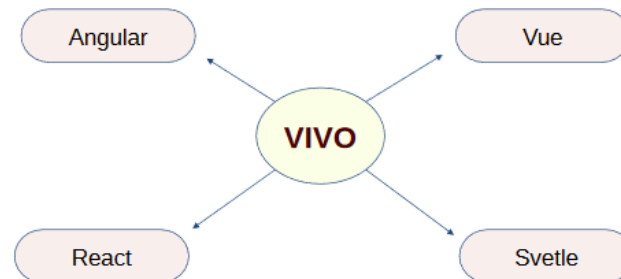
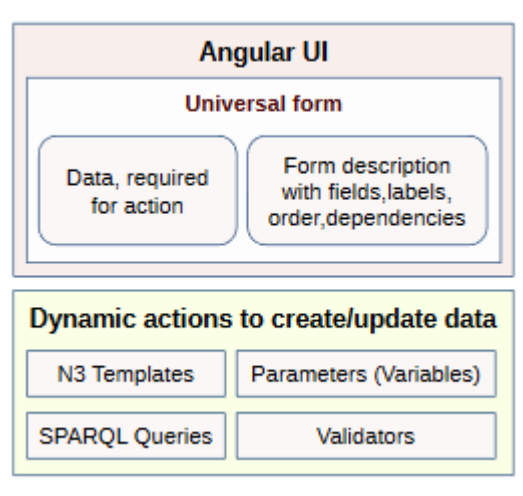
- Dynamic API

## Interoperability

- CERIF2VIVO mapping - Collaboration with EuroCris to align CERIF model to VIVO ontology. (ongoing)  
<https://wiki.lyrasis.org/display/VIVO/Ontology+Interest+Group>
- Integrating Dspace and VIVO: (ongoing)  
<https://wiki.lyrasis.org/display/VIVO/DSpace-VIVO+integration+task+force>

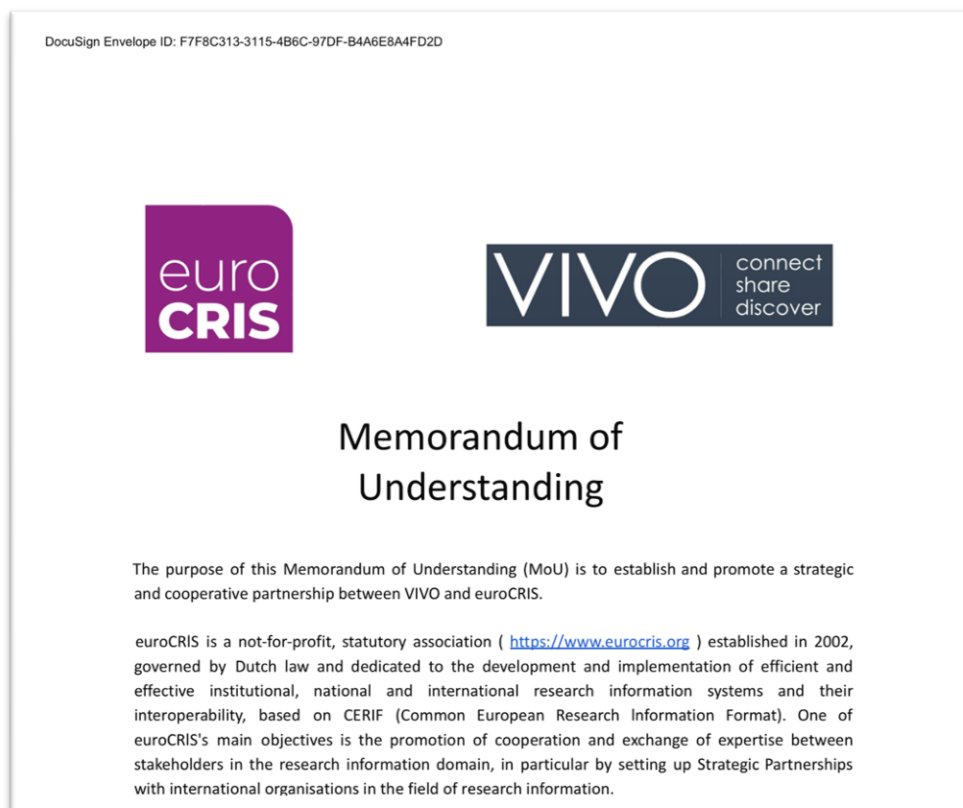
**Goal:** Dynamic API would lead to decoupling frontend and backend, would enable easier customization of VIVO.

- Dynamic custom entry forms
- New web interfaces
- Better integration with external application.



## MOU with EuroCRIS, Jul 2021

*Takes advantage of mutual interests*



### Goals:

- Promote the use of VIVO in Europe
- Collaborate on interoperability: Align euroCRIS [CERIF](https://www.eurocris.org) framework and VIVO ontology
- Communications between the communities
- Attend mutual conferences and events

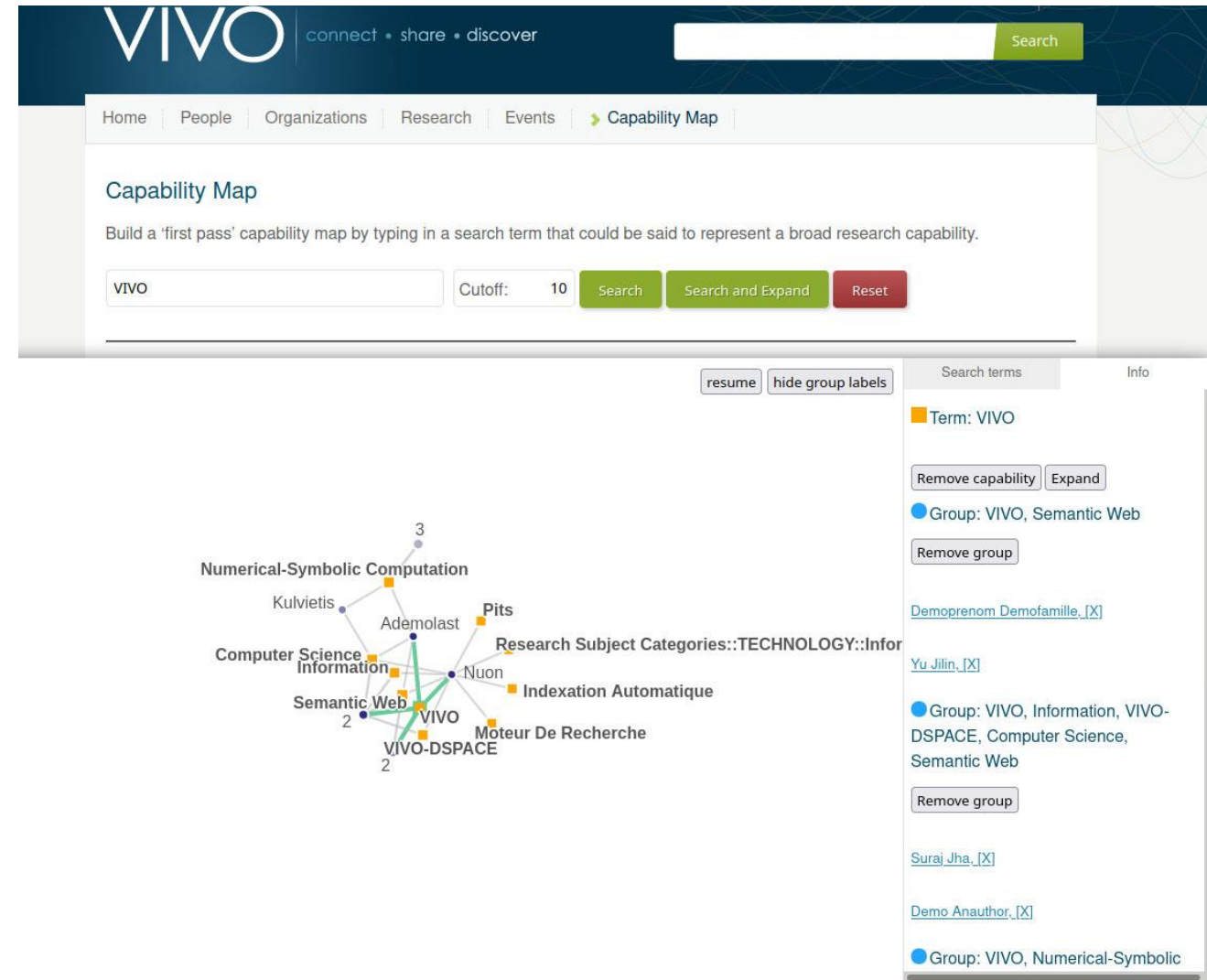
## Benefits of the mapping:

- ✓ Interoperability between VIVO platforms and CERIF-compatible CRIS systems
- ✓ Knowledge transfer
- ✓ Improvement of CERIF model and VIVO ontology by analyzing the other side
- ✓ Extensions of the data models
- ✓ Addition of descriptions and annotations
- ✓ Machine-executable mapping for various purposes and in various notations, for example, for a CERIF-compliant data export from VIVO

# VIVO Roadmap. Integrating Dspace and VIVO

Goal: consider using VIVO as a frontend for one or multiple DSpace instances at the institution

- A new presentation of DSpace items and semantic web aspect to existing DSpace repositories
- DSpace-VIVO migration assigns a unique ID to the researchers and subjects (keywords)
- The 'Capability Map' allows an expertise mapping across data sources



Project information:

<https://github.com/vivo-community/DSpace-VIVO>

<https://wiki.lyrasis.org/display/VIVO/DSpace-VIVO+Technical+Documentation>



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# The VIVO software

VIVO is an example of an application built entirely with [Semantic Web](#) technologies promoted by the [World Wide Web Consortium](#).

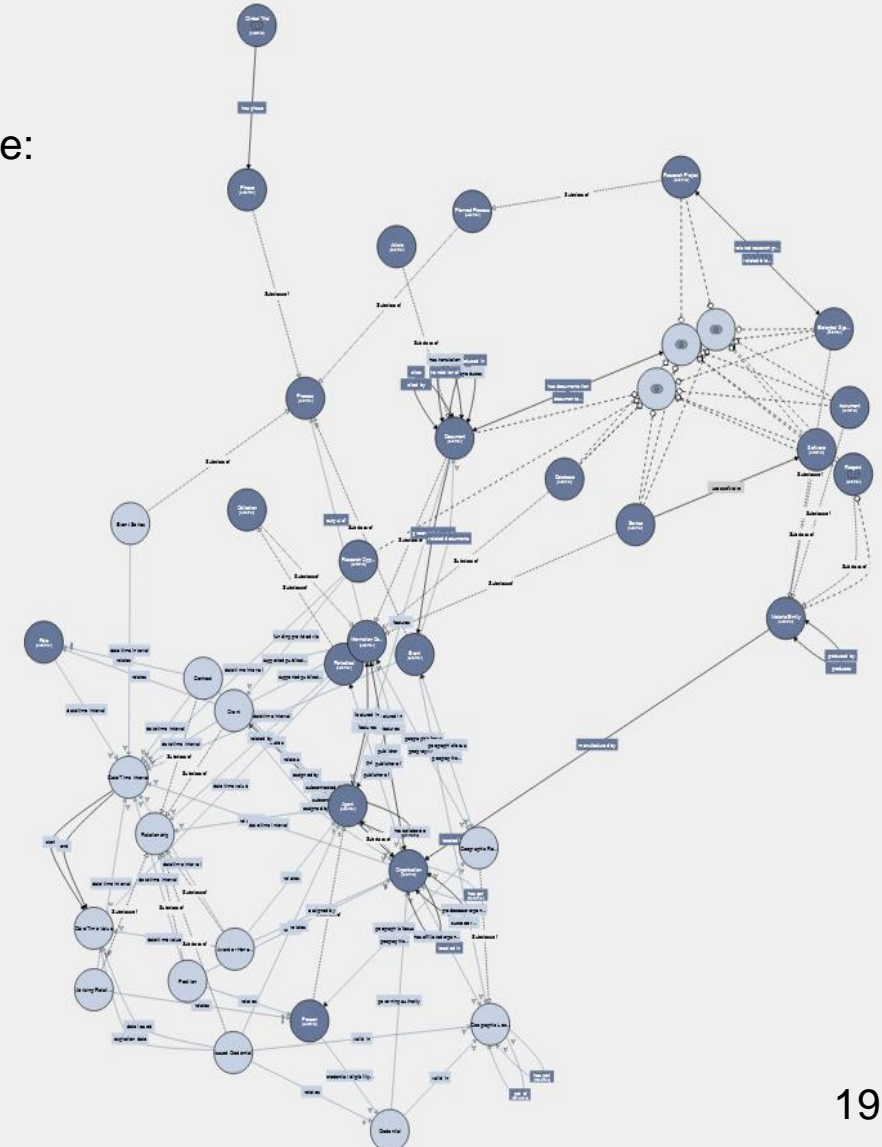
- Implements an Ontology based on standard international ontologies
- Stores data as [RDF](#) expressed in terms of [vocabularies called ontologies](#)
- provides [persistent URIs for data](#).
- Represents the expertise of people engaged in the creation, transmission, and preservation of knowledge and creative works.
- Contains FAIR data, complying with Linked Open Data Standards
- **System requirements:** VIVO may be hosted on one or more physical servers, on virtual servers, or in the cloud. Components:
  - Recommended installation (\*): 4 cores x64 (min 2), 32 Gb RAM (min 2GB), 500 GB SDD (min 100 GB HDD)
  - OS Linux
  - TomCat Web application
  - MySQL database (with the default Jena SDB triple store)
  - Apache Solr search index.

# The VIVO software

## Ontologies Used in the VIVO Ontology

The VIVO Ontology leverages the following ontologies in a unified, semantic structure:

- eagle-i Resource Ontology (ERO) – <http://www.obofoundry.org/ontology/ero.html>
- Basic Formal Ontology (**BFO**) – <http://www.obofoundry.org/ontology/bfo.html>
- Bibliographic Ontology (**BIBO**) – <http://bibliontology.com/>
- **Event** Ontology – <http://motools.sourceforge.net/event/event.html>
- Friend of a Friend (**FOAF**) – <http://www.foaf-project.org/>
- Gene Ontology (GO) – <http://obofoundry.org/ontology/go.html>
- [Geopolitical.owl](http://www.fao.org/), from the U.N. Food and Agriculture Organization
- Information Artifact Ontology (**IAO**) – <http://www.obofoundry.org/ontology/iao.html>
- Ontology for Biomedical Investigations (OBI) – <http://www.obofoundry.org/ontology/obi.html>
- Ontology of Clinical Research (OCRe) – <http://code.google.com/p/ontology-of-clinical-research/>
- Relations Ontology (RO) – <http://www.obofoundry.org/ontology/ro.html>
- Software Ontology (SWO) – <http://www.obofoundry.org/ontology/swo.html>
- **SKOS** (Simple Knowledge Organization System) – <http://www.w3.org/2004/02/skos/>
- **vCard** – <http://www.w3.org/TR/vcard-rdf/>
- SPAR ontologies, including FABIO, CiTO, and C4O: <https://purl.org/spar/fabio>



# VIVO use cases



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## Soo Jung Cho | Assistant Professor of Medicine

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[Other](#)



Assistant Professor of Medicine, Medicine , Weill Cornell Medical College 2018 -

Instructor in Medicine, Medicine , Weill Cornell Medical College 2016 - 2017

Postdoctoral Associate in Medicine, Medicine , Weill Cornell Medical College 2014 - 2016

Phone

+1 646 962 2916


### PUBLICATIONS

selected publications

Sort by Newest Co-Author Network

- Identification of Robust Protein Associations With COVID-19 Disease Based on Five Clinical Studies. *Frontiers in immunology*. 2022 Academic Article GET IT
- Antiviral Gene Expression in Young and Aged Murine Lung during H1N1 and H3N2. *International journal of molecular sciences*. 2021 Academic Article GET IT
- Association of circulating cell-free double-stranded DNA and metabolic derangements in idiopathic pulmonary fibrosis. *Thorax*. 2021 Academic Article GET IT
- Cytokine signatures of end organ injury in COVID-19. *Scientific reports*. 2021 Academic Article GET IT
- Decreased IDO1-dependent tryptophan metabolism in aged lung during influenza. *The European respiratory journal*. 2021 Academic Article GET IT

Times cited: 3



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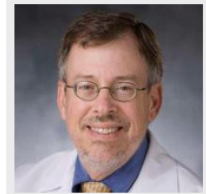
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## James Abbruzzese

D. C. I. Distinguished Professor of Medical Oncology

My research interests include the clinical study and treatment of pancreatic cancer.

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[Add Data to my Website](#)



### Current Appointments & Affiliations

- D. C. I. Distinguished Professor of Medical Oncology, [Medicine, Medical Oncology, Medicine](#) 2018
- Professor of Medicine, [Medicine, Medical Oncology, Medicine](#) 2015
- Chief, Division of Medical Oncology, [Medicine, Medical Oncology, Medicine](#) 2013
- Member of the Duke Cancer Institute, [Duke Cancer Institute, Institutes and Centers](#) 2013

### Contact Information

440 Mudd Building, Box 3406, Durham, NC 27710

440 Mudd Building, Box 3406, Durham, NC 27710

✉ [james.abbruzzese@duke.edu](mailto:james.abbruzzese@duke.edu)

### Background

- Education, Training, & Certifications
- Previous Appointments & Affiliations

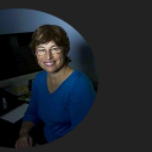
### Recognition

- In the News

### Expertise

- Subject Headings

### Research



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Teaching

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Curriculum Vitae [PDF]

Researcher@Brown

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
Lynn Rothschild

Adjunct Professor of Molecular Biology, Cell Biology and Biochemistry

Overview

Prof. Rothschild is an astrobiologist/ synthetic biologist at NASA Ames specializing in molecular approaches to evolution, particularly in microbes, and the application of synthetic biology to NASA's mission. With a foundation in protistology and evolution, research interests include the early evolution of life, life in extreme environments and the search for life in the universe. In 2008 she established a program in synthetic biology for NASA and represented the Agency on the OSTP synthetic biology working group. Flight experience includes high altitude ballooning for astrobiology, the PI on the PowerCell payload on DLR's Eu:CROPIS satellite (launched December 2018), and Co-I on ESA's BIOMEX experiment on ISS. Extensive outreach including lectures worldwide, documentaries and a TEDx talk. Teaching experience includes "Astrobiology and Space Exploration", Stanford, 2004-13 (astrobiology.stanford.edu), directing theses (current Ph.D. students from Columbia, TU Delft, and UC Santa Cruz, ), and the faculty advisor of the award-winning Brown-Stanford iGEM team. iGEM projects included synthetic biology for Mars Exploration (2011), Synthetic biology for astrobiology, including biomining (2012), Synthetic biocommunication (2013), Towards a Biodegradable UAS (2014), BiOrigami (2015) for which the team won "Best Manufacturing", and "BioBalloon" (2016) for which the team won "Best Measurement" and runner up for "Best Manufacturing", "Mars: getting there and staying there" (2017), Stanford-Brown-RISD iGEM team, "Mycos for Mars" (2018) for which the team was the runner up for the best new composite part and for best in manufacturing. In 2019 we joined forces with Princeton to form the Brown-Stanford-Princeton team, which won the iGEMers Prize. During the pandemic, Prof. Rothschild is supervising students remotely.

Brown Affiliations



Molecular Biology, Cell Biology and Biochemistry

Research Areas

astrobiology

evolution


microbiology

protistology


space exploration

synthetic biology


On the Web




Profile, Motherboard/VICE Spring 2017




TED talk 2019, The living tech to support life on other planets




Isaac Asimov Award Lecture




NASA 360 podcast, Urban Biomining



NASA 360 podcast, Mycotecture

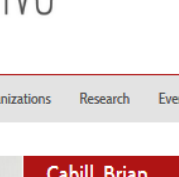




Wikipedia page


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

**Cahill, Brian**




**Positions**  
 Mitarbeiter, Nachwuchsforschungsgruppe Learning and Skill Analytics, Programmbereich C - Forschung und Entwicklung 2020 -

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Publications in VIVO


**selected publications**


**academic article**  
 Give and take on the MSCA: Programme for early career researchers aims to be more inclusive with less money. Research Europe. 2021  
 Researcher Mental Health and Well-being Manifesto 2021  
 The Impact of the COVID-19 Pandemic on the Working Conditions, Employment, Career Development and Well-Being of Refugee Researchers. Societies. 11:71. 2021  7  
 Four ways to fight science-funding cuts across Europe. Nature. 2020  159  
 Non-linearity and dynamics of low-voltage electrowetting and dewetting. Physical Chemistry Chemical Physics. 21:18290-18299. 2019  1  
[... more](#)

**article**  
 Creating Research Environments that foster Mental Health and Wellbeing  8  
 Increasing Awareness of Researcher Mental Health  
 Who is responsible for transferable skills and how can RRI and Open Science help?

**blog posting**  
 How MSCA is changing under Horizon Europe. Research Professional Europe. 2021

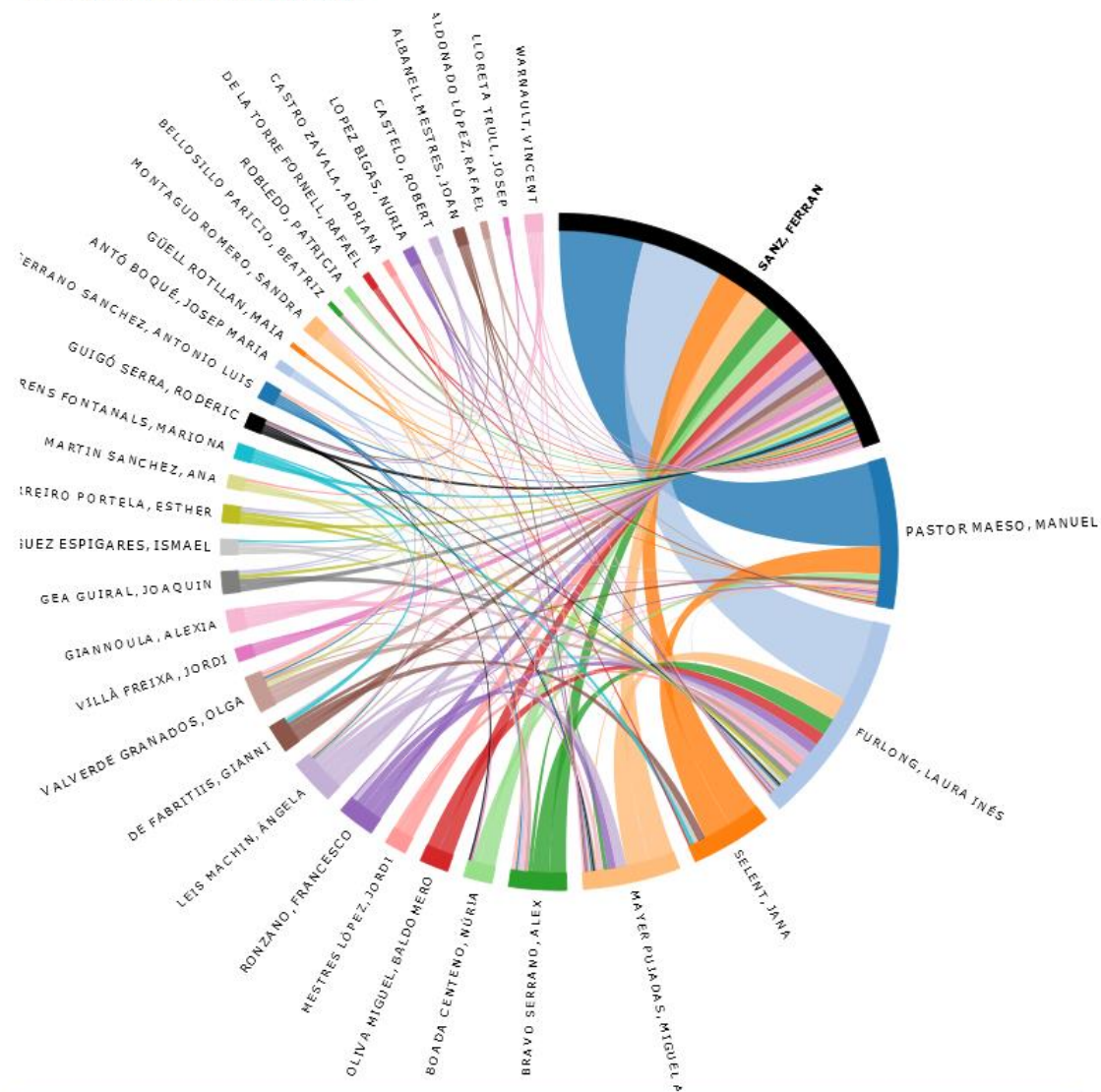
**chapter**  
 Electrical Sensing in Segmented Flow Microfluidics. Micro-Segmented Flow. 73-100. 2014  
 Electrical Switching of Droplets and Fluid Segments. Micro-Segmented Flow. 31-54. 2014  
 Introduction. Micro-Segmented Flow. 1-3. 2014

 Co-author Network

 Map of Science

**Contact Info**  
 ✉ [brian.cahill@tib.eu](mailto:brian.cahill@tib.eu)

Co-author Network (GraphML file)



## To boost collaborations



211 Publications  
from 1975 - 2021 (256 total)  
(.CSV File)



42 co-authors  
from 1994 - 2021 (44 total)  
(.CSV File)

### Tables

Publications per year (.CSV File)

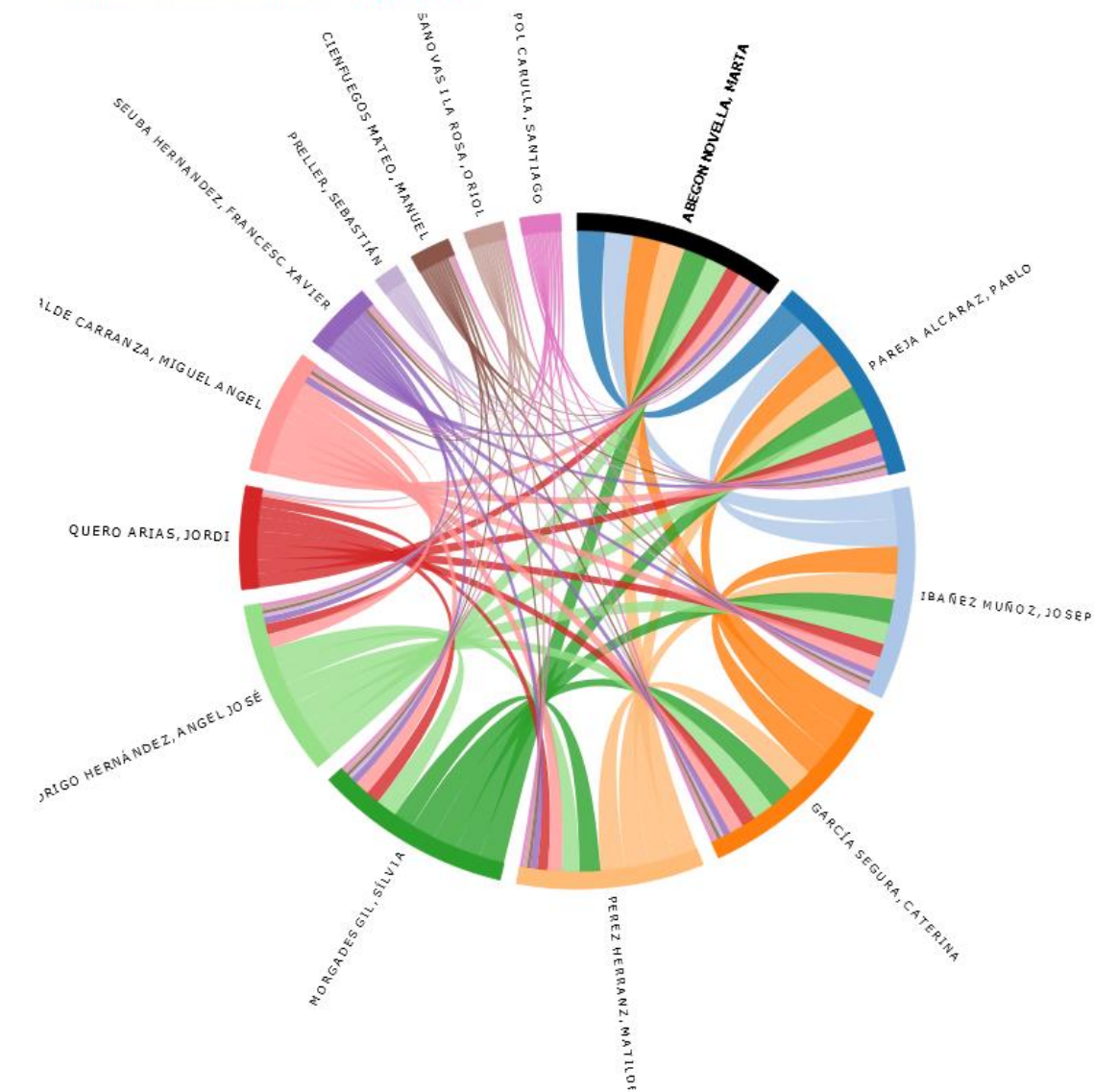
Year	Publications
1975	1
1977	2
1978	2
1979	1
1982	2
1983	4
1984	2
1986	4
1987	1
1988	8
1989	6
1990	5
1991	6
1992	4
1993	6
1994	8
1995	5
1996	8
1997	6
1998	4
1999	5

Co-authors (.CSV File)

Author	Publications with
PASTOR MAESO, MANUEL	40
FURLONG, LAURA INÉS	39
SELENT, JANA	15
MAYER PUJADAS, MIGUEL ANGEL	12
BRAVO SERRANO, ALEX	8
BOADA CENTENO, NÚRIA	8
OLIVA MIGUEL, BALDOMERO	7
MESTRES LÓPEZ, JORDI	6
RONZANO, FRANCESCO	5
LEIS MACHIN, ÁNGELA	5
VALVERDE GRANADOS, OLGA	4
DE FABRITIIS, GIANNI	4
VILLÀ FREIXA, JORDI	4
GEA GUIRAL, JOAQUIN	3
GIANNOULA, ALEXIA	3
GUIGÓ SERRA, RODERIC	2
BARREIRO PORTELA, ESTHER	2
RODRIGUEZ ESPIGARES, ISMAEL	2

## Co-investigator Network

(GraphML File)



## To boost collaborations



8 grants  
from 2009 through 2021  
(.CSV File)



13 co-investigators  
from 2009 through 2021  
(.CSV File)

### Tables

The information in the following tables is for all years. [?](#)

#### Grants per year (.CSV File)

Year	Grants
2009	1
2012	2
2014	1
2015	1
2016	1
2017	1
2018	1

#### Co-investigator(s) (.CSV File)

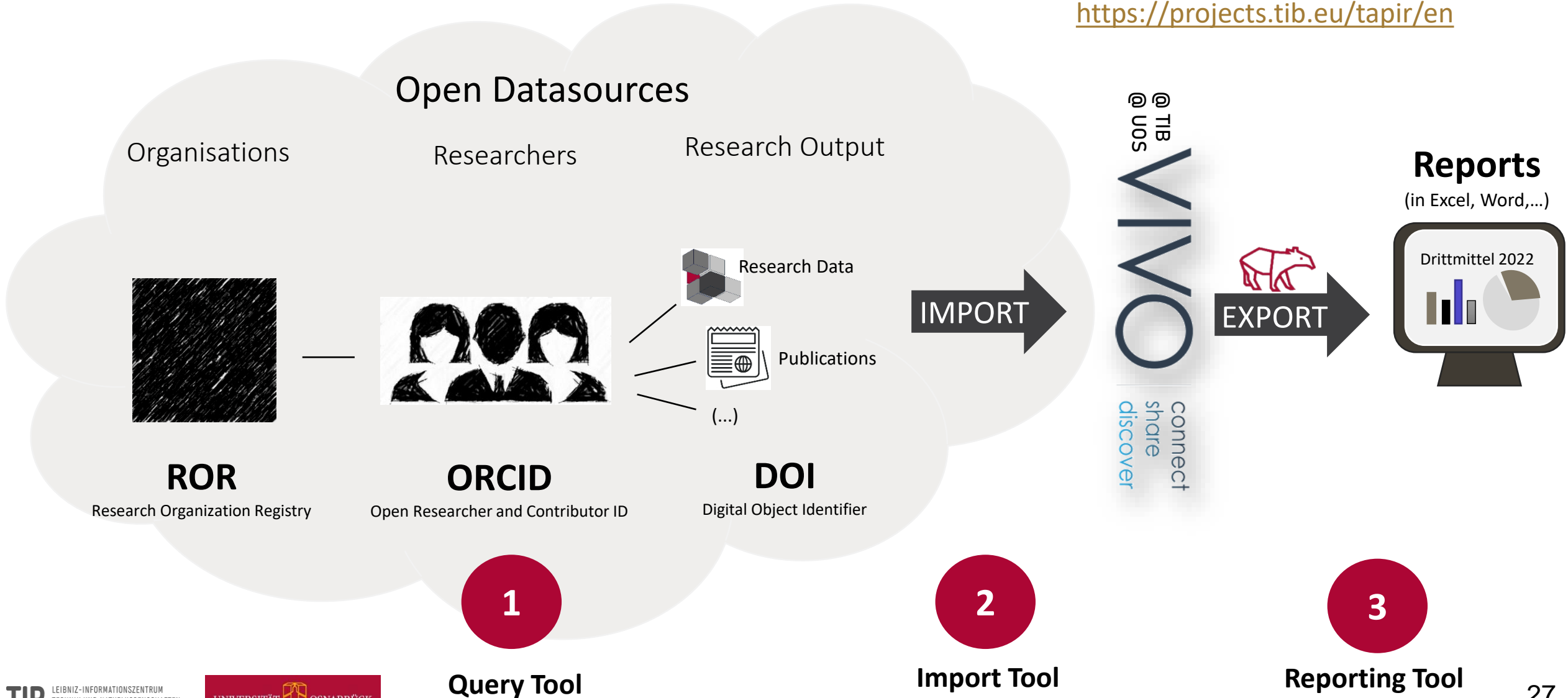
Investigator	Grants with
PAREJA ALCARAZ, PABLO	8
IBAÑEZ MUÑOZ, JOSEP	8
GARCÍA SEGURA, CATERINA	8
PEREZ HERRANZ, MATILDE	7
MORGADES GIL, SÍLVIA	7
RODRIGO HERNÁNDEZ, ANGEL JOSÉ	6
QUERO ARIAS, JORDI	4
ELIZALDE CARRANZA, MIGUEL ANGEL	4
SEUBA HERNANDEZ, FRANCESC XAVIER	2
PRELLER, SEBASTIÁN	1
CIENFUEGOS MATEO, MANUEL	1
CASANOVAS I LA ROSA, ORIOL	1
RIPOL CARULLA, SANTIAGO	1



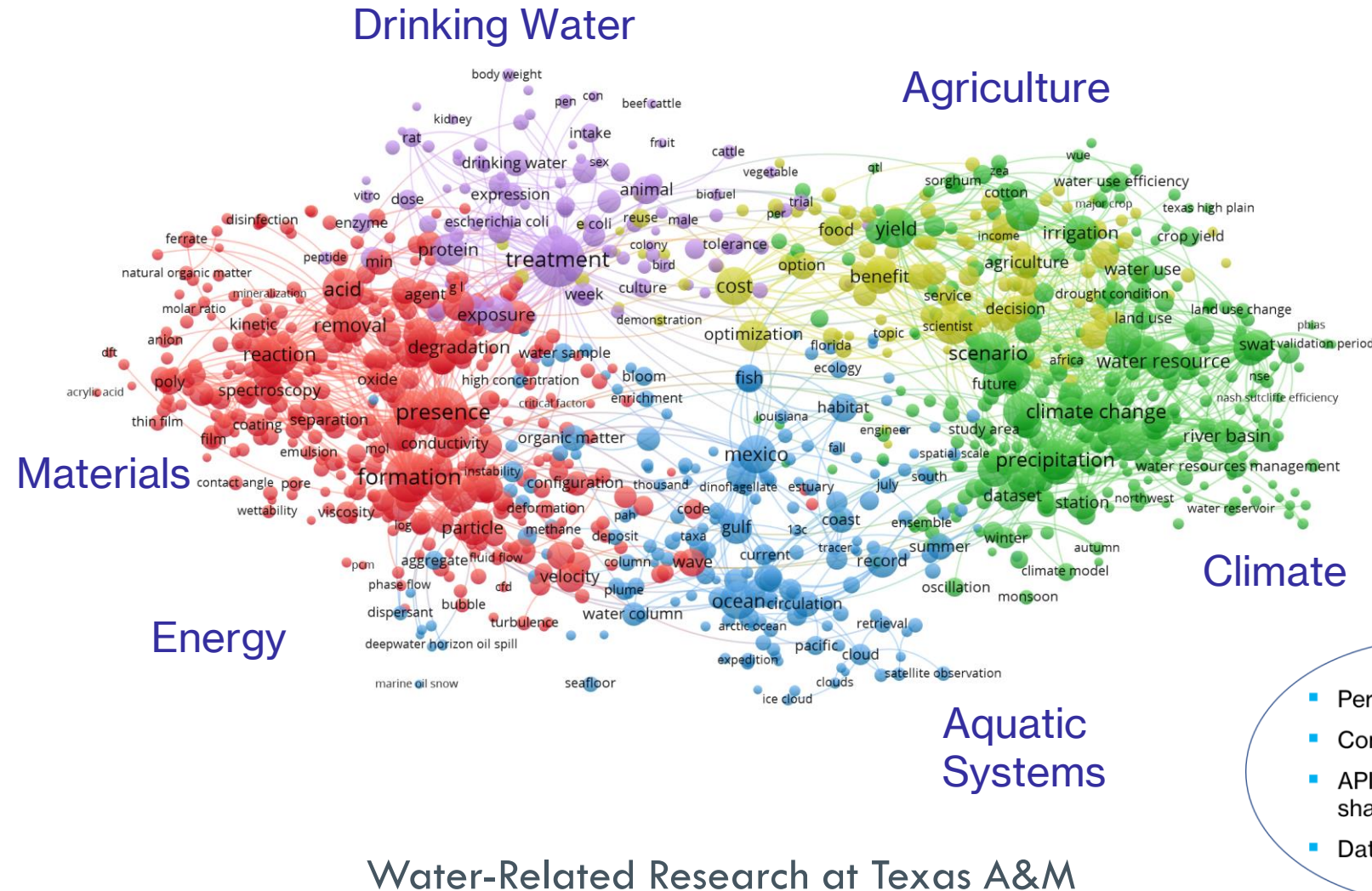
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# Innovation in the VIVO Community

<https://projects.tib.eu/tapir/en>



# Research intelligence as emerging use case



Research Intelligence: Establish, execute, and evaluate institutional research strategy & evaluation

- Principle Investigators
- College and Department Program Reviews
- Vice President of Research

*Takes advantage of linked data!*

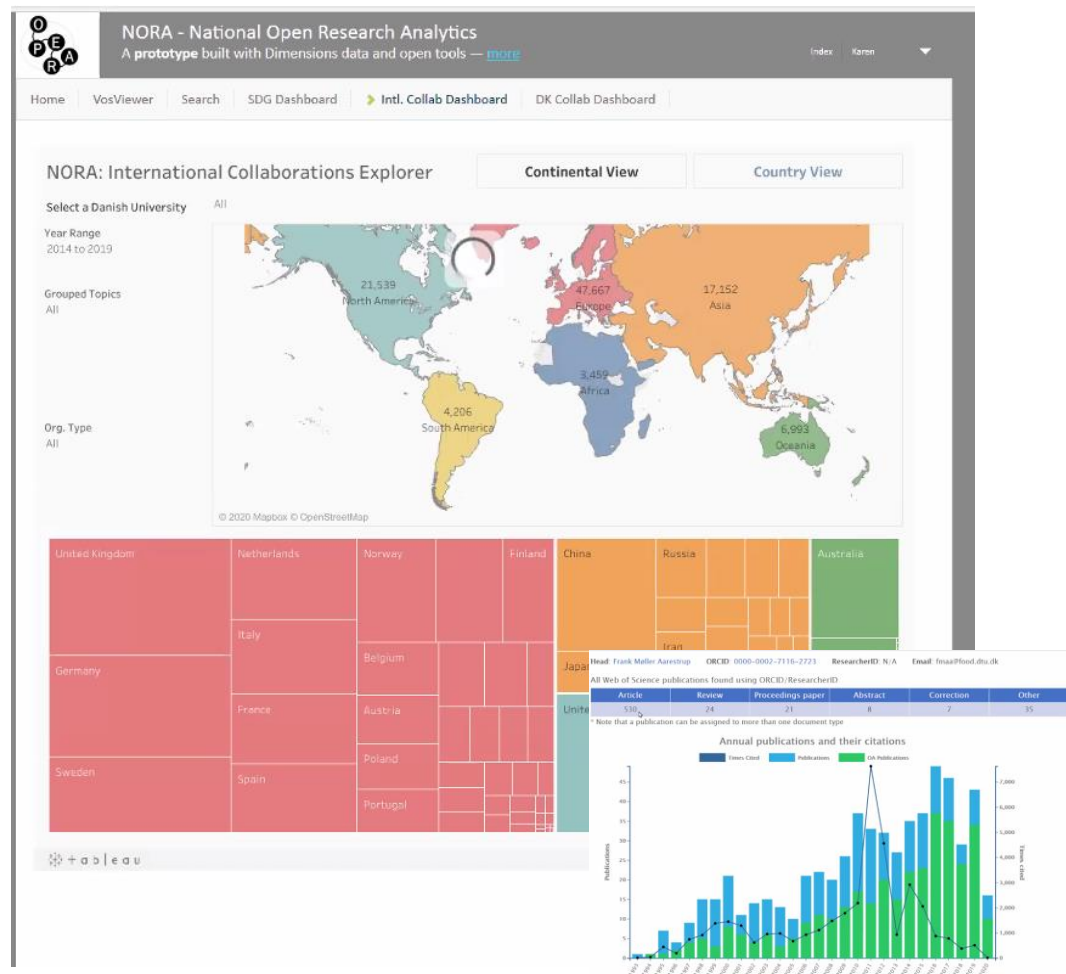
- Persistent Identifiers
- Consistent Ontology
- APIs for automated data sharing
- Data Governance

VIVO as  
Semantic  
System

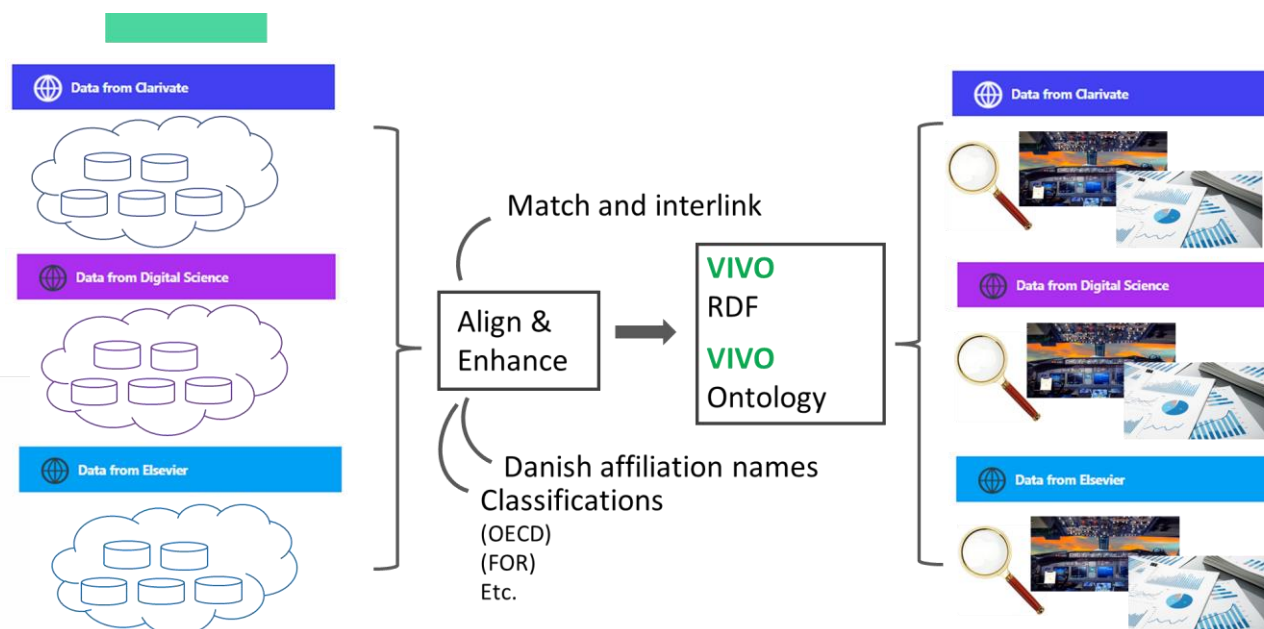
*Emerging  
Knowledge  
Graph*

Water-Related Research at Texas A&M

## Research intelligence as emerging use case



*Nora project from DTU – Denmark*  
*Using the VIVO ontology to find research insights*  
*(from Global datasources & Danish CRIS)*



NORA, National Open Research Analytics, is a national initiative to enable robust and open insights and analytics of Danish research. NORA is focused on national level insights, and thus NORA supplements rather than replaces existing institutional systems, offering deep and detailed insights at various levels inside the institution, and existing global databases and research intelligence systems, offering insights and advanced analytics at the global level.

# National/regional Research Portals. BrCRIS

- Information System on the Ecosystem of the Brazilian Scientific Research with VIVO. Aggregation of different national and international data bases ([Lattes Platform](#), [LA Referencia Platform\(\\*\)](#), etc. (exports to VIVO, APIS and visualizations).
- Entities and relationships recommended by [the OpenAIRE Guidelines for CRIS Managers](#) (CERIF-based)
- Using technologies such as Elasticsearch and Kibana for search and visualisation over VIVO instance.

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**Secagem convencional de seis espécies de eucalipto**

Year: 1999

Author(s): [Fernando Nunes Gouveia](#), [Varlone Alcyes Martins](#)

Type: conference proceedings

Organization(s):

Language: Português,

Research Area(s): Tecnologia de Chapas,

Keyword: Eucalyptus, secagem convencional,

**Natural resistance of eight Brazilian wood species from the region Caatinga determined by an accelerated laboratory decay test against four fungi**

Year: 2018

Author(s): [Alexandre Florian da Costa](#), [Fernando Nunes Gouveia](#), [José Roberto Victor de Oliveira](#), [Marcelo Fontana da Silveira](#), [Anna Sofya Vanessa Silvério da Silva](#)

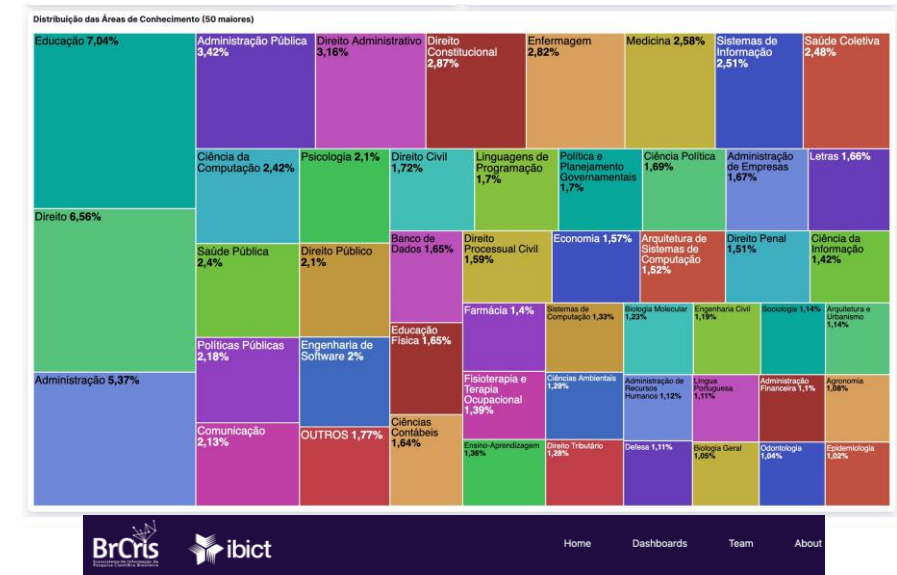
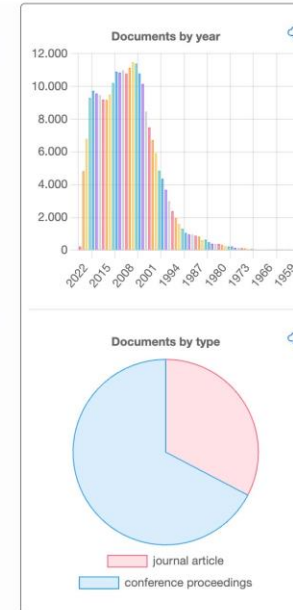
Type: journal article

Journals: [Wood research and technology : cellulose, hemicelluloses, lignin, wood extractives](#), [Wood research and technology : cellulose, hemicelluloses, lignin, wood extractives](#)

Language: Português, Inglês,

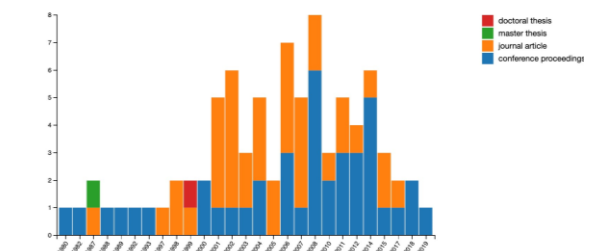
Research Area(s): Micologia, Biodegradação e Preservação da madeira, Tecnologia e Utilização de Produtos Florestais, Biodegradação e Preservação de Madeiras, CIENCIAS\_AGRARIAS, Biodegradação e Preservação, Biodeterioração de Madeiras,

Keyword: Specific Gravity, Podridão branca, Caatinga Hardwood species, Podridão parda, natural resistance, white rot fungi, Extrativos de madeira, brow rot fungi, Biodegradação, Resistência natural, Brown Rot and White Rot Fungi, extractive content, Extractive Content, weight loss, Caatinga wood species, caatinga,



ALEXANDRE FLORIAN DA COSTA

Academic Production Statistics



# National/regional Research Portals. BUA platform

- Research information Platform for the Berlin University Alliance (BUA)
- platform for 3 German universities + Charité (large university Hospital) with VIVO
- Within the framework of Berlin University Alliance, a platform for a structured and transparent presentation of research information
- Data linking: Semantic Web technology of the "VIVO" software

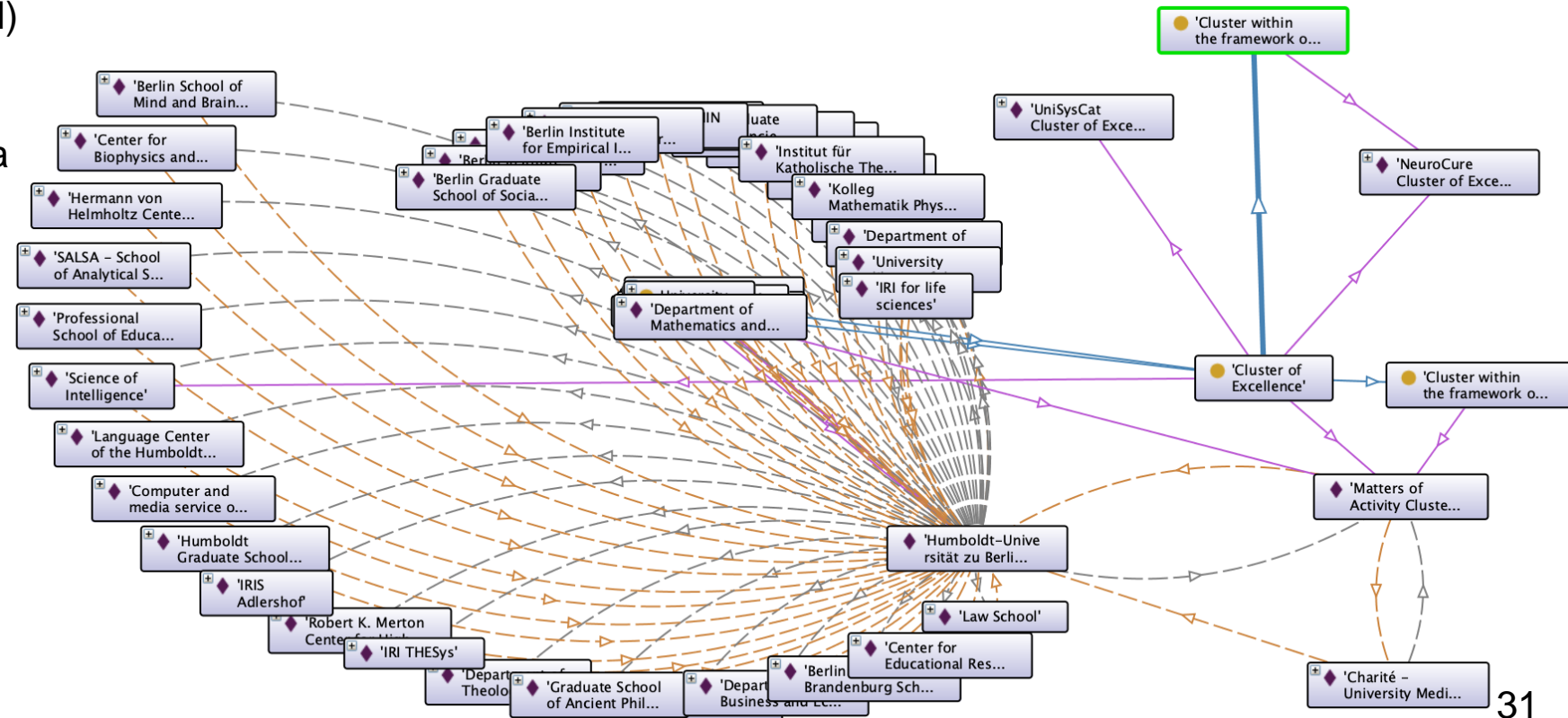


Start: May 2021



Runtime: Dec. 2023

- ✓ Connect researchers to their work beyond boundaries
- ✓ Improve the visibility and discoverability of expertise
- ✓ Facilitate new research collaborations across disciplines



# Conclusions

- VIVO has a great community behind, has strengthened its governance and is working on a roadmap that will allow it to evolve in line with new trends, focused on open Science and data sharing, reusing, etc.
- Working on fostering partnerships with relevant organizations with which important collaborations can be made.
- Focus on the interoperability through projects like the mapping between the interoperability standard CERIF with the VIVO ontology; and the integration with Dspace .
- Relevant ongoing projects and product evolution led by a great group of developers, coordinated by a technical leader.
- Because VIVO is a semantic system with linked, open data, it helps support the creation of emerging knowledge graphs, in this way, there are innovative projects and success use cases examples in the community that offer VIVO-based solutions focused on research intelligence and knowledge graphs.
- There is a clear trend to use VIVO as a research portal at regional or national level, as an aggregator of data from different RIM/CRIS systems, to provide relevant information to governments, for decision making or policy definition.

- VIVO offers versatility and adaptability of the software and advantages given by an ontology based on international standards that provides linked open data, to discover, use and share information.
- A system such as VIVO allows the organization to own its data and at the same time make it accessible (FAIR data).
- These systems support the transparent aggregation, curation, and utilization of heterogeneous data about institutional research activities that can be used to promote researcher identity and reputation, reporting and compliance, or research intelligence.
- Enables improved science assessment and evaluation and can be easily aligned with open science standards and policies.
- A RIM/CRIS system such VIVO, can be useful for the country's policies for research and innovation, mapping investment in Science & Technology versus Innovation results, creating a fairer Science evaluation system, in view of Open Science precepts and connecting the entire scientific ecosystem, allowing quick visualisation of complex variables, generating information for decision-makers, among others.

# Interested in learning more?

Get involved in the VIVO community!

- Visit [vivoweb.org](http://vivoweb.org)
- Read more at [wiki.duraspace.org](http://wiki.duraspace.org)
- Follow @vivocollab on Twitter
- Join VIVO mailing lists
- Email [anna.guillaumet@sigmaaie.org](mailto:anna.guillaumet@sigmaaie.org) or [beherbert@tamu.edu](mailto:beherbert@tamu.edu)



# VIVO

connect  
share  
discover

**Thank you very much!**