Exploring Electronic Research Notebooks (ERNs) at a R1 institution in the southeast USA – part 2

Presenter: Plato Smith, Data Management Librarian

Audience: University Information Technology Committee Meeting

Date: October 17, 2022

Time: 9:30 am – 10:30 am

Venue: Zoom (internal)

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University-wide ELN/ERN collaborations, conversations, and developments at UF

Informal ERN Task Force – unofficial (department-level) – June 2022

- Led by Data Management Librarian, UF George A. Smathers Libraries
- Includes Libraries, IT Research Computing, UF CTS-IT, College of Medicine
- Supports goals and mission of the University ELN Working Group

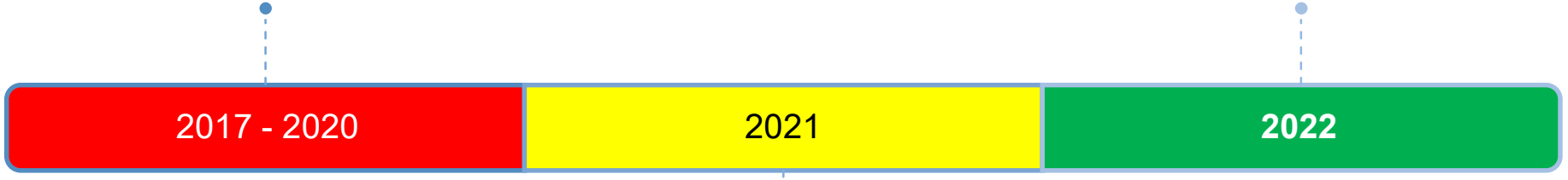
University ELN Committee – official (university-level) – July 2022

- Led by Senior Associate Dean for Faculty Affairs and Professional Development, UF College of Medicine
- Represents 25 stakeholders from over 20 different depts., disciplines ranging across varied ranks, statuses, and titles
- Develop ELN recommendations based on assessments, criteria, and evaluations

Progression of ELN/ERN developments at UF

Exploring electronic lab notebooks (ELN) @ UF (2020) Survey
UF Health Science Center Libraries (HSCL) collaboration
Electronic Research Notebooks Report and Recommendations (8/7/2020)
LabArchives demo and presentations
RSpace introduction to the ELN/ERN discussion
sciNote demo and presentations

Senior leadership requested ELN/ERN update (6/2022)
ELN/ERN scope draft submitted to senior leadership (6/10/2022)
*UF Libraries' DMCWG informal ERN presentation (6/27/2022)
***Select invited ERN vendors responded to ERN questions (8/2022)**
***Connected Informal ERN Task Force to UF Procurement (9/14/2022)**
***Invited ERN vendors' presentations to ELN Committee (9/26/2022)**
***Informal ERN Task Force Mtg. supporting ELN Committee (10/6/2022)**



ELN @ UF infrastructure inquiry from Heidelberg University assoc. professor
eLabJournal ERN in use at Heidelberg University (Boulant Lab)
UF Integrated Risk Management (IRM) Fast Path Solutions (FPS) Risk Assessment recommendation for eLabJournal for open data
UF IRM FPS for RSpace for open data
UF IRM FPS risk assessments of ERNs initiated by Libraries IT

Developments in exploring ELN/ERN at UF past 5 months

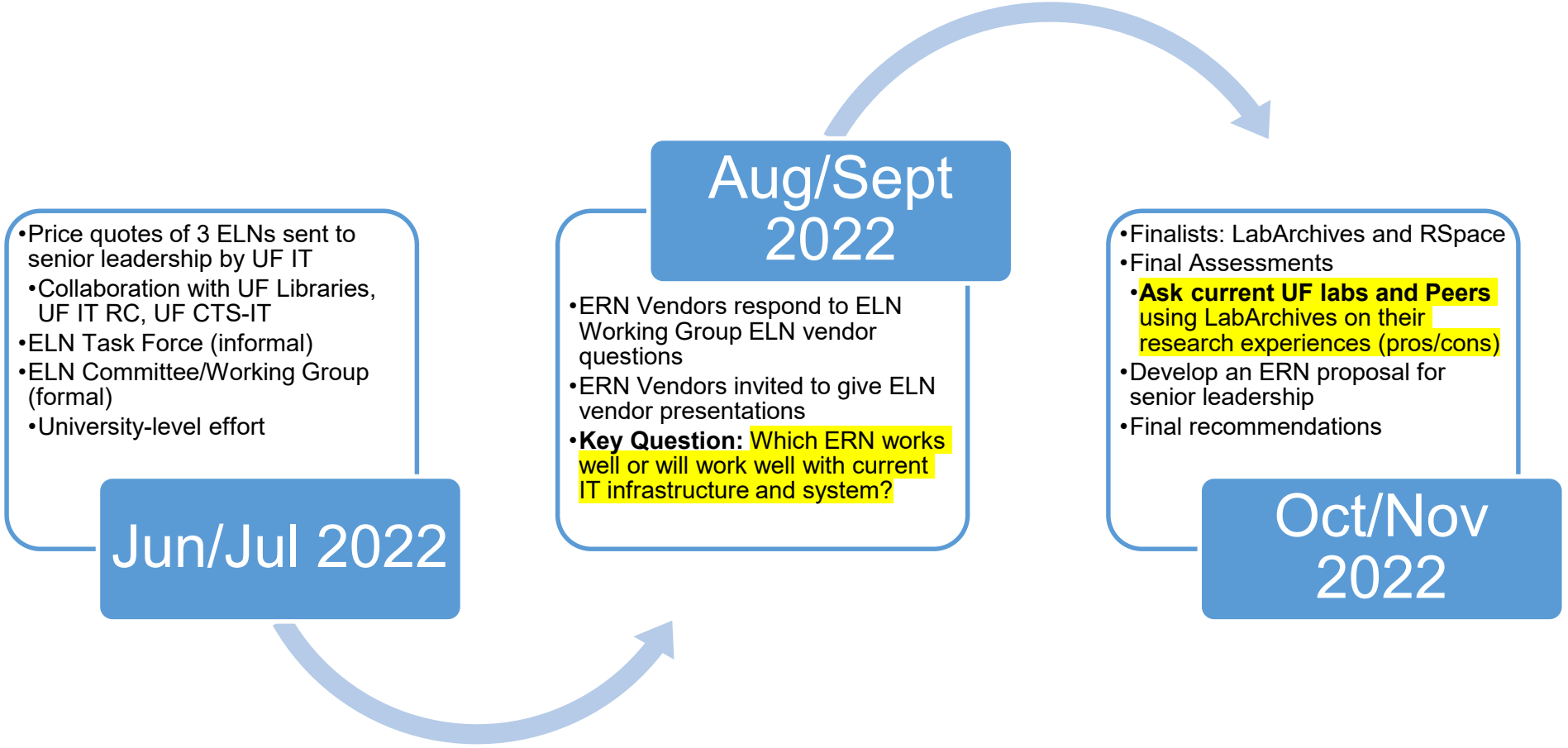


Figure 1: Select developments of current ELN/ERN @ UF efforts

The Three Electronic Lab Notebook (ELN) vendors selected for ELN questions and ELN presentations @ UF

eLabJournal

- Used by a UF Molecular Genetics & Microbiology lab
- Approved by UF Integrated Risk Management (IRM) Fast Path Solutions (FPS) for open data – August 2021
- Provided price quote
- Responded to 25 ELN questions developed by the University ELN Committee led by Dr. Mark Segal

LabArchives

- Used by several UF researchers/labs
- Used by many UF peer institutions (+250 worldwide)
  - Carnegie Mellon University
  - Michigan
  - Ohio State U
- Provided price quote
- Responded to 25 ELN questions developed by the University ELN Committee led by Dr. Mark Segal

RSpace

- Approved by UF Integrated Risk Management (IRM) Fast Path Solutions (FPS) for open data – December 2021
- Used by Harvard University many foreign HEIs
  - Leiden University
  - University College London
- Responded to 25 ELN questions developed by the University ELN Committee

Figure 2: Potential ELN/ERN vendor solution for a large R1 institution

Key factors to consider in selecting an institution-wide ERN

Scope to go beyond traditional wet lab research

- Good documentation and help guides
- Easy integration with institutional infrastructures (e.g. storage) and research services (e.g. DMPTool)
- Ability to export data in multiple formats
- Ability to delete data
- Avoid vendor lock-in
- Significant discounts for multi-year contracts
- Good application programming interface (API)
- Chemistry, biology, imaging (i.e. Chem Draw)
- Working in partnership with shared support
- Supports open science

Figure 3: Key factors to consider in selecting an institution-wide ERN

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Appendix – University ELN Committee/ Working Group Members' UF Representations

College of Medicine	Geology	Occupational Therapy	Pharmacology/ Therapeutics
Dept. of Pharmacology and Translational Research	Center for Landscape Conservation and Ecology	Occupational Therapy	Engineering Education Administration
IT Research Computing (x2)	Agriculture Extension Administration	College of Veterinary Medicine – Physiological Sciences	IT Customer Experience
Biology	Psychiatry	Anesthesiology	Clinical and Translational Science IT
Astronomy	History	English	
Mathematics	Geography	Anthropology	Libraries (x2)

Appendix – University ELN Committee/ Working Group questions for ELN vendors

1	**How many users do you have at UF?**
2	What is your cost structure? Is it a blanket license across UF or for a set number of users or both?
3	How is the data secured? What happens in the event of something like an EMPA (electromagnetic pulse) that disrupts IT systems - what is the backup?
4	What are the steps to importing data from another electronic notebook?
5	How many ways can the whole notebook be exported? What is the portability of the data in the electronic notebook? Can data be exported as a text document, PDF, etc. (non-proprietary format) and stored locally? Can portions of the notebook be printed selectively? What are the options for formatting the printed sections?
6	How does the product handle files/attachments?
7	How is the imported data managed & integrated with external data sources?
8	How are links and references handled?

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9	What training programs are in place for help with campus adoption?
10	What training programs are in place to help the end user?
11	Availability of customer service?
12	How well does the product integrate with Microsoft Office products/ interoperability across Apple and Microsoft platforms? What types of devices can you enter data or text from (Mac Windows, tablets ((does it work with pointing devices, pens)))? Does the product support the use of mobile devices (Android, iPhone)?
13	Are there any research specific functions (drawings, calculations, etc.) within the product?
14	How are collaboration handled within the product? Can notebooks be shared outside of UF?
15	Does the product assist in lab and inventory management?
16	Does your notebook support version control, such as for tracking of data-record files, and computer scripts and code, and if so, does it integrate with GitHub or other data repositories?

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17	**How does the product work with data analysis pipelines?**
18	Does the product integrate with other research databases (e.g. FLMNH: Specify, iDigBio, etc.), track samples from collections, research outcomes, report back to the originating database?
19	Can it convert written text into typed text? Example upload a picture of a written lab notebook and convert handwriting into searchable text?
20	With your notebook, do students would have the ability to initiate/manage their own notebook/account and be provided limited/restricted access to mentors or supervisors notebook?
21	Can the product be utilized in undergraduate courses? Can it be integrated into a learning management system (especially Canvas)? Would there be an additional cost per student? Does the company have experience with course integration and/or examples of other campuses utilizing the product this way?
22	What are the file/data size limitations?
23	Is an internet connection required to use the notebook? Or can you work on a local copy?

Appendix – University ELN Committee/ Working Group questions for ELN vendors

24	**In the event UF wants to discontinue the contract - what are the terms?**
25	What do you see as your strength compared to the top competitors in this space?

Thank you

Please contact Dr. Mark Segal in the UF College of Medicine for further information on electronic lab notebook developments at the University of Florida.