

Tools for Vivarium Operations: There's an App for That!

Ethan Hildebrand, B.A., LATg

Animal Systems Coordinator

Office of Animal Resources

Harvard University Faculty of Arts and Sciences



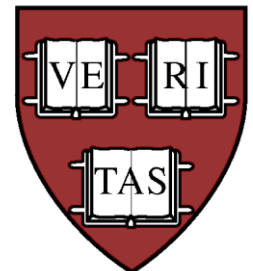
Vivarium Operational Excellence Network
Webinar February 22, 2017

The Fine Print...

- These are my opinions
- I am not a programmer, software developer, or IT security expert – please practice safe computing and use these products at your own risk (more on this later)
- I have no commercial or financial conflicts to declare. Products featured in this talk are mentioned only because of potential utility for lab animal operations.

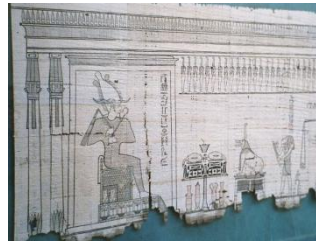
Harvard FAS Animal Care Details

- 98% mice (no large animals)
- Ave daily census: ~10,000 cages
- 2 buildings, ~60 animal rooms, 2 cagewash areas
- Worked-dedicated iPhones for all staff
- Laptops deployed to groups of animal rooms
- Departmental Org. at a glance...
 - Director/attending vet
 - 1 senior clinical vet, 1 vet tech
 - 1 manager, 2 supervisors
 - 2 admin staff
 - 14 animal care techs
 - 3 cage wash techs



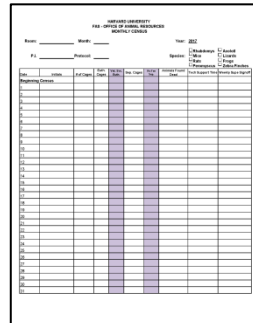
Paper

Ancient technology, one of the most important inventions in history



Pros

- cheap
- easy to use
- flexible



NO.	DATE	AMOUNT	UNIT	STRENGTH	PREPARED BY	REVIEWED BY
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						

Cons

- widely dispersed
- must be re-created regularly
- poor data visibility





"Think this is bad? You should see the inside of my head."

Enter Late 20th Century Technology

Communication, computer and web-based systems

- Email, cell phones, and web sites
- Spreadsheets and databases
- Management software

Pros

- Faster communication
- Data analysis
- Workflows

Cons

- Device and network problems
- User expertise
- Proprietary software
- One-size-fits-all
- expensive

21st Century Targets

Where to focus

- Collect data from workplace
 - forms
- Mobile computing
 - Everyone has them
 - Take the computer work to the worksite
- Cloud computing
 - Always available
- Use existing products
 - Don't spend time re-inventing
- DIY & WYSIWYG
 - User customizable/created
 - No/low code content creation
- Automate
 - Filing/compiling
- Inexpensive
- Software as tools, not solutions

Caveats to keep in mind

- Devices to manage
- Device/network/app problems and impacts to operations
- Security
- Learning curve
- Organizational tolerance to change

On Digital Security...

1. Know your data, assess the risk
2. Balance risk with benefit
3. Look into existing institutional tools
4. Leverage institutional IT professionals

Google Drive

<https://www.google.com/drive/>

- Online file storage
 - Available from anywhere
 - Files can be shared
- Google Sheets \approx Microsoft Excel
 - Web-based, shareable data collection/analysis
- Google Forms
 - Create a web-form that reports data directly to a Google Sheet
- Retail Pricing
 - Free account with 15 GB storage
 - 100 GB \$1.99/Mo.; 1 TB \$9.99/Mo.; 10 TB \$99.99/Mo.
- Example use
 - Supply/diet order form

AppSheet

<https://www.appsheet.com/>

- “The app platform for ~~developers~~ EVERYONE.” (AppSheet)
- Web-based, no/low-code app creation
- Start with data in a cloud hosted spreadsheet
 - Connects to Google Drive, Office365, Dropbox
- Retail Pricing
 - Personal apps + prototypes are free
 - Per user model: \$1/\$5/\$10 per user per month
 - Per app model: \$10/\$20/\$50 per app per month
 - 50% discount available to educational and non-profit institutions, request here: <http://solutions.appsheet.com/appsheet-nonprofit-edu-discount>
- Example use
 - Andon cord

Jolt

<https://joltup.com/>

- Web-based operations platform
 - Tasks and Checklists
 - Forms and Inspections
 - Information Library

- Retail Pricing

\$49.99/Mo.

+ \$499.99 setup fee (one-time)
per location

- Example uses

- Repeating animal room tasks

- Retail Tiered Pricing



	Setup (One-Time Cost)	Subscription	Number of Rooms
Tier 1	\$19.90/room	\$4200/yr \$350/month	Up to 80 Rooms
Tier 2	\$19.90/room	\$5400/yr \$450/month	Up to 100 Rooms
Tier 3	\$19.90/room	\$7200/yr \$600/month	Up to 150 Rooms

*Tiered billing will be annual. You can freely add rooms, and if you expand past your current tier the billing will adjust in the next billing cycle with no back charging.

**Or, an alternative to the tiered would be all rooms at \$5.50/room per month.
One-time Setup cost will remain \$19.90/room

Contact [J. Eric Marchant](#) for more information:

Phone: (801) 341-1172

Email: jay.marchant@joltup.com

Some Others to Consider...

- Zapier (<https://zapier.com/>)
- smartsheet (www.smartsheet.com)
- Dropbox (www.dropbox.com/business)
- JotForm (<https://www.jotform.com/>)
- SharePoint (<https://products.office.com/en-us/sharepoint/collaboration>)
- Microsoft Office 365 (<https://products.office.com/en-us/business/office>)

Tools for Vivarium Operations: There's an App for That!

Ethan Hildebrand, B.A., LATg

Animal Systems Coordinator

Office of Animal Resources

Harvard University Faculty of Arts and Sciences



Vivarium Operational Excellence Network
Webinar February 22, 2017