An Overview of VIVO at IU

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

INDIANA UNIVERSITY

VIVO Research & Expertise Across Indiana University

Overview

- What is VIVO?
- How does it work?
- How have we implemented it at Indiana University?
- What's ahead?
  - Incentives
  - Challenges

VIVO Research & Expertise Across Indiana University

VIVO Collaboration:

Cornell University: Dean Krafft (Cornell PI), Manolo Bevia, Jim Blake, Nick Cappadona, Brian Caruso, Jon Corson-Rikert, Elly Cramer, Medha Devare, John Fereira, 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.

INDIANA UNIVERSITY

VIVO Research & Expertise Across Indiana University

VIVO is:

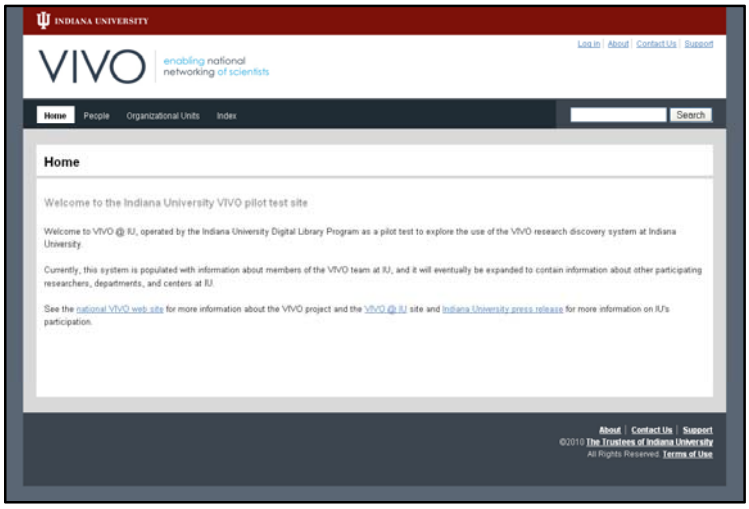
A **semantic web application** that enables the discovery of research and scholarship across disciplines in an institution.

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.

INDIANA UNIVERSITY

VIVO Research & Expertise Across Indiana University



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

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

vivo.iu.edu

INDIANA UNIVERSITY

What is VIVO?

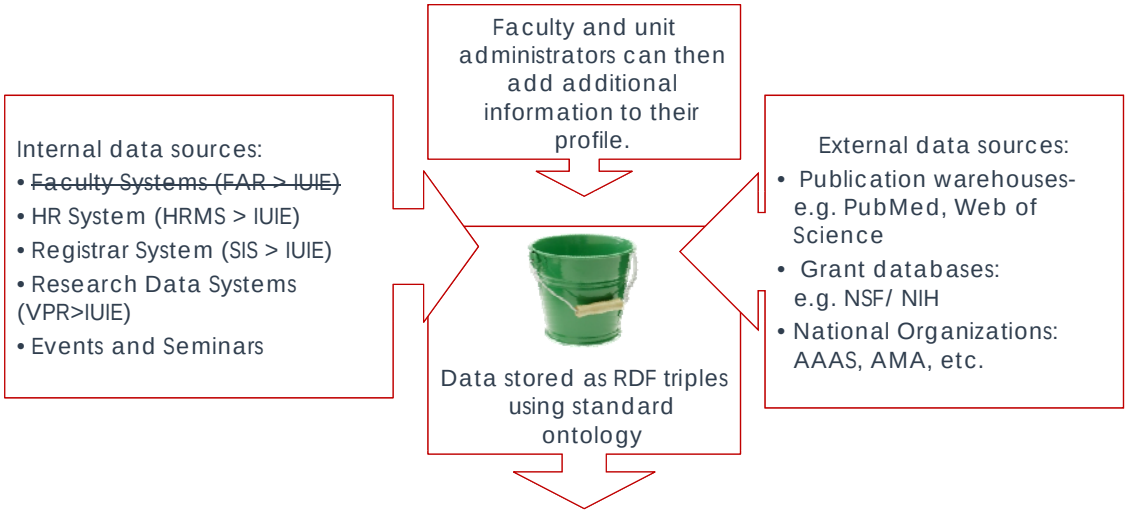
An open-source **semantic web application** that enables the discovery of research and scholarship across disciplines in an institution.

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.

INDIANA UNIVERSITY

VIVO harvests data from IU verified sources



VIVO data is available for reuse by web pages, applications, and other consumers both within and outside the institution.

Linked Data Principles

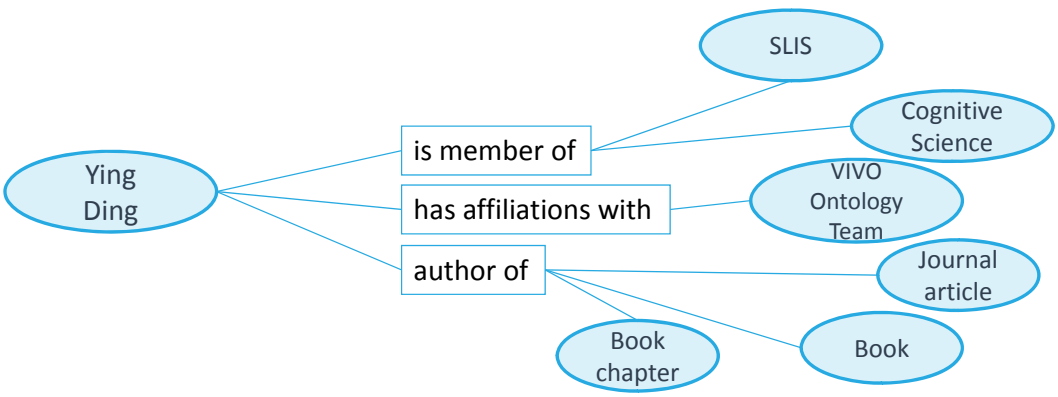
- Tim Berners-Lee:
  - Use URIs as names for things
  - Use HTTP URIs so that people can look up those names
  - When someone looks up a URI, provide useful information, using the standards (RDF, SPARQL)
  - Include links to other URIs so that people can discover more things
  - http://www.w3.org/DesignIssues/LinkedData.html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

VIVO Standard Ontology

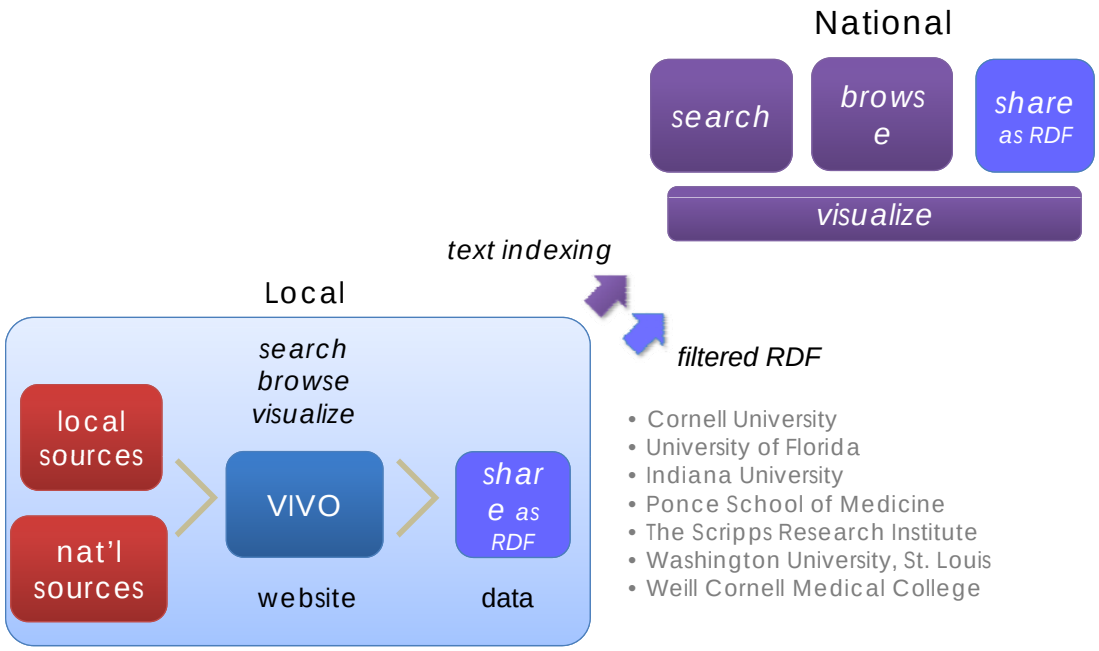
- Network Structure: foaf:Person, foaf:Organization, vivo:InformationResources
- Individual
  - Research (bibo:Document, vivo:Grant, vivo:Project, vivo:Software, vivo:Dataset, vivo:ResearchLaboratory
  - Teaching (vivo:TeacherRole, vivo:AdvisingRelatioship)
  - Services (vivo:Service, vivo:CoreLaboratory,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

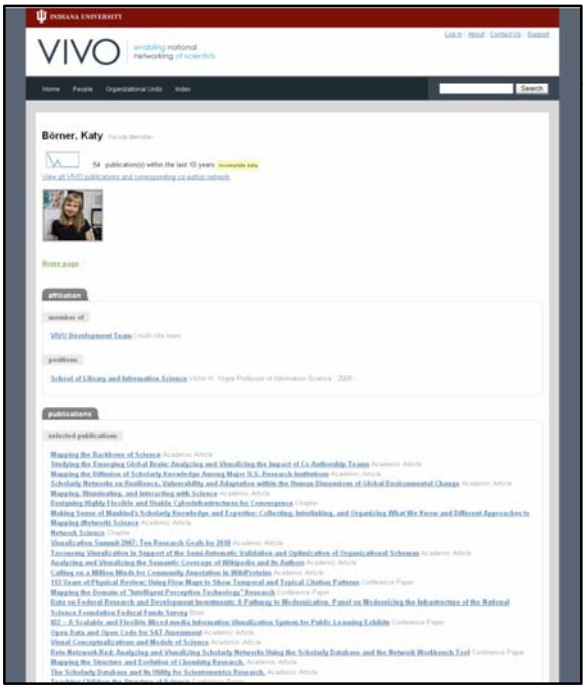


Linked Data: Local to National Scale



- Cornell University
- University of Florida
- Indiana University
- Ponce School of Medicine
- The Scripps Research Institute
- Washington University, St. Louis
- Weill Cornell Medical College

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.

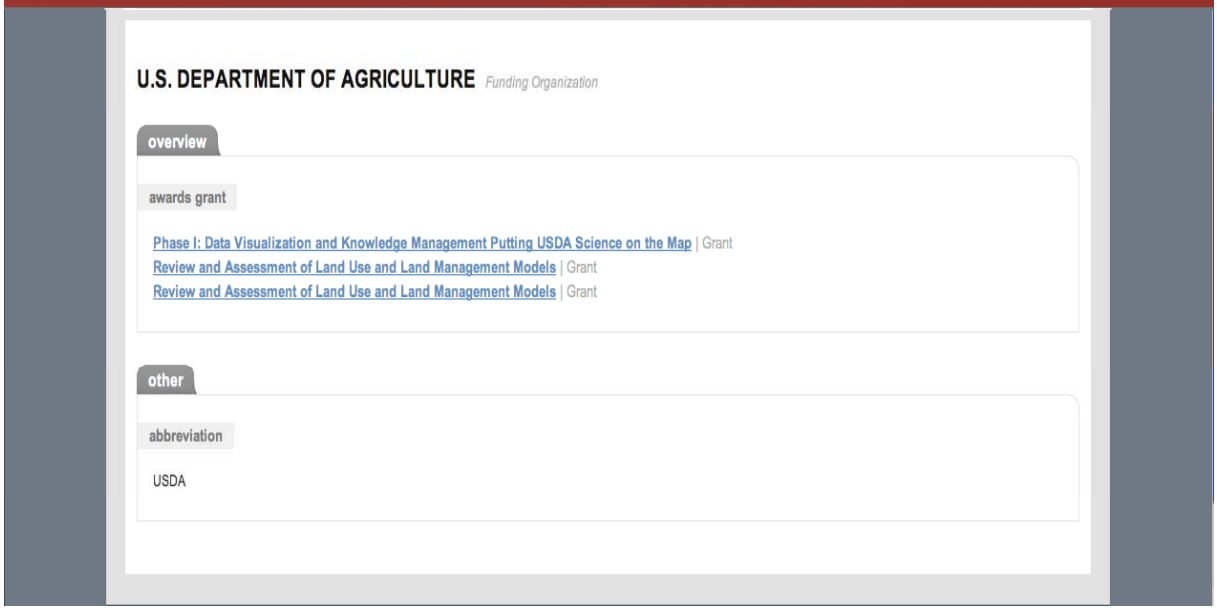
Display current research, and selected publications.

Publish the URL or link the profile to other applications.

VIVO Implementation at IU

- Current Implementation at IU
  - Data Sources Used
  - Public Data
    - All is currently available for free or pay somewhere
  - Current Funding Model
  - Future Sustainability (IUScholarWorks)

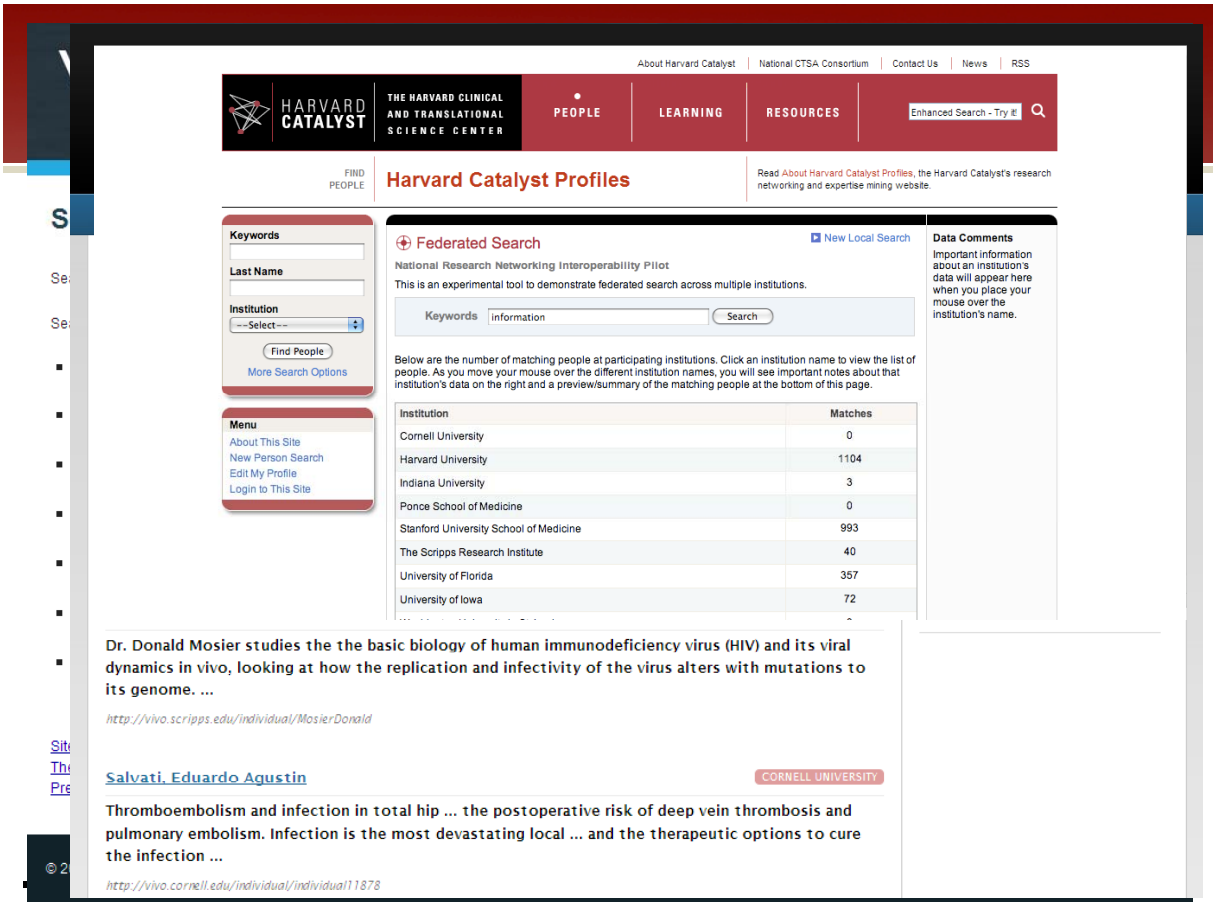
VIVO Implementation at IU



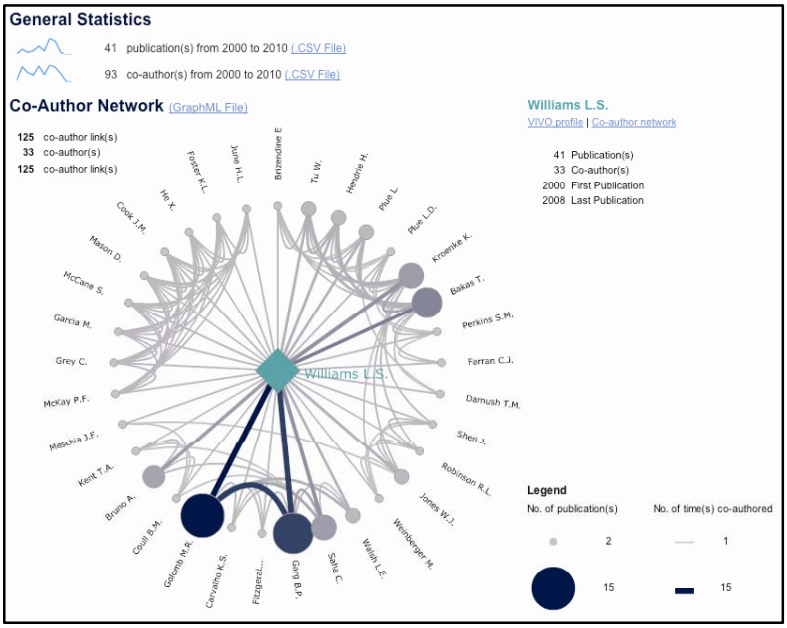
Incentives

- 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

INDIANA UNIVERSITY



Visualization

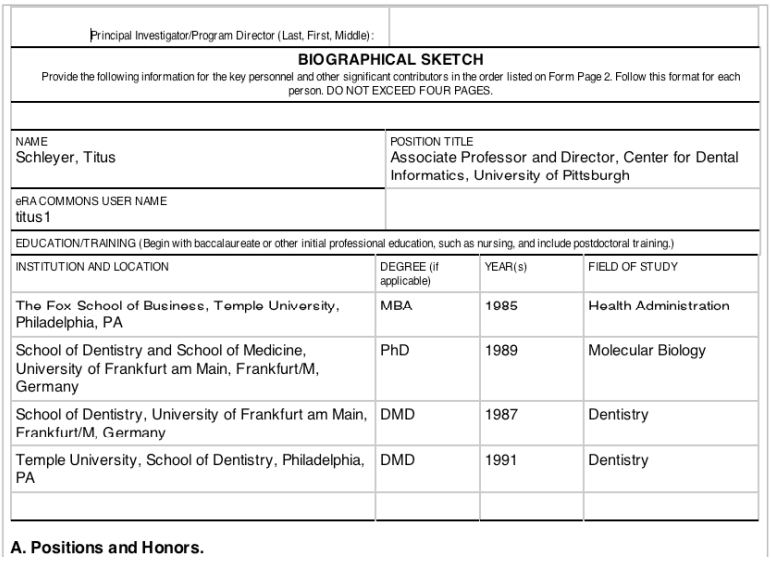


- **Display** visualizations of complex research networks and relationships.

Challenges

- Faculty Annual Report Data
  - Gray Area of Use
  - Need partners to move forward appropriate use policy
- Name Disambiguation for Automated Sources
  - NIH PubMed
  - NIH RePORTER
  - NSF research.gov
  - NSF Grants

Future versions of VIVO will:



Principal Investigator/Program Director (Last, First, Middle):

BIOGRAPHICAL SKETCH

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.

NAME	POSITION TITLE
Schleyer, Titus	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

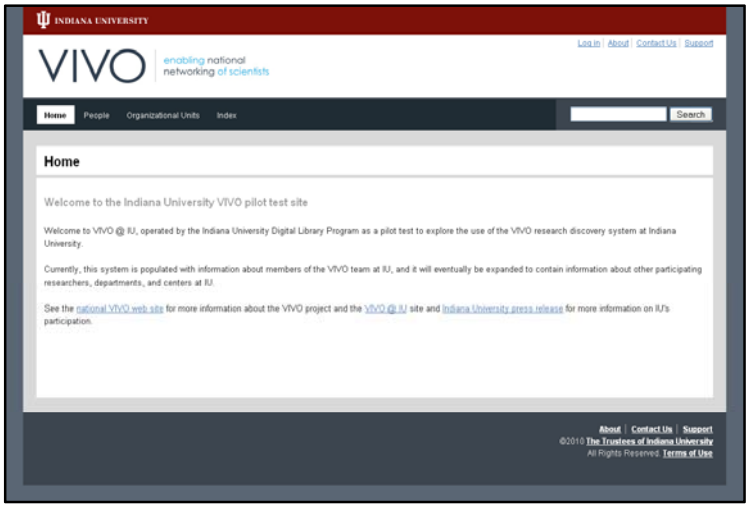
A. Positions and Honors.

- **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.

Other Profile Testing at IU

- Working Toward Unified Ontology Profile for IUIE
  - School of Medicine Faculty Profile System
  - CTSI Hub Profile System
  - CTSA Research Networking Pilot
- Departmental Tests for IUB FAR Data (VPFAA)
- IU System-Wide Tests for Preliminary IUIE Generated Profiles (VPR)

VIVO Research & Expertise Across Indiana University



How Can I Get Involved?

Questions?
Robert McDonald
robert@indiana.edu

Thank you!

INDIANA UNIVERSITY