

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

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Dong Joon Lee, and Douglas Hahn  
Texas A&M University Libraries

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# Research at Texas A&M University



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

# 128

Undergraduate Degree  
Programs

# 300

Graduate Degree  
Programs

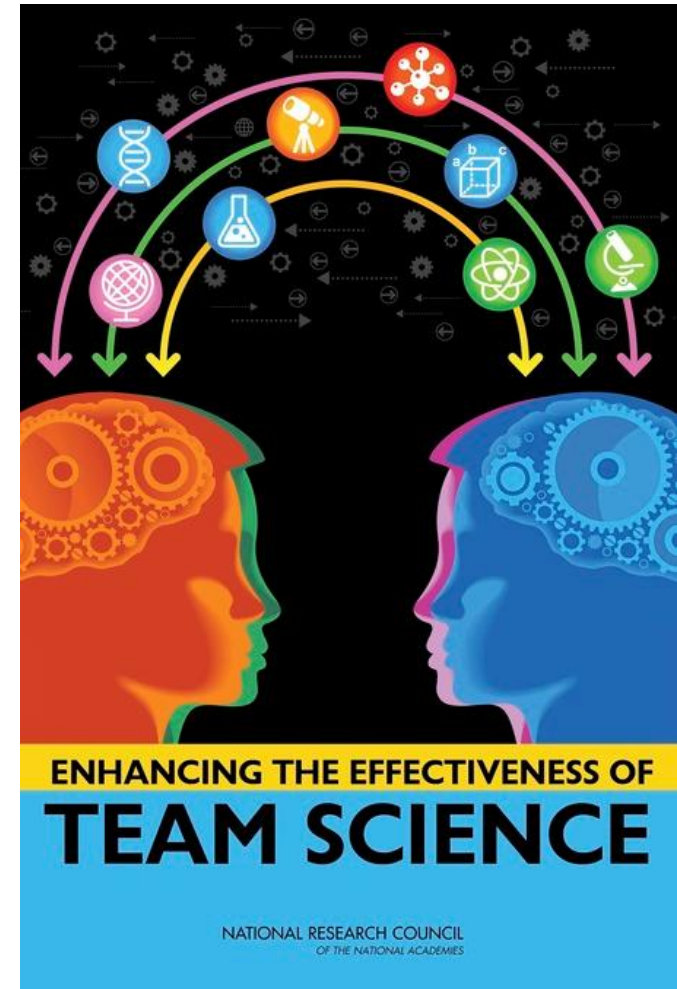
- Member of the Association of American Universities (AAU)
- Colleges and Schools: **19**
- Master's degree programs: **200**
- Doctoral degree programs: **100**
- First professional degree programs: **5**
- Study Abroad: **5,330 students to 105 countries each year**
- Total Faculty: **3,750**
- National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

\* #16 nationally, National Science Foundation, 2015

# 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

Bruce



DJ



Ethel



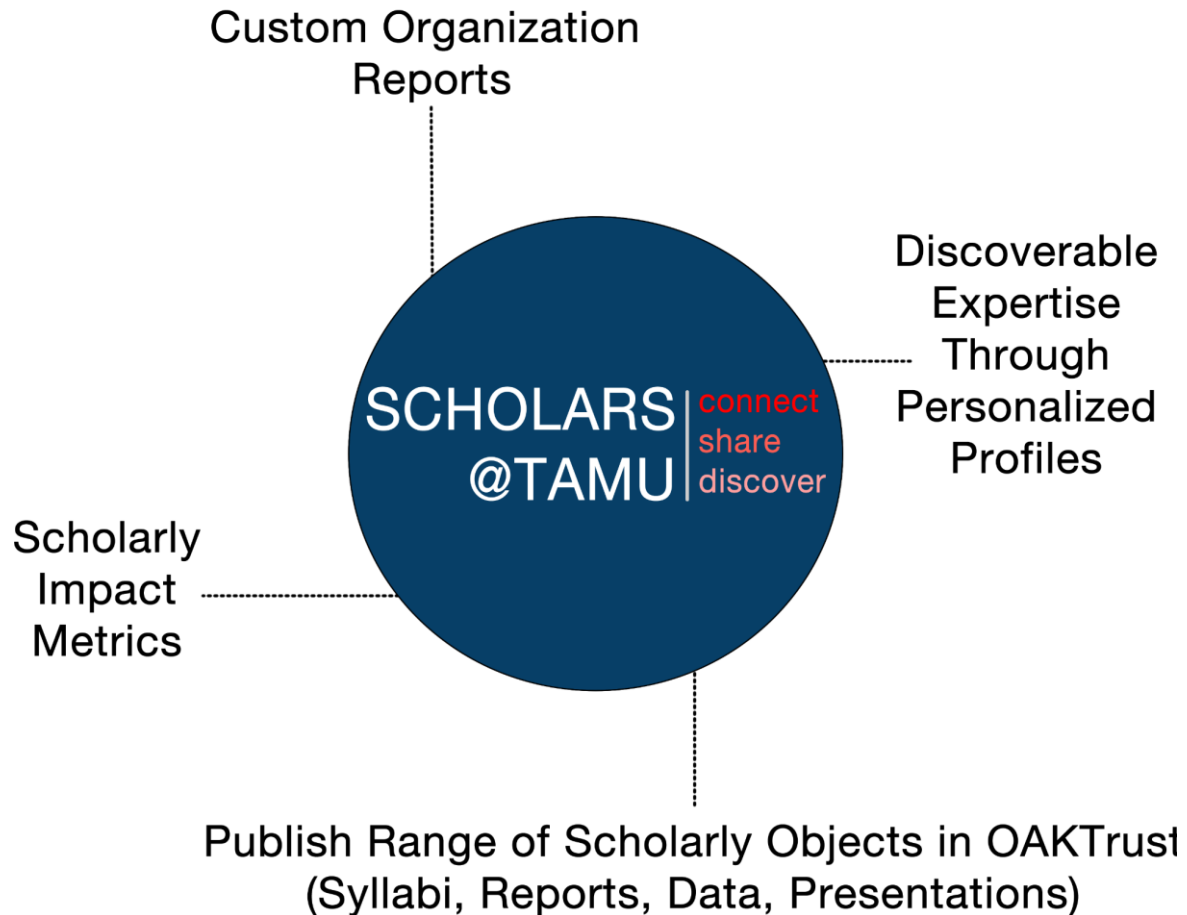
Doug



William



# 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/>

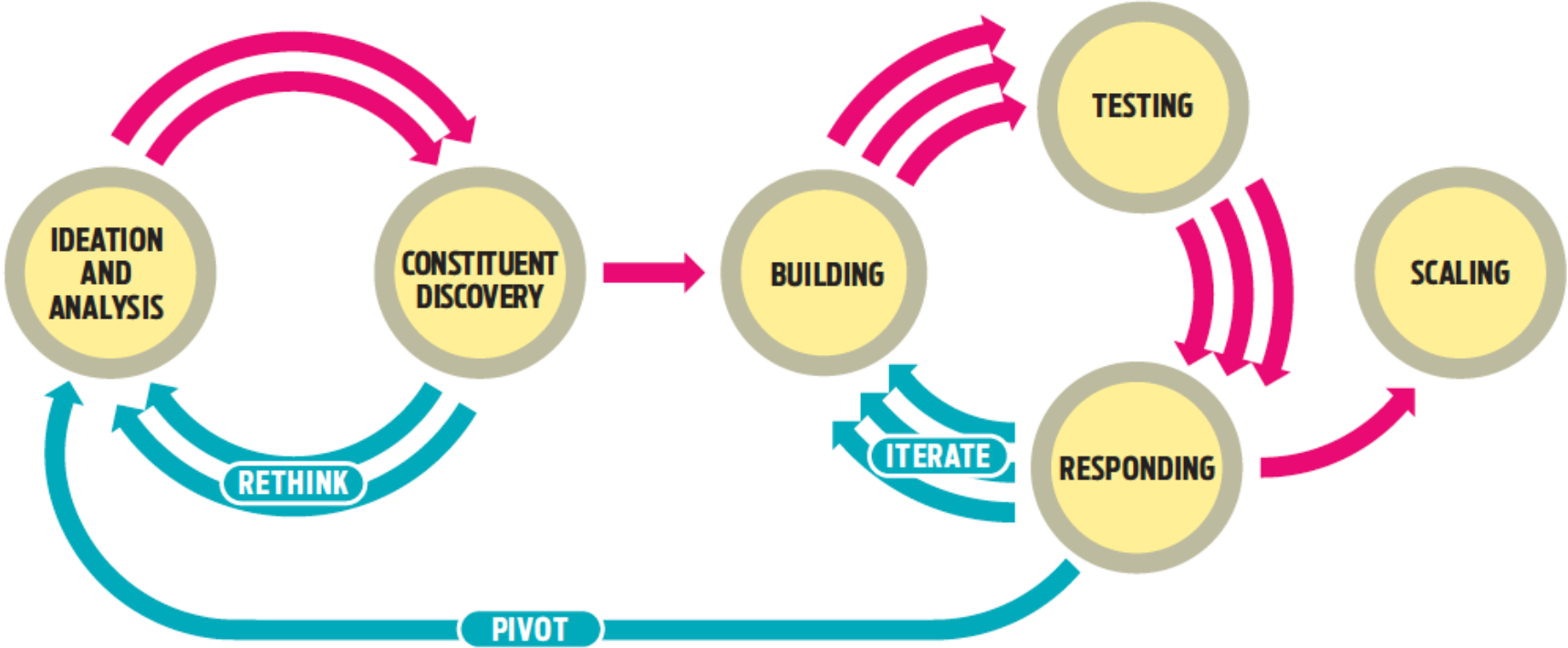
Strategy:

# Lean Experimentation (an adaptation of Agile Methodology)

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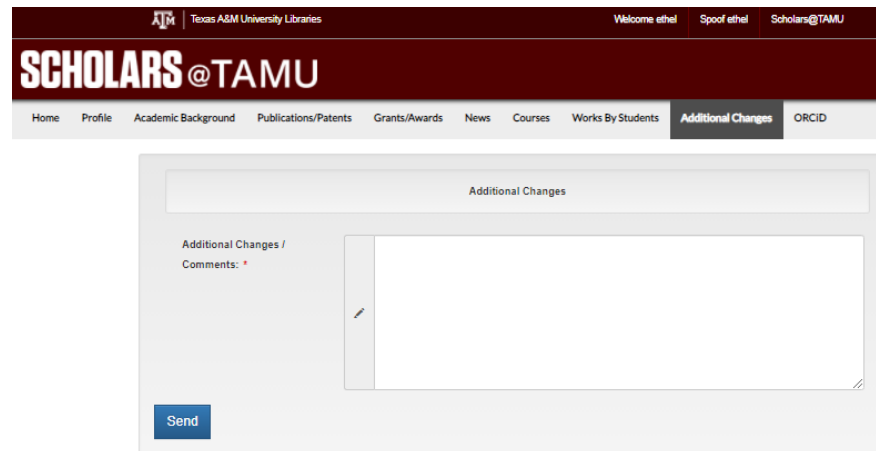
## The Lean Experimentation Process

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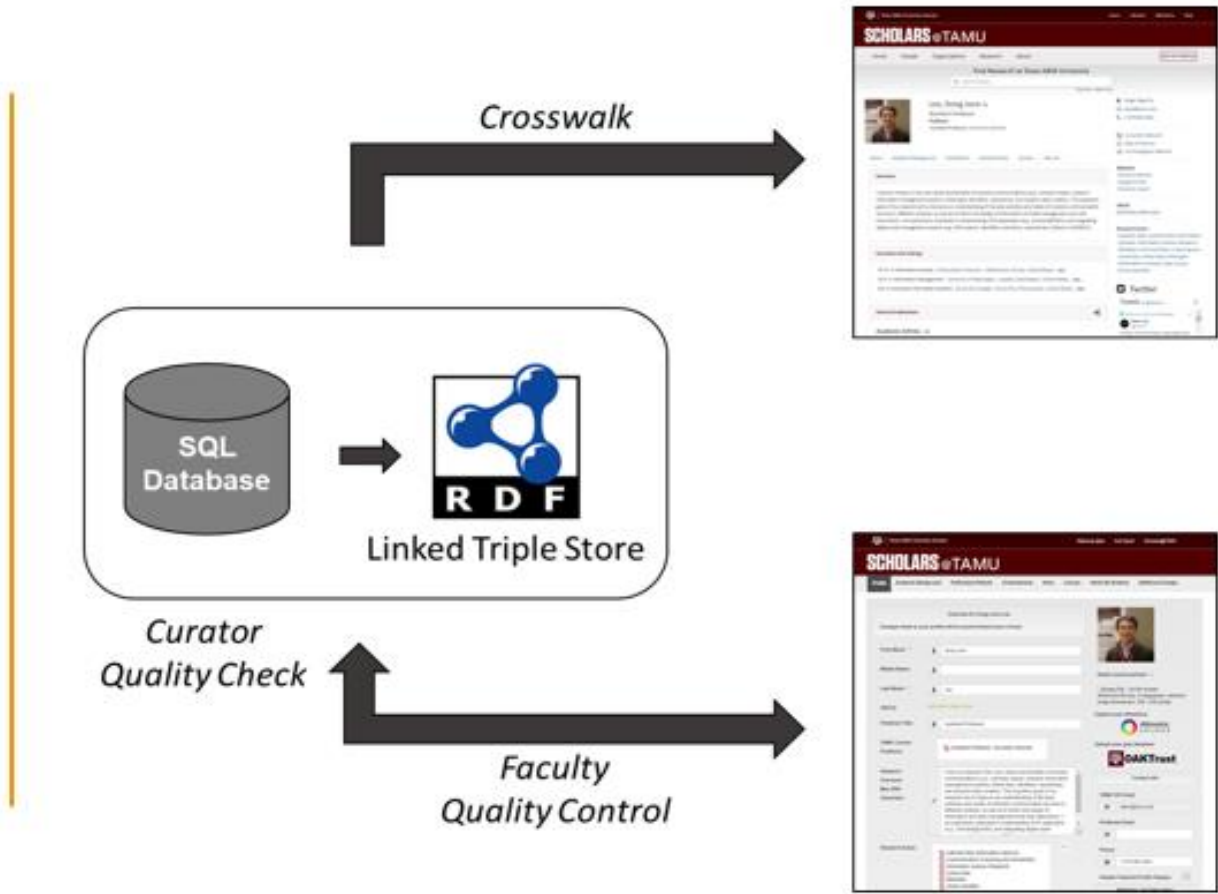
# Important!

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



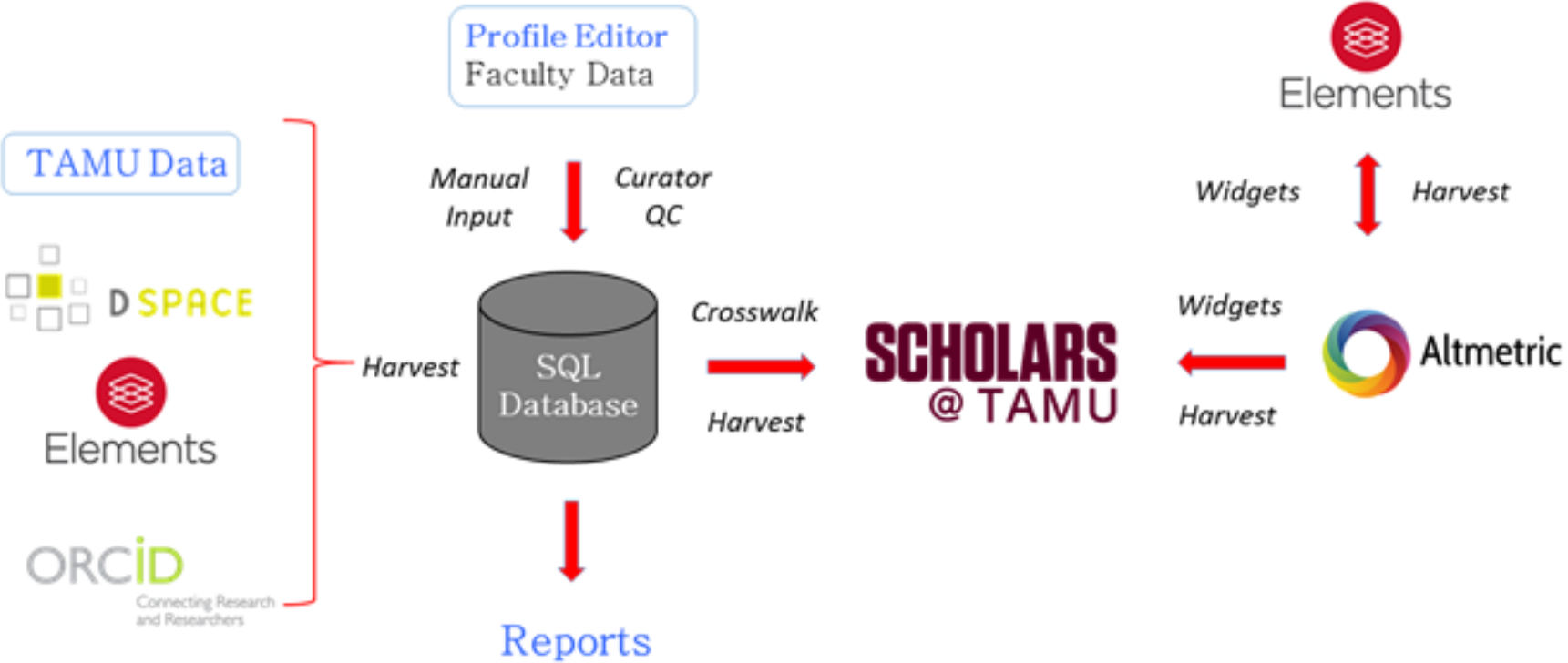
The screenshot displays the SCHOLARS@TAMU website interface. At the top, there is a dark red header with the AT&M logo and 'Texas A&M University Libraries' on the left, and 'Welcome etHEL', 'Spool etHEL', and 'Scholars@TAMU' on the right. Below the header is a navigation menu with links: Home, Profile, Academic Background, Publications/Patents, Grants/Awards, News, Courses, Works By Students, Additional Changes (highlighted), and ORCID. The main content area is titled 'Additional Changes' and contains a form with a text input field labeled 'Additional Changes / Comments: \*' and a blue 'Send' button at the bottom left.

# System/Data Structure: v1

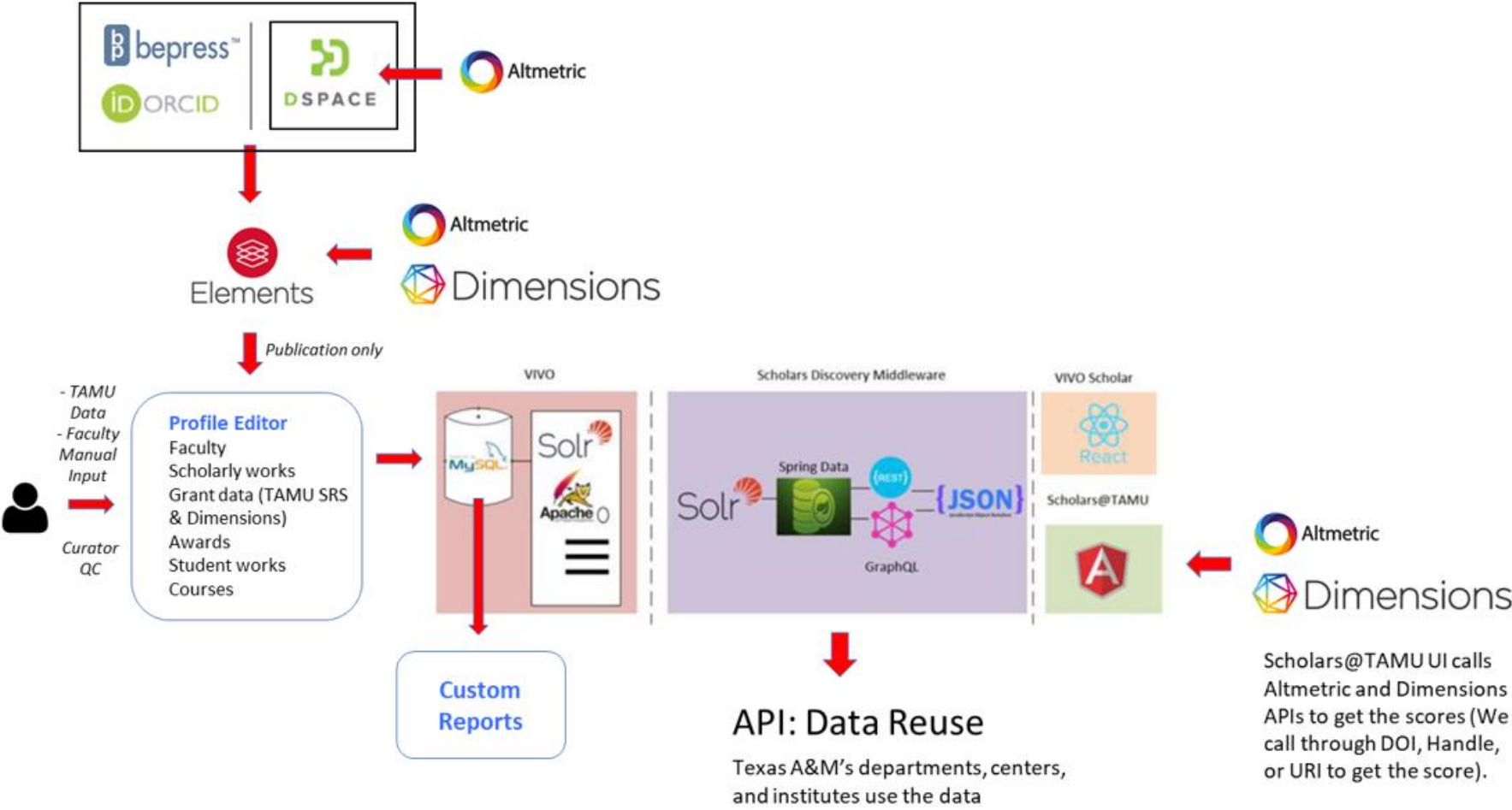




# System/Data Structure: v1



# System/Data Structure: v2



# User Interface: Faceted Search

The screenshot displays the SCHOLARS@TAMU website interface. At the top, there is a navigation bar with links for Home, People, Organizations, Research, and About, along with an EDIT MY PROFILE button. Below this is a search bar containing the text 'climate change' and a 'Discovery | Search Tips' link. The main content area is titled 'Find Research at Texas A&M University' and shows 'People results for: climate change'. A red arrow points from the search bar to the results. On the left, a 'Research Area' facet is expanded, showing categories like Public health (4), Communication (4), Wildlife conservation (3), Biogeochemistry (3), Criminal justice, Administration of (2), and Vaccines (2). A red arrow points to this facet. The main results area shows a grid of researcher profiles, each with a photo, name, and title. A red arrow points from the 'People' tab to the 'Export Search Results' link.

**SCHOLARS@TAMU**

Home People Organizations Research About [EDIT MY PROFILE](#)

Find Research at Texas A&M University

Q climate change [Discovery | Search Tips](#)

People results for: climate change [Export Search Results](#)

People Publications Grants Awards Courses Organizations Concepts


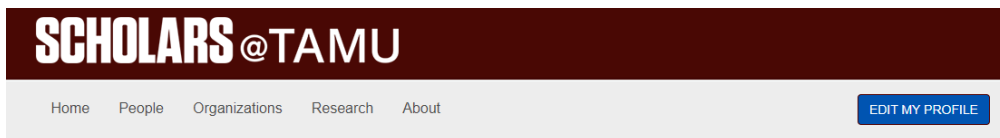
	<b>Singh, Vijay</b> Professor Biological and Agricultural Engineering		<b>Dessler, Andrew</b> Professor Atmospheric Sciences		<b>Wu, Ximing</b> Professor Agricultural Economics
	<b>Bernardo, Joseph</b> Research Associate Professor Biology		<b>Stoessel, Achim</b> Associate Professor Oceanography		<b>Gerik, Thomas</b> Agrilife Center Director Soil and Crop Sciences
	<b>Srinivasan, Raghavan</b> Professor Biological and Agricultural Engineering Ecosystem Science and Management		<b>Guneralp, Burak</b> Research Assistant Professor Geography		<b>Saravanan, Ramalingam</b> Professor Atmospheric Sciences

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



**LIBRARIES**  
TEXAS A&M UNIVERSITY

# User Interface: Profile



**Herbert, Bruce** | Professor

[Co-author Network](#)

[Map of Science](#)

[Co-investigator Network](#)

**Positions**

- ▶ 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](#)
- ▶ Professor, [Geology and Geophysics, College of Geosciences](#)

**Contact Info**

✉ [beherbert@tamu.edu](mailto:beherbert@tamu.edu)  
☎ 1 979 845 1083

**Websites**

- ▶ [Evaluating postgraduate success of graduate students](#)
- ▶ [Google Scholar](#)
- ▶ [Library Profile](#)
- ▶ [Mendeley profile](#)
- ▶ [My Research Homepage](#)
- ▶ [Scholar Plot of BE Herbert](#)

**ORCID**  
0000-0002-6736-1148

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 i (... [more](#))

**Research Areas**

[Academic-industrial collaboration](#) | [Communication in learning and scholarship](#) | [Education, Higher](#) | [Environmental education](#) | [Geochemistry](#) | [Libraries](#) | [Open access](#) | [Research--Management](#) | [Science--Study and teaching](#) | [Soils--Quality](#)

Overview Publications Research Teaching Works By Students Background Contact Other View All

**Overview**

HR job title  
Professor

**Publications**

selected publications

academic article

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



SCHOLARS@TAMU

Home People Organizations Research About

EDIT MY PROFILE

Find Research at Texas A&M University

Search People...

Discovery | Search Tips

**Herbert, Bruce** | Professor

[Single Page Bio](#)

✉ [beherbert@tamu.edu](mailto:beherbert@tamu.edu)  
☎ 1 979 845 1083

[Co-author Network](#)

[Map of Science](#)

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**Websites**

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- [Mendeley profile](#)
- [Evaluating postgraduate success of graduate students](#)
- [Scholar Plot of BE Herbert](#)

**ORCID**  
0000-0002-6736-1148

**Research Areas**

Science--Study and teaching, Communication in learning and scholarship, Research--Management, Open access, Academic-industrial collaboration, Soils--Quality, Education, Higher, Geochemistry, Libraries, Environmental education

**Twitter**

Tweets by @drbruceherbert

**Dr Bruce Herbert** @drbruceherbert

You can still register. Registration is free. Follow Rebecca's link. @VIVOccolab <https://twitter.com/RebeccaBryant18/status/1406962620884791305>

**Dr Bruce Herbert** @drbruceherbert

The sky towards the setting sun after a brief

Embed View on Twitter

**Youtube**

OpenSource TAM...

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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.

**Education And Training**

- Ph.D. in Soil Science, University of California, Riverside - (Riverside, California, United States) 1992
- M.S. in Soil Science, University of California, Riverside - (Riverside, California, United States) 1988
- B.A. in Chemistry, Colgate University - (Hamilton, New York, United States) 1982

**Selected Publications**

**Academic Articles** 51

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

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.



**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

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**Recent Publications:**

Lee, D. J., [Mutva](#), K., Herbert, B. E., & [Mejia](#), E. V. (2019). [Exploring Scholarly Impact Metrics in Receipt of Highly Prestigious Awards](#). *ADVANCES IN NEURAL NETWORKS - ISSN 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 Branched-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 Binder Aggregate Adhesion Varying with Temperature and Moisture](#). *Journal of Transportation Engineering Part B Pavements*. 143(3), 04017007-04017007. American Society of Civil Engineers (ASCE).

**Source:** Bruce Herbert's profile <https://scholars.library.tamu.edu/vivo/display/nf489b17d>

# Current Status: (Five years later)

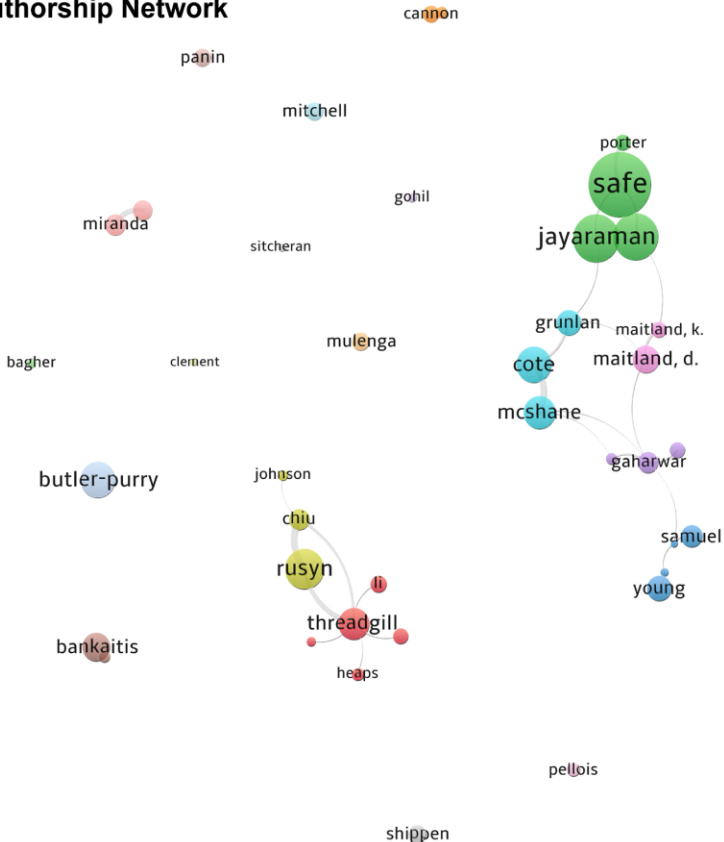
Scholars@TAMU features current expertise and research at Texas A&M

- ~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

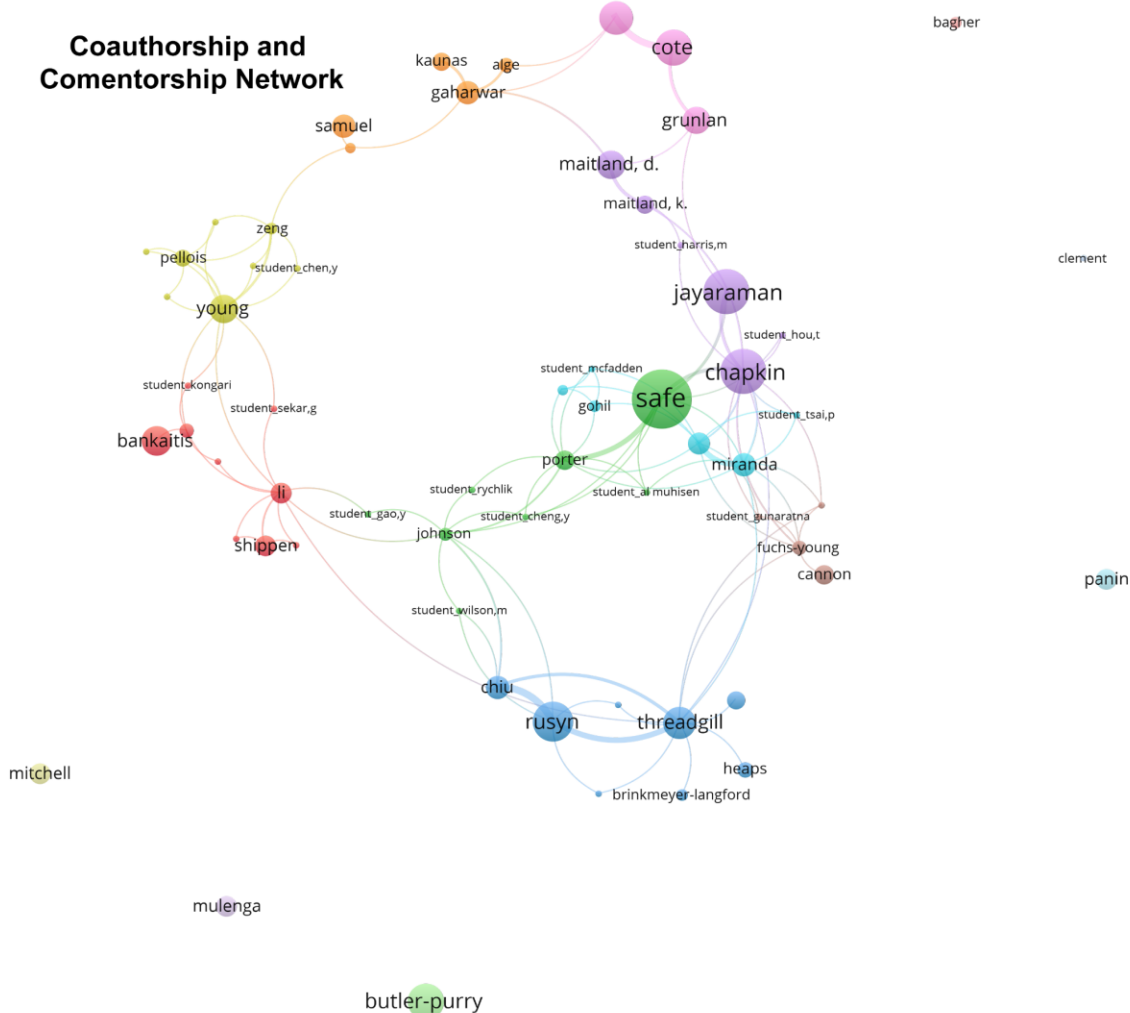
# Complementary Services

Clients: Principal Investigators for grant proposals

Coauthorship Network



Coauthorship and Comentorship Network



# Complementary Services

Clients: Administrators and Centers

## Strengths of water-, hydrology-related research in TAMU

Data source: Scholars@TAMU's publication database

Method:

- Identify TAMU researchers and papers in water-related topics
  - 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]
    - Pros:
      - Low chance of missing targeted papers (large number of papers)
    - Cons:
      - Term "water" is a broad term. This doesn't provide a meaningful result.
  - Identify all researchers who self-identified them as water (or hydrology) experts (search for their subject headings and research-overviews). [SELECTED]
    - Pros:
      - Low chance of including non-targeted papers (small number of papers)
    - Cons:
      - 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.

## Cluster Analysis of Water-related Research

- Search for water-related terms from the 243 researchers' papers (from titles and abstracts published in 2015-present)
  - Terms in the search query:
 

water..., hydrolog..., hydrogeo..., flood..., water contamination..., water policy..., water technol..., desalination..., aquifer..., KE..., weather..., aqueduct...,

Result: Identified 1181 papers

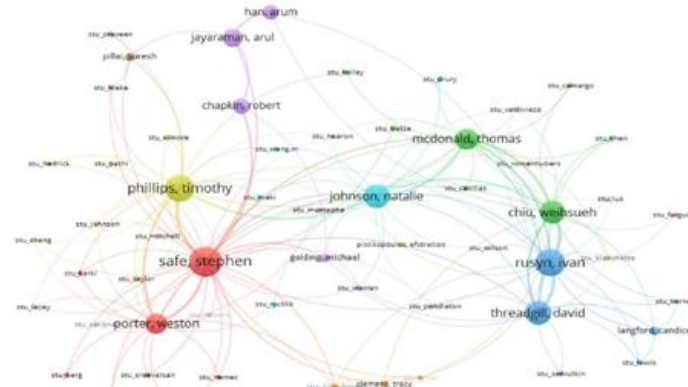
- Run cluster analysis using titles and abstracts
  - Result: Identified 9 clusters and generated their word clouds based on term frequency



### 4. Description of each cluster

Cluster	01	02	03	04	05	06	07	08	09
Name	Wastewater	Inigation	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	68
Avg. citation count	23	11	10	10	13	9	12	16	15
Authors' Seniority									
Authors' Disciplines									
Primary colleges	AgrLife, Public Health, Engineering	AgrLife, Engineering, Geosciences	AgrLife	AgrLife, Engineering, tamuGalveston	AgrLife, Engineering	AgrLife, Engineering, tamuGalveston	AgrLife, Engineering, Geosciences	AgrLife, Geosciences, Engineering, tamuGalveston	AgrLife, Engineering, Geosciences, tamuGalveston
Publication year									

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



## Co-authorship Network



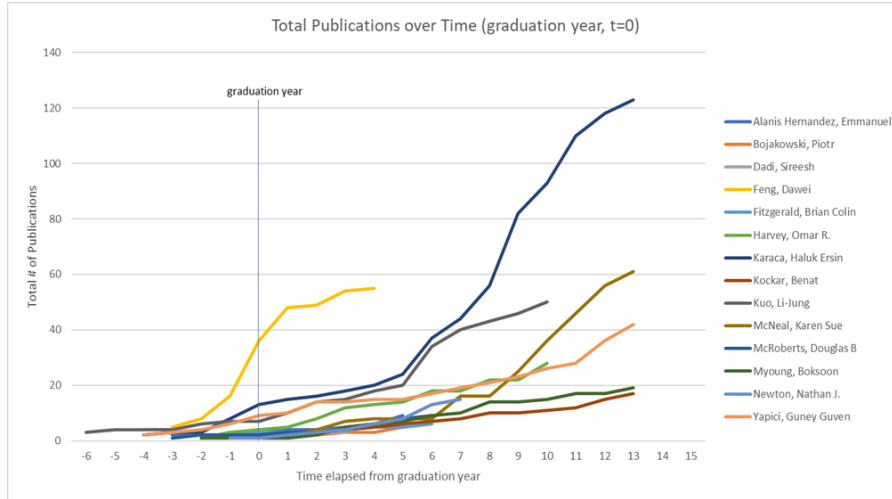
## Word Cloud of Journals Topics that Publish COM Research



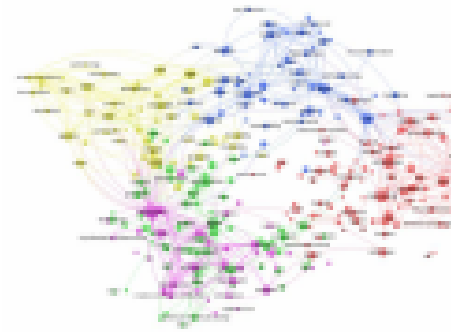


# Complementary Services

## Clients: Programs and Colleges



Keywords Network Visualization

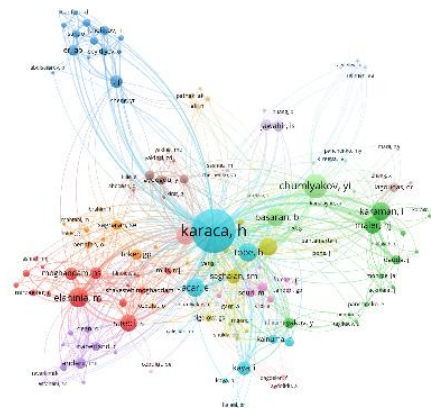


### Specialization for the students included in Pilot

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

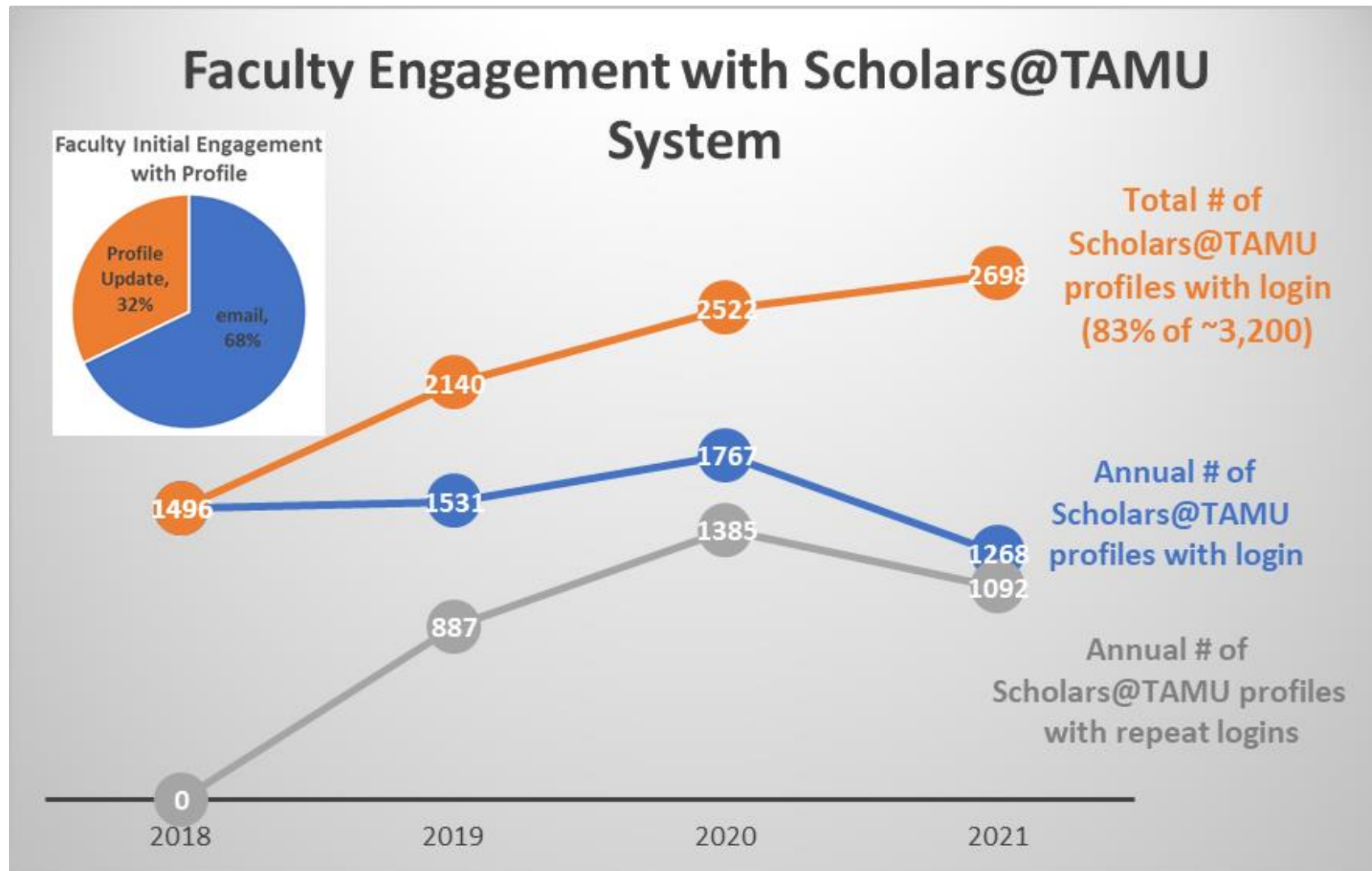
### Specialization for the students included

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)

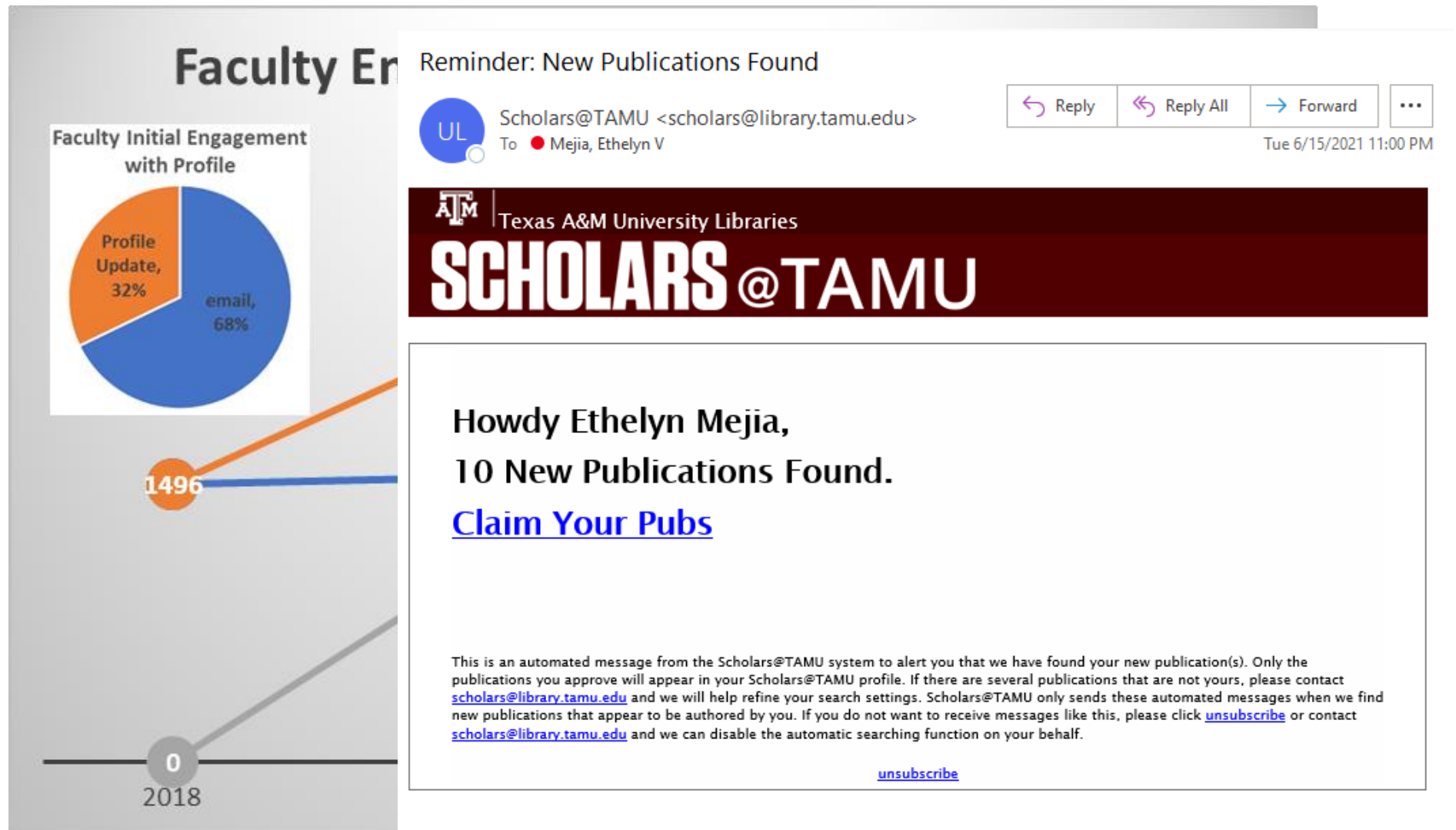


VCISaveover

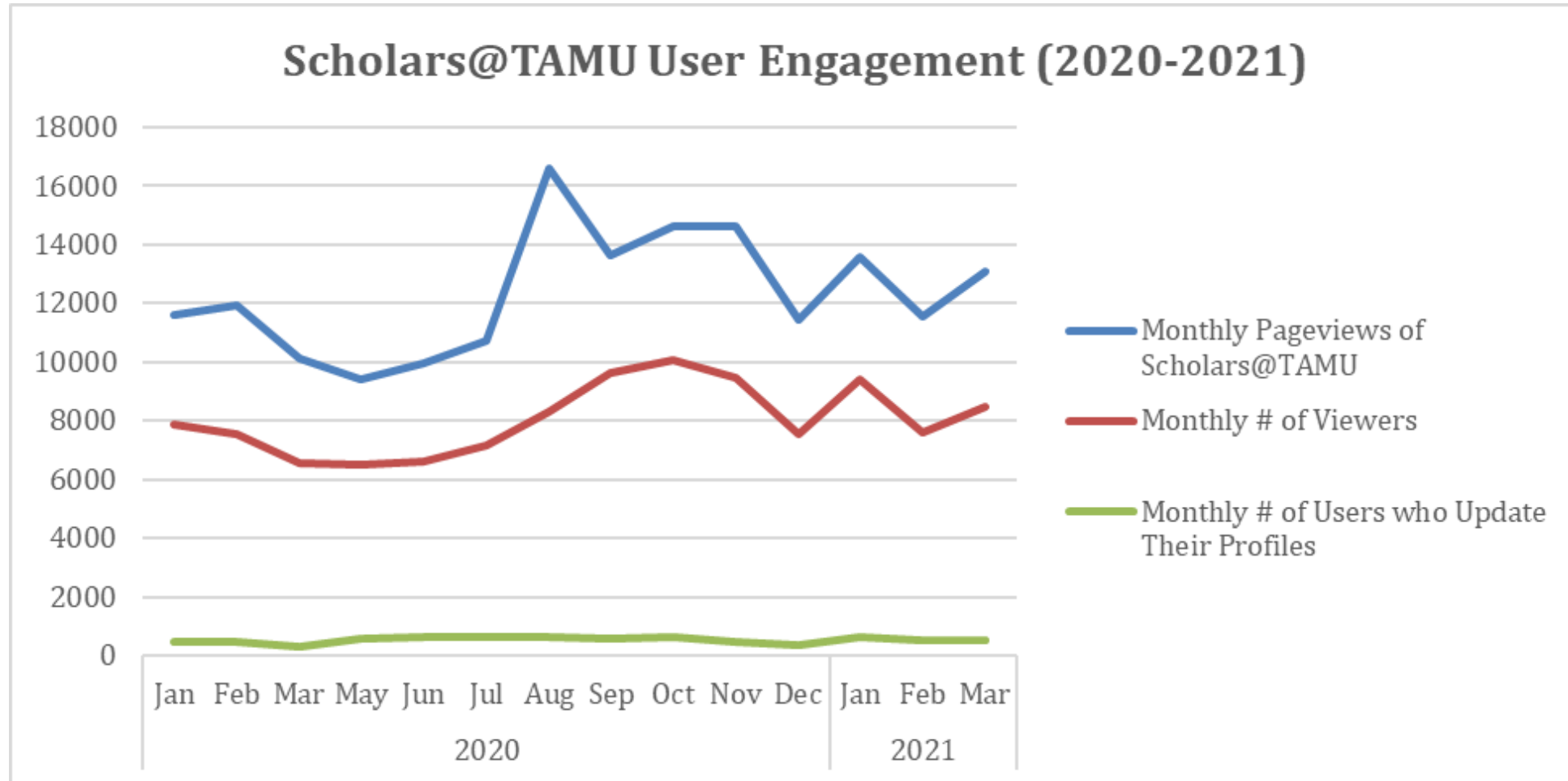
# Evaluation of Engagement with Scholars@TAMU



# Evaluation of Engagement with Scholars@TAMU

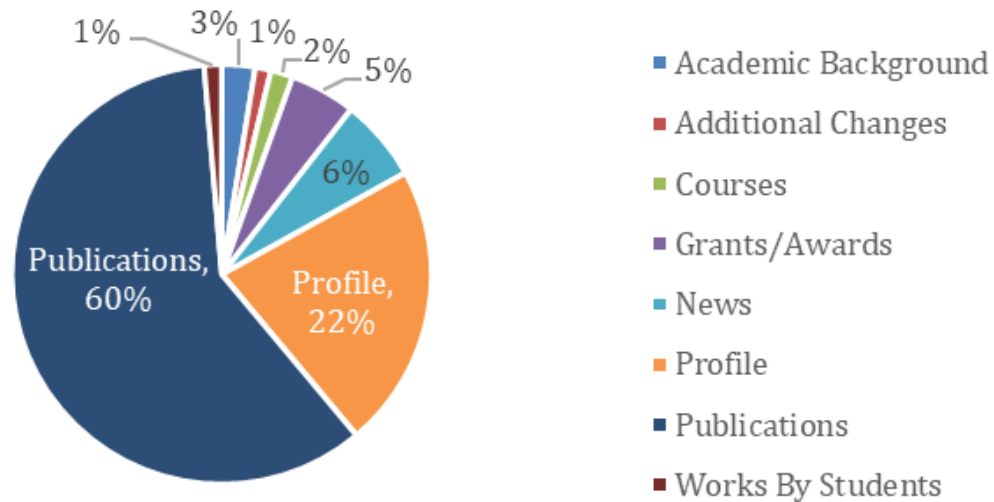


# Evaluation of Engagement with Scholars@TAMU

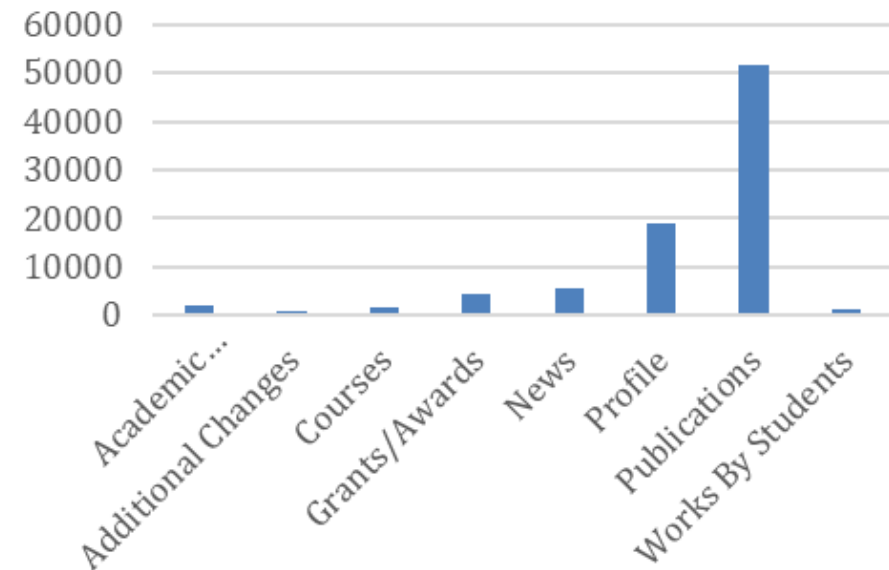


# Evaluation of Engagement with Scholars@TAMU

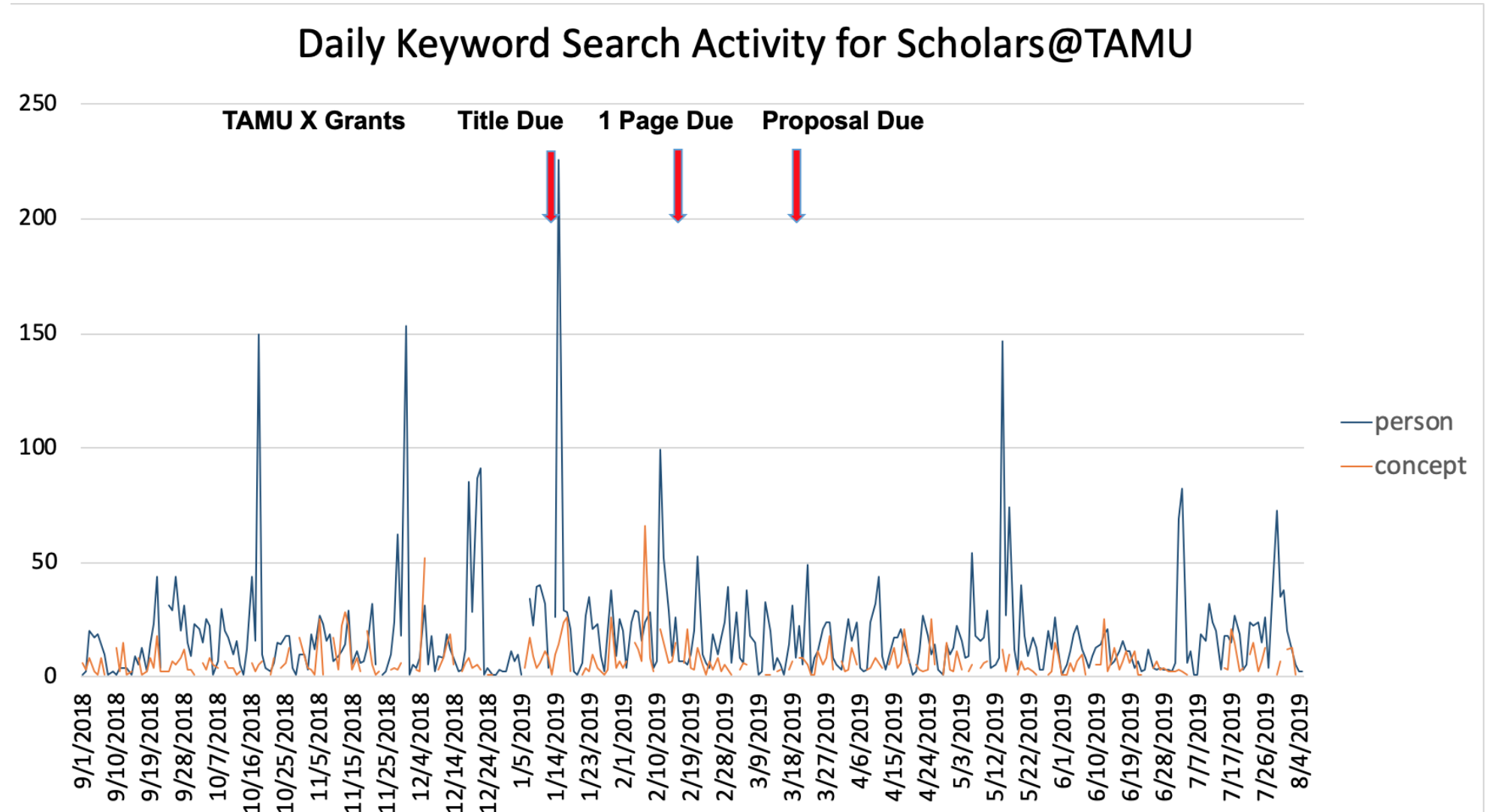
Faculty Engagement with Profile 2020-2021



#Actions in Editor Sections



# Interdisciplinary Research Teams



Clients: Principal Investigators

# 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?**

<http://scholars.tamu.edu/>

[ethel@library.tamu.edu](mailto:ethel@library.tamu.edu)