Catalyst Fund Proposal

Proposal Title:	Web Components Library for Cultural Institutions
ID:	48
Institution:	University of Virginia Library
Requestor:	Jill Heinze, Director, User Experience
Budget:	$20,000
Goal (as pulled from the application):	"Rather than task scarce developer resources with the redundant work of addressing common [website development] challenges, we propose creating a shared resource where web developers can find ready-made assets that have been vetted for accessibility, usability, and performance that they can easily apply to their sites."
Description:	Web Components Library for Cultural Institutions: Expediting Web Development to Create Impactful User Experiences A library's website is often its most important showcase and single largest service point in terms of numbers of visitors. Yet many institutions lack the technical resources to make them as engaging as possible, leveraging the latest browser and mobile device capabilities. Even more concerning, resource constraints may lead to the creation of sites that violate accessibility requirements and usability principles, which can spur lawsuits and user complaints. Rather than task scarce developer resources with the redundant work of addressing these common challenges, we propose creating a shared resource where web developers can find ready-made assets that have been vetted for accessibility, usability, and performance that they can easily apply to their sites. Web components offer promising means of expediting web development while ensuring quality and accessibility across interfaces. Web components are reusable widgets that can be customized independent of other code or existing frameworks, allowing developers plug-and-play ability to add sophisticated functionality by simply inserting HTML tags. These widgets can also work with libraries' preferred data sources, making them compatible with many content management systems and third-party service providers. Components can be rigorously tested to conform with usability and accessibility best practices so that developers can reuse them with confidence. In addition, because they leverage powerful technology built into web browsers, they can offer users fast, reliable performance even when they're offline. Benefits of "plug-and-play" widget (component) library: - Centralized maintenance for faster, reliable web development - Open-source repository for cross-institutional collaboration and maintenance - Ability to better ensure consistent branding, user experience, and accessibility - More developer time available to produce custom/enhanced/robust online experiences More impactful use of limited technology resource budgets - Offline access for users with limited/low internet access, particularly on mobile devices

- Less dependency on third parties for front-end user experiences as widgets can be configured to work with many vendors that offer APIs Changes can be made without affecting what users see

During the past year, UVA Library has been developing a centrally-maintained web component library in order to simplify web maintenance, while also allowing us to more thoroughly standardize our user interfaces for improved usability. Among them are components that handle catalog searches, design elements, headers and footers, navigation, logos, and more. All of these widgets address concerns that are common across many libraries and cultural institutions, such as displaying hours and events, maintaining brand identity, searching collections, mapping locations, etc. Rather than struggle independently to create and maintain engaging digital interfaces, we propose creating a proof-of-concept component library that developers can collectively maintain and use across institutions.

We envision this proposed project would span two phases. The first phase would entail researching the needs, technologies, and expertise available at representative institutions, which we believe we can draw upon from LYRASIS membership. The research phase would inform the subsequent development phase by answering the following questions:
- What areas of web development would people like the most help with?
- What features/functionality would make the most promising web component candidates?
- What barriers to adoption exist? How could they be overcome?
- What characteristics make institutions good candidates for adopting web components?
- What technical knowledge must be communicated to local developers to enable adoption?
-How willing/likely would local developers be to maintain and contribute to the library?

We anticipate these questions could be largely answered via a combination of exploratory interviews and surveys. Given that LYRASIS membership is sufficiently sizable, diverse, and representative of our target audience (which consists of any library, museum, or other cultural institution), we'd like to direct our research efforts to developers and stakeholders within this group. In addition, an evaluation of a representative sample of member websites would be included to identify common elements and needs. Research would be conducted by a third party identified and managed by UVA Library's Director of User Experience.

The results of this research would inform the definition and scope of the development phase. The anticipated goal of development efforts would be to create a web component 'starter kit' consisting of the most desired web component elements and templates identified by research. Funds would be used to outsource and hire an external developer to execute the web components as specified and managed by UVA Library's Lead User Experience Web Developer in coordination with UVA Library's Director of User Experience. Requisite usability and accessibility tests would also be specified.

The web component library would be made available as an open source project hosted in a GitHub Organization consisting of multiple repositories. The market research outcome, as per the grant requirements, would be made available for posting on the LYRASIS website openly accessible under a Creative Commons attribution license, and the overall project outcome would be presented at the LYRASIS Member Summit.

Deliverables
1. Market research report: Written summary of findings and their significance
2. Proof-of-concept web component library: Open-source GitHub Organization - a collection of web component repositories of the essential, customizable web components with greatest potential for adoption among LYRASIS institutions
3. Technical documentation: Creation of necessary technical implementation details for local developer use
4. Communication plan: Written documentation of channels, messages, and timing for communicating with participants and stakeholders
5. Project summary: Presentation of overall learnings and progress achieved

Estimated Costs
$7,000: Custom market research on institutions' needs
$13,000: Outsourced developer time for building component library 130 hours (3.25 weeks) at $100/hr.
$20,000: Total estimated cost

Project Needs
- Access to LYRASIS contact list and permission to recruit/distribute survey, interview participants, and fixed number of post-project communications as defined in communication plan
- LYRASIS project manager to aid UVA Library project sponsors
- Ability to promote web component library on via LYRASIS communication channels, website

Timeframe:
- 6 months: Market research and analysis
- 2 months: Applying market research results to defining scope of development phase, along with specifications
- 2 months: Web component development
- 1 month: Development of web component library communication plans (channels, frequency, format, etc.)
- 1 month: Creation of technical documentation needed to facilitate adoption (concurrent with communication planning)
Approximately 11 months: Total time required

Comments from Field Reviewers:	1. The problem is well defined and the proposal has both a well thought out project plan and broad applicability, especially with LYRASIS members. Small- to medium-sized libraries would seem to benefit most from a web components repository, and building a community around this to support it over the long term is especially intriguing. There are some web component libraries in the marketplace, mostly operated by commercial firms. So this project would build one for the LYRASIS community.
	2. Leverages lightweight but powerful components to create a rich set of generalized solutions for library/museum/archives Web & online environments. Seems to me doable & worth doing and it will bring some cohesiveness and perhaps even a more broadly shared technical agenda into LYRASIS community.