

VIVO Strategy Meeting

March 1, 8:30 - 5:30 in A103 Erwin Mill, Duke University, Durham NC

Guiding principles

- This meeting will be a hands-on, working session in which we're jointly creating a detailed plan for the next twelve months. Please be prepared to get "in the weeds" and discuss individual tasks and timelines.
- We need to put together a workable strategy for the next year, so all high-level discussions should be directly applicable to our activities for the next year.
- Longer-term thoughts and ideas will be added to the parking lot document.
- All participants will get equal time to speak in multiple discussion sessions, but we will avoid "free-for-all" discussions. Questions for clarification are always welcome, and there are no stupid questions.
- Only invitees can submit a response to the VIVO Priorities Poll, including each member of the Steering Group, the Leadership Group, and invited guests.

Meeting objectives and deliverables

- To present the current state of the project and changes planned in the immediate future
- To hear feedback from members and supporters
- To gain consensus on VIVO's goals for the next 12 months and gather commitments to contribute to those goals
- **To develop an actionable, measurable project plan for the next 12 months, with resources: a short-term action plan for VIVO.**

Project status materials

These materials will be distributed to all participants on Thursday, February 22:

- Strategy meeting agenda and deliverables
- Strategy meeting participants
- VIVO milestones 2015 -2018
- Tracking data (sites, members, list counts)
- Membership history (2015-2017 and plans for 2018)
- Budgets (2018 proposed, 2017, 2016, 2015 actuals)
- VIVO conference summary 2015- 2018
- Community input
- VIVO technical initiatives
- Proposed VIVO governance changes
- Revised Duraspace membership model
- VIVO work
- Roles in VIVO and how to get involved

Agenda

	8:00	Coffee and tea
1	8:30	Introductions and ground rules (Julia and Heather)
2	9:00	Current status of VIVO (facilitated by Mike) <ul style="list-style-type: none"> Review the project status materials
3	9:30	Discussion of the current status of VIVO: questions and reactions (facilitated by the Heather) <ul style="list-style-type: none"> Discussion in rounds, passing the microphone (alpha order)
	10:15	Fifteen-minute break
4	10:30	Determine goals: present results of VIVO priorities poll (facilitated by Dean) <ul style="list-style-type: none"> Discussion in rounds with microphone (reverse alpha order) Re-visit the poll Deliverable: goals for next twelve months ranked by priority
5	11:15	Create measurable objectives (facilitated by Debra) <ul style="list-style-type: none"> Participants add objective to goals using post-it notes on flip charts Deliverable: proposed measurable objectives for short-term goals
	12:00	One-hour break with lunch provided
6	1:00	Propose the short-term action plan format (facilitated by Julia) <ul style="list-style-type: none"> Presentation of proposed format of plan for next 12 months Essential components Request for four to six volunteer coordinators of short-term action plan, aka “action planners”
7	1:15	Assess goals and objectives for the short-term action plan (facilitated by Julia) <ul style="list-style-type: none"> Review of objectives on flip charts Hear feedback about objectives, which are attainable, how to revise (line up at standing microphone) Seek agreement on measurable objectives by show of hands Deliverable: consensus on measurable objectives for the highest priority goals
	2:15	Fifteen-minute break
8	2:30	Group planning session (facilitated by action planners)

		<ul style="list-style-type: none"> ● Break into self-organizing groups for each high-priority goal ● Led by action planners ● Determine steps for moving forward: who can contribute, who's doing which tasks, how will you work, when will you meet, etc. . ● Deliverable: Next steps necessary to assemble plan for the Leadership meeting at the DuraSpace Summit
9	4:00	Report out: action planners share group discussion and plans with larger group
10	4:30	Review: assess internal strengths and weaknesses, external opportunities and threats -- volunteer to follow up (facilitated by Mike) <ul style="list-style-type: none"> ● Discussion by rounds ● Deliverable: follow-up items
	5:30	Adjourn

Conducting the meeting to include remote participants

- The meeting room will have a camera and a microphone so that remote participants can see and hear those who are speaking.
- To enable remote participants to hear, all participants should speak only with a microphone.
 - During discussions in rounds, we will be calling on everyone in alpha order by their first name. In order to accommodate everyone, the moderator will set a time limit for each speaker and keep track of time.
 - During the flip chart session, remote participants will be able to add their ideas to a google doc. The remote moderator will add those to the flip charts and take photos of the charts to post on the google drive.
 - During the standing mike session, remote participants can raise their hands and the remote moderator will place them in the queue so that they can speak.
 - During the group sessions, remote participants can let the remote moderator know which group they'll join. The plan coordinators can connect with the remote participants during the group meeting.

Meeting roles

The **moderator** explains the ground rules and reminds us when we need to stick to them. At the beginning of every session, the moderator explains how the discussion will work. The moderator keeps track of time, including the general time limit of individuals. The moderator returns the meeting to order if necessary.

Each session has a **facilitator** that either presents the material or gives examples of the kind of feedback we need in the session. Facilitators act as the subject matter experts.

Note takers are responsible for taking notes on a Google doc during the meeting. We can record the meeting for our own purposes if we'd like.

The **remote moderator** monitors the web meeting instance.

Participants provide feedback, thoughts and ideas, and determine how they can contribute to the plan going forward.

The role of the action planners

We propose creating a small group of people to help coordinate the objectives and tasks for each goal in the short-term action plan, the “action planners.”

The action planners are not responsible for doing all the work, but rather, for coordinating the efforts of the volunteers who'll contribute to the work. The action planners role is to:

- Choose one of the strategic goals and coordinate the group planning session from 2:30 - 4:00 at the strategy meeting.
- Ask each group member to discuss whether they can contribute to the goal and what they can contribute.
- Form a task force with interested group members and agree on tasks necessary to meet the stated objectives.
- Agree on methodology for create and track a project plan for achieving the objectives that were identified in the meeting.
- For each task, assign a responsible person and a target completion date.
- Meet weekly with the other action planners to report on progress. Follow up with task force members on status of tasks and update the project plan.
- Update the task force wiki page regularly and report out at the Leadership group meetings and through other reporting mechanisms as determined.

Action planners should plan to dedicate two to three hours per week to this role. This role requires some scheduling flexibility so it may not be suitable for top-level administrators. Action planners should be comfortable following up with task force members on the progress of their tasks and alert the action plan group of potential risks to their projects. The action plan group should be prepared to assist each other as necessary to keep projects on task.

Strategy Meeting Participants

who	affiliation	type	email	attendance	participation
Alex Viggio	University of Colo	Steering	Alex.Viggio@colorado.edu	Yes	In person
Andi Ogier	Virginia Tech Uni	Steering	alop@vt.edu	Yes	In person
Andrew Woods	DuraSpace	team	awoods@duraspace.org	Yes	Remote
Ann Beynon	Clarivate	Leadership	ann.kushmerick@Clarivate.com		
Benjamin Gross	Clarivate	guest	benjamin.gross@clarivate.com	Yes	In person
Bruce Herbert	Texas A&M	guest	beherbert@library.tamu.edu	Yes	In person
Daniel Hook	Digital Science	guest	d.hook@digital-science.com	Yes	In person
Dave Eichmann	University of Iowa	guest	david-eichmann@uiowa.edu	No	
Dean B. Krafft	Cornell University	Steering and Lea	dean.krafft@cornell.edu	Yes	In person
Debra Hanken Kurtz	DuraSpace	team	dkurtz@duraspace.org	Yes	In person
Dong Joon (DJ) Lee	Texas A&M Univ	Steering	leedjoon@gmail.com	Yes	In person
Eric Meeks	University of Cali	Steering	eric.meeks@ucsf.edu	Yes	In person
Hannah Sommers	George Washing	Leadership	hsommers@email.gwu.edu	Yes	remote from 9:30 am
Jean Rainwater	Brown University	Leadership	jean_rainwater@brown.edu	Yes	remote with Steve McCauley and Hector Correa
Joe Zucca	University of Pen	Leadership	zucca@upenn.edu	Yes	remote from noon to 5:30
Jonathan Breeze	Symplectic	guest	jonathan@symplectic.co.uk	Yes	remote from 9 to 2
Julia Trimmer	Duke University	Steering and Lea	julia.trimmer@duke.edu	Yes	In person
Julie Griffin	Virginia Tech Lib	Leadership	gjulie@vt.edu	No	
Kristi Holmes	Northwestern	guest	kristi.holmes@northwestern.edu	Yes	In person
Lauren Gala	University of Pen	Steering	milaur@upenn.edu	Yes	In person
Mark Newton	Columbia Univer	Steering	mnewton@columbia.edu	Yes	In person
Michael Bolton	Texas A&M Univ	Leadership	michael.bolton@tamu.edu	Yes	In person
Mike Conlon	VIVO	team	mconlon@duraspace.org	Yes	In person
Paul Albert	Weill Cornell Med	Steering	palbert1@gmail.com	Yes	In person
Richard Outten	Duke University	guest	richard.outten@duke.edu	Yes	In person
Robert Cartolano	Columbia Univer	Leadership	rtc@columbia.edu	Yes	In person
Sandy Payette	Cornell University	guest	sdp6@cornell.edu	Yes	remote from 8:30 - 11 and 1 - 4:30
Terrie Wheeler	Weill Cornell Med	Leadership	tew2004@med.cornell.edu	Yes	In person
Tom Cramer	Stanford Univers	Leadership	tcramer@stanford.edu	No	
Damaris Murry	Duke University	note taker	damaris.murry@duke.edu	Yes	in person
Mitch Melkonian	Duke University	remote moderatc	mitchell.melkonian@duke.edu	Yes	in person

VIVO Milestones 2015-2018

2015

- March Mike starts as Project Director
- March VIVO Implementation Fest, Portland
- March VIVO Governance at Duraspace Summit, Washington DC
- April VIVO Updates begins
- May VIVO 1.8.0 release
- August VIVO Conference, Boston
- September Graham Triggs starts as technical lead
- September German VIVO workshop, Hannover
- September OpenRIF founded to coordinate ontology
- September SHARE/VIVO grant awarded, Conlon and Garcia-Castro
- October Community wiki overhaul, VIVO Google Groups established
- November VIVO 1.8.1 release, major performance improvements, Flash retired
- November New VIVO website

2016

- January Interest Groups established
- January Committers group established
- January Jon Corson-Rikert retires from Cornell
- March VIVO Governance at Duraspace Summit, Washington DC
- April OpenVIVO launched at Force11, Portland
- May VIVO User Group Meeting, Chicago
- August VIVO 1.9.0 release. Maven, Capability Map, SEO, performance
- August VIVO Conference, Denver
- September VIVO Documentation wiki substantially complete
- September German VIVO workshop, Hannover
- October VIVO 1.9.1 release, bug fixes, performance
- October VIVO data packages
- November Danish VIVO workshop, Copenhagen

2017

- February VIVO 1.9.2 release, bug fixes
- April VIVO Camp, Albuquerque
- April VIVO Governance at Duraspace Summit, Albuquerque
- August VIVO Conference, New York City

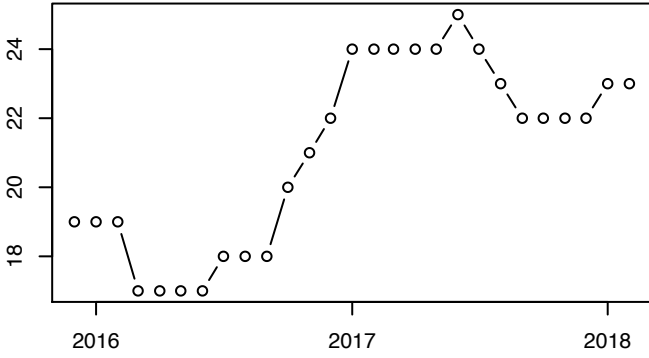
- August Indian VIVO workshop, Gandhinagar
- September Danish VIVO workshop, Copenhagen
- September German VIVO workshop, Hannover
- September CD2H grant awarded, Haendel, Holmes, and Eichmann
- October VIVO Camp, Durham
- October VIVO 1.9.3 release, ORCID 2.0 API
- December Graham Triggs leaves Duraspace

2018

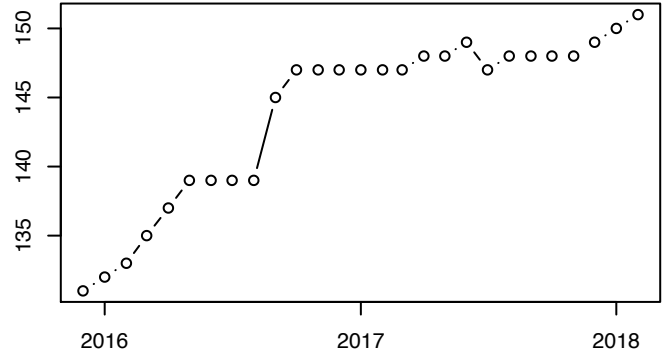
- February Mike steps out of Duraspace, continues with VIVO
- February Research Graph / Hosted VIVO pilot announced
- February VIVO on the Blockchain grant awarded, Conlon and Garcia-Castro
- **March** **Strategy meeting, Durham**
- *April* *VIVO Camp, San Diego*
- *April* *VIVO Governance at Duraspace Summit, San Diego*
- *May* *VIVO 1.10.0 release (tentative), upgraded dependencies, TPF*
- *June* *VIVO Conference, Durham*
- *September* *German VIVO workshop, Hannover*
- *October* *Danish VIVO workshop, Copenhagen*
- *November* *VIVO Camp, TBA*

VIVO Tracking Data Dec 1, 2015 through Feb 1, 2018

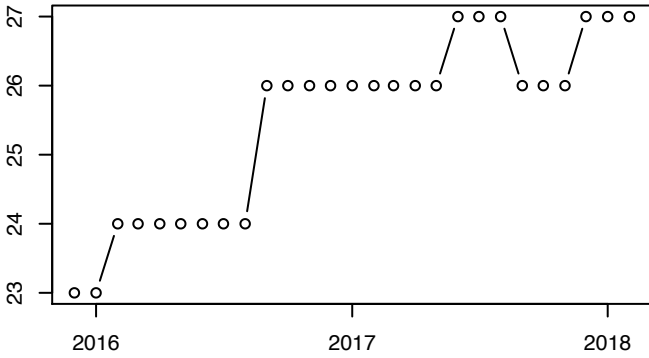
Members



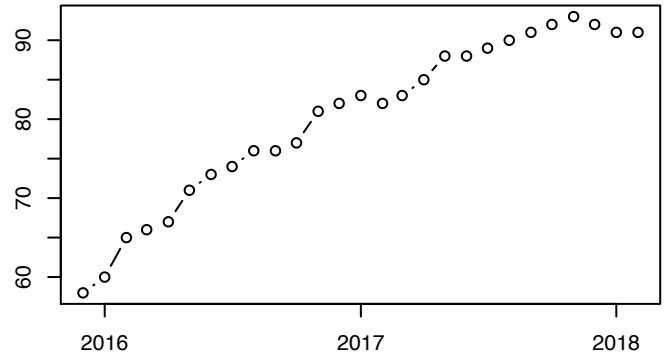
Sites



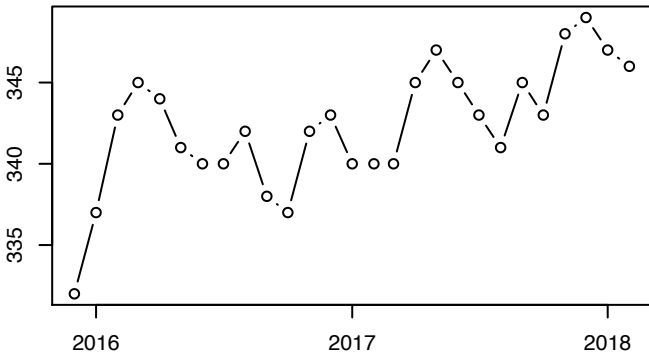
Countries



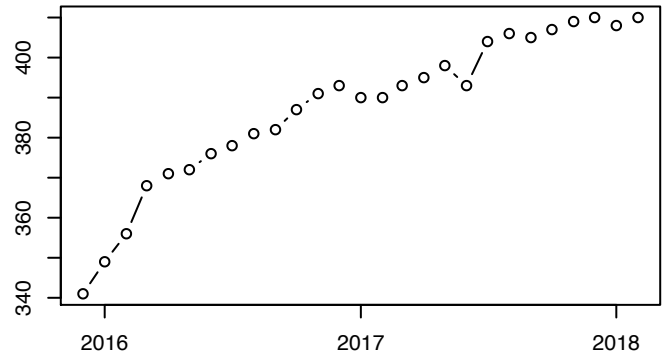
Subscribers to vivo-all



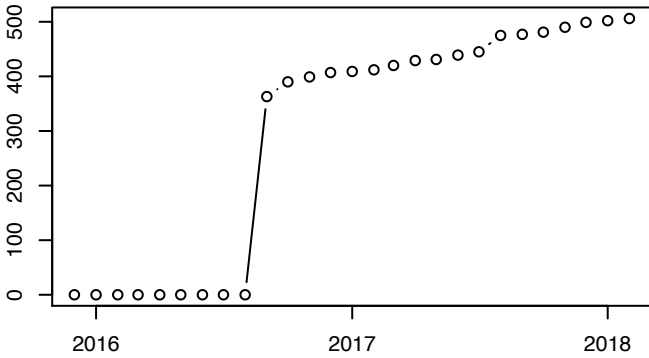
Subscribers to vivo-community



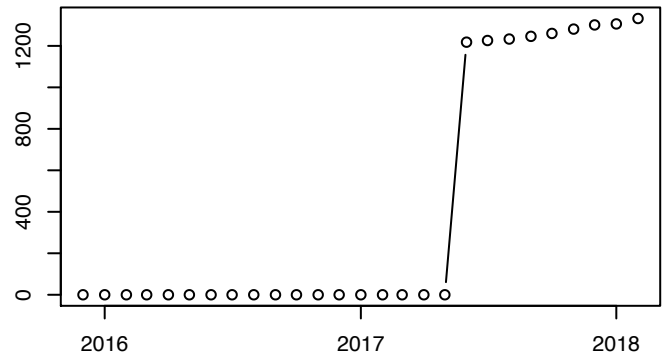
Subscribers to vivo-tech



OpenVIVO users



Twitter followers



VIVO Membership in Duraspace, 2013-2018

	2013-14	2014-15	2015-16	2016-17	2017-18
American Psychological Association	Platinum	Bronze	Bronze	Bronze	Bronze
Brown University	Gold	Gold	Gold	Gold	Gold
CINECA	n/a	n/a	n/a	n/a	Silver
Columbia University	n/a	Gold	Gold	Gold	Gold
Cornell University	n/a	Bronze	Bronze	Gold	Gold
Darthmouth College	n/a	n/a	n/a	Bronze	Bronze
Digital Science/Symplectic	Corporate Sponsor	Corporate Sponsor	Corporate Sponsor	lost	lost
Duke University	Platinum	Platinum	Platinum	Platinum	Platinum
East Carolina University, Joyner Library	n/a	n/a	Other	Other	Other
Elsevier	n/a	Corporate Sponsor	lost	lost	lost
George Washington University	n/a	Bronze	Bronze	Bronze	Other
German National Library of Science and Technology (TIB)	n/a	n/a	n/a	n/a	Bronze
Griffith University	Platinum	Platinum	Platinum	lost	lost
Indiana University Bloomington	Platinum	Silver	lost	lost	lost
La Trobe University	n/a	n/a	Other	Other	Other
Memorial University of Newfoundland	Bronze	Bronze	Bronze	Bronze	lost
Oregon Health & Science University Library	Bronze	Bronze	Bronze	Bronze	lost
Stanford University	n/a	n/a	n/a	Silver	Gold
Technical University of Denmark	n/a	n/a	Bronze	Bronze	Bronze
Texas A&M Libraries	n/a	Platinum	Platinum	Platinum	Platinum
Thomson Reuters/Avedas AG/Clarivate Analytics	n/a	Platinum	Corporate Sponsor	Corporate Sponsor	Corporate Sponsor
U.S. Department of Agriculture, National Agricultural Library	n/a	Platinum	lost	lost	lost
UCAR/NCAR	n/a	Platinum	lost	Bronze	lost
University of California San Francisco	n/a	n/a	n/a	Bronze	lost
University of Florida	Platinum	Platinum	Gold	Bronze	Bronze
University of Idaho	n/a	n/a	n/a	Bronze	Bronze
University of Melbourne	n/a	Platinum	Platinum	Platinum	lost
University of New Mexico	n/a	n/a	n/a	Silver	Silver
University of Oklahoma Libraries	n/a	n/a	Other	Other	Other
University of Pennsylvania	Platinum	Platinum	Platinum	Platinum	Platinum
University of Quebec Montreal	n/a	n/a	n/a	Bronze	Bronze
Virginia Tech	Platinum	Platinum	Platinum	Platinum	Platinum
Weill Cornell Medical College	Platinum	Platinum	Platinum	Platinum	Platinum
Total number of members	12	21	21	26	23

VIVO Budgets 2013-2018

	Revenue	2013	2014	2015	2016	2017	2018	2018 Notes
1	Membership	\$175,000	\$308,334	\$239,084	\$228,250	\$189,083	\$209,083	Based on 2017 actuals plus invoiced, Other prospects \$10k.
2	Service Provider Program	\$33,576	\$0	\$1,000	\$500	\$500	\$12,500	100% of the current opportunities for Certified Service Provider Program (\$2250 plus a 10%)
3	Grants	\$0	\$0	\$15,000	\$0	\$0	\$0	Possible Mellon planning grant for Harvester not included.
4	Training/Education	\$0	\$0	\$0	\$0	\$25,314	\$13,000	\$8k training revenue, \$5k VIVO conference revenue.
5	Other Income	\$40	\$16	\$3	\$0	\$0	\$0	Research Graph pilot income not included
6	In-kind	\$0	\$0	\$83,333	\$100,000	\$124,000	\$0	Conlon contribution removed
7	Total Revenue	\$208,616	\$308,350	\$338,420	\$328,750	\$338,897	\$234,583	
	Expense	2013	2014	2015	2016	2017	2018	2018 Notes
8	Direct Project Salary & Benefit	\$102,432	\$222,607	\$298,757	\$190,943	\$200,098	\$42,851	25% of Andrew for VIVO tech facilitaton, '15, '16, '17 includes Conlon
9	Direct Additional Salary & Benefit	in row 13	in row 13	in row 13	\$76,488	\$17,688	\$32,071	8% of Michelle (VIVO membership), 5% of Debra (VIVO), 7% of Erin (VIVO Research Graph)
10	Direct Contractor Services	\$99,762	\$49,919	\$136,171	\$3,455	\$3,425	\$98,000	\$3k for VIVO website mtn/admin, \$95K to be allocated
11	Direct Cloud Storage & Comput	\$2,470	\$2,275	\$1,491	\$0	\$0	\$1,000	OpenVIVO expenses
12	Direct Office Expenses	\$9,291	\$10,649	\$8,715	\$14,491	\$14,215	\$3,000	Bad debt write off and office expenses.
13	Direct Travel	\$13,967	\$22,126	\$23,418	\$18,618	\$23,029	\$20,000	Project travel
14	Direct Marketing & Meetings	\$2,623	\$7,334	\$5,086	\$522	\$4,394	\$3,475	VIVO Camp expenses
15	Direct Miscellaneous	\$1,011	\$57	\$1,409	\$1,308	\$1,539	\$1,000	Computer depreciation for staff on VIVO
16	Indirect Salary and Benefits	in row 13	in row 13	in row 13	\$64,885	\$104,376	\$23,577	Indirect salary & benefits for DuraSpace business functions
17	Indirect Expenses	in rows 16-21	in rows 16-21	in rows 16-21	\$39,048	\$43,512	\$9,308	Indirect expenses for Duraspac business functions
18	Total Expenses	\$231,556	\$314,967	\$475,047	\$409,758	\$412,276	\$234,282	
19	Net Revenue	-\$22,940	-\$6,617	-\$136,627	-\$81,008	-\$73,379	\$301	

VIVO Conference Summary 2015-2018

2015 -- Marriott, Boston, MA

- Conference Chair -- Kristi Holmes, Northwestern University
- Program Chair -- Melissa Haendel, Oregon Health Science University
- Logistics -- Designing Events
- Keynote -- David Weinberger, Harvard
- Keynote -- James Onken, National Institutes of Health
- Attendees 184
- Net revenue \$1K

2016 -- Marriott, Denver, CO

- Conference Chair -- Julia Trimmer, Duke University
- Program Chair -- Manuel de la Cruz Gutierrez, University of Pennsylvania
- Logistics -- Designing Events
- Keynote -- Soren Auer, TIB Hannover
- Keynote -- Dario Taraborelli, Wikidata
- Attendees 143
- Net revenue (\$44K)

2017 -- Weill Cornell Medicine, NYC, NY

- Conference Chair -- Alex Viggio, University of Colorado
- Program Chair -- Violeta Ilik, Northwestern University
- Logistics -- Terrie Wheeler, Weill Cornell Medicine
- Keynote -- Christina Patuelli, Pratt Institute
- Keynote -- Jodi Schneider, University of Illinois
- Attendees 158
- Net revenue \$18K

2018 -- JB Duke Hotel, Durham, NC

- Conference Chair -- Paul Albert, Weill Cornell Medicine
- Program Chair -- Eric Meeks, University of California San Francisco
- Logistics -- Julia Trimmer, Duke University
- Keynote -- Warren Kibbe, Duke University
- Keynote -- Griffin Weber, Harvard University
- Attendees TBA
- Net revenue TBA

Community Input

Community input was solicited and received from January 28 to February 19, via Google Forms, VIVO Slack, email, and an open Google Doc. The comments below are the result of merging comments from these various channels.

The VIVO community will face fundamental challenges in the near future. On the one hand, organizational processes have to be redesigned in a new and sustainable way. This is already being tackled in a very promising way.

On the other hand, some points in the software are simply not good enough. Topics such as data ingest or role management should be mentioned here. I hope that a way can be found here to find resources with the help of the community. Perhaps through coordinated third-party funded projects?

The overhead cost of Duraspace is unsustainable. VIVO has no voice in the Duraspace fee structure or what is charged to the project.

1. The most important thing is that VIVO needs to be a more compelling product.
2. A compelling product is software that is visually and functionally appealing to non-technical decision-makers.
3. Sharing scholarly data using best semantic practices is only compelling to a niche constituency, probably not enough to fund a non-profit foundation over a long period of time.
4. The VIVO initiative started at a time when many sites did not have robust faculty management tools, workflows, and practices. As a result, the scope of VIVO was very ambitious. It was and is: a public-facing researcher profile system, a semantic indexer, data store, set of data retrieval tools, syndication tool. At one point, it even used to be a disambiguation tool.
5. Relative to other projects, customizing code in one component required a great deal more background knowledge about how the different components of VIVO interacted with one another. For example, front end developers couldn't re-theme VIVO without understanding the semantic data model. This higher barrier for entry delayed progress in delivering improvements to the product.
6. A second consequence of the VIVO project being relatively large is that a given implementer's expertise in any one area was limited, so there wasn't all that much development progress in one area.
7. In the absence of meaningful development, there was been a vacuum.
8. A portion of this vacuum has been filled by custom development at individual sites. Melbourne built a custom research management system and moved their VIVO data store (for performance reasons) to Oracle. Duke and Brown have built custom front ends. One would hope and expect that a lot of these developments done at individual sites would be rapidly incorporated and adopted by other sites, but this hasn't happened as much as it should have. (See #5.)
9. Another portion of the vacuum has been filled by commercial systems, which manage data about faculty, publish faculty profiles, or both.
10. In order to be viable as a product and a community, we need to think critically about VIVO as a set of distinct components, some of which will become part of a core and others of which we will no longer support, especially because there is some compelling alternative.
11. There are two areas where the existing VIVO core product is being eclipsed by commercial and custom solutions: as a profile manager and as a public-facing researcher profile system.
12. Some sites count on VIVO for one or both of these functions, but this is only because they have to. If and when they become mature, they will buy commercial or build custom profile management tools (Elements, Pure, Converis, Opus). And, they will buy commercial or build read-only public-facing researcher profile systems (Pure, whatever Symplectic is building).
13. We should consider dropping support for profile management and as a public-facing researcher profile system from VIVO Core. Instead, we should focus more on *facilitating* these functionalities.
14. The requirement that data needs to be editable in VIVO itself has significantly inhibited progress. Continuing to support that functionality delays contributions.

15. Instead of supporting a public-facing researcher profile, development of VIVO core should be focused more on sharing data in formats such as JSON that are easy for front end developers to use. A subgroup of interested VIVO sites could build a read-only public-facing profile system that retrieves data from an index optimized for performance (e.g., Elastic Search).

16. We should further investigate how we can best decompose VIVO core into a set of smaller services to make it easier to understand and improve.

17. By all accounts, the Fedora 4 refactoring was a success. I did not participate in this effort, but I bet the re-architecting was driven by technical people - not managers. (I consider myself to be more of a manager.)

18. Complaints by manager types are not going to solve what ails VIVO. If that's the only group that is going to attend the Strategy Meeting, I will be at least somewhat disappointed.

19. I have been to a number of meetings about the future of VIVO. On good days, they are pitched as "Let's dream up a better version of VIVO." On bad days, they are marketed as "VIVO is in trouble!" Sometimes we talk about not tweeting enough. Other times we talk about governance. These complaints are worth something, but none are as important to me as the architecture of a better product. And you can't build a better product without fully engaged technical people who are given the explicit charge to re-architect VIVO.

Paul Albert, Weill Cornell Medicine

Introducing new functionality or attempting to modify existing functionality is overly complex and involved. The overall design and implementation of the system requires that any change be understood against the system as a whole (the generic/abstract component design means that a change might affect several screens). The technology stack and design is difficult for new developers to understand (not using transferrable/current/common web technologies).

The benefits of adding and maintaining data in graph/RDF format are not immediately obvious and impose another learning curve with respect to 'general' web development. When the main use is the presentation of a 'profile' and related information, the potential use of the graph data is not evident.

Bespoke development work is generally required to integrate the VIVO instance with the institutional data source (we spent some time developing an automated data manager system that uploads/modifies new data and provides reporting/data integrity checks). This process was further complicated due to the fact that certain elements of profiles could be edited by the profile owner, while other elements were automatically uploaded via our data manager system.

The overall performance of the system is of general issue - especially when an editor wants to add a lot of data to their profile. Further, the setup of the API enforces that one piece of data

be added a time. These two issues combined result in a poor user experience. We decided to develop a new editing process for one of our extensions that allowed the user edit and save multiple pieces of data at once and utilised JSON and an extension to the API for storing the data.

Overall configuration and management of the system is difficult - it would be useful if the management screens allowed full control over what pages are presented and how. For instance, even though some of the 'Group' pages may be turned off/not included in menus, it is still possible for the user to access these pages by digging into the links available at a higher level.

1. Different institutions have done some great work and it will be great if we could bring the work in VIVO-codebase one after the other. We may want to prepare a ranked list of already available works and may want to engage one institution at a time and bring their work in. I do not think sprint system will work. Everyone is busy in their own work and assigned tasks.

2. I quote "The VIVO Steering Group provides overall guidance to the project, ensures that the goals of the project are met, and provides strategic guidance and support to the VIVO Project Director." But a few of the Steering group members even attend regular meetings. This does not make any sense. How can they understand the needs of the community if they don't attend the meetings and perhaps know the needs of their institutions only. I understand that they are platinum members but if this so, I expect more communication/collaboration from them.

3. There are opportunities in every aspect of VIVO, frontend, backend, functional enhancements etc. How to make sure the Data Quality, and then if data is good, how to present it well. Current UI is out of date. Displaying long lists is not useful. I believe, we first need to update the frontend, perhaps freemarker templates (replacing it with AngularJS-related UI is a long term assignment that can run parallel).

4. Differentiate between Users vs Community Supporters.

5. Support developers/committers with some honorarium (such as a \$ cheque, scholarship to attend VIVO Conf) to encourage them to put some extra effort. A lot of developers have done some great work which is added in VIVO-codebase. Is there a place, a page where their efforts are recognized ? I don't know.

- research project-funders
- research project (all attributes , status, research proposal, etc)
- research proposal
- funder/funding agency beyond just sayin there is a funder or there is a funding agency
- specification of paper-data-code or paper-presentations in ppt-videos-etc how is a paper related to other things in the web
- ROs or DISCOs in VIVO
- a vocab for innovation across disciplines but perhaps you could focus on health care as a first step
- recognition of other things researchers create as valid contributions
- wider understanding of research outcomes, relations across research outcomes

Wishes: better multiple language support, data management/ingest, role management, reporting, ontology handling (make it easier to integrate especially in cases of updates/upgrade)

A better multiple language support would be great and the role management still leaves a lot to be required.

1. User-Friendly Data Ingest

Import CSV directly to the VIVO, without in between conversion

Import data from BibText or other standards format

Publication import based on the ORCID ID, Scopus ID, WOS ID and etc

2. Integrate Citation API from citation information Providers

CrossRef API to get citation from Crossref

Scopus API to get citation from Scopus and etc

3. Consolidated Altmetrics for individual Faculty and Department or Institute

VIVO community needs to understand that they really need the support of the libraries and librarians because of a very simple fact: libraries own or lease the content to scholarly articles, the same articles VIVO is trying to display on researchers profiles. This includes access to content that is openly available. Librarians have been working on accessing all that material for their institutional repositories and bigger digital asset management systems. Looks like so much of that work is not utilized, it's done at some library and not noticed by the VIVO community. For example, my team has worked on getting the data from Unpaywall data [<https://unpaywall.org/data>], to populate the institutional repository and I am sure many more libraries have done the same. I am not aware that VIVO community is utilizing this free service [unpaywall]. This service is free and provides for access to scholarly content and the metadata about that content. Librarians that work on scholarly communication infrastructure are VIVO,'s best friends. Work on getting the VIVO in alignment with the scholarly communication landscape, but providing an easy path for connecting the institutional repository and the institution's catalog with VIVO. Stir away from saying that VIVO is not a repository because that doesn't help much when libraries are trying to implement VIVO. One of the pitches libraries make to administration is always how VIVO will be connected to the institutional repository and or even the catalog.

One more thing: looks like VIVO leadership and VIVO steering groups need to get fresh blood. Some people have been on those groups for way too long. Some are members of both. Doesn't make sense if you want to gather fresh ideas, if you want to be on the edge, this is something that needs to change. I find it very counterproductive to have same people members on both groups. Step away and make room for someone that can bring fresh perspectives. By stepping away you will be helping the VIVO project and your contributions won't be forgotten.

I would also suggest to change the rules or the bylaws to include cutting edge researchers on the leadership group that can help the project, someone from the semantic web that can serve as an honorary member or as an advisory member for a limited time - a year or two. VIVO even has friends among those people, for example: James Handler, or Soren Auer.

VIVO leadership has not done enough in recent past to encourage community contribution back to the core VIVO and Vitro code leading to proliferation of features at individual sites that cannot be easily integrated back into the core code, even if another institution wishes. Positive steps have been taken since the beginning of the new year.

The code base is too large and poorly documented.

The annual conference is great and a key element in fostering community.

VIVO development as seen by the TIB

We at TIB want to bring together the German-speaking VIVO community. We want to evaluate the needs of potential user institutions and share them with the international VIVO community, regardless of the size of each institution.

The German-speaking VIVO community has a number of recurring demands on VIVO, which are outlined below. Most of these can also be found in the report on the VIVO-Workshop 2017 in Hannover, which is published in Duraspace Confluence.

A component for reporting that is integrated in VIVO should be mentioned primarily. This means a tool that allows the creation, editing, import, export and scheduled execution of report requests for users who do not need to learn SPARQL themselves. The results of these queries should be exportable in different forms (visual representations, CSV etc.). An exchange platform for queries is required as an accompanying infrastructure.

In order to use VIVO for reporting purposes, improvements in role management are also necessary. The possibility to use editor groups only for publications and to hide other content from this group is necessary for this scenario.

Another requirement for using VIVO as a reporting tool would be an improved oversight about actions in VIVO. A working component to record user actions is a necessary condition to enable editorial workflows, for example. In addition, such a component is necessary in order to carry out order data processing in accordance with German law.

Another high priority of the German VIVO community is the improvement of data workflows - in and out of VIVO. There are some promising initiatives, for example from Dartmouth, Cornell, or the possibility to use ORCID, Pubmed or Crossref as a source. We believe that integrating features like this into VIVO would be a major benefit to both VIVO end users (scientists) and implementing institutions. Publishing data to ORCID should be possible, too.

Regarding the adoption of VIVO to other needs in Germany, we wish for a better and true multiple language support. The relevant task force should resume its work. We hope that the different language maintaining communities will be able to keep their language versions (in our case the German language) up to date. VIVO users should be able to use these language versions without difficulty.

The development of ontology extensions to adopt VIVO to the specific needs of the German research landscape is a highly relevant topic. VIVO should provide solutions to allow a comfortable approach to manage ontologies.

We hope that the TIB can contribute to at least some of these developments. We see the newly gained activity in the VIVO community as a promising sign for a prospering and important open source project.

Christian Hauschke (on behalf of the VIVO team of the TIB)

VIVO is no longer part of my day job. I hope the project succeeds but I think it's critical that a number of things be rethought. Here's a few ideas.

1) Separate the data management tool (VIVO/Vitro) from the public facing layer. Continue building out Vitro if there are community projects that need functionality (and can organize the development) but otherwise consider it in semi-maintenance only stage.

2) Build a new public facing layer using a popular web framework and search engine (Solr, Elasticsearch). This application supports search and discovery of researchers, their outputs (mostly publications) and organizational units. Its data model is independent of current VIVO ontologies. Consider using Blacklight, which is well established in related communities. Hire a contractor(s) or firm to bootstrap this process so that a new product is available soon. At least a few VIVO organizations (Brown, certain projects at Cornell, CU Boulders faceted search front end) have done this already. Learn from them.

3) The public facing layer should be built in a language and manner that most institutions considering VIVO would have a staff member able to contribute (Python, Ruby, PHP). The current situation is problematic - only a very small group of people is able to contribute to VIVO/Vitro core.

4) Most of the community effort can then shift to building and maintaining a set of connectors from source systems to the new public layer. VIVO/Vitro should be considered only one of many potential source systems (e.g. Banner, ORCID, Symplectic Elements). Having these connectors built out and available will assist implementers with the laborious and difficult task of getting data from A to B. These connectors should be sponsored by a member(s) who become release managers and mentors for new contributors.

5) Clean up the various (and growing) VIVO Github projects. The vibrancy of an open source community is often judged by the number and recency of contributions to projects under its umbrella. If these are spread across a number of web spaces and project names, things are confusing and not so vibrant.

6) Mentor more technical contributions. Promote those who commit code and documentation on both listservs and at the conference. Ask organizations to move locally developed projects under the VIVO umbrella and give them lots of credit.

I think TAMU's current implementation on VIVO can be a plus to the community.

TAMU Scholars,' ecosystem

TAMU has developed a Scholarly ecosystem where VIVO is just the most visible piece. We implemented our own profiler editor that allows faculty to interact with various data sources we use to build out a profile. While Symplectic Elements is our primary data source for research data, we pull data from other campus sources as well. We use the features in the editor to allow faculty to interact with their information in an iterative process between the faculty and the Scholarly Communication office. We then use the editor to tie it all together and push the data to VIVO.

Harvesting students,' works (theses and dissertations) from DSpace

TAMU harvests Scholarly works from our institutional repository and puts it in our Scholarly ecosystem, in an attempt to capture faculty association with thesis and dissertations in our DSpace. This allows us to link these works in VIVO as Works by Students and present them in the faculty members Scholarly profile.

ORCID publication claiming

TAMU has developed a process to ingest ORCID information into a Scholarly profile in VIVO. The process pulls the data from ORCID and then pushes it into Symplectic Elements. We then rely on Symplectic Elements to do the de-duplication and filling in of incomplete metadata. Once this is done the ORCID data becomes part of the normal workflow out of Symplectic Elements and into the Scholarly ecosystem. Where it is pushed out to VIVO.

DJ Lee

We need to deliver VIVO data to other departments within our organization such that it can be delivered via other web delivery platforms such as Drupal, Wordpress, or custom websites. All of our recipients prefer a simple JSON format of the data.

Our desire is to deliver a JSON-LD semantic representation of our VIVO data. For the most part this isn't too complex for a non-semantic web developer to understand.

The issue comes up when we run into the vivo 1.6 ISF modification such as obo and the faux properties.

Representing and explaining these constructs to non-semantic web developers and business owners create a barrier to entry leading the business to direct us to abandon any semantic representation of the data and just provide simple json

We need a way to shortcut relationships as was done in vivo 1.5.

Schema.org does this with the author object property. It's simple.

We also need clear English non-numeric representations of objects like Journal Article which is currently represented as obo:IAO_0000013.

Currently semantic schemas like schema.org are taking the market share. If the VIVO community cares about semantic linked open data, we need to create simplified representations of some of our more complex classes for the greater public and web developers who might not have any semantic awareness but might have exposure to schema.org

This doesn't mean that we need to abandon the ISF work, but we should identify a method to represent our more obfuscated objects in a simple format like schema.org

Context: The call for community input and feedback was recently issued with a deadline of February 19.

Purpose: To elaborate on potential architectural directions and suggestions for VIVO/Vitro that can enable the software to (a) better meet the current and emerging needs of the VIVO community and (b) make easier the process of using, integrating, and linking to VIVO within a given institution's workflow.

Participants (in this round of discussions): Jim Blake, John Ferreira, Huda Khan.

Summary: We suggest more work needs to be focused on three main areas: **(1)** clear definitions of **services and APIs between architectural components**, easing the processes of data ingest and export, and supporting the use of different back-end and front-end components as needed in different contexts, **(2) an admin page** revised to focus on developer/administrator needs, and **(3) a technical working group** which can help translate larger VIVO community goals into overall technical and architectural directions. These are explained below:

Explanation:

1 - Defining APIs and services to enable clearer separation between the various components in the architecture.

(Figures 1, 2, and 3 are included at the very end of the document for reference)

Data in and data out

- The processes of ingesting data and of exporting data from VIVO are currently non-trivial. Both of these processes are either necessary or extremely relevant to institutions and organizations that utilize VIVO. Furthermore, the objectives of linked data and semantic interoperability cannot be well-met if we don't consider how to make these processes easier to allow for data to flow in and out of VIVO and between the various components in the larger research data (and linked data) ecosystem. More clearly defined work in these areas has the potential to enable easier linking of data between VIVO instances and other linked data sources, demonstrating how VIVO can drive applications that can catalyze further community involvement and interest.
- The case can be made for very clear interfaces and APIs to be defined for services that (a) enable data processing and mapping for ingest into VIVO and (b) enable data querying and extraction for display, analysis, and export.
- Data out: The Data Distribution API represents a good step in the direction of enabling a web service approach to the exporting of data in a way that enables any application to be able to use, display, analyze, or demonstrate the rich data VIVO has captured. The API approach allows an end-user to (a) request the service in a way that is easily integratable into an application and (b) configure the query required to extract the information and configure the format of results.
- Data in: We are aware that a grant is currently being considered for the harvester. The details of that particular grant aside, we can imagine how creating a more configurable mechanism for (a) defining the mapping between a system's model and VIVO's ontology and (b) for then transforming this information could ease the process of harvesting and ingesting data into a VIVO instance. Tools such as Karma/OpenRefine currently exist within this particular landscape, but the clearer and more configurable we can define this process in the terms of services, the easier it should be (hopefully) for different institutions to be able to configure their mappings and become users of the VIVO application.
- In addition to the services, we should also consider the definition and sharing of information extraction and ingest patterns. For example, *the data distribution API could come with a collection of SPARQL queries* that can be used to retrieve information about publications, people, grants, etc. that could either be extended or used as they are provided by those wishing to extract data from VIVO.
- Furthermore, it would be useful if we can begin to provide UIs to enable these processes. Possible examples are (a) a UI that supported a user in defining the mapping between columns in data and the desired output in VIVO (for a "data in" service) and (b) a UI for selecting which information was desired by a query for a "data out" service and akin to a Solr search interface enabling a selection of which fields are of interest.
- In addition to enabling other system components to easily interface with VIVO, we understand that a more sustainable strategy is to make these services an integral part of VIVO internally. In other words, if we think a particular API is useful for querying and

exporting data to systems external to VIVO, it makes sense that we consider how to integrate that into the profile generation and display portions of the VIVO architecture.

- More concretely, consider the profile pages within VIVO that are generated using a set of SPARQL queries that are defined within components called “list views” that are stored as XML files within the application. The EarthCollab project looked at how to generate JSON and RDF that represented the information resulting from the SPARQL queries used to create the profile pages. Instead of list views, we could imagine that we have a set of SPARQL queries that could then be used not only to generate a profile page for a person using the Data Distribution API but also could be shared as the “person queries” pattern for use for any external user using the Data Distribution API. When the queries for a VIVO profile are extended or customized, the externally available information is also updated without having to maintain two different sets of queries (or two different architectures for retrieving information).
- Jim referred to his work with a distribution API for short views (these generate display of property-level information in the interface). If a VIVO instance was referring to data from another VIVO instance, they could not only retrieve data from the second instance but the actual display itself (i.e HTML and not just JSON) and integrate that into their local page as they would prefer. (This has a potential relationship with the EarthCollab cross-linking work.)
- Refer to Figure 3 for a graphical overview of the above points.

Enabling multiple interfaces

- Cleaner APIs between the display front-end and the RDF management/extraction components could enable (a) multiple different technologies and front-ends to be able to access and utilize the RDF management components within VIVO and (b) easier customization and modification of the front-end as needed.
 - Different projects and institutions have wanted to use a different interface or public display front-end for VIVO than what VIVO currently provides. For example, Brown University created a Ruby on Rails front-end that sits on top of the VIVO Solr search index. The New York Climate Change Science Clearinghouse project utilized a Blacklight front-end on a VIVO search index and also utilized JSON output from VIVO to populate its individual pages describing a particular entity. As part of the LD4L-Labs and LD4P efforts, we were tasked with creating a prototype library cataloging editor by customizing Vitro. In the process, we have delved into the details of how VIVO enables customizations of default editing/display of information. These use cases and examples all used the RDF management/editing/search/querying services provided by VIVO but utilized different or customized front-ends (or in the case of VitroLib, attempted to ease the customization process itself).

Enabling multiple back-end components (search, storage/triple store, reasoners)

- Jim referred to architectural information provided in VIVO documentation on the Duraspace wiki (also included below). Interfaces do currently exist that could enable the switching out of different back-end implementations. For example, the search service interface could be tested out with an Elastic Search implementation instead of Solr, TDB could be switched with SDB or Fuseki, and we could use a different TBox Reasoner component.

2- Better admin page functionality

- How do you currently export just instance data? Or ingest data into a specific model? These are all possible with the current admin pages, but we propose improving our understanding of what functionality people generally use and then centering those requirements in the design of the admin pages.
 - For example, in addition to model export and import, we may want a UI for switching between back-end implementations of a triple store or the search index or some other component. Basically, this would provide an Admin UI for customizations of the applicationSetup.n3 file without requiring manual editing.

3- A technical working group

In addition to a technical lead, it may be useful to consider forming/using a group of people who can consider the architectural details in the context of initiatives that can help to sustain/grow the community (of both developers and users of the application). This group can help focus discussion on the architectural vision and possibilities, tying concrete technical directions to overall community strategy. (**We are not volunteering**, but just putting that out there as an idea.) A task group is, perhaps, too ephemeral a group to take this on, so perhaps a working group or other similar group may be useful in this context.

Additional notes:

Jim referred us to architectural documentation and diagrams here:

<https://wiki.duraspace.org/x/z72dB>. I am including the image below for reference

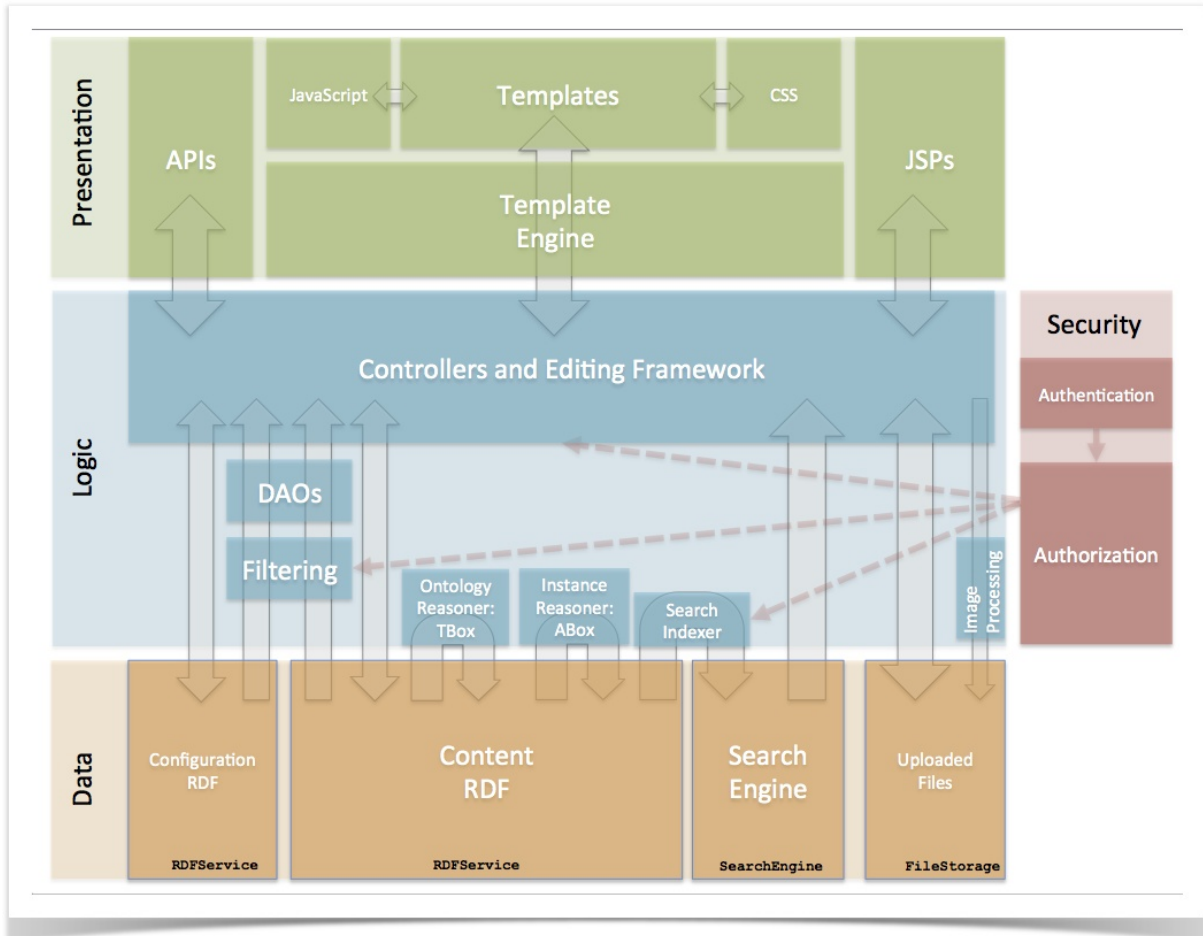


Figure 1: Architectural overview from wiki documentation

Below, I've included an image from our VIVO 2017 presentation which provides a simplified visual of the potential services outlined in the document above.

VIVO As “Services”, As Ecosystem Component

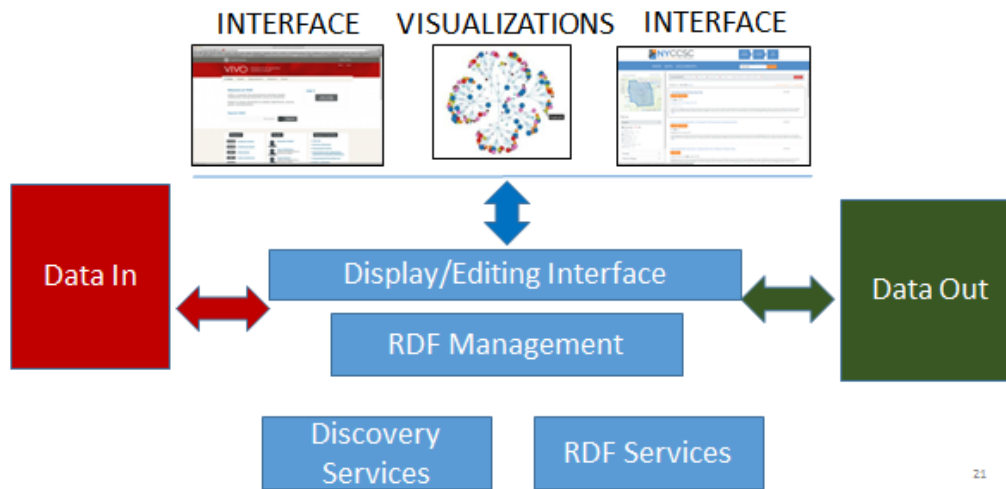


Figure 2: A very high level overview “marketecture” diagram of some main components within VIVO (as reference for where the APIs/services defined above may come into play)

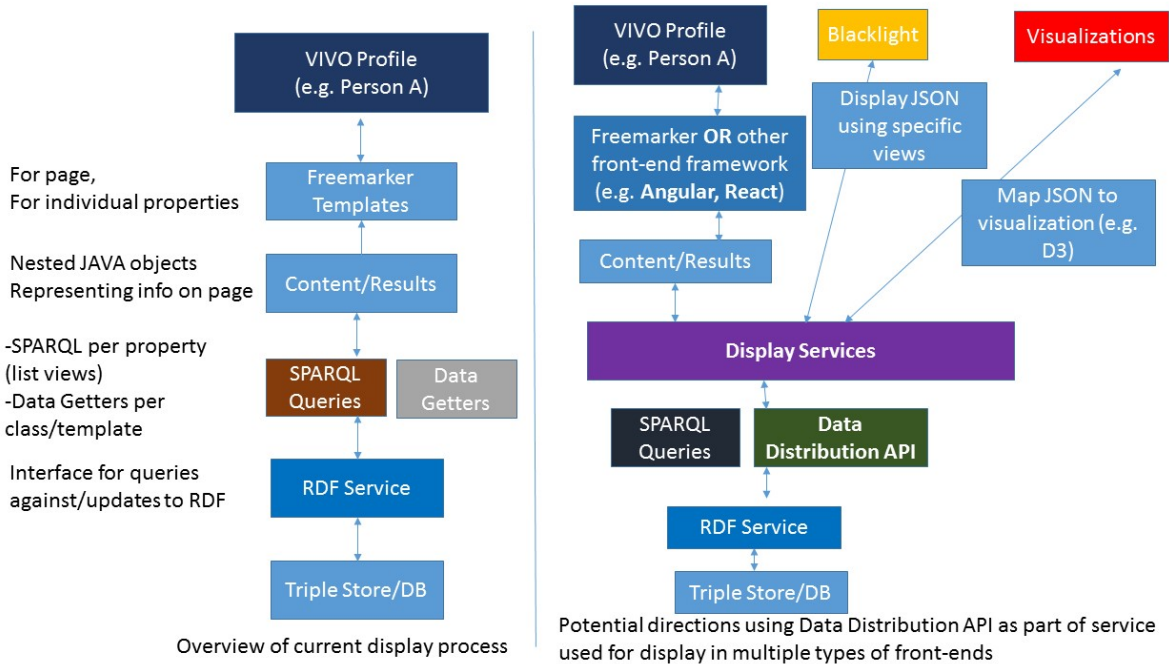


Figure 3: An overview of the current display process on the left. A potential method for using the Data Distribution API as part of the internal VIVO display process and for external systems is on the right. Another possibility for the display service is exporting HTML views of data to be incorporated in other systems (such as other VIVO instances) that wish to retrieve and display related information without necessarily having to ingest the content they wish to display.

VIVO Technical Initiatives

February 20, 2018

Background

Various technical initiatives have made varying amounts of progress. The initiatives here are “current” in that people have been discussing them over the past year or more. For each, a brief description, JIRA link, and stakeholders are provided.

The following references were consulted: VIVO Survey results 2016, VIVO RoadMap process 2015, VIVO User Group meeting 2016, VIVO Roadmap 2017, Steering and Leadership notes, personal communications, current JIRAs. The 2015 roadmap process was extensive -- research of previous requests, JIRA review, extensive discussion, community survey, alignment with governance groups, poster at the 2015 VIVO Conference in Boston. Over fifty comments were received and have incorporated.

The initiatives can be loosely organized by elements of the “VIVO Ecosystem” -- open source applications designed to be used together, based on VIVO ontology and RDF.

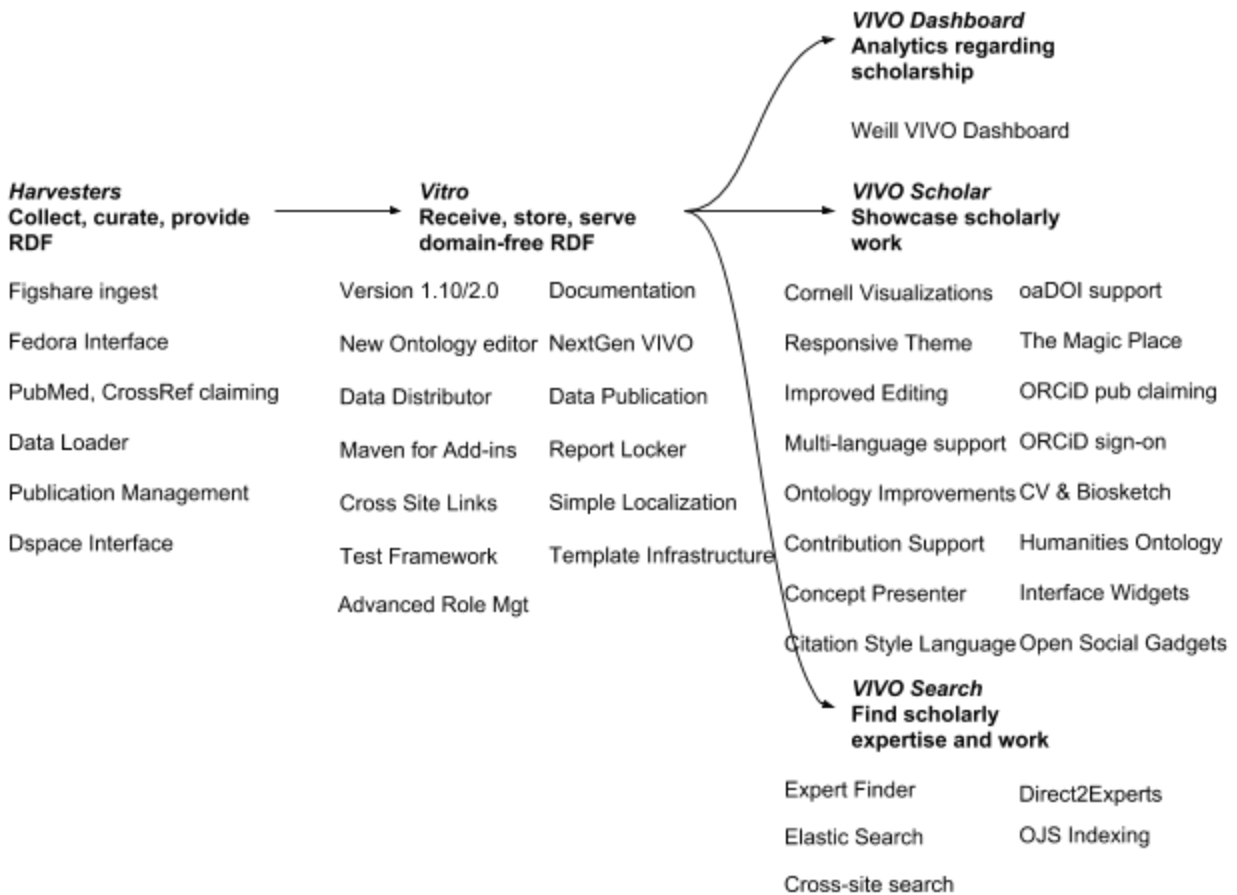


Figure 1. Initiatives grouped by component of the VIVO ecosystem -- Harvesters, Vitro, VIVO Scholar (the VIVO interface to Vitro), VIVO Dashboard, and VIVO Search.

Version 1.10/2.0

Supports RDF 1.1, Jena 3, and requires each site to unload and reload their data using utilities provided by the VIVO project. Includes a TPF endpoint which could lead to new applications, particularly cross-site search (see below). Bug fixes.

JIRA <https://goo.gl/UrbQRu>

Stakeholders: Future developers

Ontology Improvements

Since the ontology change of 2013, there has been no ontology improvement. The ontology work was previously organized by OpenRif, as part of the CTSACConnect project that reconciled the eagle-i and VIVO ontologies (all three were NIH funded). The Ontology Improvement Task Force is an active task force with deliverables. Two of three deliverables (domain definition, and

ontology development process) have been completed. The task force is working on the third deliverable -- demonstrate the process on a low impact ontology change (see JIRA below), and demonstrate the process on an impactful ontology change. Most of the customizations reported by implementers are ontology extensions that could be standardized to improve data sharing.

Sample JIRA <https://goo.gl/v5pNDm>

Stakeholders: Marijane White, Muhammad Javed, Anna Kasprzik, Melissa Haendel, Mike Conlon, Violeta Ilik, Alexander Garcia Castro, Brian Lowe, UQAM

Multi-language Support

Improve support for use of VIVO in a language other than English. Provide language files that are ready to use. Improve documentation. Improve properties use. Provide properties and templates dictionary. Develop capability for real-time multi-language support (click on a flag and see the site in another language). Potential for grant funding. Enable users to enter information in multiple languages.

Sample JIRA <https://goo.gl/1h6nEi>

Stakeholders: UQAM, German VIVO Community, Canadian VIVO community, IICA, Cineca, SIGMA, International sites

Direct2Experts

Direct2Experts (D2E) is a simple federated search over sites capable of responding to a D2E API call. VIVO is capable with a small shim, as is Harvard Profiles. Working together, we developed D2E. See Weber, et al, 2011, [10.1136/amiajnl-2011-000200](https://doi.org/10.1136/amiajnl-2011-000200). Duke noticed that the shim had stopped working (it was maintained by Florida). Service has been restored, by providing a new capability to VIVO, implemented at Duke. Documentation is needed and confirmation that the feature will be in the next release. All VIVO sites should be registered with D2E to provide simple discovery.

JIRA <https://goo.gl/u26UPZ>

Stakeholders: Julia Trimmer, Duke; Mike Conlon; Griffin Weber, Harvard; Dave Eichmann, Iowa

Open Journal System Indexing in VIVO

With a simple addition to the OJS platform, a message could be sent to an index service receiver to indicate that a new article has been published. The received message could be

formatted as VIVO linked open data for use in a “VIVO of all OJS” and made available to D2E (see above), or CTSASearch (see below). This should be an outstanding grant funding opportunity for those interested in open science and third world science.

JIRA <https://goo.gl/gcji2p>

Stakeholders: Mike Conlon, Funding agencies

Maven for add-ins

VIVO needs a Maven build process that can include add-ins. We currently have three kinds of add-ins: 1) language property files. These are currently in various GitHub repos. Could be gathered into repos structured for the build process to simplify builds of French, German, Spanish, and other language versions; 2) ontology files. Currently the ontology files are not managed (see Ontology Improvement) when they are managed, they can be in a repo that is designed for a Maven build process; 3) data files. The VIVO project produces several sets of linked data that can be used across VIVO installations providing standard assertions for dates, organizations, journals, and other building blocks of VIVO graphs. These are also currently in various repos.

JIRA <https://goo.gl/NykNjk>

Stakeholders: Internationalization stakeholders, data stakeholders, ontology stakeholders, all VIVO sites (simplifies build process)

Duke's Curriculum Vitae and Biosketch

Duke has developed a templating system for creating documents from VIVO. The document generator includes templates for curriculum vitae and NIH biosketches. This is a highly requested feature and one of the first that evaluators of the system ask about. Potential for grant funding.

JIRA <https://goo.gl/ZyPviB>

Stakeholders: Julia Trimmer, Mike Conlon, all biomedical sites (biosketch), Javed Muhammed

Duke's Interface Widgets

Duke has developed a series of small interface widgets that provide VIVO data to web sites. This approach could be continued to provide data to VIVO itself, simplifying the design of new pages and reducing the number of templates, potentially eliminating templates altogether. For

this initiative, we consider only already developed widgets, insuring they are available to everyone, and that everyone has an opportunity to create more widgets.

JIRA <https://goo.gl/XbD1mR>

Stakeholders: Julia Trimmer, Mike Conlon, future interface designers

Duke's Humanities Ontology Extensions

Duke has extended the VIVO ontology to present works and activities of humanists, including those in the performing arts. VIVO attempts to represent all of scholarship, but its STEM background is sometimes obvious. Grant funding potential to reconcile Duke's VIVO Humanities Ontology Extensions and other humanities ontologies.

JIRA <https://goo.gl/wZCAGU>

Stakeholders: All current and evaluating VIVO sites with humanities scholarship, CU Boulder, UAB

Template Infrastructure Improvements

This is one of those “below the covers” projects that should help with creating new Responsive Themes (see below), should also help with Language Support (see above), and should help with Simple Localization (see below).

This work may be substantially complete, but needs Jiras and documentation.

JIRA <https://goo.gl/2pmkqe>

Stakeholders: Future developers

Responsive themes

VIVO needs a facelift. The interface has not changed since 2009. New themes can be created using the existing template infrastructure. An example mobile responsive theme was created by Symplectic/Digital Science using bootstrap and presented at the 2016 VIVO conference. . A new theme was created by UNAVCO based on the Symplectic work. Ralph O'Flinn at UAB has been reworking the example theme from Symplectic to create a generic mobile responsive theme that could be used “out of the box” with VIVO. It is tentatively scheduled to be posted for review on GitHub in March for review.

JIRA <https://goo.gl/2pmkqe>

Stakeholders: Simon Porter, Digital Science; Benjamin Gross Clarivate; Jonathan Breeze, Symplectic, TIB, CU Boulder, Ralph O'Flinn (UAB)

Simple Localization

VIVO sites should be able to provide configuration parameters that lead to a simply themed VIVO: school name, colors, and logo provided at build time should be used by themes to provide a configured VIVO that “looks like” the school. For many sites, this might be all the interface work they want to do. The current methods for doing these things are complex, and yet each site is trying to do them, often for evaluation alone.

JIRA <https://goo.gl/9LZ4k3>

Stakeholders: All sites evaluating VIVO. All new VIVO sites. VIVO training.

ORCiD Sign-on

Developed for OpenVIVO, allow configuration of a site to support using ORCiD credentials for sign-on.

JIRA <https://goo.gl/6WKJhY>

Stakeholders: Smaller sites that do not have single sign on, and might prefer to use ORCiD for VIVO rather than administer another sign-on credential.

Publication Claiming from ORCiD

Developed for OpenVIVO, supports ingest of an ORCiD profile at sign-on. Each time the user signs on, their ORCiD profile is retrieved and new items added to OpenVIVO. For sites working closely with ORCiD, this can keep VIVO and ORCiD synchronized, and significantly lowers the effort to establish a VIVO profile.

JIRA <https://goo.gl/hDZuiw>

Stakeholders: Sites working closely with ORCiD

Publication Claiming from CrossRef, and PubMed

Developed for OpenVIVO, supports cut and paste profile building from identifiers -- DOI and PubMed. Each identifier is looked up (DOI in CrossRef, PMID in PubMed), metadata returned and made available through VIVO. For biomedical research institutes, and for other sites with curated publication lists, this features eliminates most of the cost of creating a VIVO. One user of OpenVIVO tweeted: "I set up my complete profile in 30 seconds!"

JIRA <https://goo.gl/3aYpbU>

Stakeholders: All sites using these identifiers.

Figshare Ingest

Developed for OpenVIVO, supports ingest from figshare openAPI of all the works of an individual. A related utility supports ingest from the figshare openAPI of all the works tagged with a specific tag (used to gather all works at a particular event, or all works for a particular subject).

JIRA <https://goo.gl/iyg1KU>

Stakeholders: Figshare, VIVO users using figshare

oaDOI support

When a work with a DOI in VIVO can be found in oaDOI, a link to the open full text should be provided.

JIRA <https://goo.gl/PyuntH>

Stakeholders: All VIVO users

Contribution Support

Developed for OpenVIVO, the Contribution Role Ontology, an extension of the CRediT ontology developed by Force 11, CASRAI, and others, allows users of VIVO to describe their contribution to a work. Rather than just "author" a person can say they designed the study, served as PI, drew the figures, curated the data, and many other options. The ontology was developed for OpenVIVO and OpenVIVO supports the specification of contribution assertions for all authors and all works. Can be done in coordination with CD2H.

JIRA <https://goo.gl/JCbHLD>

Stakeholders: Melissa Haendel, Kristi Holmes, Anne Thessen, Amy Brand, David Baker, Violeta Ilik, CU Boulder, Dave Eichmann, CD2H, many others

Data Publication

Developed for OpenVIVO, allow a site to configure publication of their VIVO data using an automated process. All OpenVIVO data is published hourly to <http://openvivo.org/data>. A command line tool developed for VIVO 1.10 could be easily modify to provide a format useful for publication. This feature has been requested since 2010. Uniform adoption of this capability greatly simplifies data harvesting for integrated search.

JIRA <https://goo.gl/8KSXvo>

Stakeholders: All sites seeking to analyze VIVO data, CD2H, Mike Conlon, Chris Barnes

Documentation

A year ago, VIVO created a documentation wiki, separating technical documentation from the community wiki, and providing a mechanism for publishing the documentation as PDF. The documentation wiki can be copied forward to be version specific. Over 400 pages of documentation have been organized and improved. Additional work remains on the most important topics -- configuration, file layout, and other basics needed by sites evaluating VIVO.

Sample JIRA <https://goo.gl/zNXgJv>

Stakeholders: Sites evaluating VIVO, VIVO training

Weill VIVO Dashboard

Weill Cornell Medical College has created a Drupal-based collection of analytic displays and visualizations that display VIVO data. The VIVO community often expresses the need for analytics. Is this best down with a stand-alone custom application? With built-in/extensible reports and visualizations? With simple export to an analytics tools such as R or Tableau?

JIRA <https://jira.duraspace.org/browse/VIVO-1444>

Stakeholders: Sites using VIVO for evaluation, assessment of research impact.

Wollongong's OpenSocial Gadgets

OpenSocial is a technology for creating and using plug-ins. UCSF and the University of Wollongong collaborated on the use of OpenSocial in VIVO (Harvard Profiles also supports OpenSocial). Using OpenSocial, Wollongong has made dozens of gadgets available for customization of faculty profiles, providing data, video, and other compelling interface improvements.

JIRA <https://goo.gl/bmisMB>

Stakeholders: Keith Brophy, Wollongong, Erik Meeks UCSF, Dave Eichmann, Iowa

Cornell's Improved Ontology editor

Cornell has developed a new and improved ontology editor that is a rival for protege. Built in to Vitro, the editor provides comprehensive tracking of ontology changes, and Vitro provides a comprehensive ontology-driven application for collecting and managing data defined by the ontology.

JIRA <https://goo.gl/PEZ1D2>

Stakeholders: All Vitro sites, all VIVO sites.

Cornell's Data Distribution API

A series of visualizations for showing connectivity of grants, people, publications. Uses a new internal mechanism, the Data Distribution API, which simplifies the creation of additional visualizations.

JIRA <https://goo.gl/sm6RMy>

Stakeholders: All sites

Cornell's Visualizations

A series of visualizations for showing connectivity of grants, people, publications has been created for [Scholars@Cornell](#) using the Data Distributor.

JIRA <https://goo.gl/W322HA>

Stakeholders: All sites

Report Locker

A simple extension to allow SPARQL queries to be registered as “reports” with the output displayed in HTML pages integral to VIVO. Allows sites to generate reports from VIVO data using SPARQL, and for sites to share reports with each other. Would use the Data Distributor.

JIRA <https://goo.gl/Te3gdC>

Stakeholder: John Fereira, Cornell, Mike Conlon, all sites

Deep Carbon Observatory’s ElasticSearch for VIVO

Deep Carbon Observatory developed an ElasticSearch capability for VIVO that provides improved search over Solr, improved faceting of search results, and delivers JSON to developers to simplify reuse of VIVO data. CU Boulder and UNAVCO have implemented faceted ElasticSearch for VIVO.

JIRA <https://goo.gl/oAewop>

Stakeholders: Alex Viggio, Don Elsborg, Benjamin Gross, all sites benefit from improved search.

Integration Test Framework

This is “below the covers.” VIVO uses JUnit for unit testing during builds. Manual Selenium integration tests exist for Vitro nor VIVO, but have not been automated. We can not currently load data, then test reports, visualizations, and web pages in an automated fashion. This is of particular concern for ontology development, as changes to ontology may have unintended consequences that are difficult to trace in code.

JIRA <https://goo.gl/wPrUqy>

Stakeholders: All VIVO sites benefit from tested software.

Dartmouth’s Data Loader

Simple mechanism for putting people data in spreadsheets and loading the data into VIVO. The Data Loader looks up people’s publications in PubMed (and could eventually look up people in CrossRef or other index services), and adds the publications to VIVO. Publication look-up is

done using a web service developed by Harvard and used by Harvard, Dartmouth, and Florida. This is often referred to as a “killer feature” -- for many sites, it can fully automate the set-up of a VIVO. When people say “make VIVO easier to use” they are often referring to data loading. Potential grant funding. “Turnkey VIVO” has been a goal for many years.

JIRA <https://goo.gl/cygby7>

Stakeholders: Rodney Jacobson, Dartmouth; Ted Lawless, Brown; Mike Conlon, Dave Eichmann, CD2H, evaluating sites, sites with simpler data requirements, funding agencies, German VIVO community.

VIVO Cross-site Search

Has been the #1 requested feature since VIVO was founded. Sites go to extraordinary effort to make VIVO data. They expect to use the data across sites. CTSAs search gathers data from 90 sites into a single search engine, but requires manual effort, and the interface is not compelling, nor is it built-in to VIVO. With Triple Pattern Fragments coming to VIVO in 1.10, there is an opportunity to develop a federated search with deep semantics -- a truly new kind of search capability. Potential for grant funding.

JIRA <https://goo.gl/J4f77W>

Stakeholders: CD2H, All VIVO users and sites, funding agencies

VIVO Cross-site Links

Cornell, UCAR/NCAR, UCSF, and UNAVCO have been developing cross-site linkage for VIVO for several years. They demonstrated at VIVO 2016 in Denver. CrossLinks (UCSF & Iowa) have already demonstrated the feasibility of inter-platform, inter-site coauthor cross-linkage.

JIRA <https://goo.gl/ptQ48K>

Stakeholders: Huda Khan, Cornell; Eric Meeks, UCSF; Dave Eichmann, Iowa; All VIVO Sites, funding agencies, CU Boulder

Duke’s Improved Self-Edit, and Curation Edits

Duke has developed improvements to allow additional self-edit and additional curation of edits submitted by faculty. Many sites turn off VIVO self-edit due to its primitive nature. Sites evaluating VIVO often detect the primitive nature of the self-edit capabilities and ask how they

can be turned off (it isn't straight forward). OpenVIVO turned off many self-edit features to provide an interface that could be used by anyone without requiring curation.

JIRA <https://goo.gl/Lqn1bM>

Stakeholders: All VIVO sites, all evaluating sites

Concept Presenter

Similar to a "collection," VIVO can tag works with concepts, and then present a unified showcase of the work of the institution on a particular concept -- top researchers, top grants, top papers -- for areas such as climate change, pulmonary hypertension, nanotechnology, Shakespeare, or any other concept. Potential for grant funding.

JIRA <https://goo.gl/1rUYQX>

Stakeholders: All VIVO sites, all evaluating sites

Citation Style Language

VIVO presents its publication information using fixed HTML, not optimized for use in other applications, or documents. Implementing CSL would allow users to select a citation style -- ALA, Chicago, NIH, etc and have VIVO present its publication information using the chosen style. This would provide the ability to use VIVO for creating publication lists and documents of various kinds.

JIRA <https://goo.gl/8NgM7t>

Stakeholders: All VIVO users

Expert Finder

Working with experts in the area of expertise, such as Noshir Contractor at Northwestern, an expert finder with sophisticated heuristics could be developed to find people "like me" "interesting to me" "complimentary to me" "competitors of mine" and so on. Most of the basic research has been completed, and an attempt was made to build an expert finder for VIVO. Could be completed with grant funding.

JIRA <https://goo.gl/D8aVkz>

Stakeholders: VIVO users, VIVO sites, all evaluating sites, funding agencies

The Magic Place

Allows investigators to drag works onto an accessible place that would create metadata, and deposit in repos and VIVO, and other work processes. One click deposit. Potential for grant funding.

JIRA <https://goo.gl/uJPPj8>

Stakeholders: Magic Place Team, Open Repositories community, VIVO Community, funding agencies

Fedora Interface

VIVO as a front-end for Fedora for showcasing the work of people, organizations, and projects. Full bi-directional interface. Other initiatives could be defined.

JIRA <https://goo.gl/m8LDAj>

Stakeholders: Sites that run Fedora and VIVO, and need integration

Dspace Interface

VIVO as a front-end to Dspace for showcasing the work of people, organizations, and projects. Only provide bi-directional interface for data already represented in Dspace?

JIRA <https://goo.gl/4bW3X3>

Stakeholders: SIGMA, Cineca, sites that run Dspace and VIVO, and need integration

Publication Management

A new initiative to consider creation of a platform for gathering publication information from Open APIs, curate, and provide to VIVO and other systems. Publication management has been very difficult for many VIVO sites and leads to adoption of proprietary solutions.

JIRA <https://goo.gl/nH4NLU>

Stakeholders: Dean Krafft, Rob Cartolano, Tom Cramer

NextGen VIVO

Micro-service architecture. VIVO application ecosystem. Develop architectural clarity regarding Vitro, VIVO, search, harvesting, analytics.

JIRA <https://goo.gl/kWTSLC>

Stakeholders: Alexander Garcia Castro, Don Elsborg, Ted Lawless, Chris Barnes, Alex Viggio, Benjamin Gross, Huda Khan, Jim Blake, Muhammad Javed, UQAM

Advanced Role Management

Develop frontend elements to administrate custom roles in VIVO to enable advanced editing, validating, privacy and administration. Allow custom roles (publication editor, grant editor). Features cloning roles, editing roles, deleting non-default roles (not self-editor, editor, curator etc.), import and export of roles, including set of rights

JIRA: <https://jira.duraspace.org/browse/VIVO-1436>

Stakeholders: German VIVO community

Proposed VIVO Governance Changes

Current

Leadership and Steering are independent. Members of Steering are nominated from member institutions by level and elected by leadership. Steering has two community members elected by community members.

Leadership meets four times per year. Steering meets every two weeks.

Leadership Group Members

Jean Rainwater	Brown University Libraries
Robert Cartolano	Columbia University Libraries
Tom Cramer	Stanford University Libraries
Dean Krafft	Cornell University Libraries
Julia Trimmer	Duke University
Michael Bolton	Texas A&M University Libraries
Hannah Sommers	George Washington University
Ann Beynon	Clarivate
Joe Zucca	University of Pennsylvania Library
Julie Griffin	Virginia Tech Libraries
Terrie Wheeler	Weill Cornell Medical College

Steering Group Members

Name	Organization
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<u>Paul Albert</u>	Weill Cornell Medical College
Mark Fallu	University of Melbourne
<u>Lauren Gala</u>	University of Pennsylvania
<u>Dean B. Krafft</u>	Cornell University
<u>DJ Lee</u>	Texas A&M University
<u>Mark Newton</u>	Columbia University
<u>Andi Ogier</u>	Virginia Tech University
<u>Julia Trimmer</u>	Duke University
<u>Alex Viggio</u>	University of Colorado Boulder
<u>Eric Meeks</u>	University of California San Francisco
<u>Bart Ragon</u>	University of Virginia

Proposal

Steering is a subset of Leadership. Members have seats on Leadership per membership level. All members of Steering are elected from Leadership.

Leadership includes all platinum members, all corporate investors. 4 gold elected members, 2 elected silver members, 1 elected bronze member, 3 elected community members. (16 for 2018).

Steering consists of nine members elected from leadership by leadership. No restrictions by member level.

Leadership meets every four weeks. Steering meets every two weeks -- with leadership when leadership meets, and as steering on alternating bi-weeks.

Changes

Current community elected members (Meeks, Viggio) move to Leadership. One community member to be elected. One bronze member to be elected. Steering disbanded, to be reconstituted by Leadership.

New Leadership

Ann Beynon, Clarivate	Corporate investor
Michael Bolton, TAMU	Platinum member
Julie Griffin, VTech	Platinum member
Julia Trimmer, Duke	Platinum member
Terrie Wheeler, Weill	Platinum member
Joe Zucca, Penn	Platinum member
Jean Rainwater, Brown	Gold rep
Rob Cartolano, Columbia	Gold rep
Tom Cramer, Stanford	Gold rep
Dean Krafft, Cornell	Gold rep
TBA, SIGMA	Gold rep
TBA, Cineca	Silver rep
TBA, UNM	Silver rep
TBA (election)	Bronze rep
Alex Viggio, Colorado	Community rep
Eric Meek, UCSF	Community rep
TBA (election)	Community rep

New Steering (must be member of Leadership) to be elected by Leadership.

Actions to complete change

1. Approval by Leadership and Steering
2. Modification of charter
3. Notice to community
4. Elections in May as per changes
5. New Leadership and Steering in place July 1

DuraSpace Membership

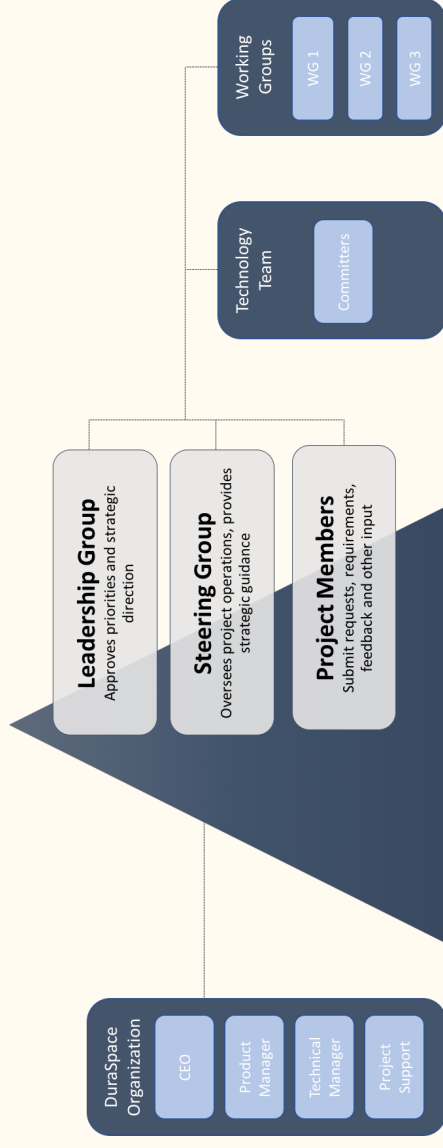
DuraSpace Membership	Supporter (\$500)	Copper (\$1,000)	Bronze (\$2,500)	Silver (\$5,000)	Gold (\$10,000)	Platinum (\$20,000 or above)
Monthly Member Newsletter	X	X	X	X	X	X
Projects Annual Review Webinar	X	X	X	X	X	X
DuraSpace Member Logo for marketing use	X	X	X	X	X	X
Promotion on DuraSpace and Projects websites	Name, Link	Name, Link	Name, Link	Name, Link and Logo	Name, Link and Logo	Name, Link and Logo
Eligibility to and voting rights for DuraSpace Board of Directors	-	X	X	X	X	X
Annual DuraSpace Summit	-	-	1 invitation	1 invitation	2 invitations	2 invitations
DuraSpace Events and Projects Training	-	-	Discounted fee	Discounted fee	Discounted fee	Discounted fee
Member Webinars	-	X	X	X	X	X
Projects Governance: Steering Group	-	-	X	X	X	X
Projects Governance: Leadership Group	-	-	1 seat available for all	2 seats available for all	4 seats available for all	1 guaranteed seat

Leadership Group

- Leaders are elected for 1 year
- Each tier elects its own representatives
- 2 Leadership members are elected by the community at large (they don't necessarily have to be members)
- There are not term limits
- RSPs and corporate sponsors can be members of the Leadership Group
- Ex-officio and/or emeritus members can be nominated

Steering Group

- The Steering Group is composed by 9 Steerers
- Steerers are elected by the Leadership Group and chosen among the Leaders
- Steerers are elected for 3 years
- If an institution represented in the Steering group drops its membership before the end of the term, Leaders will decide whether to keep that person in the Steering Group until the end of the term or not
- There are not term limits
- Ex-officio and/or emeritus members can be nominated



VIVO Work

To have a successful project, work must be done. What is the nature of the work? Who does it? Who should do it? Below are four models, with four possible approaches, and a table that shows tasks and who is responsible for the task in each model.

The “\$0” model. Pure open source. Everything at GitHub, Google Docs. Everything open. No memberships. Elected governance, committers. All effort from volunteers.

The “Now” model. Indicates how things are done now with notes regarding possible changes. The result of making the changes is shown in the “\$250K model”

The “\$250K model”. Raise ~\$250K. Spend on legal structure, some technical and community facilitation, some contracted development, some membership drive costs. Most effort from volunteers.

The “\$500K model.” Same as above, but less volunteer, more professional.

V = volunteers, F = facilitation of volunteers and staff, G = governance volunteers, S = staff, X = don’t do it, N = Needs improvement, T = Transition

Task	\$0	Now	\$250K	\$500K
Project strategy and oversight	G	N ¹	G	G
Roadmap development and oversight	G	N ²	G	G
Financial strategy and oversight	X	N ³	G, S	G, S
Project evaluation, review, corrections	G	N ⁴	G	G
Technical development and oversight	V, G	N ⁵	G, F, V, S	G, F, V, S
Ontology development and oversight	V, G	N ⁶	G, V	G, F, V

¹ VIVO governance needs to be responsible for the project strategy.

² VIVO governance needs to be responsible for the roadmap -- soliciting community input, working with committers and developers, informing the community regarding direction, revising and presenting the roadmap.

³ VIVO governance needs to develop the budget and oversee its execution. Budget development should start in September, and be finished before the December holidays so that a budget is in place before the beginning of the fiscal year January 1.

⁴ Leadership has reviewed project progress each year. A more formal approach, the action plan, with agreed upon goals and measures of progress, is needed to assess project progress each quarter.

⁵ Technical development needs to move towards facilitated community participation. The community, provides requirements, code, documentation, and tests, and releases new versions under governance. Limited development can be done funded using project revenue.

⁶ The Ontology Improvement Task Force needs to coordinate ontology development with governance, technical efforts, and related projects. This is mostly in place, needs additional recognition, and repetition.

Task	\$0	Now	\$250K	\$500K
VIVO Conference	V	V ⁷	V	V
VIVO Camps	V	V ⁸	V	F, V
Presentations	V	V ⁹	V	F, V
Strategic partnership projects	V	N ¹⁰	V	F, V
Related apps and tools	V	V ¹¹	V	V
VIVO Updates	V	V ¹²	V	F
Social media	V	T ¹³	V	F
Secondary communication outlets	V	N ¹⁴	V, S	F, S
Respond to VIVO inquiries	V	T ¹⁵	V	F
Wiki maintenance	V	T ¹⁶	V	F, V
Website maintenance	V	T ¹⁷	V	F, V
Google groups maintenance	X	T ¹⁸	S	S
Master mailing list maintenance	X	S ¹⁹	S	S
Membership drive	X	T ²⁰	V, S	F, V, S
CRM maintenance	X	T ²¹	S	S

⁷ More volunteers are needed to make the conference happen each year.

⁸ Additional instructors, venues, and marketing is needed to improve attendance at the camps.

⁹ The community presents frequently. Facilitation is needed to routinely discover, promote and curate presentations for broad reuse by the community.

¹⁰ VIVO community members are involved in many partnership projects around the world. Information about these efforts needs to be shared. Routine facilitation would discover the projects and work with project participants to share stories with the rest of the VIVO community.

¹¹ VIVO has many related apps and tools, and apps and tools developed by sites that may be useful to others. The project is coming to terms with the need to identify “core tools” that will be up to date with new releases and assured by the project, and “community tools” that are provided as is.

¹² Done by Conlon. Fine for now?

¹³ Social media should be done by someone who loves it, and can present VIVO with a consistent personality and worldview.

¹⁴ We have some volunteer spreading of info on lists and social media. Could use much more. Routine facilitation would spread info further.

¹⁵ Done by Conlon. 95% of VIVO inquiries are for the phone company (See <http://vivo.com>), not the VIVO project. Should be done by facilitator.

¹⁶ Volunteers are needed to maintain content in the project wiki and documentation in the documentation wiki.

¹⁷ Duraspace is planning transition from its current Drupal site, mostly maintained by a person paid to do it, to a WordPress site that we should be able to maintain without staff support.

¹⁸ Conlon removes bounced email addresses from the mailing lists each month. Can be done by staff.

¹⁹ Master mailing list of all VIVO contacts used for conference and solicitation is maintained by Duraspace staff, merging conference and camp registration, google groups, and other sources.

²⁰ In the current model, the membership drive is facilitated by Duraspace, and supported by volunteers. In 2017, there were no volunteers, so the drive languished. Needs volunteer effort for success.

²¹ A CRM is needed for the membership drive. Currently it is a mix of volunteer (Conlon) and Duraspace staff.

Task	\$0	Now	\$250K	\$500K
Meeting support	V	T ²²	V	V
Tracking data maintenance	V	V ²³	V	F
Project expense tracking	X	X ²⁴	F	F

²² Proposed change -- meeting/call support is provided by the convener/chair/organizer of the meeting. This person, a volunteer, can be responsible for meeting technology, agenda, posting reminders, notes. Some initial facilitation is needed.

²³ Done by Conlon. Fine for now? With a new web site, we would automate the creation and publication of tracking data

²⁴ This is not done now.

Roles in VIVO and How to Get Involved

The VIVO project needs people with various skills and abilities. Please consider how you might contribute your skills and abilities to the project. If you know of people who can help, please encourage them to participate.

Advocate -- promote VIVO around the world. Give presentations, listen, ask questions, feedback to community and governance

Organizer -- help organize a VIVO activity

Governance member -- help lead the VIVO project as a member of one of its governance structures

Member -- support VIVO financially

Developer -- write code for Vitro, VIVO, and related tools

Committer -- developers who can update the VIVO and Vitro software

Tester -- test code for Vitro, VIVO, and related tools

Event planner -- plan events for VIVO

Editor -- read and improve materials developed by others

Conference Volunteer -- roles include program chair, local host, conference chair, sponsorship chair, marketing chair, event planner, project manager, reviewer, photographer

Community Facilitator -- engage people across VIVO activities and related project, respond to inquiries

Technical Facilitator -- engage developers, testers, and technical writers in the advancement of Vitro, VIVO and associated software

Financial specialist -- oversee revenue and expenditures

Membership volunteer -- help raise membership in the VIVO project

Instructor -- develop instruction materials and instruct community members at camps and workshops

Technical Writer -- develop documentation for the project

Grant writer -- develop proposals for funding agencies

Evaluator -- assess community needs, track progress with respect to needs and goals, report findings to governance

Communications specialist -- prepare VIVO stories for distribution

Social media specialist -- engage community through social media

Web/UX designer -- develop and maintain web and application look and feel

Wiki curator -- develop and maintain organization of materials in the wiki

Ontologist -- develop and maintain the ontologies used in VIVO, Vitro and related tools

Action planners -- develop the VIVO action plan for 2018-19

Implementation support specialist -- assist sites with implementation, share experience with others.