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Data Visualization Support Services in Academic Libraries
Activity

Natalie Meyers | E-Research Librarian
James Ng, PhD | Social Science Data and Economics Librarian
Matthew Sisk, PhD | GIS and Anthropology Librarian
Julie Vecchio | Assistant Director, Navari Family CDS

Documents in activity packet reproduced or adapted from the following sources:

- Design Council. (n.d.) *Design methods for developing services: An introduction to service design and a selection of service design tools.* Retrieved from https://www.designcouncil.org.uk/sites/default/files/asset/document/Design%20methods%20for%20developing%20services.pdf

- NC State University, Brightspot, AECOM, & Institute of Museum & Library Services. (n.d.). *Learning Space Toolkit.* Retrieved from https://learningspacetoolkit.org. Used under CC by 2.0 / Adapted from original

- Llama, E. (2015). *Creating personas.* Retrieved from http://www.uxbooth.com/articles/creating-personas

- Marquez, J., Downey, A., & Kwok, A. (2017). *Library service design heuristics.* Retrieved from http://www.ala.org/tools/future/engage/heuristics

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Data Visualization Support Services
Case Study 1
Flagship Public Research Institution

Institution

- **Student Population**:
  - ~30k
    - ~20k undergraduate
    - ~10k graduate
- **Colleges & Departments**: 10 Colleges, > 100 degrees
- **Location**: Urban

Library

- 1 main library, 5 branch libraries
- **Spaces and Services:**
  - Copyright Services
  - Digital Media Commons
  - Digital Scholarship Center
  - Exhibit Gallery
  - Institutional Repository
  - Learning Commons
  - Makerspace
  - Research Data Services
  - Special Collections
  - Technology Lending
  - Workshops

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Data Visualization Support Services
Case Study 2
Private Research Institution

Institution

- **Student Population**:
  - ~7k
    - ~5k undergraduate
    - ~2k graduate
- **Colleges & Departments**: 6 Colleges
- **Location**: Suburban

Library

- 1 main library, 2 branch libraries
- **Specialty Spaces and Services:**
  - 3D printing
  - Copyright Services
  - GIS Services
  - Institutional Repository
  - Learning Commons
  - Technology Lending

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Data Visualization Support Services
Case Study 3 (Build Your Own)

_____ *Institution*

Institution

- **Student Population**:

- **Colleges & Departments**:

- **Location**:

Library

- **Location(s)**:

- **Specialty Spaces and Services:**

"A persona is a representation of a user, typically based off user research and incorporating user goals, needs, and interests." (Ilama, 2015)

Personas:

- Reflect observed patterns
- Focus on current state (not future state)
- Realistic, not idealistic
- "Help understand users'
    - Context
    - Behavior
    - Attitudes
    - Needs
    - Pain points/challenges
    - Goals and motivations"

(Ilama, 2015)

Role:

Age:	**Major/department/affiliations:**
Goals/motivations:	**Needs:**
Frustrations/Challenges:	**How to contact me:**

Use Case Tool

Purpose: The Use Case Tool enables a project team to move from anecdotal accounts of user needs to scenarios built on fact-based user research, thereby translating user needs into space use scenarios. These scenarios can be used in both space and service planning as well as form an important part of post-occupancy / redesign assessment.

Who *User Type/Persona*	**What** *Needs/Aspirations*	**Why** *Motivations*	**How** *Facilitation*	*Technologies*	*Services*	*Space Attributes*	**Check**
E.g., Faculty in Architecture	*E.g., Need to be able to use a large display to test a virtual reality program they have written*	*E.g., Because the department is placing new emphasis on this research direction*	*E.g., To be successful, faculty will need to be able to use resources intensely for large chunks of time*	*E.g., To be successful, faculty will need access to a large display and specialized software*	*E.g., To be successful, faculty will need access to dedicated technical support amd workshops for new approaches*	*E.g., To be successful, faculty will need an enclosed, reservable space with adjustable lighting and privacy*	___ *No such existing service exists* ___ *Existing service:_____ (Full, Limited, etc.),*

Service Blueprint

Purpose: Service Blueprints may take different forms but should show the different means/channels through with services are delivered and show the physical evidence of the service, front line staff actions, behind the scene staff actions, and support systems. They are completed using an iterative process. Often blueprints raise questions that cannot be readily answered and so need to be prototyped; generally, one blueprint should be created for each core service.

	E.g., Documentation & Tutorials	***E.g., Data Viz Web Page***	***E.g., Service Desk***	***E.g. Viz Lab Space***			
Physical Evidence or Communication Channels	*E.g., Use policies, tutorials, technical documentation*						
Customer Actions	*E.g., Access policies/tutorials/technical documentation, ask questions*						
Front-line Staff Actions	*E.g., Maintain policies/procedures, create tutorials*						
Behind-the-Scenes Staff Actions	*E.g., Maintain web page for access to policies/procedures, tutorials*						
Support Systems and Infrastructure							

Project Phases

Typical planning, construction, operations and evaluation of learning spaces.

LEARNING SPACE TOOLKIT

Participants

Project Owners[1]
Design / Programming Team[2]
User Groups[3]
Specialists[4]

[1] *Project leadership, steering committee, campus facility management / project management, facilities operations & maintenance, campus architect;*
[2] *Design team, planning consultants, technical consultants, technology team;*
[3] *Advisory committee, student government & faculty senate; student & faculty users*
[4] *Office of Institutional Analysis / Assessment, Central Computing, academic student and faculty services (e.g.: Learning Technologies Group, Center for Teaching & Learning, Writing / Tutorial Center)*

☑ ***Checklist***

Visioning

Determining the project vision – the goals, needs, and success criteria, along with the project's key components and relationships.

Activities (in general order of sequence)

- **regular steering committee meetings**
- review of strategic plan
- review space inventory
- visioning session
- leadership interviews
- space utilization analysis
- online surveys
- review guideline standards
- existing facility assessment
- observation studies
- focus groups (by groups)
- focus groups (by themes)
- best practice research
- facility tours
- integration workshop
- technology visioning

Decisions and Deliverables:

- ❑ *vision statement*
- ❑ *guiding principles*
- ❑ *service philosophy*
- ❑ *planning horizon*
- ❑ *space evaluation*
- ❑ *review peers example cases*
- ❑ *develop profiles & personas*
- ❑ *develop use cases*
- ❑ *identify key spaces*
- ❑ *tech context map*
- ❑ *information resources strategy*
- ❑ *technology vision statement and presentation*

Needs Assessment and Space Programming

Quantifying, qualifying, and relating the needs for space, technology, furniture, equipment, and services to support the functions and activities described in the vision.

Activities (in general order of sequence)

- **regular steering committee meetings**
- user group meetings / workshops
- departmental interviews
- space utilization analysis
- draft program
- program revision workshops
- quantitative benchmarking
- technology planning
- technology lifecycle planning

Decisions and Deliverables:

- ❑ *number of occupants*
- ❑ *net-to-gross ratio*
- ❑ *overall SF*
- ❑ *"kit of parts"*
- ❑ *how much of each kind of space + where*
- ❑ *adjacencies*
- ❑ *technology plan*
- ❑ *technology programmatic requirements*

Concept Design

Translating the program into a design concept – a main idea –according to the project vision and with the ongoing input of project stakeholders.

Activities (in general order of sequence)

- **regular steering committee meetings**
- design workshops / charrettes
- service design
- pilot projects (design)
- prototyping
- design review workshops
- technology infrastructure design

Decisions and Deliverables:

- ❑ *service concepts*
- ❑ *journey map*
- ❑ *stacking/blocking*
- ❑ *connections b/w spaces (physical / visual)*
- ❑ *service location matrix*
- ❑ *service blueprint*
- ❑ *integration blueprint*
- ❑ *technology reference architecture*

Design

Developing the design concept to include the technical information required for construction - precise dimensions, specifications of materials and systems, and depiction of how elements go together.

Activities (in general order of sequence)

- **regular steering committee meetings**
- design development of finishes, materials, furniture and equipment
- pilot projects (evaluation)
- prototyping (evaluation)
- technology prototyping
- technology specifications
- design review workshops

Decisions and Deliverables:

- ❑ *selection of building systems & materials*
- ❑ *selection of furniture and finishes*
- ❑ *technology integration plan*
- ❑ *signage and wayfinding*
- ❑ *technology budget matrix*

Construction

Assembling the materials, technologies, equipment, and systems to build the learning space – either as new construction or renovating an existing space.

Activities (in general order of sequence)

- **regular steering committee meetings**
- regular construction progress meetings
- issue-specific meetings as they arise
- milestone meetings to review progress
- pilot projects (evaluation)
- prototyping (evaluation)
- technology installation

Decisions and Deliverables:

- ❑ *decisions in response to construction issues*
- ❑ *stakeholder communication plan*
- ❑ *schedule / protocol for tours*

Operation / Assessment

Operating the learning space(s) in order to fulfill their objectives and assessing whether / how well these objectives are being met in an ongoing way.

Activities (in general order of sequence)

- **regular steering committee meetings**
- technology operation
- post-occupancy evaluation
- prototyping as needed
- public annual review of usage / satisfaction / impact

Decisions and Deliverables:

- ❑ *staffing*
- ❑ *assessment methodology*
- ❑ *annual reporting*
- ❑ *stakeholder relationships / liaisons*
- ❑ *feedback channels (e.g.: blogs)*
- ❑ *tour guides, content, and schedule*
- ❑ *project documentation for conferences / articles*

Phases	Activities	Decisions and Deliverables
Visioning		
Needs Assessment/ Programming		
Concept Design		
Design		
Construction		
Operation/Assessment		

https://learningspacetoolkit.org/wp-content/uploads/Roadmap_Example-Project-Phases.pdf

Service Location Planner

Purpose: The Service Location Planner is a simple tool to plan where and when services will be offered — within a learning space or virtually. For instance, where will in-depth research consultations take place, during what hours? This can be completed internally, with service partners, and/or design team members and will be an iterative process, refining the table overtime. The resulting table will help ensure that space, technology, and furniture enable the delivery of services. It can also serve as the basis for resource planning in terms of staffing, shifts, and skills.

	LOCATIONS & HOURS						
SERVICES	*E.g., Digital Scholarship Center Help Desk*	*E.g., Digital Scholarship Center Staff Suite*					
E.g., Assistance with hardware/software	*E.g., Service Desk Hours*	*E.g., 9 AM - 5 PM*					

Integration Blueprint

Purpose: A planning and operations tool that compiles information about activities, spaces, technology, and services to coordinate across these area and across different space types.

Instructions:

1. Gather information from other tools used within the toolkit and create a brief summary of key directions OR use initially to record preliminary ideas and identify questions or "holes."
2. Once completed, look across the cells for alignment/conflict, duplications, or other patterns to aid in planning and operations.
3. Use this tool to verify design and operation of space meets intended goals, checking back to Needs Assessment activities.

	Activities *(from User Story Tool, Needs Assessment, and Personas)*	**Space Design Criteria** *(from Needs Assessment and Space Browser)*	**Technology Design Criteria** *(from Needs Assessment and Space Browser)*	**Service Design Criteria** *(from Journey Maps, Service Blueprints, and Service Philosophy)*
E.g., Data Visualization Studio	*E.g., Research support (consults), technology support (consults), access to specialized hardware/software*	*E.g., Enclosed space, adjustable lighting*	*E.g., High-end computer with large monitor*	*E.g., Dedicated support, reservation model, workshops*

CLARITY OF PURPOSE AND FUNCTION

SERVICE:

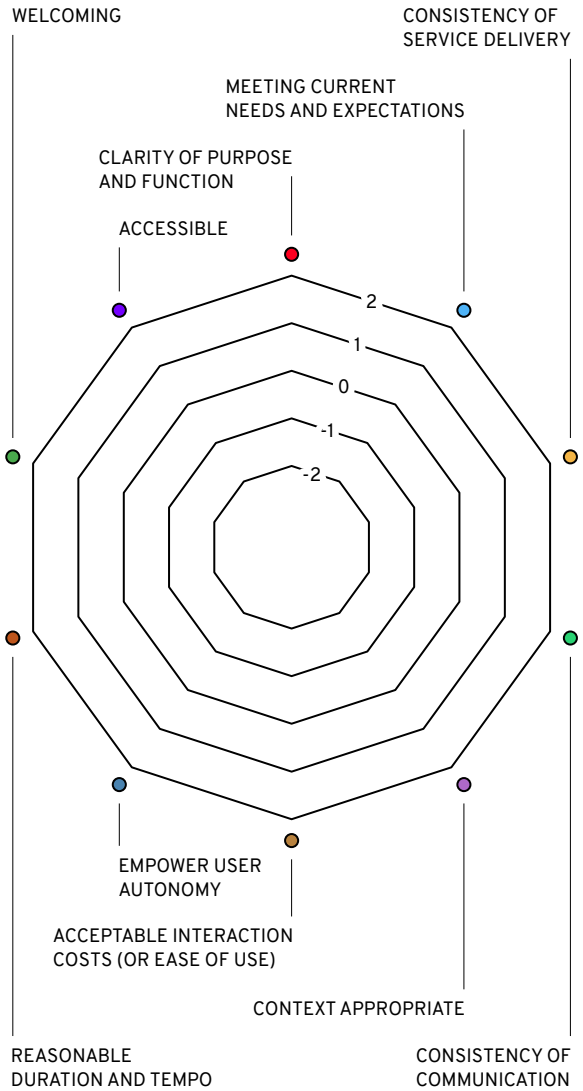
MEETING CURRENT NEEDS AND EXPECTATIONS

CONSISTENCY OF SERVICE DELIVERY

CONSISTENCY OF COMMUNICATION

FINAL SCORE:

CONTEXT APPROPRIATE



ACCEPTABLE INTERACTION COSTS (OR EASE OF USE)

EMPOWER USER AUTONOMY

REASONABLE DURATION AND TEMPO

WELCOMING

ACCESSIBLE

We are designing …

That …

For …

So that ...

Adapted from Design Methods for Developing Services, UK Design Council (n.d.)