

Faculty Profiling Systems at IU: VIVO et al.

Several slides are from a presentation to OVPR in 2010.

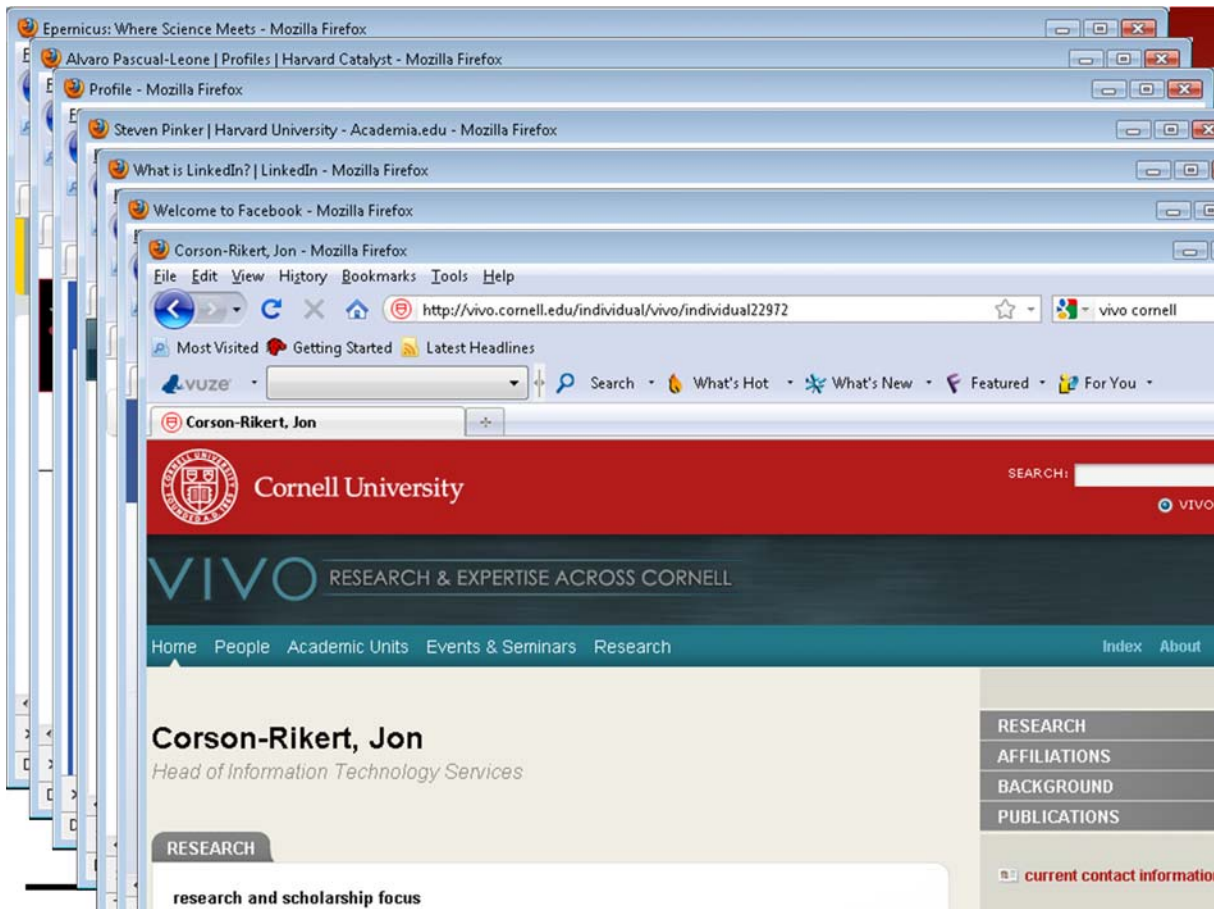
Katy Borner – SLIS
Ying Ding - SLIS
Robert H. McDonald – IU Libraries/PTI
Bill Barnett – CTSI HUB/RT

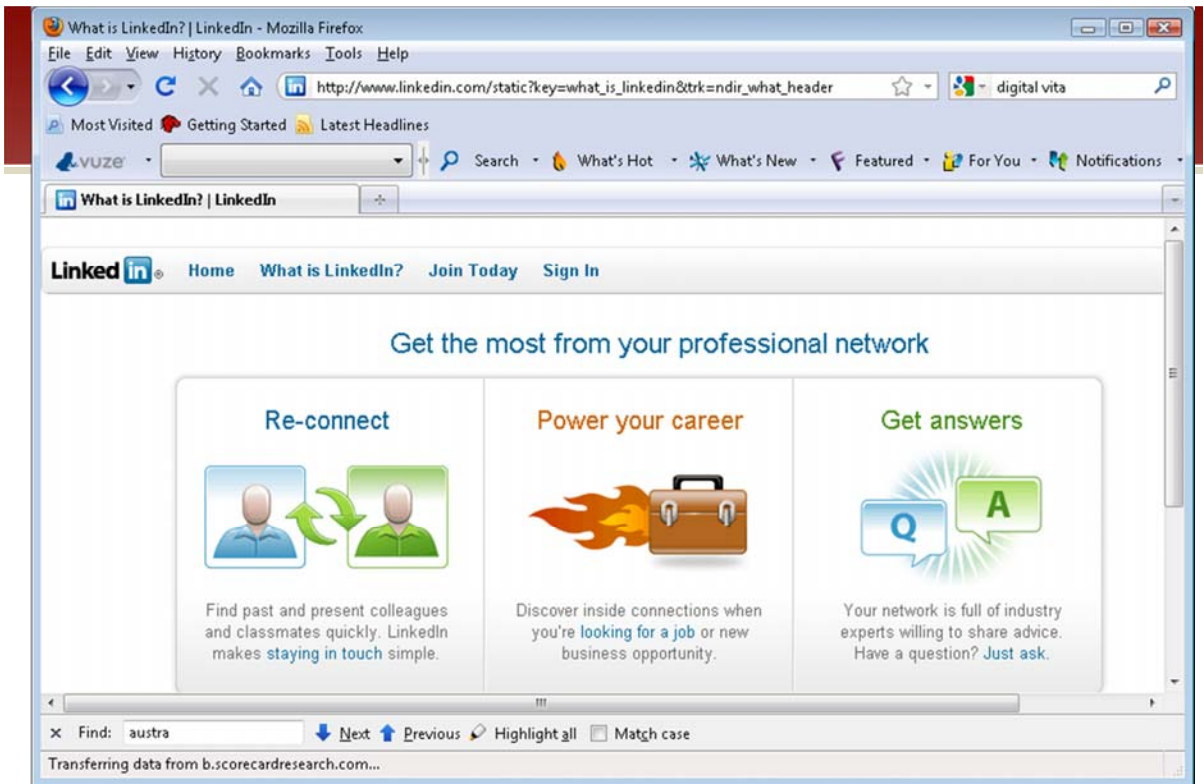
I would like to thank Ryan Cobine and David Cliff for their input.

Faculty Data Working Group, IUB. Sept 10 at 3-4pm in Bryan Hall 104.



INDIANA UNIVERSITY





See review of 45+ systems at

http://en.wikipedia.org/wiki/Comparison_of_Research_Networking_Tools_and_Research_Profiling_Systems

VIVO Research & Expertise Across Indiana University

Overview

- What is VIVO?
- How does it work?
- How have we implemented it at Indiana University?
- How is it used?
- Incentives & challenges

VIVO Collaboration:

Cornell University: Dean Krafft (Cornell PI), Manolo Bevia, Jim Blake, Nick Cappadona, Brian Caruso, Jon Corson-Rikert, Elly Cramer, Medha Devare, John Ferreira, Brian Lowe, Stella Mitchell, Holly Mistlebauer, Anup Sawant, Christopher Westling, Rebecca Younes. **University of Florida:** Mike Conlon (VIVO and UF PI), Cecilia Botero, Kerry Britt, Erin Brooks, Amy Buhler, Ellie Bushhousen, Chris Case, Valrie Davis, Nita Ferree, Chris Haines, Rae Jesano, Margeaux Johnson, Sara Kreinest, Yang Li, Paula Markes, Sara Russell Gonzalez, Alexander Rockwell, Nancy Schaefer, Michele R. Tennant, George Hack, Chris Barnes, Narayan Raum, Brenda Stevens, Alicia Turner, Stephen Williams. **Indiana University:** Katy Borner (IU PI), William Barnett, Ryan Cobine, Shanshan Chen, Ying Ding, Russell Duhon, Jon Dunn, Micah Linnemeier, Nianli Ma, Brian Keese, Robert McDonald, Barbara Ann O'Leary, Mark Price, Yuyin Sun, Alan Walsh, Brian Wheeler, Angela Zoss. **Ponce School of Medicine:** Richard Noel (Ponce PI), Ricardo Espada, Damaris Torres. **The Scripps Research Institute:** Gerald Joyce (Scripps PI), Greg Dunlap, Catherine Dunn, Brant Kelley, Paula King, Angela Murrell, Barbara Noble, Cary Thomas, Michaeleen Trimarchi. **Washington University, St. Louis:** Rakesh Nagarajan (WUSTL PI), Kristi L. Holmes, Sunita B. Koul, Leslie D. McIntosh. **Weill Cornell Medical College:** Curtis Cole (Weill PI), Paul Albert, Victor Brodsky, Adam Cheriff, Oscar Cruz, Dan Dickinson, Chris Huang, Itay Klaz, Peter Michelini, Grace Migliorisi, John Ruffing, Jason Specland, Tru Tran, Jesse Turner, Vinay Varughese.

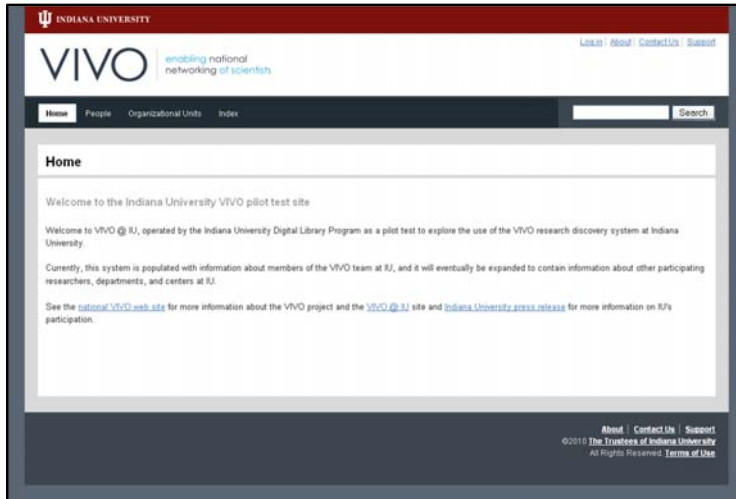
VIVO is:



A **semantic web application** that enables the discovery of research and scholarship across disciplines in an institution.

Populated with **detailed profiles** of faculty and researchers; displaying items such as pubs, classes, service, and affiliations.

A **powerful search functionality** for locating people and information within or across institutions.



VIVO is a resource of Indiana University that provides information on:

- people
- departments
- facilities
- courses
- grants
- publications

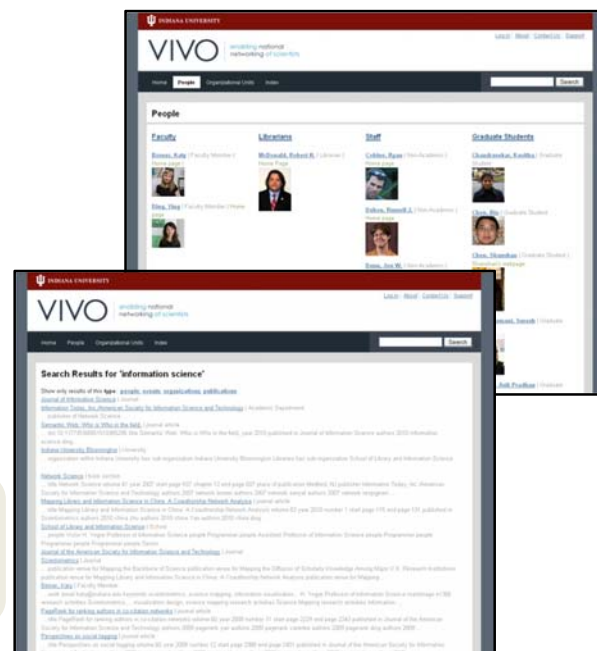
vivo.iu.edu

What is VIVO?

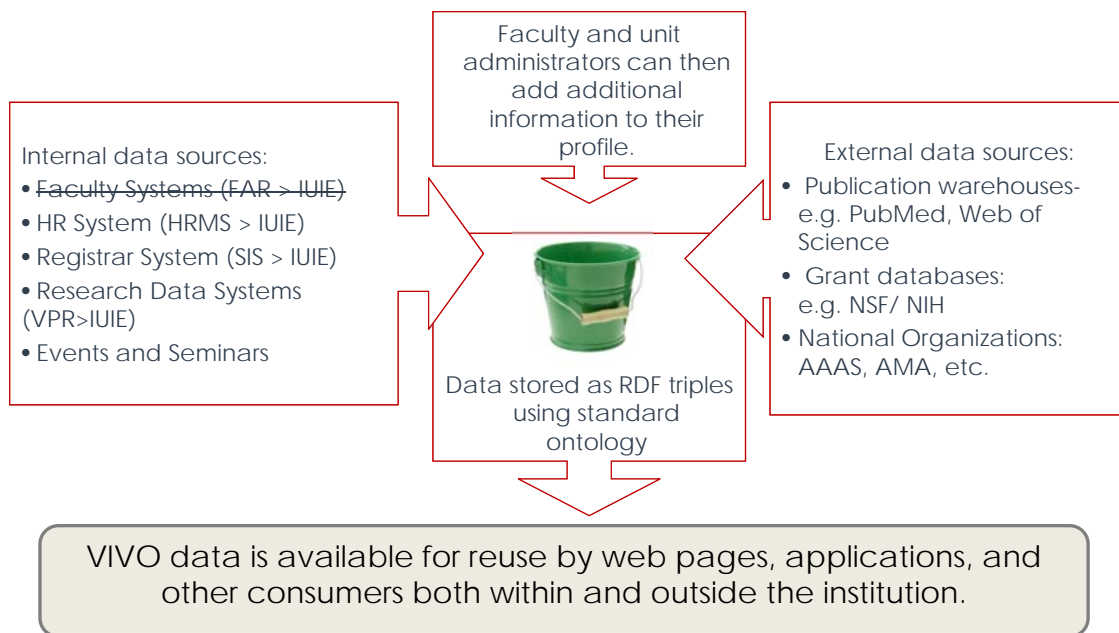
An open-source **semantic web application** that enables the discovery of research and scholarship across disciplines in an institution.

Populated with **detailed profiles** of faculty and researchers; displaying items such as publications, teaching, service, and professional affiliations.

A **powerful search functionality** for locating people and information within or across institutions.



VIVO harvests data from IU verified sources



Linked Data Principles

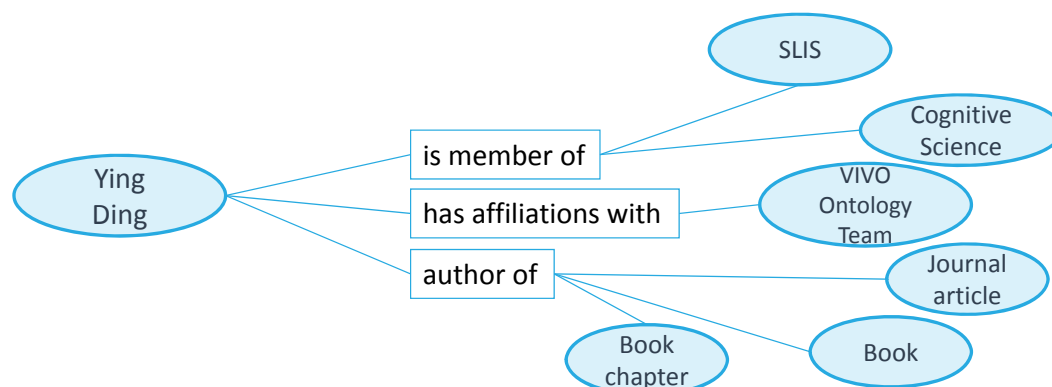
- Tim Berners-Lee:
 - Use URIs as names for things
 - Use HTTP URIs so that people can look up those names
 - When someone looks up a URI, provide useful information, using the standards (RDF, SPARQL)
 - Include links to other URIs so that people can discover more things
- <http://www.w3.org/DesignIssues/LinkedData.html>
- <http://linkeddata.org>
- <http://www.data.gov/>
- <http://data.gov.uk/>

VIVO Standard Ontology

- Network Structure: foaf:Person, foaf:Organization, vivo:InformationResources
- Individual
 - Research (bibo:Document, vivo:Grant, vivo:Project, vivo:Software, vivo:Dataset, vivo:ResearchLaboratory)
 - Teaching (vivo:TeacherRole, vivo:AdvisingRelationship)
 - Services (vivo:Service, vivo:CoreLaboratory, vivo:MemberRole,)
 - Expertise (vivo:SubjectArea)

Storing Data in VIVO

- Information is stored using the **Resource Description Framework (RDF)** .
- Data is structured in the form of "triples" as subject-predicate-object.
- Concepts and their relationships use a **shared ontology** to facilitate the harvesting of data from multiple sources.

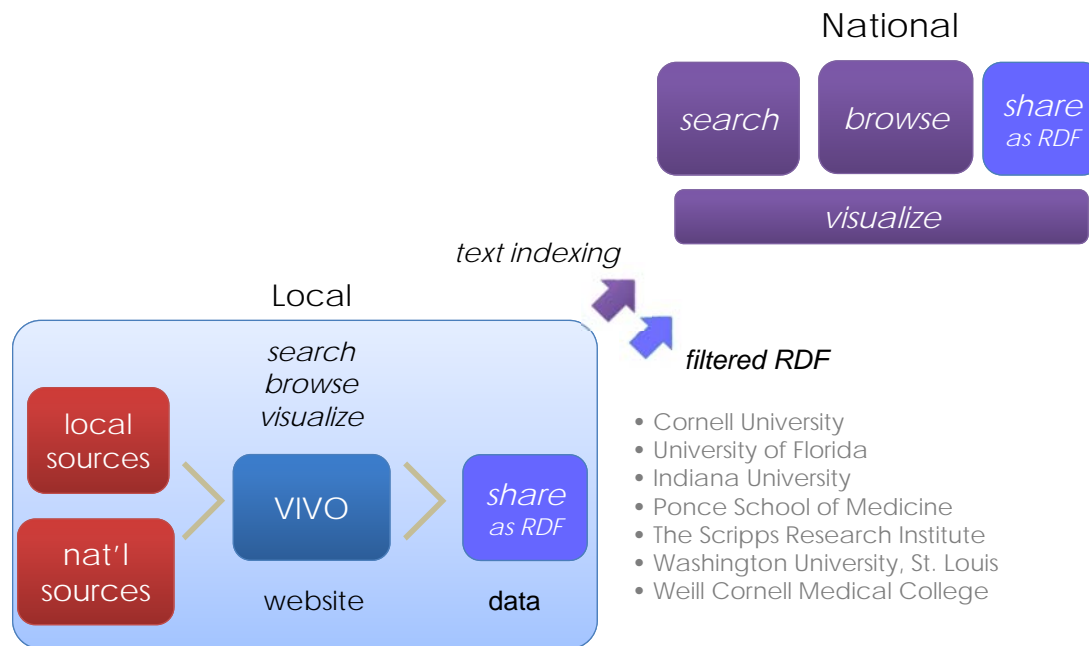


Subject

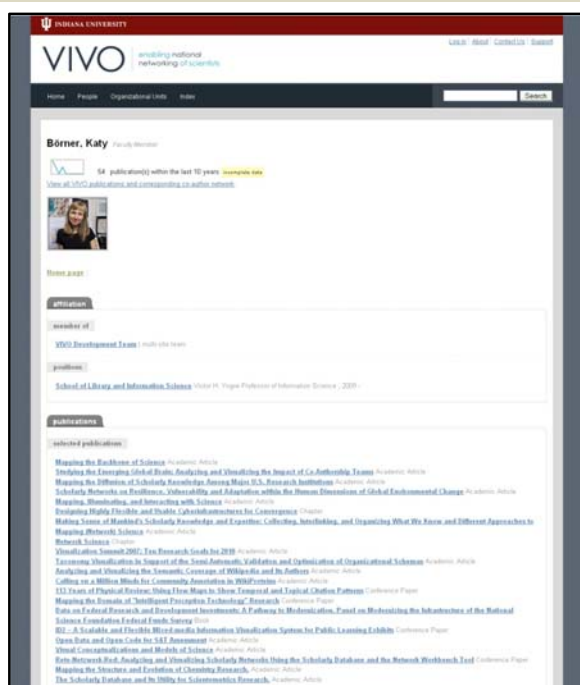
Predicate

Object

Linked Data: Local to National Scale



A VIVO profile will allow researchers to:



Map colleagues by research area, authorship, and collaborations.

Showcase credentials, expertise, skills, and professional achievements.

Connect within research areas and geographic expertise.

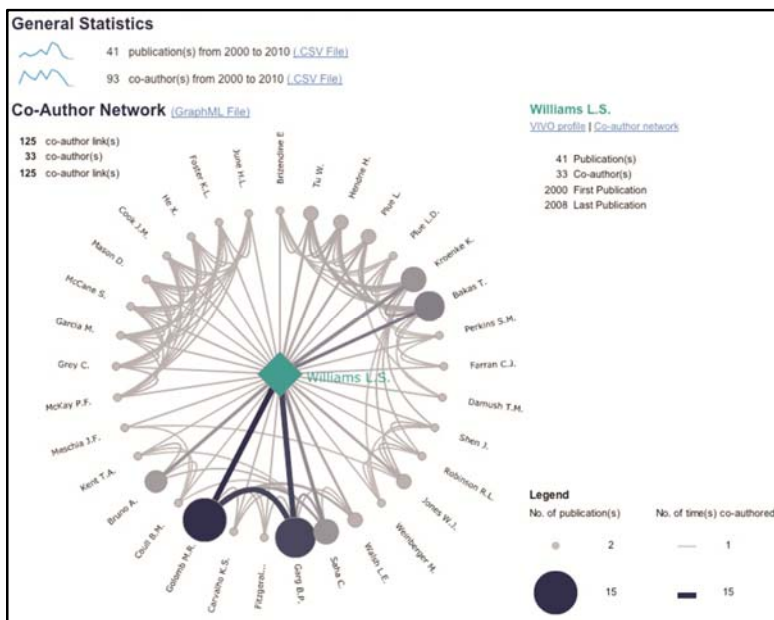
Display current research, and selected publications.

Publish the URL or link the profile to other applications.

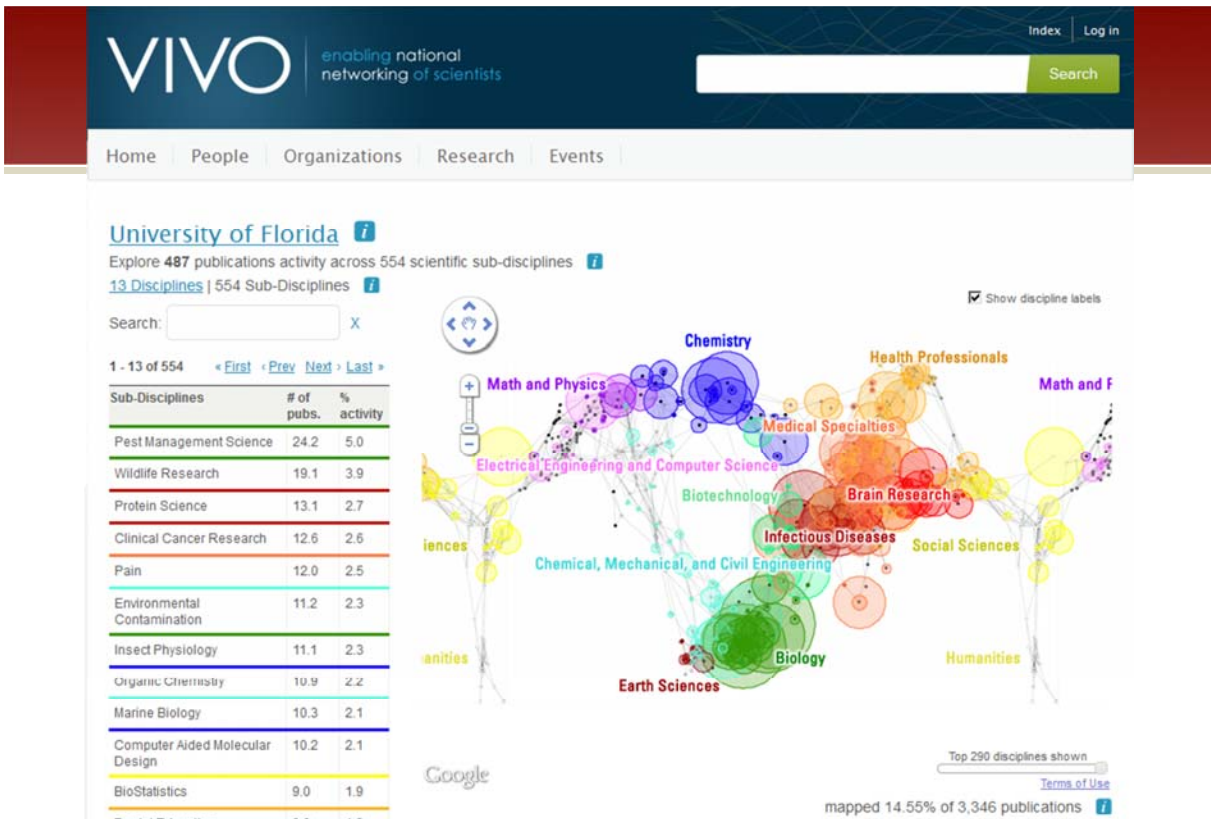
Incentives

- Federated Searching Across Domains
 - CTSA Federated Search
 - VIVO Federated Search
- NIH/NSF Biosketch Generation
- Mapped Data from IU Institutional Data Sources
 - 80/20
- Visualization and Scientometric Mapping Components

Visualization

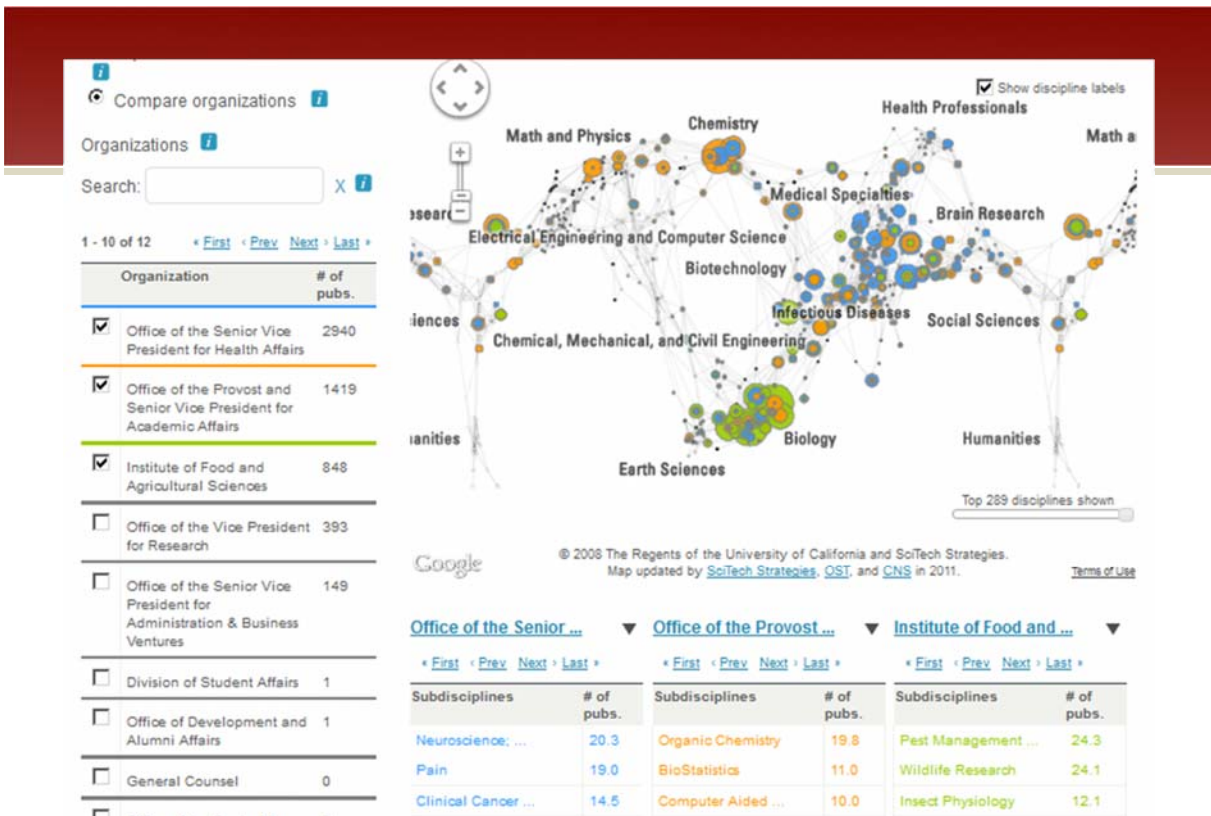


- **Display** visualizations of complex research networks and relationships.



Topical Analysis (What) Science map overlays show where a person, department, or university publishes most in the world of science. (in work)

17



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~~Future~~ Current versions of VIVO do:

Principal Investigator/Program Director (Last, First, Middle):			
BIOGRAPHICAL SKETCH			
<small>Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2. Follow this format for each person. DO NOT EXCEED FOUR PAGES.</small>			
NAME Schleyer, Titus		POSITION TITLE Associate Professor and Director, Center for Dental Informatics, University of Pittsburgh	
eRA COMMONS USER NAME titus1			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
The Fox School of Business, Temple University, Philadelphia, PA	MBA	1985	Health Administration
School of Dentistry and School of Medicine, University of Frankfurt am Main, Frankfurt/M, Germany	PhD	1989	Molecular Biology
School of Dentistry, University of Frankfurt am Main, Frankfurt/M, Germany	DMD	1987	Dentistry
Temple University, School of Dentistry, Philadelphia, PA	DMD	1991	Dentistry

A. Positions and Honors.

- **Generate** CVs and biosketches for faculty reporting or grant proposals - NIH/NSF.
- **Incorporate** external data sources for publications and affiliations.
- **Link** data to external applications and web pages.

Try it at <http://vivo.ufl.edu/display/n25562>



- [American Psychological Association VIVO](#)
- [Bournemouth University Academic Pages](#)
- [Brown University VIVO](#)
- [Cornell University VIVO](#)
- [Curtin University of Technology Metadata Hub](#)
- [Duke University VIVO](#)
- [Eindhoven University of Technology VIVO](#)
- [Griffith University Research Hub \(VIVO\)](#)
- [Hunter College VIVO](#)
- [Indiana University VIVO](#)
- [Johns Hopkins University VIVO](#)
- [Massachusetts Institute of Technology VIVO](#)
- [Medical College of Wisconsin VIVO](#)
- [New York University Langone Medical Center VIVO](#)
- [Northeastern University VIVO](#)
- [Notre Dame University VIVO](#)
- [Otago Research Data Registry](#)
- [Penn State University VIVO](#)
- [Queensland University of Technology VIVO](#)
- [RPI Center for Nanoscale Innovation VIVO](#)
- [SUNY Research in Academic Health VIVO](#)
- [The Scripps Research Institute VIVO](#)
- [UCLA VIVO](#)

VIVO Adoption

See details at <http://vivo.vivoweb.org/>

- [University of Arkansas for Medical Sciences VIVO](#)
- [University of Cambridge VIVO](#)
- [University of Colorado VIVO](#)
- [University of Florida VIVO](#)
- [University of Hawaii VIVO](#)
- [University of Melbourne Find an Expert \(VIVO\)](#)
- [University of Nebraska VIVO](#)
- [University of New Mexico VIVO](#)
- [University of North Texas VIVO](#)
- [University of Pennsylvania VIVO](#)
- [University of Virginia VIVO](#)
- [University of Washington VIVO](#)
- [University of Western Australia VIVO](#)
- [USDA VIVO](#)
- [Weill Cornell Medical College VIVO](#)



VIVO FACULTY SEARCH DEMO
Using Apache Solr for federated search

Navigation: HOME, SEARCH, FIND PEOPLE

Harvard Catalyst Profiles

Federated Search
National Research Networking Interoperability Pilot
This is an experimental tool to demonstrate federated search across multiple institutions.

Keywords: information Search

Below are the number of matching people at participating institutions. Click an institution name to view the list of people. As you move your mouse over the different institution names, you will see important notes about that institution's data on the right and a preview/summary of the matching people at the bottom of this page.

Institution	Matches
Cornell University	0
Harvard University	1104
Indiana University	3
Ponce School of Medicine	0
Stanford University School of Medicine	993
The Scripps Research Institute	40
University of Florida	357
University of Iowa	72

Data Comments
Important information about an institution's data will appear here when you place your mouse over the institution's name.

Search Result: [Salvati, Eduardo Agustin](#) (CORNELL UNIVERSITY)
Thromboembolism and infection in total hip ... the postoperative risk of deep vein thrombosis and pulmonary embolism. Infection is the most devastating local ... and the therapeutic options to cure the infection ...
<http://vivo.cornell.edu/individual/individual11878>

Faculty Profiling Systems at IU

IU currently has four systems—more than any other university I know is able to afford.

Only **VIVO** and **IndianaCTSI** have exchanged data.

SciVal and **Pivot** are commercial solutions that are not interoperable.

Other universities have conducted extensive market studies - see comparison of 45 systems at http://en.wikipedia.org/wiki/Comparison_of_Research_Networking_Tools_and_Research_Profiling_Systems - and decided to implement a combination of SciVal (to purchase publications) and VIVO (to be compliant with many other systems that expose their data using the VIVO ontology in support of national search and other services across profiling instances).

Many universities are using their Faculty Profiling System to compile large teams in response to funding solicitations. Purdue has connected their profiling system to their FAR like 'Digital Measures' system and will soon be able to analyze and visualize their impact in new ways.

I believe we all would benefit if IU commits to one Faculty Profiling System but it will take IU leadership to make this happen.

Data in VIVO at IU

VIVO development instance

- Bloomington faculty (source: IUIE data warehouse)
- IUPUI faculty (source: IUIE data warehouse)
- IU CTSI personnel (source: CTSI Portal, IUIE data warehouse)
- Inclusion of a faculty member entails basic HR data (appointments, rudimentary contact info), academic courses taught in last five years, and federal or federal pass-through grant awards for which they were PI or co-PI.
- IUCTSI personnel may additionally include a research overview and research area keywords.
- IUB and IUPUI organizational structure

VIVO production instance

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Provost Robel suggested to explore **linking VIVO and FAR**—this would considerably improve data quality and coverage.



VIVO Usage at IU

Networks and Complex Systems Research at Indiana University

This VIVO instance provides information on networks and complex systems

- [Faculty](#) and their [departments](#)
- [Publications](#)
- [Grants](#)
- [Courses](#)

at Indiana University. The site was created in support of a NSF IGERT grant application. A major intent is to cross-fertilize between research done in the social and behavioral sciences, research in natural sciences such as biology or physics, but also research on Internet technologies.

The site will be continuously updated to help

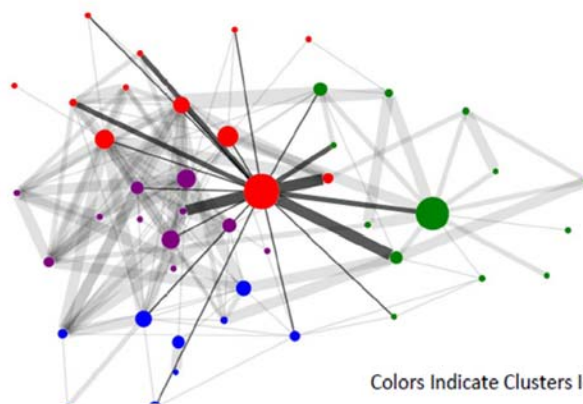
- New faculty to get in contact with relevant researchers.
- Faculty and policy makers to pool teams in response to funding solicitations.
- Faculty to coordinate research efforts – collaborations using existing funding/resources.
- Faculty to coordinate teaching.
- Students identify relevant courses, potential advisors, funding.
- Organize the Mon talk series on [Networks and Complex Systems](#).
- Arrange research meetings for visitors with relevant faculty/students
- Communicate networks and complex systems research at IU via interlinked web pages to the world.

We welcome all comments and suggestions. Please feel free to contact Katy Börner katy@indiana.edu at the [Cyberinfrastructure for Network Science Center](#), SLIS, IUB. Make sure to use "VIVO-NetSci" in the subject header.

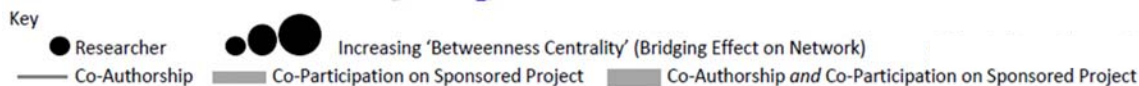
<http://vivo-netsci.slis.indiana.edu>



VIVO Usage at UMich



Colors Indicate Clusters Identified by Algorithm



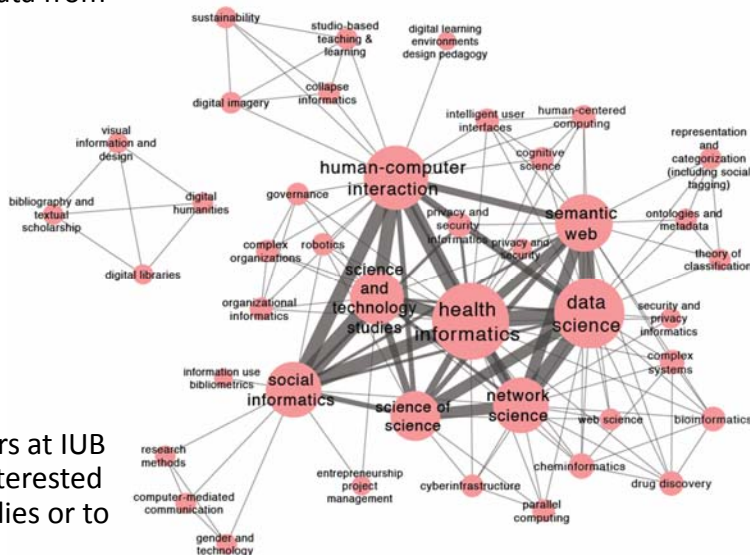
P30 Member Collaborations – Sponsored Project Co-Participation and Co-Authorship Network. Used in **successful!** P30 funding application. Shows the PI's relationships with various P30 members, conveying that the PI was not only the formal center of the group but also the informal center and the person who exhibited the highest betweenness centrality. *Contact: Jeffrey Horon, J.Horon@elsevier.com*

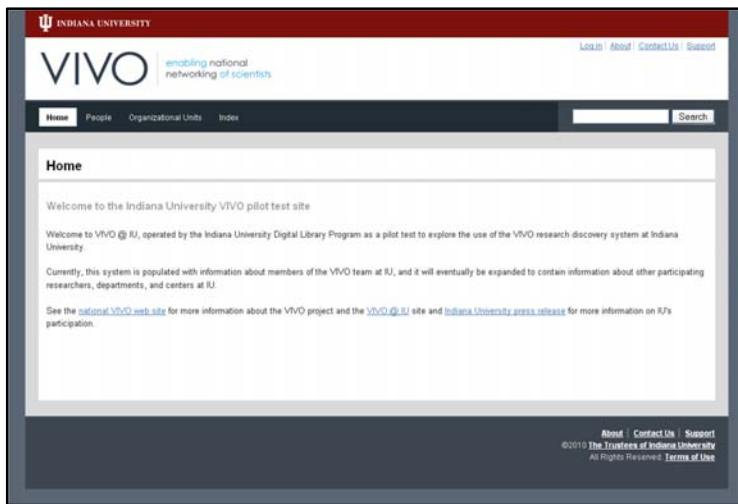
VIVO Usage at IU

We started to run analyses of teaching/funding/affiliation data from <http://vivo.iu.edu> to identify collaborations/connections/overlaps for the SLIS-SOIC merger.

The very same analyses might be valuable for other reorganization efforts.

There are about 10 science of science/scientometrics scholars at IUB and several of us would be interested to perform more detailed studies or to provide advise.





Questions?

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Robert McDonald
robert@indiana.edu

Thank you!