

Technology Sandbox: Seeking Out Innovative Technology Use at NIH

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- Separate from the National Library of Medicine (NLM)
- Within NIH Office of the Director / Office of Research Services
- Operating as Division of Library Services
- 62 staff (48 federal, 14 on contract)
- 3 branches
 - Education Services Branch
 - Information Architecture Branch
 - Information Resources and Services Branch
- 18 teams
- Leadership Team (LT)
- Leadership Team / Team Leaders (LT/TL)

Services

- Reference/consultations
- Document delivery/interlibrary loan
- Translations
- Editing
- Informationist program
- Bioinformatics support
- Data management
- Portfolio/bibliometric analysis
- Systematic reviews
- Custom information solutions

Resources

- Electronic Journals
- E-Books
- Databases
- On-site Training
- Computers

What is the Technology Sandbox?



- Repurposed the reference collection area
- Purpose:
 - Provide customers access to cutting edge technology and how it may relate to NIH work or research
 - Facilitate collaboration at NIH
 - Form and strengthen partnerships with customers
 - Allow the Library to explore offering technology as a service to its customers

What is the Technology Sandbox?

Collaboration

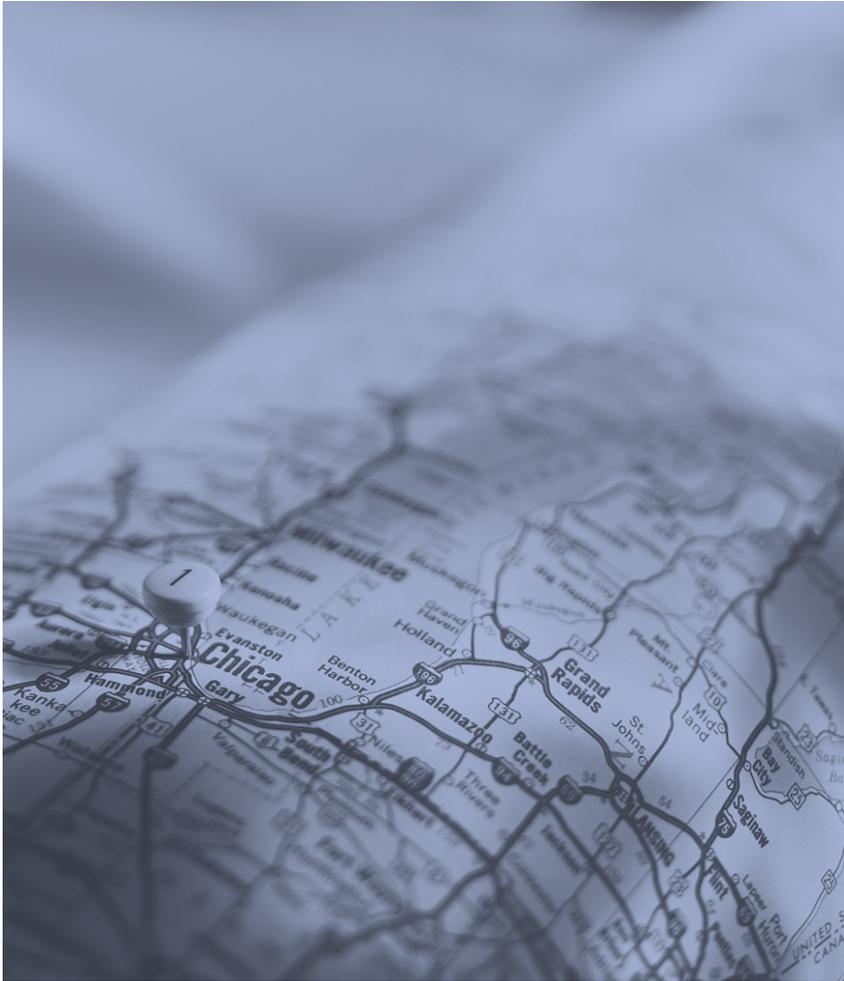
Contains two semi-private workspace, each equipped with a computer, Bluetooth keyboard and mouse, plasma screen with mirror capabilities, and seating for 1-3 people. The computers contain software for 3D modeling and printing, graphic and web design, online mapping and spatial data, and video production and editing.

Information

House the library's Information Desk where circulation and reference services, reservations for library workspaces, and consultations can be obtained.

Storefront

Serves as the hands-on area where users can explore 3D printers, mobile devices, and other technologies. Workstations dedicated to bioinformatics and data management are also located in this zone.



Project Planning

Needs Assessment

Space & Staff Planning

Service Areas

Implementation

Project Milestones

Project Phase	Milestones	BSC	Due	Completed
Project planning	Determine the project vision, goals, and needs, and envision the key components of the project and relationships between each phase of the project.	Improve Library Processes	2/1/2013	2/25/2013
Needs assessment	Conduct user-centered needs assessment in an effort to quantify and qualify the needs for space, technology, furniture, equipment, and services to support the functions and activities described in the vision	Optimize Customer Experience	7/12/2013	

Project Milestones

Project Phase	Milestones	BSC	Due
Space & Staff Planning	Develop estimates for staffing and skill levels for supporting the Sandbox and develop training plan for supporting staff development.	Maximize Staff Skills and Knowledge	7/31/2013
Service Areas	Develop a mechanism for fostering partnerships, and highlighting innovative projects with NIH Institutes and Centers.	Build Relationships & Enhance Partnerships	8/30/2013
Implementation	Coordinate the construction and installation of materials, technologies, equipment, and systems to build the Sandbox.	Improve Library Processes.	9/30/2013



- Reviewed the literature.
- Outlined the key components of the project and defined the relationships between each phase of the project.
- Developed stakeholder matrix and communication plan.



Potential data sources:

- Interviews
- Observational
- Photo Interviews / Photo Diary
- Focus groups
- Surveys

Interviewed staff at two libraries with similar projects:

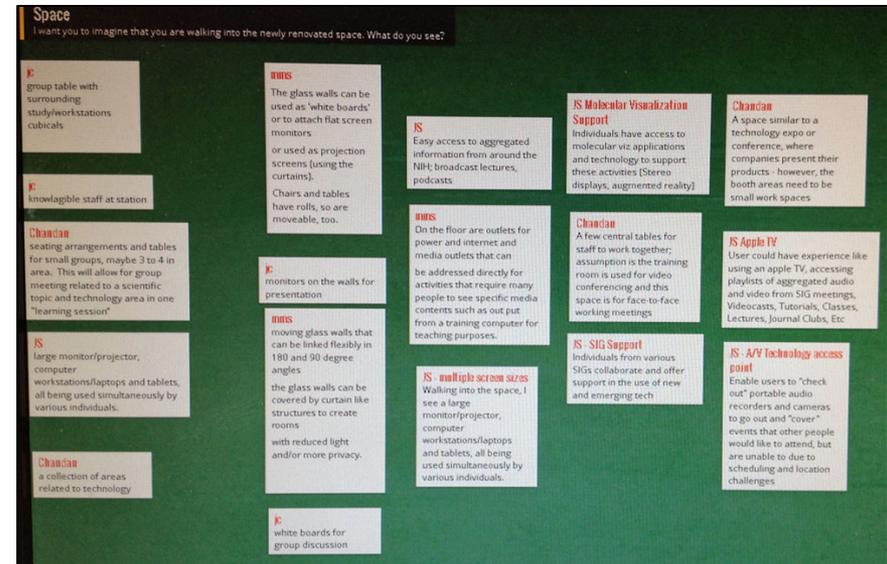
- University of Pittsburgh Falk Library
- North Carolina State University

Common themes from both interviews

1. **“What is the future of library spaces, given the evidence that books are not the primary method for bringing folks to the library?”**
2. **“What should go in the library versus what should stay in the lab?”**
3. **Being the "competitive advantage" for the campus. The library wanted to be the place that prepared our students to move fluidly from academia to work.**
4. **“Build it and they will come” is an outdated mantra. It is crucial to install and support technologies that support learning and collaboration.**
5. **“Solving research problems should be built into the technology that you choose.”**

- Three focus groups conducted: two with NIH Library staff, and one with four key stakeholders identified by the Advisory Committee.
- Used both paper-based and online methods for capturing concepts.
- Each focus group was divided into four phases:
 - Brainstorming concepts
 - Arranging concepts into “affinity clusters”
 - Naming each cluster
 - Debriefing about methods and potential threats to the project

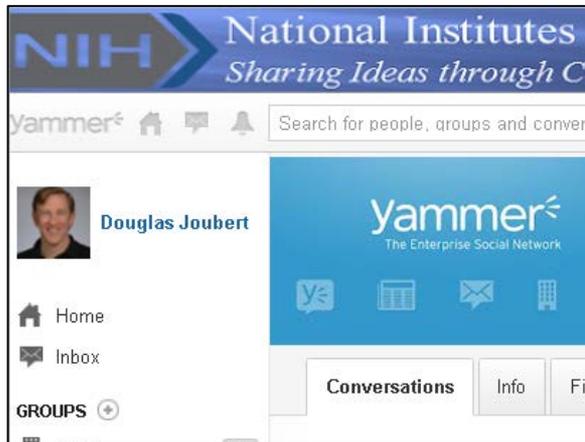
Themes from Focus Groups



Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Flexible layout	Adaptable	Support multiple activities	Cross-NIH collaboration	Integration into workflow and across technologies

- Be sure the Sandbox supports the needs of all of our users (administrative, clinical, and research).
- Make the space as adaptable and flexible as possible.
- Think about additional space for this project.
- Consider surveying users before you deploy devices.

Based on data gathered during the first set of focus groups, the team employed the following data collection methods.



Yammer Town Hall
Focus Group



“Submit your own idea”
Bulletin Board



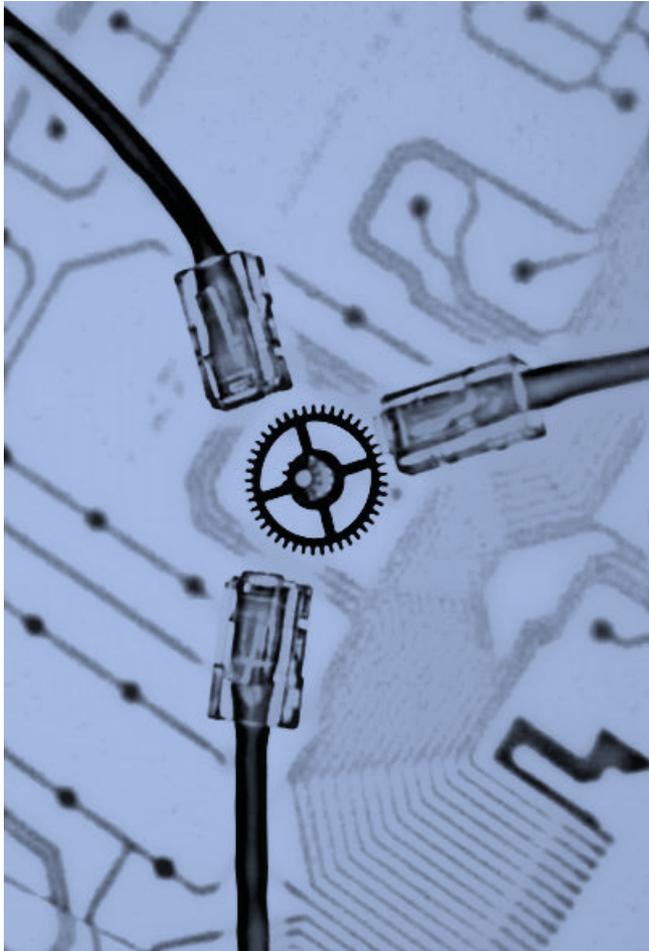
“Electronic Sticky Notes”
on NIHL Website

- Create an integrated concept model that includes necessary technology, equipment and furniture parameters.
- Define the “stimulation factors” of the space.



- The team defined the range of potential technologies and how to plan for successful implementation, adoption, and support.
- Technology matrix.
- Life Cycle Tool to estimate life-cycle factors.





About making connections

Data-driven solutions

Space, furniture, & technology

Key stakeholders

Integration into workflow

- Two semi-private workspaces (the “Pods”), containing:
 - Plasma screens with mirroring capabilities
 - Computers and Bluetooth keyboard and mouse
 - Whiteboards
 - Seating for 1-3 people
- Software available: 3D modeling and printing, graphic and web design, geographic information systems (GIS), and video editing
- GIS Assessment: What are NIH’s needs?
- Reservations required for use



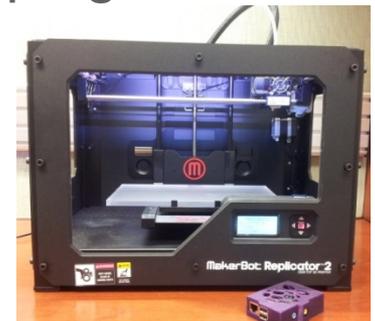
- Houses the Information Desk
- Access to reference and circulation services
- Get assistance with various services in the Sandbox
- Reserve Sandbox workspaces
- Checkout mobile devices from the Digital Reading Program
 - Library content, NIH- and HHS-developed apps, and device-specific apps
 - Use around the library and on green terrace
 - Active ID required
 - Sign a borrowing agreement (one-time)



- Hands-on area
- Makerbot Replicator 2 and Airwolf HD2X 3D printers
- 3D Sense scanner
- iPad minis and Google Nexus 7 tablets
- Three bioinformatics workstations and one data sciences workstation
 - Supports Bioinformatics Support and Data Services programs
 - Reservations required



- 3-month pilot (June 2 – August 29)
- Goal: assess 3D printing needs at NIH
- Access to Makerbot Replicator 2/2X 3D printers
- Users asked to complete evaluation after print
- Results:
 - 79 unique prints from 14 NIH ICs; 18 orientations held; 20 surveys collected
 - Prints: proteins, viruses, anatomy, rapid prototyping, and lab equipment
- Develop an online guide:
<http://nihlibrary.campusguides.com/3dprinting>
- Established listserv and SIG



- Continue to build partnerships and build communities of practice
- Research, purchase and test new technology
 - Thermal imaging, 3D printers and scanners, wearables, interactive wall, mobile devices, etc.
- Continue to develop competencies
- Expand Bioinformatics, Data Services, and GIS services based on need
- Data visualization
- Highlight mobile technology efforts

- Policies
- Security
- Ethics
- Getting the word out
- Measuring success



**High Performance Bioinformatics
Workstation 1**

64-bit Win 7 • 8 cores • 2TB storage • 48 GB memory

**High Performance Bioinformatics
Workstation 2**

64-bit Win 7 • 8 cores • 2TB storage • 48 GB memory

Please Do Not
Shut Down
Analysis in Progress

Please Do Not
Shut Down
Analysis in Progress

The NIH Library is open to NIH and HHS staff.
Stop in or visit nihlibrary.nih.gov to learn how we can help you.

National Institutes of Health
LIBRARY

3D Printers



3D Printed Models



Example of Partnership – 3D Scanner



Collaboration Pods



Pod 1 – Up Close



- Technology Sandbox Homepage:
<http://nihlibrary.nih.gov/Sandbox>
- 3D Printing at the NIH Library:
<http://nihlibrary.campusguides.com/3dprinting>
- NIH 3D Printing and Modeling SIG and listserv
3D-SIG-L@LIST.NIH.GOV
- Reserve workspaces:
http://nihlibrary.libcal.com/booking/sandbox_workspaces
- Contact Us:
 - Email: NIHLSandbox@nih.gov
 - Phone: 301.496.1080
 - Visit the Library's Information Desk as ask for someone on the Sandbox Team

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