

Community-Centered Sustainability: A Case Study of the Music Encoding Initiative

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Abstract

Lacking institutional support, the vast majority of digital humanities communities and their respective projects confront the pervasive challenge of sustainability. Shifts in technologies, resources, and communities over time present systemic barriers to the long-term viability of digital projects. The “Communities sustaining digital collections” project is investigating the roles of research communities in the sustainability of digital collections, with the purpose of identifying strategies to increase the long-term viability of their digital resources. Four unique case studies span several types of digital humanities projects: the Lakeland Digital Archive, the Open Islamic Text Initiative, the Enslaved.org project, and the Music Encoding Initiative. By conducting interviews with community members and users of these digital projects, we have observed some unifying themes, particularly regarding the symbiotic relationship between the maintenance of the digital object and the maintenance of the community of contributors and users.

Of these case studies, the Music Encoding Initiative represents the longest-running and most geographically dispersed scholarly community, composed of technologists, musicologists, music theorists, and music librarians from around the world. This research community has engaged in the creation, maintenance, and adaptations of an open-source standard for encoding musical documents in machine-readable XML schema. Our paper will present preliminary outcomes of the case study of the Music Encoding Initiative, and how the MEI community understands sustainability in the context of their digital markup standard. This paper will also relate emergent findings from cross-case analysis of our broader study of community-centered strategies for sustaining digital humanities resources.

Introduction

A vibrant, scattered profusion of curated cultural collections lives outside of libraries, archives, and museums. Independent digital humanities projects and digital community archiving initiatives provide unique or original evidence of groups and histories that are underrepresented in mainstream institutions. Without institutional backing, these collections also confront major barriers to medium- and long-term viability as the underlying technologies and the surrounding communities themselves shift over time. The vulnerability of digital, community-centered

collections undermines the completeness and equity of our collective memory. Sustainability efforts and partnerships often founder on a lack of shared understanding: of available expertise (e.g., [Flinn, 2011](#)), of necessary commitments, and of what sustainability entails for a given project.

This paper focuses on this last, transcendent problem: within and between communities and institutions, the term *sustainability* bears nebulous, sometimes conflicting meanings, thwarting conversation and progress toward shared solutions. We report preliminary outcomes of a case study of one digital community and markup standard, the Music Encoding Initiative, described below. This case study is part of “Communities Sustaining Digital Collections,” which is investigating how communities in various contexts interpret and implement sustainability strategies that foreground community ownership, needs, and values. A comparative, multi-case study of digital community archives and digital humanities collections, this project aims to identify community-centered sustainability strategies for digital collections living outside of cultural institutions. This paper takes a step toward that objective by exploring how participants understand sustainability for their project.

1 Sustainability Studies

1.1 Music Encoding Initiative

The term Music Encoding Initiative (MEI) simultaneously represents the musical markup language, the organization responsible for its formation and guidelines, and the research community formed around its use. It represents the longest-running and most geographically dispersed scholarly community of all our case studies, composed of technologists, musicologists, music theorists, and music librarians from around the world, but largely concentrated in North America and Europe. Being so dispersed, and even more so through the pandemic, interactions are frequently digital, on the listserv, GitHub, and Slack channels. This research community has engaged in the creation, maintenance, and adaptations of an open-source standard for encoding musical documents in machine-readable XML schema. Since its creation in 1999 by Perry Roland at the University of Virginia, MEI has grown to support an ever-increasing number of library access tools and highly regarded digital humanities projects, as well as library and resource metadata and archival projects. In the past year, MEI was added to the Library of Congress’s preferred digital formats.

1.2 Prior Work

Community archives develop around nuclei of shared identity, memory, and purpose—around localized histories and places, significant events, ethnicities and races, gender identities and sexual orientation, etc. ([Welland and Cossham, 2019](#); [Flinn et al., 2009](#); and others). Digital humanities collections, on the other hand, arise from the curatorial practices of scholars ([Poole, 2017](#); [Cooper and Rieger, 2018](#); [Palmer, 2004](#)) and take myriad forms, from digital archives and databases to interactive maps and multimedia monographs. Despite their differences, these broad categories of collection share important characteristics: communities and teams create them to meet their own immediate needs; they often hold original or unique cultural evidence,

often of underrepresented groups and histories; they are usually built by small teams of technologists and researchers with sporadic funding; they are often maintained independently of mainstream institutions; and for all these reasons and more they experience significant challenges to long-term viability ([Stevens et al., 2010](#); [Flinn, 2011](#); [Smithies et al., 2019](#); [Fenlon, 2020](#)).

While cultural institutions have partnered with community-based digital projects in different capacities, these partnerships remain rare. Community collections resist the most prevalent institutional models of stewardship, in part because their overriding value is autonomy ([Flinn, 2011](#); [Zavala et al., 2017](#)). In addition, institutions with both the relevant purview and the capacity for supporting digital community collections are scarce. A growing literature of empirical research on sustainability for community archives has identified an array of factors in and opportunities for sustainability in various contexts (e.g., [Lian and Oliver, 2018](#); [Jules, 2019](#); [Froese-Stoddard, 2014](#); [Newman, 2011](#); [Wagner and Bischoff, 2017](#)), including the need for peer support networks for community archives ([Caswell et al., 2017](#)) and alternative funding and partnership models for communities and institutions ([Stevens et al., 2010](#)). In parallel, a growing set of practical tools and guidance helps communities of all kinds sustain their own digital projects (e.g., [Langmead et al., 2018](#); [Skinner, 2018](#)). A widespread challenge for communities that are seeking to sustain their own collections, and a common stumbling block for community/institutional partnerships, is the lack of shared understanding of the precise definitions, entailments, and implications of *sustainability* in the realm of digital cultural collections (e.g., [Eschenfelder et al., 2016](#)): how do the requirements of sociotechnical maintenance and preservation vary across contexts, and what facets of sustainment are absent from our usual discourse? Our work aims to expand on prior work through empirical investigation of how communities variously understand *sustainability* in the context of digital collections.

1.3 Methods

This case is one of a set of comparative case studies of community-based projects. Evidence sources in each case include interviews, participant-observation, and documentation (e.g., Slack spaces, technical documentation, and meeting notes). We have completed data collection of all cases in parallel with iterative cross-case analysis.

Interview transcriptions and observational memos are subject to qualitative content analysis, based on a coding scheme developed inductively in correspondence with research questions. All interviews were independently coded by three coders, who then discussed their codes in order to come to consensus. This study has conducted 16 interviews with the MEI community and MEI users. We have been engaged with this case through interviews and participant-observation in weekly meetings, at digitization workshops, and in other community events since 2020; while the findings are preliminary, they are steeped in substantial experience with the case, resulting in a rich preliminary dataset. In the preliminary outcomes below, participant names and identities are obscured, and participants are referenced by a participant code, e.g., “M01”.

2 Analysis of Community as Sustainability Marker

2.1 MEI Community

In our preliminary analysis of this case study, we found that nearly all MEI participants indicated that the continued maintenance and revisions of the standard flow from engaged community members. Their commentary on the sustainability of the standard was framed largely in terms of continuing to support and maintain the community of users. Because of this focus on the sustainability of the MEI as a community, our preliminary evaluation of data focuses on the relationship between the maintenance of the social and digital aspects of the community and standard.

This analysis revealed the importance of the shape and tenor of the MEI community in continuing to maintain the organization and users, which in turn support the maintenance of the digital object, the standard. One participant said so emphatically of the community in regard to sustainability, “It’s crucial, it’s all on them... Eventually it’s just the community that brings it forward, creating projects, applying for funding.” (M06)

This crucial community includes music scholars, many of whom begin with little knowledge of encoding. Several participants noted that while some may be intimidated by the technical aspects of MEI, the community itself was extremely welcoming, and often sought out opinions of newer members. Some described the hierarchy as flat, with the board and technical team in support of the community rather than in charge of it. One in particular said that the technical aspects would have dissuaded them from involvement if not for the “culture of trying to bring people along.” (M14)

The MEI community, like the standard itself, was designed to mimic the original shape of the Text Encoding Initiative, or TEI, with a board and a technical committee. (M01) The board largely cares for the administrative aspects of MEI and its development, and oversees the technical team and other activities like the annual Music Encoding Conference, in addition to serving as a point of contact. The technical team is largely responsible for maintaining the MEI repository on GitHub, responding to pull requests, and preparing new releases of MEI, in addition to providing technical support to community members and users. Community members frequently find ways to contribute through MEI’s interest groups, of which there are currently seven, though members can form new interest groups as needed or wanted. Some revolve around uses, like Metadata and Cataloging, Linked Data, and Analysis. Others form around a type of notation like Neume, Mensural, and Tablature. The last is focused on Pedagogy, and creating resources for learning to use MEI. Interest groups meet monthly to discuss their aims and projects, and frequently serve as a site of discussion for updates and modifications to the standard.

Finally, our research revealed a long tail of users. Many of the users of MEI interact with the standard through projects or groups they participate in. These users may not ever have contact with the MEI board or technical team, but might more frequently come into contact with materials created by interest groups. A few participants in the study use MEI regularly, but have never interacted with the more formal organization through a workshop, conference, or digital channel.

2.2 Interest Groups as Locus of Activity

It would appear from these comments on the shape of the community that the interest groups serve as a central venue for reaching out to new interested users and for discussion of the standard and potential updates. Many of the participants who identified themselves as engaged with the community cited the importance of the activities of the groups. Based on their characterization, the interest groups appear to function as a central locus of activity for engaged users and community members.

The ability of the interest group to both reach outward from the community to new members and potential uses for MEI and to communicate inward with the board and technical team illustrates the importance of these interactions for the long term sustainability of MEI. One participant went so far as to say that while a single interest group could drop out, if a significant number did, it would be the first sign of the organization and standard's decline. (M09)

Reaching outward, interest groups bring in new members and use cases by connecting with them over the shared language and knowledge of the subject or topic of the group. One participant indicated the interest groups do the work of identifying uses and furthering inroads for users through creating new resources, and even holding workshops to illustrate possible uses (M06). Another commented on the influx of musicologists and librarians, brought to the interest group by the subject, with little technical background, stating "at least in our interest group, most people are from the musicology side, because those are the people most interested in getting to encode this [music]." (M08) Beyond merely bringing new users to MEI, the interest groups deepen involvement as they serve as mini communities for increased involvement and a sense of belonging to the community. Several participants cited the necessity of bringing in new and more diverse voices as a central tenet to sustainability. "We definitely want to bring in new voices and perspectives." (M05)

The discussions held in these spaces also allow interest groups to communicate back to the technical team and board the needs of community members and users. Because the interest groups typically bring together subject area experts, they often generate insightful updates or improvements. One participant reflected that in the interest group, they "are out there trying to figure things out, and then they're gonna come and tell the community, this is what we should do." (M02) Other participants echoed these thoughts, and cited the interest groups as the origin of many recent improvements. (M09) One participant drew the connection from the outreach to internal work, saying, "I think that the interest groups are really what make it, make it run, because they add, and they sort of, like through practice, and through their teaching when they do their workshops, and at this point, I guess, webinars too, they're contributing back to the guidelines, right, and they're contributing to the schema. So it's all interconnected." (M05) This illustrates succinctly the relationship between social and digital maintenance, and points to the interest group as a central locale for sustaining activities.

Conclusion

From the key subjects that emerged from these preliminary results, we can see the continued maintenance of the social, here represented as both the organization of committed members and the larger community of users. In the MEI case study, community members and users

continue to maintain the standard through use, discussion, and feedback. Our research has found that for this group, the interest groups are a main area where these sustaining activities occur.

The symbiotic relationship between the maintenance of the digital object and that of the surrounding community is echoed across our case studies, and has become a central feature to our preliminary findings, leading our team to believe that our concept of sustainability must go far beyond the digital object. Rather than simply advocating for increased funding or finding an institutional repository, the digital object must be supported by supporting its surrounding community.

The community's definitions of *sustainability* are variable and nuanced; and these variations and nuances may bear significant implications for maintenance, preservation, and institutional partnerships. Future work will tie emergent findings about the meaning and entailments of sustainability to specific technical and organizational implications for community archives, digital humanities projects, and institutional partners. Participants' conception of sustainability—as tightly interwoven with the sustainability of the community itself—is at odds with the prevailing preservation paradigm of institutional collection. While a growing number of voices call for shifts in the ethos and orientation of institutions toward active engagement with external communities ([Caswell and Cifor, 2016](#); [Cook 2013](#); [Flinn, 2011](#)), the practice remains uncommon. As communities ranging from historically place-based communities (like Lakeland) to the distributed teams behind academic digital humanities projects engage in conversations about their own sustainability, this work aims to contribute a more nuanced picture of what sustainability means in different contexts. Ongoing data collection and cross-case analysis will examine a broad range of sustainability issues emerging from preliminary outcomes, such as project structures and cultures, workflows, technical implications, and expanding our sense of alternative models of partnership with cultural institutions. By exploring community definitions of *sustainability*, this work aims to help communities set maintenance and preservation priorities for digital collections, articulate their value for partners and funders, and help communities and institutions negotiate equitable partnerships to sustain a more diverse cultural record.

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