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Scholars@TAMU: A Continuously Evolving Ecosystem Based on Campus Needs for Interdisciplinary Research and Academic Reputation

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Texas A&M University Libraries
ethel@library.tamu.edu

VIVO Conference June 23-25, 2021

Research at Texas A&M University

Land-Grant, Sea-Grant, & Space-Grant Institution

128

Undergraduate Degree Programs

300

Graduate Degree Programs

- Member of the Association of American Universities (AAU)
- Colleges and Schools: **19**
- Master's degree programs: **200**
- Doctoral degree programs: **100**
- First professional degree programs: **5**
- Study Abroad: **5,330 students to 105 countries each year**
- Total Faculty: **3,750**
- National Academies Faculty: **19**
- Nobel Prize: **3**
- Wolf Prize: **3**
- Research expenditures*: **$905 million+ in FY2017**

** #16 nationally, National Science Foundation, 2015*

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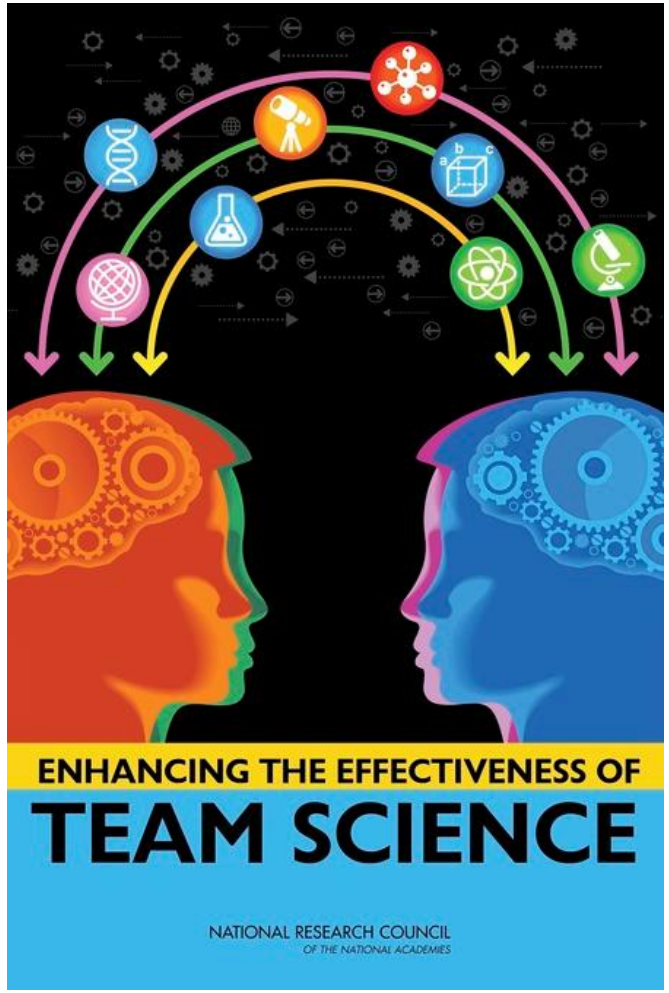
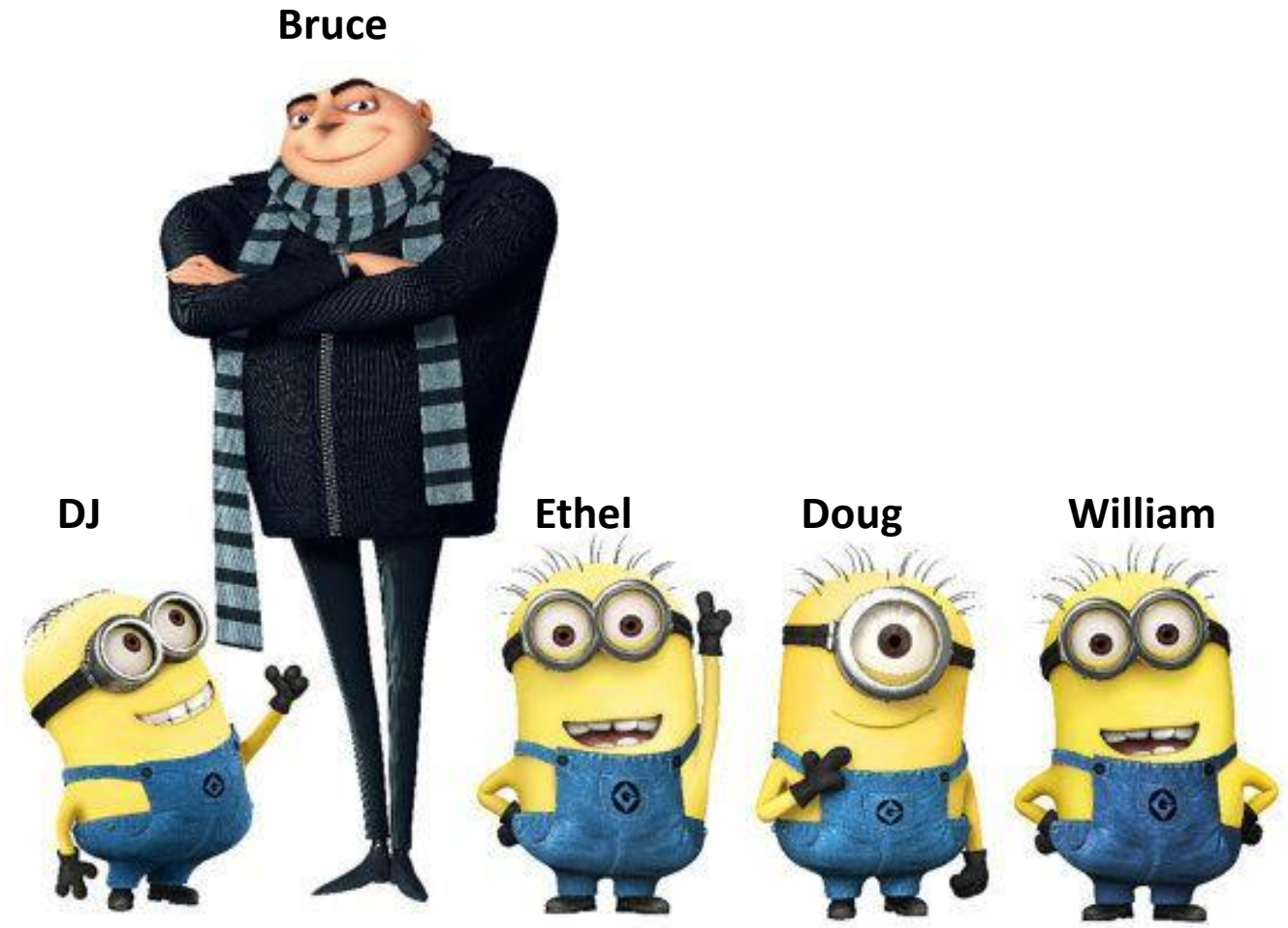
TAMU Initiatives

- Expanding interdisciplinary research
- Enhancing the significance & impact of our research
- Faculty success in traditional & alternative tracks



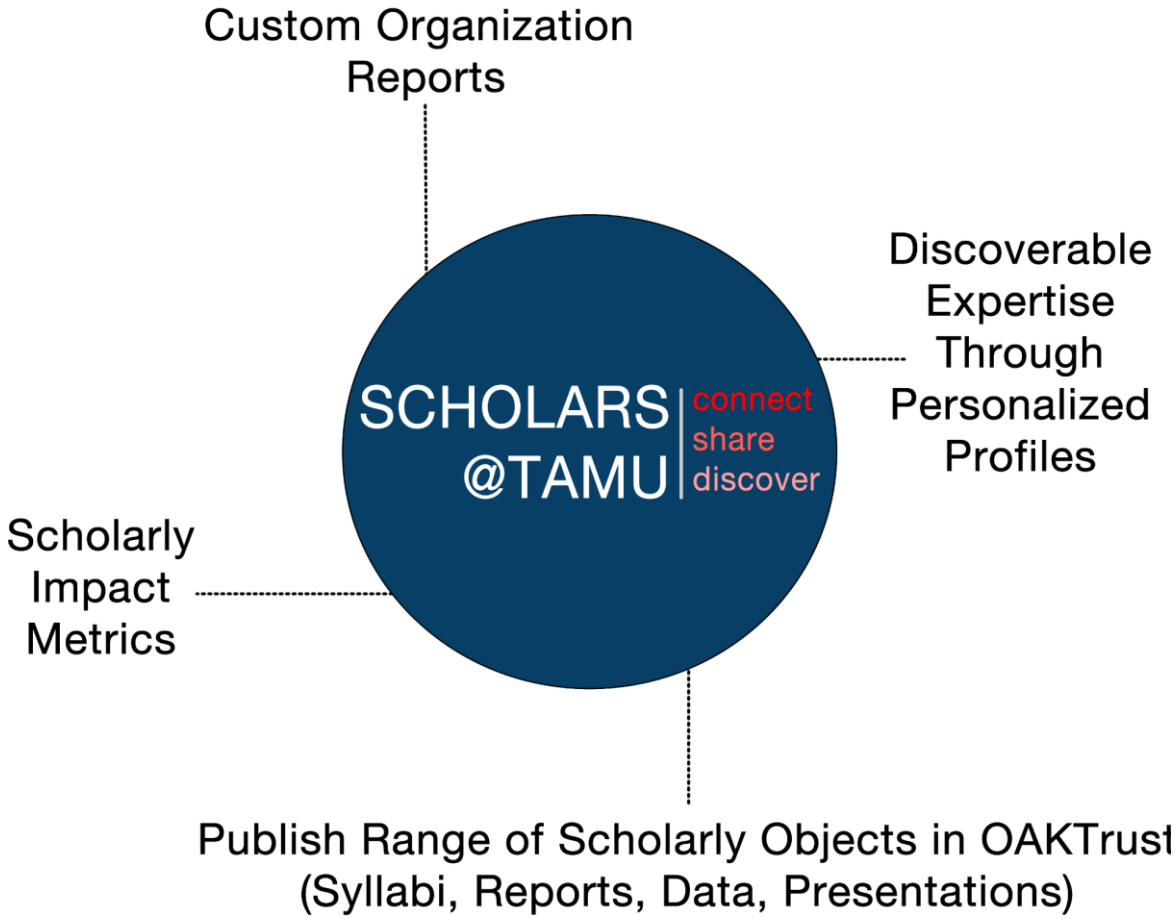
In 2015, the Library started exploring the development of RIM that could directly support these initiatives.

The Scholars@TAMU Team



Disney's Despicable Me (https://outsourcedguru.wordpress.com/2016/12/19/open-source-minion-supercomputer/)

Scholars@TAMU Features



GOAL 1: Enhance TAMU reputation and support the ability of faculty/colleges to **craft rich narratives** of the significance and impact of their work.

GOAL 2: Support (emerging) research practices and publishing models in ways that enhance the productivity, **significance, funding, and impact** of Texas A&M's research and creative work.

http://scholars.tamu.edu/

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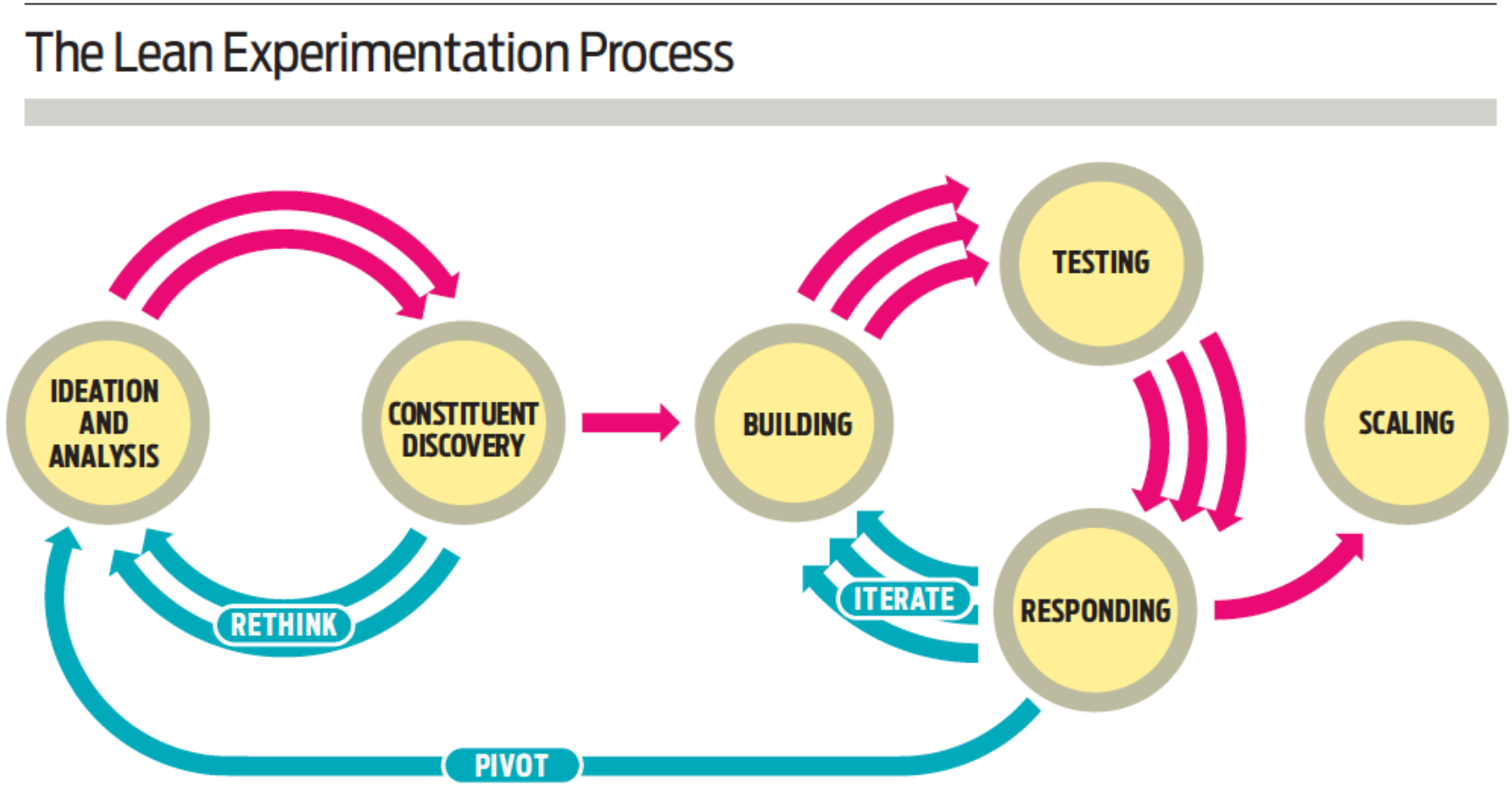
Strategy:

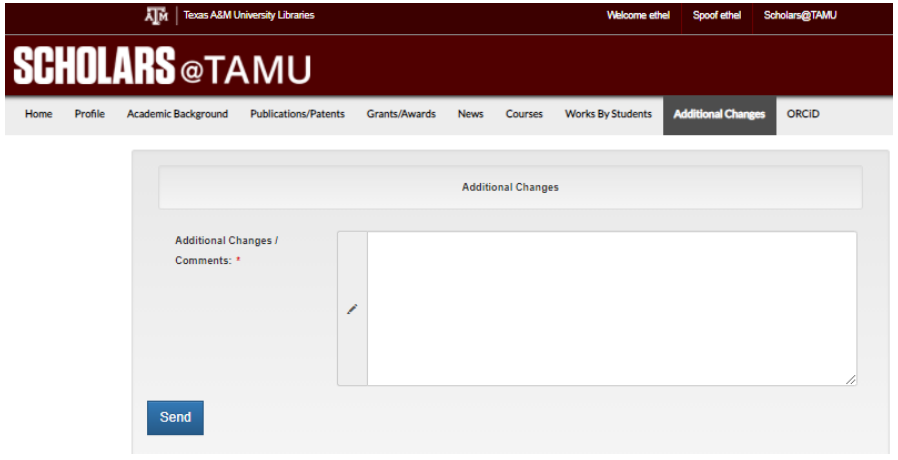
Lean Experimentation (an adaptation of Agile Methodology)



https://ssir.org/articles/entry/the_promise_of_lean_experimentation

Important!

- Identify Key Players
  - Power users
  - Administrators
  - Librarians and delegates
- Outreach, Outreach, Outreach (LOTS of show & tell)
- Refrain from overpromising our capabilities
- Continuous Feedback



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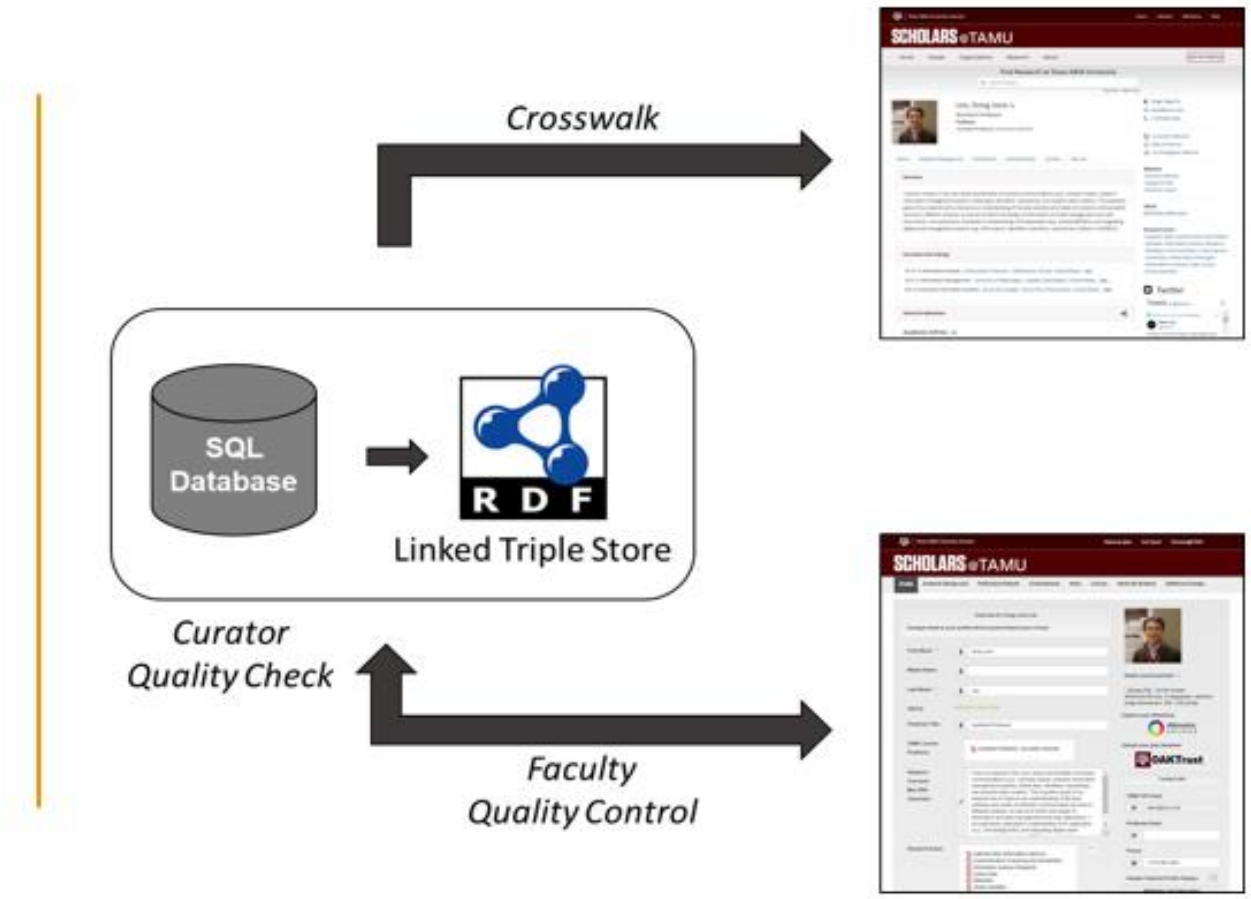
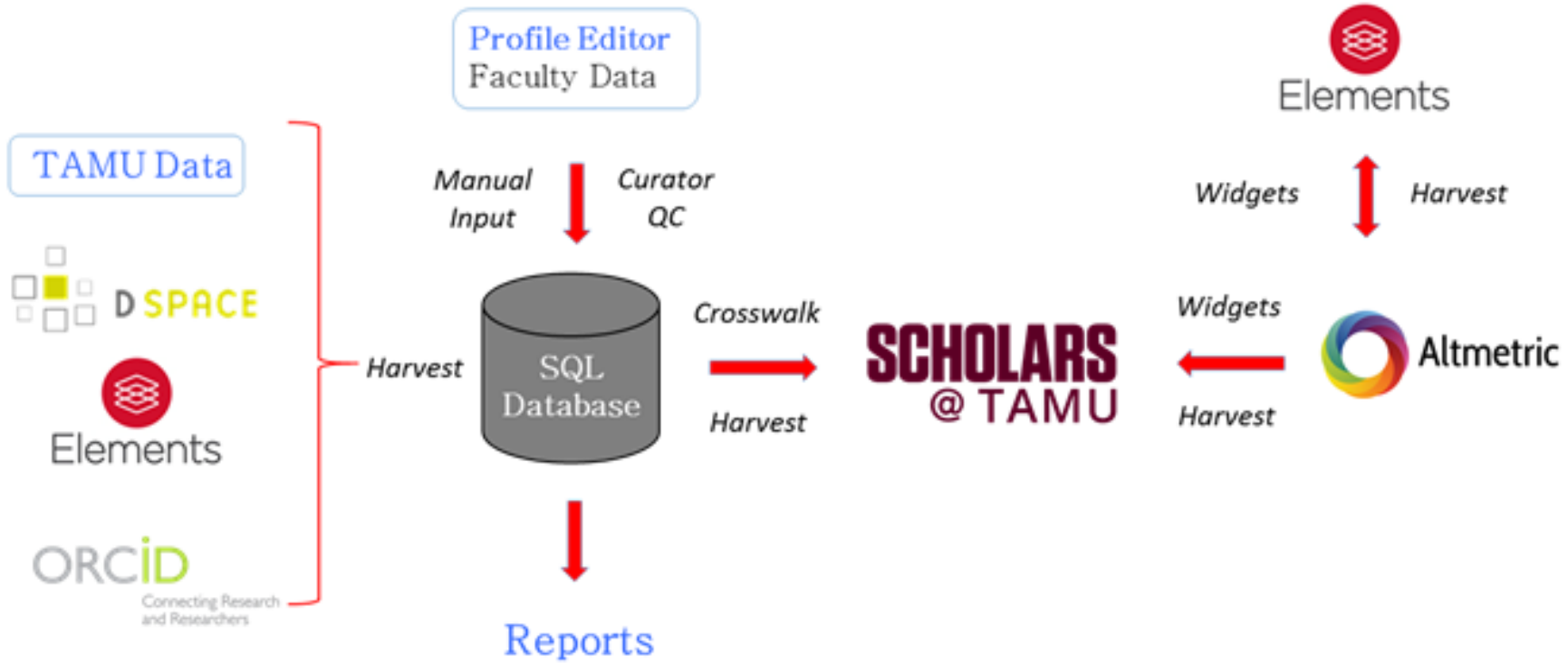
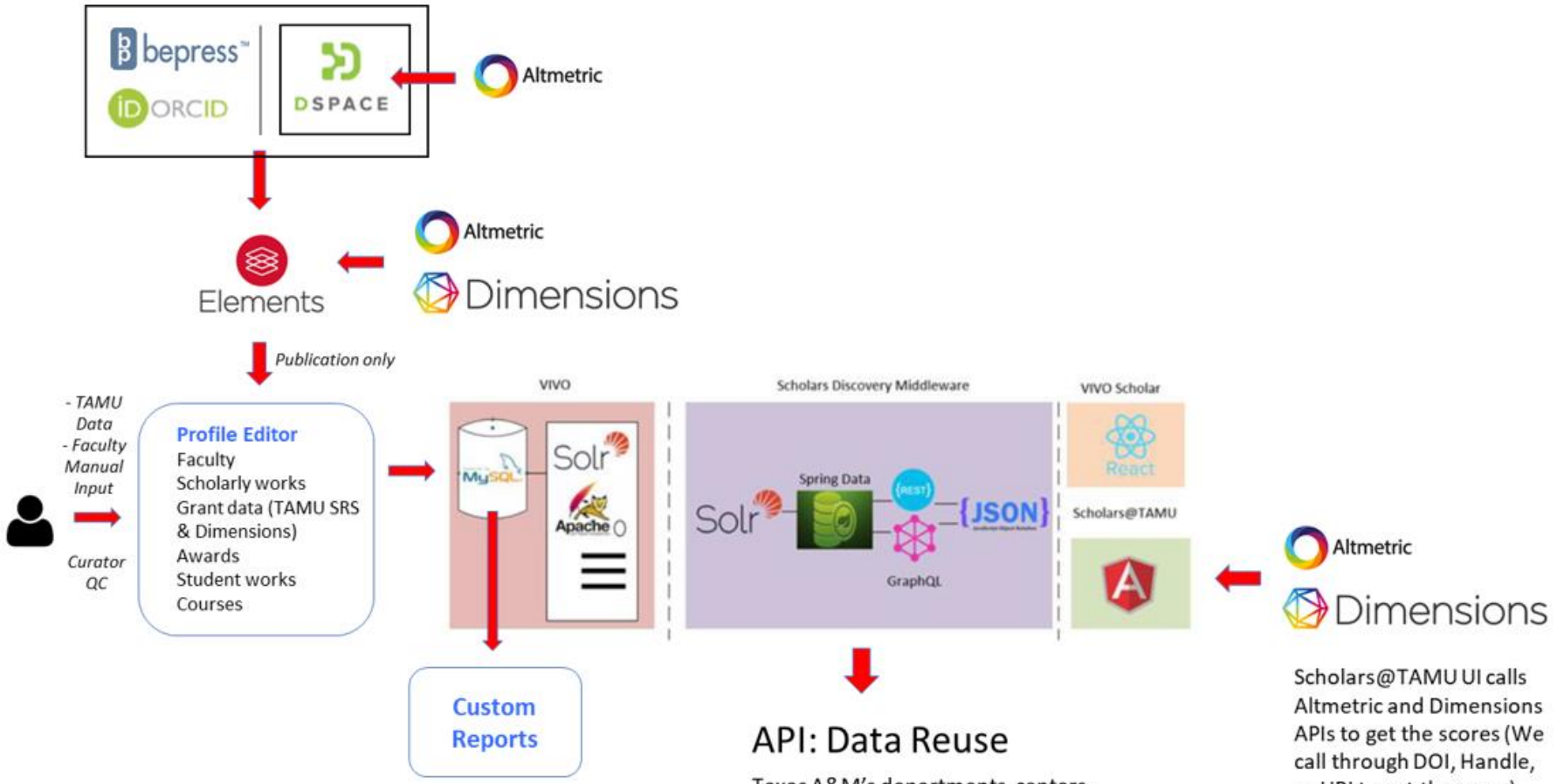
System/Data Structure: v1



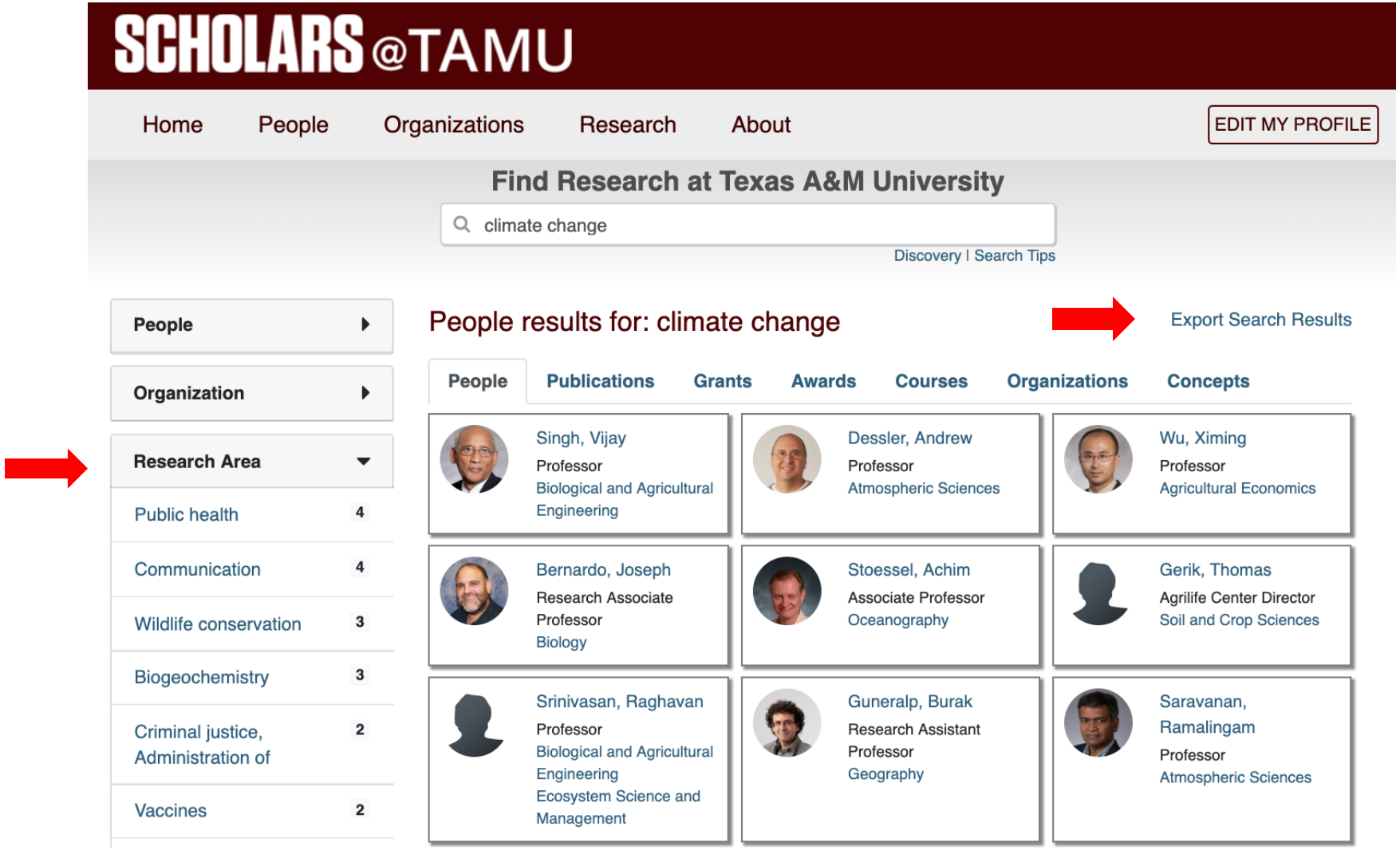
System/Data Structure: v1



System/Data Structure: v2



User Interface: Faceted Search



One of the most common requests from faculty forming research teams.

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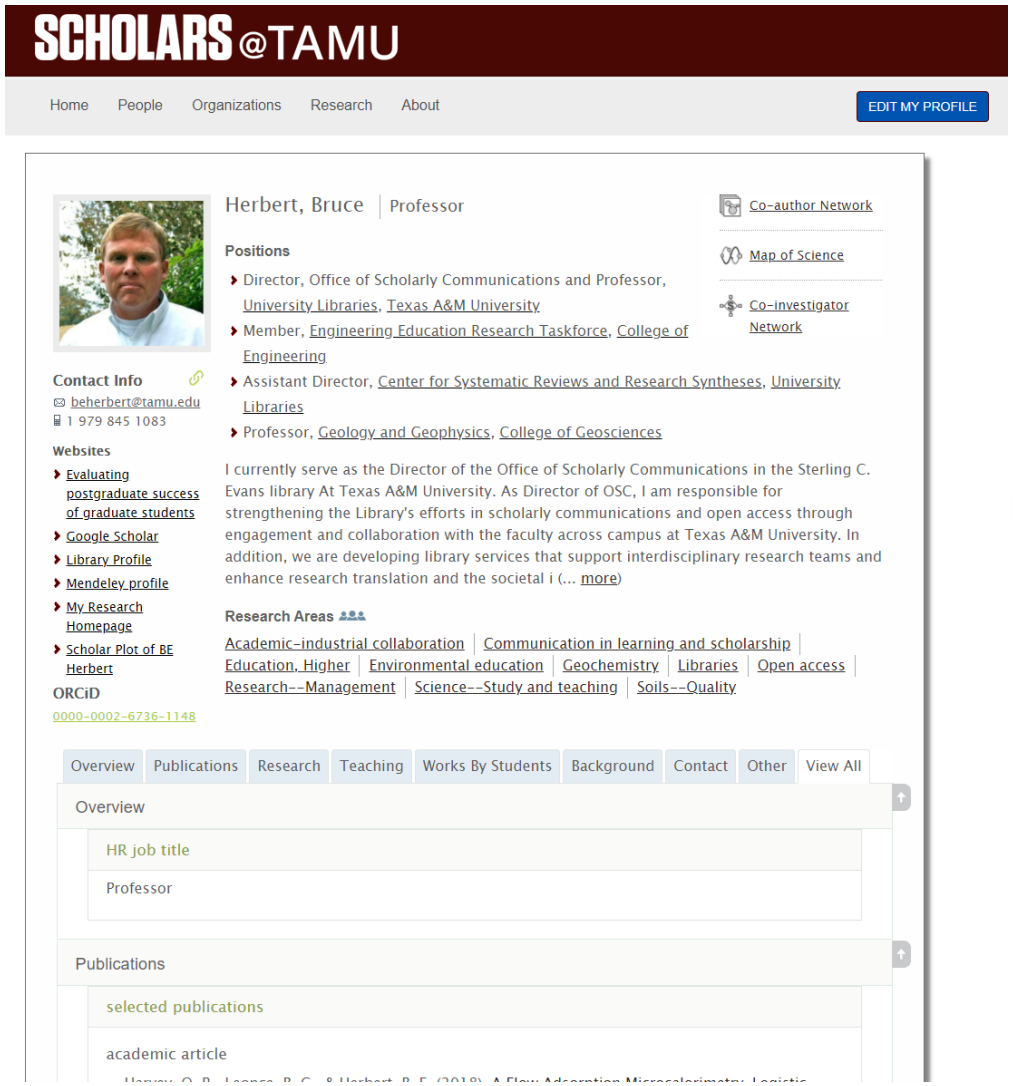
User Interface: Profile



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Bruce Herbert

Positions:

- Professor, Geology and Geophysics College of Geosciences
- Director, Office of Scholarly Communications and Professor, University Libraries Texas A&M University
- Member, Engineering Education Research Taskforce College of Engineering
- Assistant Director, Center for Systematic Reviews and Research Syntheses University Libraries

Overview:

I currently serve as the Director of the Office of Scholarly Communications in the Sterling C. Evans library At Texas A&M University. As Director of OSC, I am responsible for strengthening the Library's efforts in scholarly communications and open access through engagement and collaboration with the faculty across campus at Texas A&M University. In addition, we are developing library services that support interdisciplinary research teams and enhance research translation and the societal impact of Texas A&M's research.

My scientific research explored questions concerning biogeochemical processes that mediate the interactions between human society and ecosystems, including the fate and bioavailability of contaminants, natural and human perturbations of nutrient and organic carbon, and human impacts on ecosystem functioning.

In addition, I actively pursuing research that characterizes human understanding of complex earth systems; the professional development of future faculty and teachers; and the design of tertiary educational programs that promote learning for all students, develop synergy between educational and research activities, and address major societal issues. I have served as the Associate Director of Geosciences in the NSF-supported Information Technology in Science (ITS) Center for Learning and Teaching at Texas A&M University, the principal investigator of the NSF Teacher Professional Continuum program entitled Professional Learning Community Model for Alternative Pathways in Teaching Science and Mathematics, PLC-MAP, and co-PI of the NSF-sponsored CIRTL Network - Shaping, Connecting, and Supporting the Future National STEM Faculty.

Recent Publications:

Lee, D. J., Mutya, K., Herbert, B. E., & Mejia, E. V. (2019). Exploring Scholarly Impact Metrics in Receipt of Highly Prestigious Awards. *ADVANCES IN NEURAL NETWORKS - ISNN 2014*. 11420, 147-153. Springer International Publishing.

Harvey, O. R., Leonce, B. C., & Herbert, B. E. (2018). A Flow Adsorption Microcalorimetry-Logistic Modeling Approach for Assessing Heterogeneity of BrÃ nsted-Type Surfaces: Application to Pyrogenic Organic Materials.. *Environmental Science and Technology*. 52(11), 6167-6176. American Chemical Society (ACS).

Holder, L. N., Scherer, H. H., & Herbert, B. E. (2017). Student Learning of Complex Earth Systems: A Model to Guide Development of Student Expertise in Problem-Solving. *Journal of Geoscience Education*. 65(4), 490-505. Informa UK Limited.

Scherer, H. H., Holder, L., & Herbert, B. (2017). Student Learning of Complex Earth Systems: Conceptual Frameworks of Earth Systems and Instructional Design. *Journal of Geoscience Education*. 65(4), 473-489. Informa UK Limited.

Cucalon, L. G., Bhasin, A., Kassem, E., Little, D., Herbert, B. E., & Masad, E. (2017). Physicochemical Characterization of Binderâ€“Aggregate Adhesion Varying with Temperature and Moisture. *Journal of Transportation Engineering Part B Pavements*. 143(3), 04017007-04017007. American Society of Civil Engineers (ASCE).

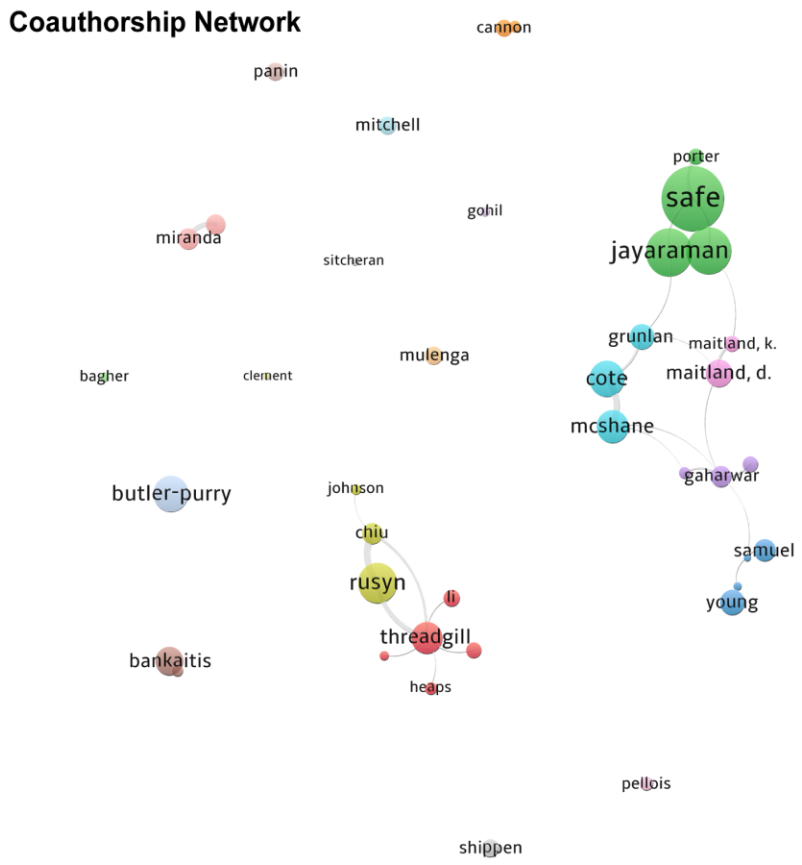
Current Status: (Five years later)

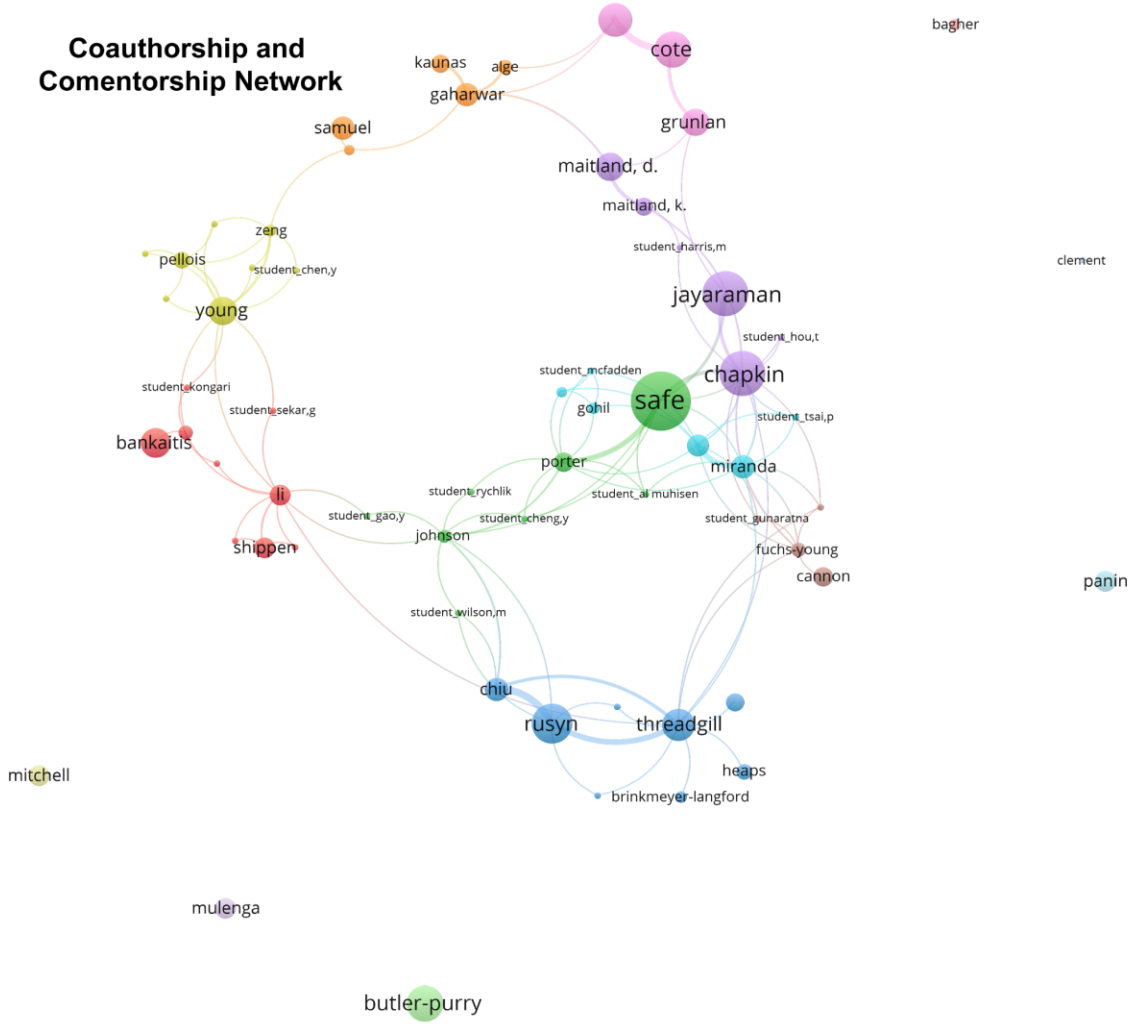
Scholars@TAMU features current expertise and research at Texas A&M

- ~3,300 profiles
- 224 TAMU organizations
- >189,000 research publications
- >1,000 Patents
- >1,200 linked websites (some embedded YouTube videos)
- >3,000 grants
- Teaching materials
- 2 Departmental website integration
- >10,000 search terms

Complementary Services

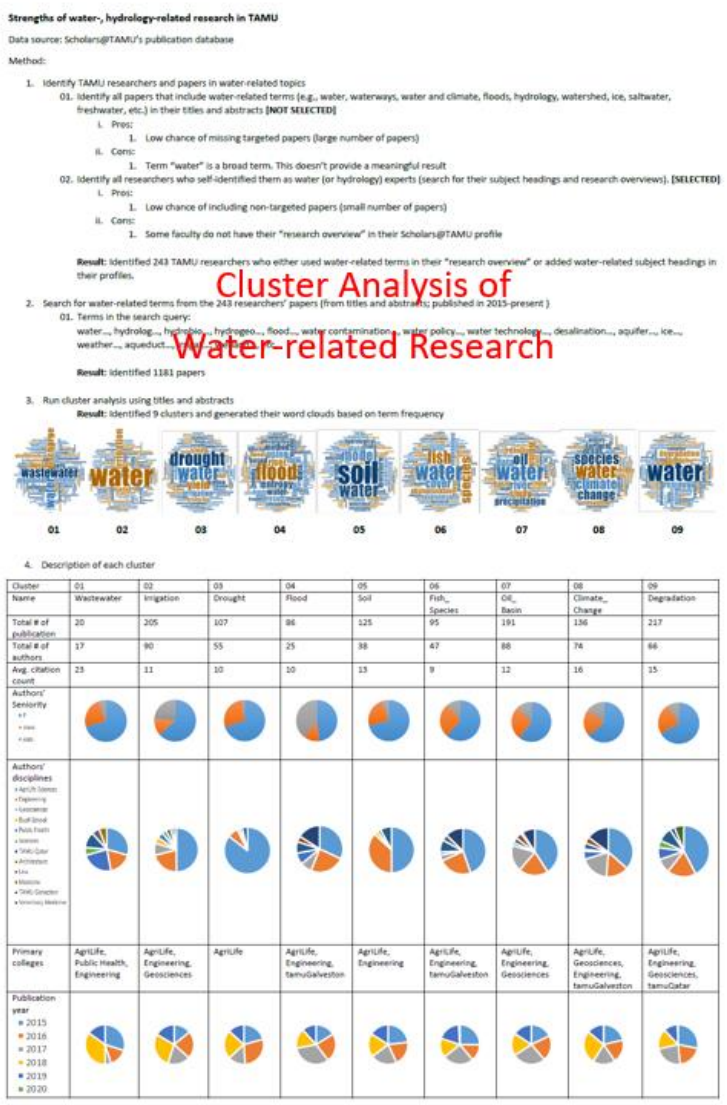
Clients: Principal Investigators for grant proposals





Complementary Services

Clients: Administrators and Centers



Strengths of water-, hydrology-related research in TAMU

Data source: Scholars@TAMU's publication database

Method:

1. Identify TAMU researchers and papers in water-related topics
   - 01. Identify all papers that include water-related terms (e.g., water, waterways, water and climate, floods, hydrology, watershed, ice, saltwater, freshwater, etc.) in their titles and abstracts **[NOT SELECTED]**
     - i. Pros:
       1. Low chance of missing targeted papers (large number of papers)
     - ii. Cons:
       1. Term "water" is a broad term. This doesn't provide a meaningful result
   - 02. Identify all researchers who self-identified them as water (or hydrology) experts (search for their subject headings and research overviews). **[SELECTED]**
     - i. Pros:
       1. Low chance of including non-targeted papers (small number of papers)
     - ii. Cons:
       1. Some faculty do not have their "research overview" in their Scholars@TAMU profile

   Result: Identified 243 TAMU researchers who either used water-related terms in their "research overview" or added water-related subject headings in their profiles.

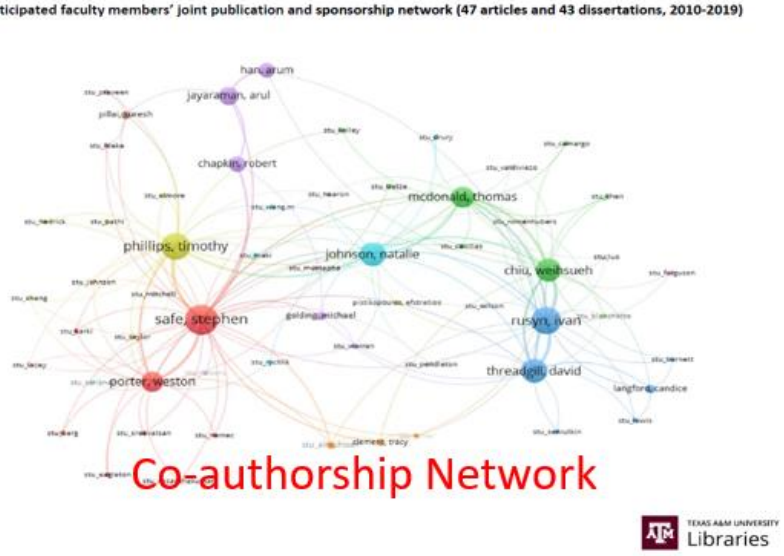
2. Search for water-related terms from the 243 researchers' papers (from titles and abstracts; published in 2015-present)
   - 01. Terms in the search query:
     water..., hydrolog..., hydrolic..., hydrogeo..., flood..., water contamination..., water policy..., water technology..., desalination..., aquifer..., ice..., weather..., aqueduct...
   - **Result:** Identified 1181 papers

3. Run cluster analysis using titles and abstracts
   - **Result:** Identified 9 clusters and generated their word clouds based on term frequency

4. Description of each cluster

Cluster	01	02	03	04	05	06	07	08	09
Name	Wastewater	Irrigation	Drought	Flood	Soil	Fish_ Species	Oil_ Basin	Climate_ Change	Degradation
Total # of publication	20	205	107	86	125	95	191	136	217
Total # of authors	17	90	55	25	38	47	88	74	66
Avg. citation count	23	11	10	10	13	9	12	16	15
Authors' Seniority									
Authors' disciplines									
Primary colleges	AgriLife, Public Health, Engineering	AgriLife, Engineering, Geosciences	AgriLife	AgriLife, Engineering, tamuGalveston	AgriLife, Engineering	AgriLife, Engineering, tamuGalveston	AgriLife, Engineering, Geosciences	AgriLife, Geosciences, Engineering, tamuGalveston	AgriLife, Engineering, Geosciences, tamuQatar
Publication year									

Cluster Analysis of Water-related Research



Participated faculty members' joint publication and sponsorship network (47 articles and 43 dissertations, 2010-2019)

Co-authorship Network

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Word Cloud of Journals Topics that Publish COM Research

Word Cloud

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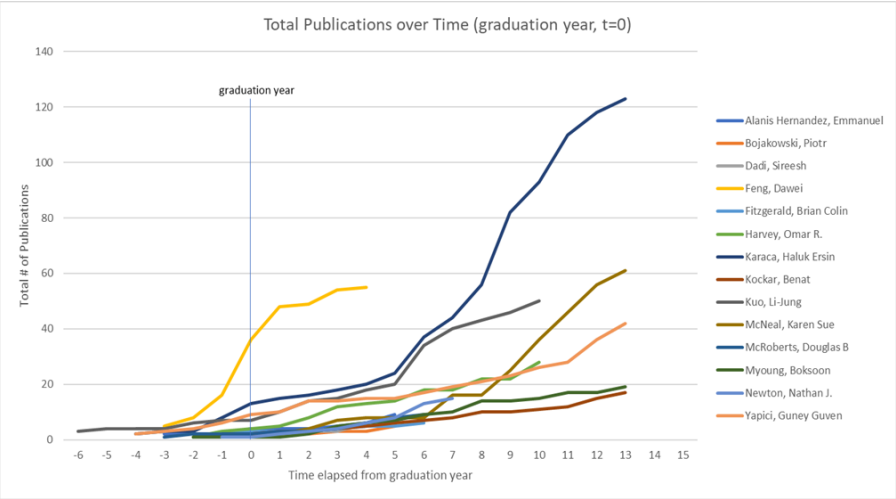
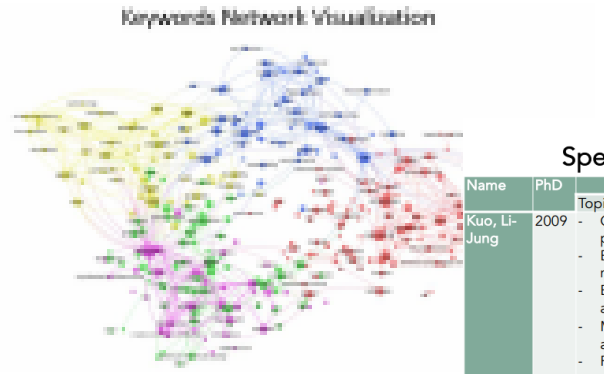
Complementary Services

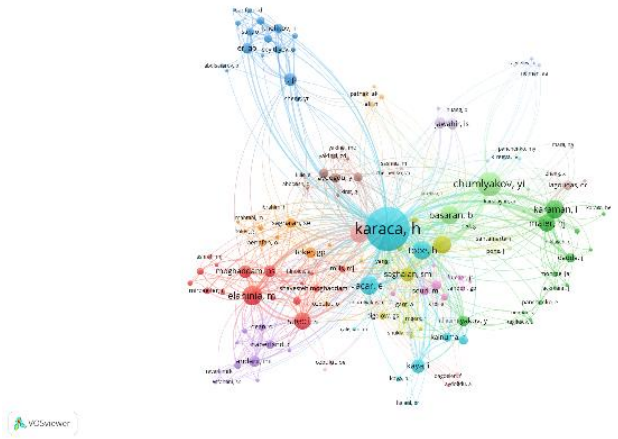
Clients: Programs and Colleges





Specialization for the students included in Pilot

Name	PhD	PhD Research		Post-graduation
		Topic analysis	Submitted Keywords	
Kuo, Li-Jung	2009	- Combustion products source - Environmental media - Environmental application - Multi-proxy approach - Pyrogenic carbon	- black carbon - char - charcoal - levoglucosan - lignin - soil organic matter - PAHs - Puget Sound - Hood Canal - climate change	- PBDES - BDE - Biochar - Seawater - Amidoxime
McNeal, Karen	2007	- complex earth system - microbial ecosystem proxy - coastal eutrophication	- Volatile Organic Compounds - Biomarkers - Spatial and Temporal Dynamics - Microbial Community - Inquiry - Multiple Representations - Complex Earth Systems - Conceptual Model Development - Undergraduate Students	- Geoscience - Climate change - Risk perception - Climate science - Geoscience education research - Student engagement



Specialization for the students inclu

Student	Total Pubs	Pubs/Yr (1st pub yr)	PhD Specialization	Current Specialization*
Alanis Hernandez, E.	9	1.1 (2012)	FINC	Finance and economics (A)
Bojakowski, Piotr	5	.6 (2011)	ANTH	Underwater archaeology (G)
Dadi, Sireesh	6	1.2 (2015)	GEOP	Business intelligence (I)
Feng, Dawei	55	6.9 (2012)	CHEM	Materials science and engineering (A)
Fitzgerald, Brian	6	0.8 (2012)	ACCT	Accounting (A)
Harvey, Omar R.	28	2.3 (2008)	WMHS	Geological sciences (A)
Karaca, Haluk Ersin	123	7.2 (2003)	MECH	Mechanical engineering (A)
Kockar, Benat	17	1.2 (2006)	MECH	Mechanical engineering (A)
Kuo, Li-Jung	50	2.4 (1999)	GEOL	Environmental Biogeochemistry and Bioenergy (G)
McNeal, Karen	61	5.1 (2008)	GEOL	Geosciences (A)
McRoberts, Douglas	9	1 (2011)	ATMO	Data science (A)
Myoung, Boksoon	19	1.3 (2005)	ATMO	Climate analysis (G)
Newton, Nathan J.	15	1.9 (2012)	ACCT	Accounting (A)
Yapici, Guney Guven	42	2.5 (2003)	MECH	Mechanical engineering (A)
Zhu, Xiaojie	2	1 (2014)	ATMO	Statistics (A)

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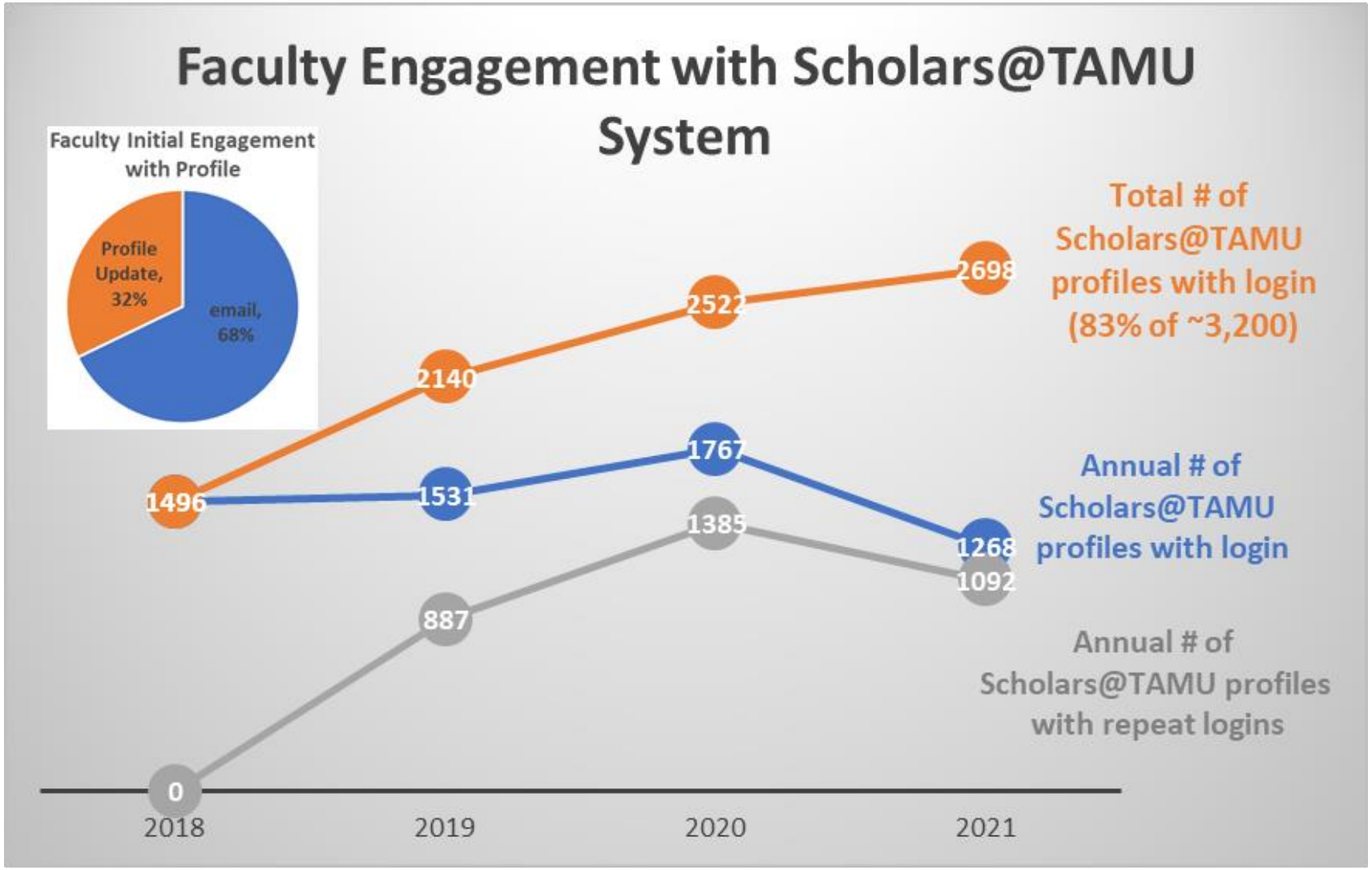
Evaluation of Engagement with Scholars@TAMU



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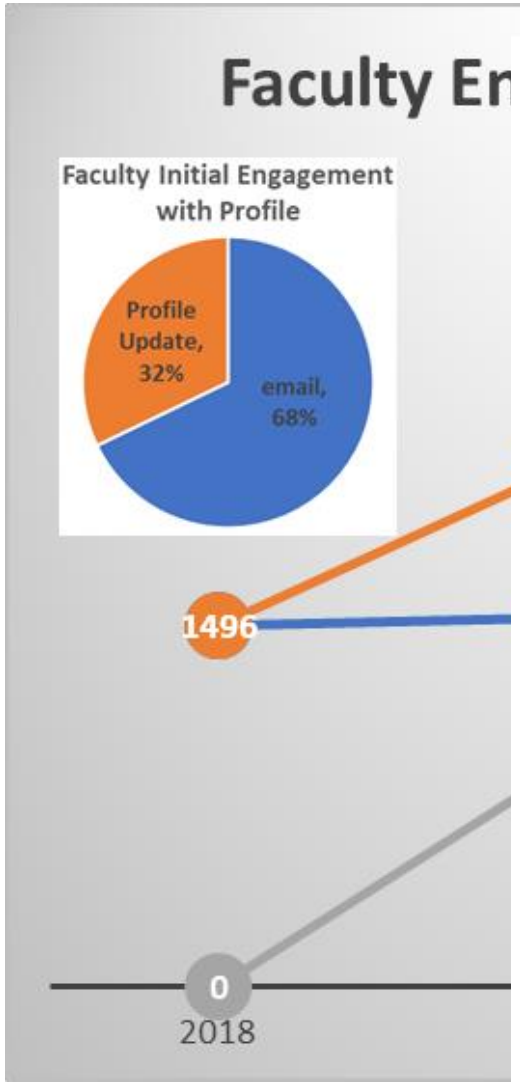

Reminder: New Publications Found

Scholars@TAMU <scholars@library.tamu.edu>
To Mejia, Ethelyn V

Reply | Reply All | Forward | ...
Tue 6/15/2021 11:00 PM

Texas A&M University Libraries
SCHOLARS@TAMU

Howdy Ethelyn Mejia,

10 New Publications Found.

Claim Your Pubs

This is an automated message from the Scholars@TAMU system to alert you that we have found your new publication(s). Only the publications you approve will appear in your Scholars@TAMU profile. If there are several publications that are not yours, please contact scholars@library.tamu.edu and we will help refine your search settings. Scholars@TAMU only sends these automated messages when we find new publications that appear to be authored by you. If you do not want to receive messages like this, please click unsubscribe or contact scholars@library.tamu.edu and we can disable the automatic searching function on your behalf.

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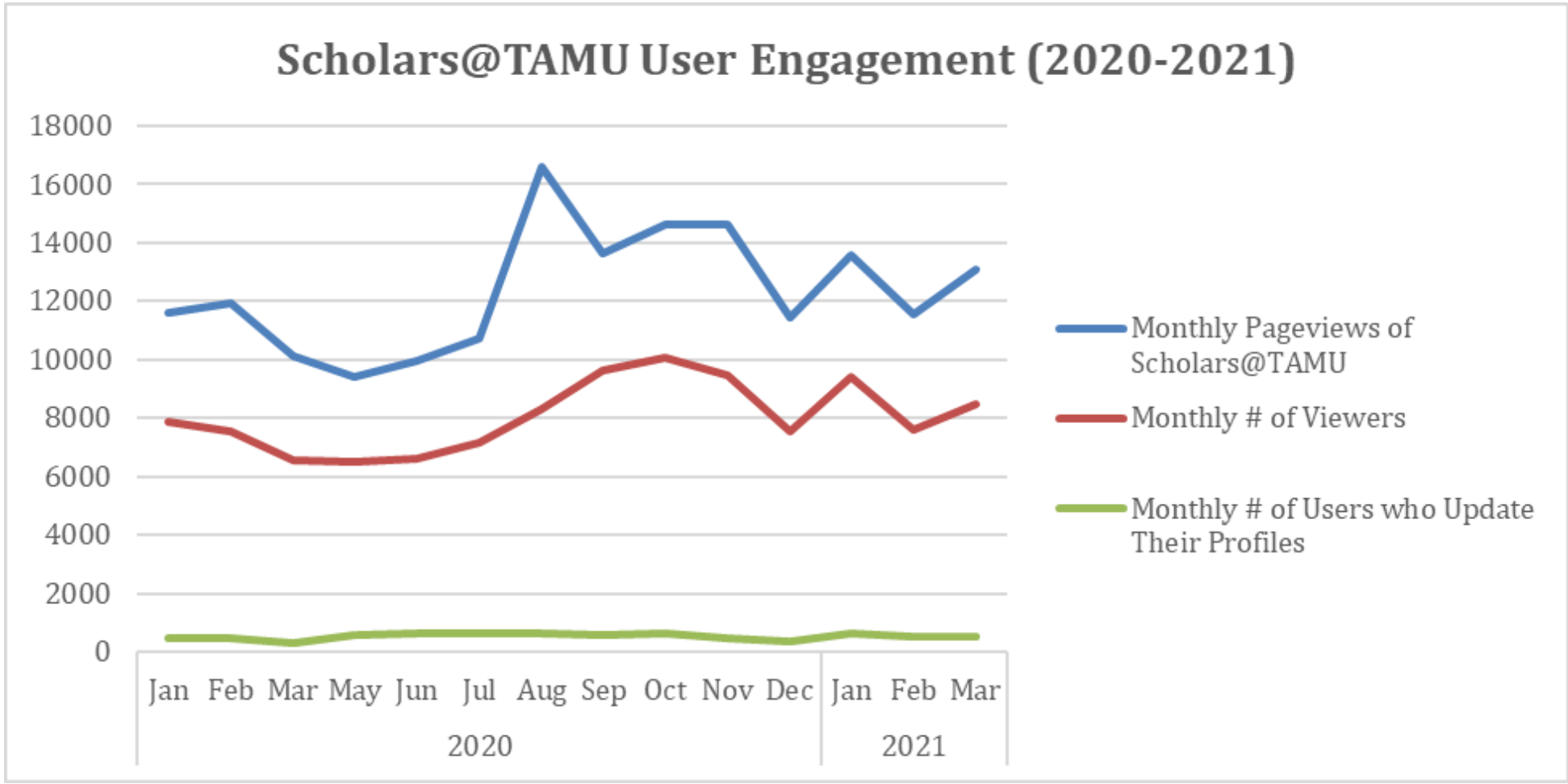

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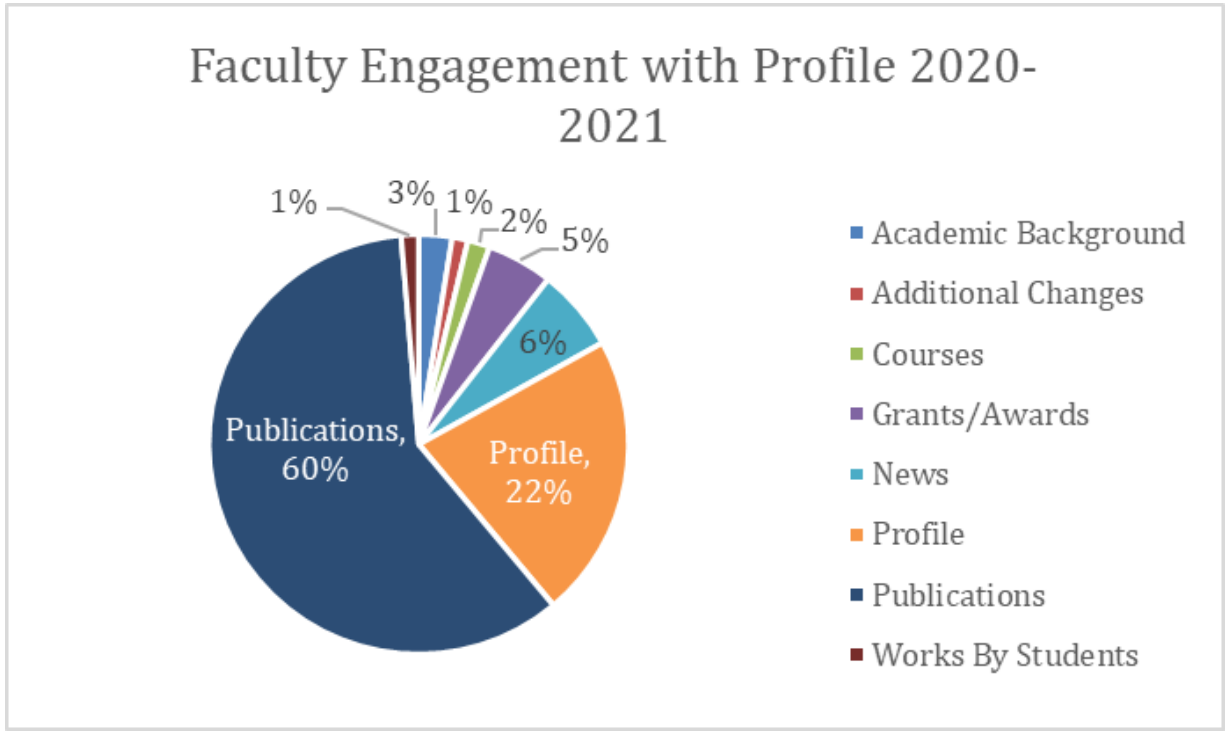

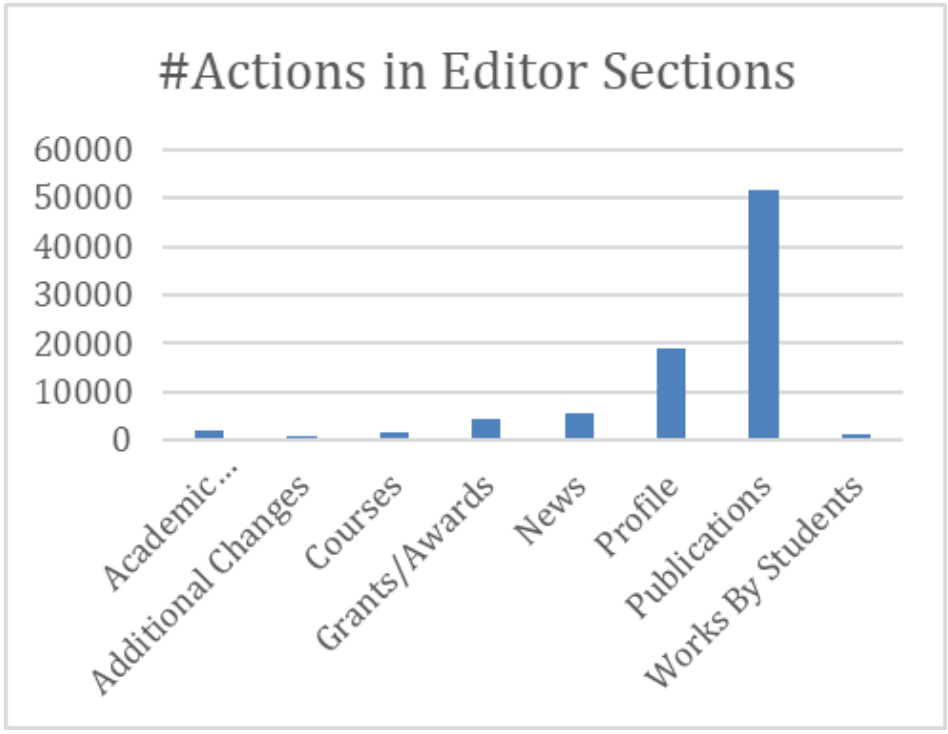

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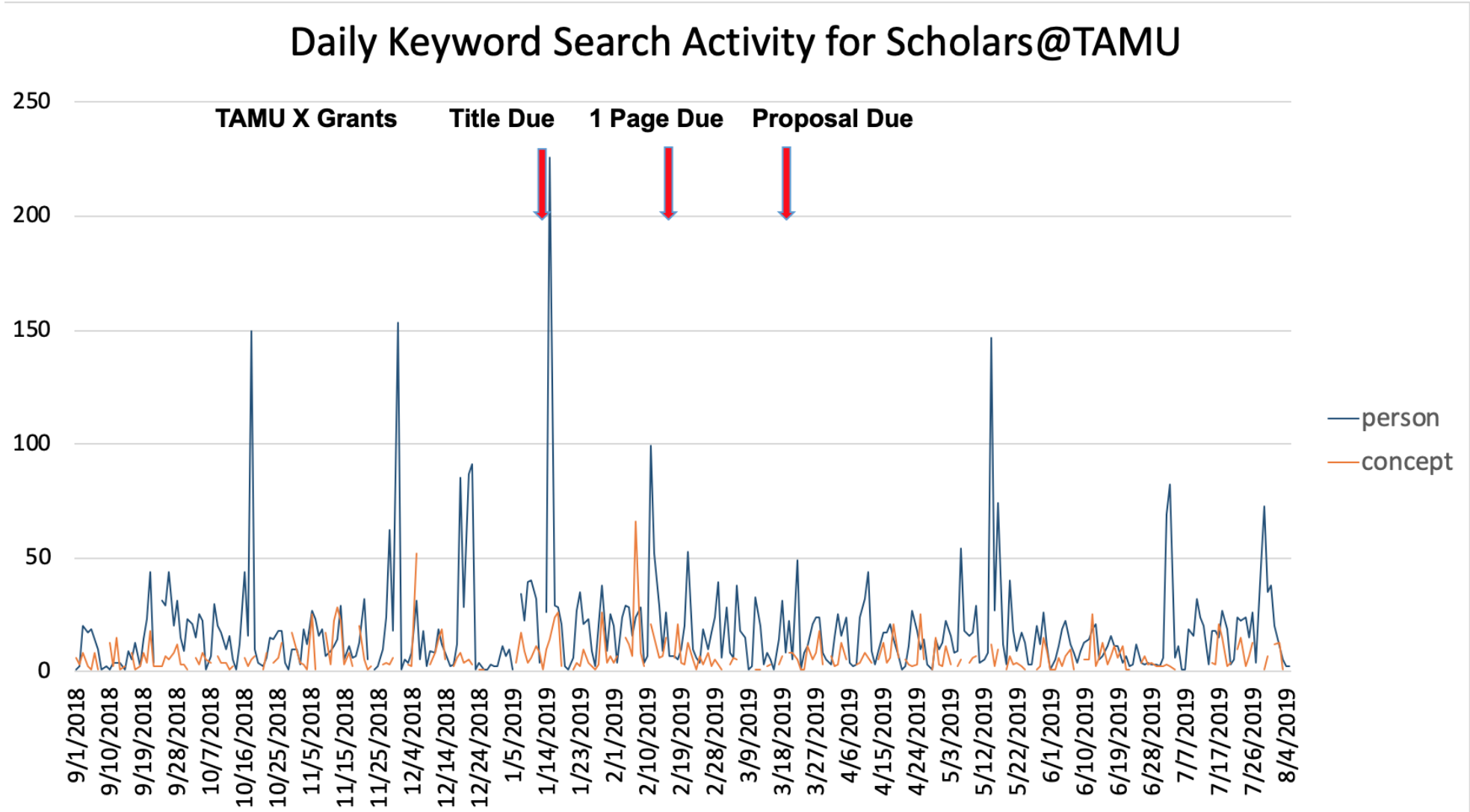
Interdisciplinary Research Teams



Clients: Principal Investigators

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Some of Our Future Plans

- UN Sustainable Development Goals
- Editor re-write
- Explore more data re-use
- MORE, more, more DATA

Lessons Learned:

- Focus on data quality (identifiers, authoritative lists, automation)
- Let social interoperability drive the project, the technical side is secondary (Users are Important!)
- Don’t try to solve everything all at once
- Keep it Simple (for the user)

Thank you for your time. Questions?

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