

Applicant Organization: Texas A&M University and Weill-Cornell Medicine	Amount: \$30,000
Proposal Title: Development of Research Intelligence Tools that Contribute to the VIVO Platform: An Open-Source Software Project	
Project Goal: Collaborative project to develop OSS that visualizes and analyzes research data from VIVO systems.	

Challenge & Need

Research information management (RIM) systems, including VIVO – the Lyris open-source RIM, are often coupled with other software to form an interoperable suite of tools that can meet emerging and significant academic organizations needs including enhancing scholarly reputation, supporting team science, and conduct research intelligence that transforms authoritative data in RIMs into actionable insights on organization research and its scholarly impact and societal relevance (Allio Michael, 2012; Fortunato et al., 2018). Unfortunately, there are limited open-source software (OSS) available to easily analyze and visualization VIVO data to support organizational reporting and research intelligence. This places VIVO, as one of the major RIM systems, at a disadvantage compared to commercial RIMs available from Elsevier and other publishers.

We are a collaboration between teams at Texas A&M University and Weill-Cornell. We proposed to expand upon existing projects to develop two OSS tools that utilize VIVO data for reporting and research intelligence that can contribute to existing VIVO instances. In addition, we anticipate that these OSS tools could also contribute to the VIVO-In-A-Box (VIAB) initiative of the VIVO community. The VIAB initiative is focused on developing a VIVO system that is easier to install and cheaper to implement. The VIVO community believes that reducing the complexity of establishing a VIVO instance should help recruit more institutions to the VIVO community.

Project Plan

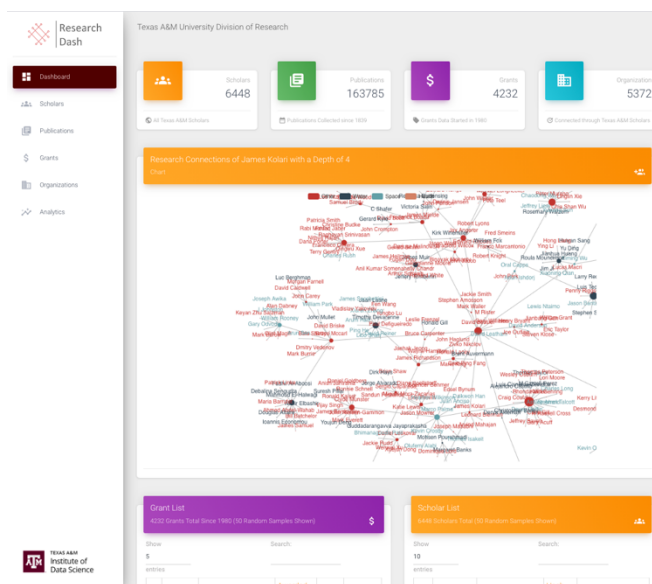
Texas A&M Project: Research Dashboard

There has been a long tradition of the development of research dashboards at academic institutions that seek to characterize an institution's research. These efforts, though, have been focused on benchmarking tools that just count publications or grants, often by organizational units. New tools that characterize and visualize emerging, interdisciplinary research across an institution are needed so that research intelligence can drive strategic decision making and enhance campus interdisciplinary research initiatives that seek to address societal grand challenges.

The University Libraries, the Institute of Data Science, and the Division of Research at Texas A&M are collaborating to develop a research dashboard that characterizes and visualizes important interdisciplinary research topics at Texas A&M such as water, space science, and human health based upon data from our VIVO system, Scholars@TAMU.

Our project has developed a prototype research dashboard (figure) and an algorithm that identifies researchers in different disciplines that are addressing important interdisciplinary questions in these three topics. Our goal is to develop a system that can identify strengths and gaps, major researchers, and trends in emerging research topics so that we can drive innovation across campus in order to meet the mission of a land grant institution where research serves society.

Texas A&M proposes to develop analysis and visualization features of our research dashboard that (1) characterize the conceptual range of interdisciplinary topics, (2) visualize the network of research and collaborators working on specific interdisciplinary topics, and (3) visualizes the trajectory or evolution of their work in terms of publications, grants and the impact of their work. Together, these tools should help us characterize Texas A&M's capacity, strengths and gaps in addressing major societal challenges through our research. Finally, we will conduct an evaluation of the dashboard through focus groups of different campus stakeholders to help us drive the development of our system.



Weill-Cornell Project: Publication Reporting Tool

Academic institutions regularly need to report on and analyze publication output by their scholars. Unfortunately, academic institutions often lack access to open source, easy-to-use tools required to fulfill these requests, especially tools that draw their data from RIM systems – especially VIVO.

Weill Cornell Medicine (WCM) has developed an open-source system, ReCiter, for curating publication lists. WCM has developed expertise in publication reporting. We field dozens of publication report requests a year, using publication data as follows:

bibliometrics summaries of faculty going up for tenure review and candidates for department chair; citation impact analyses;

TrendingPubs report, a monthly report sent to deans, chairs,

External Affairs, etc. listing the pubs which have generated the most scholarly interest in the previous month as evidenced by activity in AltMetric; NewPubs report, a monthly report of any publications in past month up until yesterday by faculty, students, etc. (n=3,000); sent to deans, chairs, External Affairs, etc.; mentorship publication activity reports.

WCM proposes to (1) update ReCiter to allow for output of publication lists according to according to nine criteria including author filters (author name, organizational affiliation, institutional affiliation, person type, rank / position) and article filters (date, publication type, journal, journal rank); and (2) detail a set of bibliometric reports, consistent with best practices, to be included in a future version of Publication Manager.

Software Sustainability Plan

To sustain our OSS, we plan on incorporating the developed systems into the VIVO-In-A-Box initiative.

References

Allio Michael, K. 2012. Strategic dashboards: designing and deploying them to improve implementation: Strategy & Leadership: 40(5):24-31.

Fortunato, S., Bergstrom, C. T., Börner, K., Evans, J. A., Helbing, D., Milojevi, S., Petersen, A. M., Radicchi, F., Sinatra, R., Uzzi, B., Vespignani, A., Waltman, L., Wang, D., and Barabási, A.-L. 2018. Science of science: Science: 359(6379): eaa0185.

Principal Investigators

The project principal investigators include Dr. Bruce Herbert, Director, Office of Scholarly Communications, Texas A&M University; and Terrie R. Wheeler, AMLS, Director, Samuel J. Wood Library and C.V. Starr Biomedical Information Center, Weill Cornell Medicine. Other personnel at Weill-Cornell include Sarbajit Dutta, Senior Software Developer, and Paul Albert, Identity and Access Management Architect. Other personnel at Texas A&M include Jack Baldauf, Senior Associate Vice President for Research; Jian Tao, Computational Scientist, High Performance Research Computing; and Nick Duffield, Director, Institute of Data Science.

Budget.

Line	Basis	Cost
Travel to the LYRASIS Member Summit for PIs	As provided by LYRASIS	\$2,400
Weill-Cornell Budget		
Web application developer	Salary, at 30% for 3 months	\$12,000
Librarian	Salary, at 100% for 5 days	\$1,800
Texas A&M Budget		
Graduate Student	Salary, at 20 hours per week for 24 weeks	\$12,800
Computer Supplies	Visualization and network analysis software	\$1000
Total Budget Request		\$30,000

