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THEME ARTICLE

# Meeting metadata challenges in the consortial environment

164

## Metadata coordination for North Carolina Exploring Cultural Heritage Online

Katherine Wisser

*Duke University, Durham, North Carolina, USA*

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### Abstract

**Purpose** – The purpose of this article is to focus on the approaches to metadata pursued by North Carolina's Exploring Cultural Heritage Online (NC ECHO), a statewide digitization project. Metadata forms the cornerstone to the project and serves as a vehicle to meet the vision of all-inclusive access to the state's unique cultural and historical resources.

**Design/methodology/approach** – The article begins with a description of the cultural heritage institution landscape in North Carolina and a discussion of that landscape within the framework of metadata challenges. Four distinct but interrelated approaches are then discussed in the context of the project's missions and goals: working groups, "metadata first", training and outreach, and "Seek a Metadata Consultation".

**Findings** – The described approach demonstrates a commitment to communication, facilitation, and empowerment that is fundamental to the overall mission of NC ECHO: to provide access to the state's cultural heritage materials through an online portal.

**Originality/value** – The article provides a discussion of the importance of marketing, approval, coordination, and participation in the context of these metadata solutions.

**Keywords** Portals, Digital storage, Heritage, History, United States of America

**Paper type** Case study

### Introduction

The digital environment has increased pressures on cultural heritage institution communities to create cooperative and collaborative programs. This is evidenced by the growing number of state-wide and regional digital projects [1]. As with many other states, North Carolina Exploring Cultural Heritage Online (NC ECHO) has sought to create a digital project with a state-wide infrastructure through federated relationships with partner institutions ([www.ncecho.org/](http://www.ncecho.org/)). NC ECHO accomplishes this with a multi-tiered set of goals: a state-wide survey of all cultural heritage institutions, development of an online portal to institutions and their collections, continuing education opportunities for cultural heritage professionals in the state, the development of online tools to aid in digitization efforts, and a grant program aimed at the creation of online content and the acquisition of digitization skills. Metadata forms one pillar of this statewide project. Metadata is fundamental to effective retrieval and use of digital materials, as well as the administration, dissemination, and preservation of those materials in the online environment.



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This article focuses on the approaches to metadata pursued by NC ECHO. It begins with a description of the cultural heritage institution landscape which the project serves. This landscape presents several challenges for effective metadata coordination. To meet those challenges, four distinct but interrelated approaches will be discussed: working groups, "metadata first", training and outreach, and accessibility to expertise through individualized metadata consultations for partner institutions. These approaches demonstrate NC ECHO's commitment to communication and empowerment, its perceived role as facilitator and disseminator of expertise, and the overall goal of the project, which is to provide access to the state's cultural heritage materials through an online portal. The article concludes with a discussion of the importance of marketing to assure partner participation and approval in the context of the consortium.

### **The North Carolina cultural heritage institution landscape: understanding the pond**

An understanding of the significance of metadata in the cultural heritage institution landscape would be incomplete without an initial understanding of the institutions themselves. Therefore, this paper begins with a broad discussion of the cultural institution landscape that has been surveyed to this point by the NC ECHO staff. The most striking aspect of this landscape is the sheer diversity of cultural heritage institutions within North Carolina. An examination of the survey data from 535 institutions in July 2004 (projected completion in 2005) indicated that the state's cultural heritage institution landscape is made up of museums (43 percent), archives (13 percent), library or special collections (23 percent), private institutions (4 percent), and other (17 percent), which includes cultural centers, parks, and registries.

Within these institutions, material dates from 500 BCE to the present day, while 94 percent of institutions surveyed responded that materials from the modern era (nineteenth and twentieth centuries) form the largest parts of their collections. The institutions reported a total of 447,727 linear footage of material, 8,582,534 objects, 650,164 microfilm reels, 41,703 oversized paper items, 24,783 motion picture films, 20,484 video tapes, 102,125 audio tapes, and 7,493 computer media. Institutions also range in staff sizes from solely volunteer organizations to institutions that have over 40 staff members. The majority of institutions reported five or fewer staff members.

The sum total of these statistics demonstrates the diversity that is the hallmark of North Carolina's cultural heritage institutions. That diversity, while refreshing and exciting, presents several challenges to a state-wide consortium. Institutions range in technological and professional knowledge and capabilities. From equipment to expertise, the whole range of obstacles to achieving open access can be found. Many institutions reported resource limitations, most notably staff issues, infrastructure challenges such as concerns for security, and physical restrictions, including natural disasters, space and equipment.

The visitors to North Carolina's cultural heritage institutions use a variety of methods to gather information about the material in the institutions' collections, including postal mail, electronic mail, telephone and fax, but the number of physical visits still far outweighs visits from a distance: a total of almost eight million physical visits per year were recorded by institutions surveyed. While no count of virtual visits to institutions through the world wide web exists, NC ECHO may, in the second phase

of its project, conduct an analysis of its own online effectiveness through visits to its web page and then coordinate with its partner institutions on that front to provide a better picture of the impact of online information to the exposure of cultural heritage materials in North Carolina to its citizens.

Within this landscape, metadata approaches need to be applied to assist institutions with creating access tools for their materials, administrating and managing the materials in their collections, and participating in the larger NC ECHO portal project. In order to ensure that the needs of the entire cultural heritage institution community are addressed through these approaches, metadata solutions need to be constructed through a variety of approaches. These approaches should also work in accordance with the basic goals and objectives of the NC ECHO project: increased access to cultural heritage materials in the state.

### **Metadata approaches: working groups**

The working group approach illustrates two central components of NC ECHO. First, NC ECHO has a small centralized infrastructure, with a current staff of four. Second, working groups rely on the large expert-base from partner institutions. They consist of members from the field who are interested in participating in the formation of best practice guidelines, tools, and making decisions on the application of particular metadata standards. The goal of creating guidelines and tools is to ensure consistency of application and to teach cultural heritage professionals best practices in creating metadata for their materials.

The working group approach has several advantages. Working groups involve the users of systems in the design of those systems, thus increasing their accessibility to potential institutions. This participation also avoids the creation of applications within a vacuum. In addition, with the participation of professionals from a variety of institutions, the metadata solutions are not institution-specific but rather generalized for the diverse institution base of NC ECHO. This produces a wider, more rounded implementation or understanding of metadata, one that is useful for all kinds of institutions. Finally, by soliciting participation in working groups, NC ECHO promotes professional development in the community and gains a stronger endorsement for implementation to the standard. The decentralizing effect of working groups assures that, at least among the members of the working group, professionals have agreed to the importance of a particular standard and its implementation.

Working groups also present some challenges. They can often be slow-moving and ask for participation from professionals already overly busy with their own responsibilities. Meetings are difficult to plan with varying schedules, and travel can be an issue for participants who are located in the extremities of the state. Creative solutions to these challenges include reliance on virtual communication systems, directed requests for participation of key professionals but open membership to the community at large, and an emphasis on the communication of the work that working groups accomplish to engender excitement in the NC ECHO community about the efforts. A little positive reinforcement goes a long way in engaging professionals in external cooperative ventures.

Two working groups illustrate the success of the working group approach. North Carolina Encoded Archival Description (NCEAD) is the longest standing working group, and was formed in tandem with the NC ECHO project in 1998 ([www.ncecho.org/](http://www.ncecho.org/)). When

NC ECHO hired a metadata coordinator in 2003, NCEAD became part of the NC ECHO project. NCEAD currently has a highly-developed structure, involving an Executive Committee, a Standards Working Group, and a Technical Working Group. The Executive Committee provides overall perspective, including the explication of priorities for the working groups and the review of documentation from NCEAD. The two subordinate working groups deal with the two different but interlocking issues of standards and technology. The initial working group was parceled out this way to allow interest to dictate participation. This structure also keeps the size of the working group meetings to manageable and productive numbers. NCEAD has been working on the standardization and implementation of EAD in North Carolina for over four years now, so this highly-developed structure is a result of its success in recruitment and commitment.

In contrast, North Carolina Dublin Core Working Group (NCDC) is a larger, less developed, and looser working group. Because Dublin Core was adopted as a minimum standard for NC ECHO, the NCDC felt it necessary to provide implementation guidelines. NCDC also developed an online template for the creation of Dublin Core by partner institutions ([www.ncecho.org/ncdc/template.html](http://www.ncecho.org/ncdc/template.html)). The working group meets on a semi-annual basis to review, update, and maintain the application of the Dublin Core standard, including information from other metadata working groups focused on more sophisticated standards. The importance of the NCDC working group cannot be overstated. In any search solution, consistent application of Dublin Core is an essential aspect for providing accurate and useful retrieval of information.

Other working groups formed due to demands from the community. These include a museum metadata working group that is currently developing a "Museum Core" content standard, and two new working groups: TEI-NC is set to analyze the application of the Text Encoding Initiative and a Photograph Description group that will be formed in 2004-2005 to interpret the VRA Core standard for NC ECHO. Online oral histories have also surfaced with their own special needs for description and may necessitate a working group solution.

In all working groups, members from partner institutions with skills, experience or expertise are asked to participate. Membership is also open to the larger NC ECHO community for those interested in participating. The metadata coordinator participates in each working group in the same capacity: by convening the groups, by disseminating information regarding the groups including the development of web pages, and by disseminating documentation, facilitating the groups' needs with NC ECHO, and negotiating and balancing the decisions of metadata standards against those of other applications in the NC ECHO project. Negotiating several different metadata solutions in the state, rather than trying to fit all cultural heritage information into one standard, is a challenge that can be overcome with effective communication and consistent goals and objectives.

#### *Metadata approaches: "metadata first"*

In creating a program for a state-wide consortium, both knowledge and technological issues need to be addressed. The "metadata first" approach focuses on the creation of quality metadata as a first step. In doing this, the consortium examines existing metadata systems used by institutions. It provides guidance on the application of input standards, controlled vocabularies, and descriptive paradigms. This approach makes

the metadata the primary force, while technological solutions are still being addressed. The “metadata first” approach dictates that the metadata will determine the retrieval capabilities rather than trying to retro-fit the existing metadata into a technological solution.

Given the variability of the technology, NC ECHO operates with two purposes. NC ECHO partner institutions create consistent and quality metadata that will better serve their institution’s participation in a consortial environment while at the same time creating metadata that is robust and in agreement with national standards. The primary objective is for NC ECHO partner institutions to create metadata that will be sustainable for the long-term. It does not presuppose one technological infrastructure; rather, it is system-independent.

As noted in the discussion of the landscape, there is great diversity in the partner institutions. This diversity is reflected as well in the systems that partner institutions use. From museum management systems to online public access catalogs, partner institutions use systems to meet their specific needs. Balancing the variety of systems with the potential leveraging of metadata in an online portal is the next step for the NC ECHO project. By adopting a metadata first approach, NC ECHO provides support to partner institutions while acknowledging that these institutions have invested valuable time and resources into their systems. Therefore, metadata solutions offered by NC ECHO need to conform to those systems. While there is still a great deal of work to be done to see if this kind of metadata approach is tenable in North Carolina, the support garnered by the “metadata first” approach provides a solid foundation for an inclusive solution for all cultural heritage institutions in North Carolina.

*Metadata approaches: training and outreach*

Closely aligned with the “metadata first” approach is an accompanying education program designed to provide an arsenal of knowledge and skills in consistent metadata applications for as many professionals as possible. These metadata skills include descriptive, analytical, administrative, preservation and structural metadata systems. Metadata skills are among the education needs most in demand for professionals in the field. Many metadata systems are relatively new and are well-suited for continuing education. In addition, providing learning opportunities for NC ECHO professionals presents professional development opportunities that enhance one of North Carolina cultural heritage institutions’ strongest assets: its professionals.

For novices, metadata can be an intimidating topic. Workshop participants anticipate that there will be a decoding of complex concepts. Dismantling the terminology and assuring professionals that metadata is something that they have always done is a fundamental aspect of the education process. What is new is the current technology trends that can take advantage of that work. Bringing these ideas to the cultural heritage professionals forms the foundation for metadata education in the NC ECHO community.

An example of how NC ECHO uses workshops to integrate metadata throughout the North Carolina cultural heritage community is the Encoded Archival Description workshops ([www.ncecho.org/conted/continuing\\_education\\_template.asp](http://www.ncecho.org/conted/continuing_education_template.asp)). For the past two years, EAD workshops have been offered in seven different locations throughout the state to sold-out audiences. North Carolina is a geographically dispersed state. There are western, eastern and central regions that form their own communities. Many

partner institutions are limited in staff and resources, making it difficult to support travel or to forego an employee for extended periods to attend workshops held in distant locations. To address these concerns, NC ECHO strives to make all its continuing education opportunities affordable and to bring those workshops to the regions rather than solely hosting them in the central region where NC ECHO is housed. Therefore, EAD workshops have continuously been “on the road”.

Another continuing education program, “workshops to go”, is in the development stages. The “workshops to go” model assumes that an institution would like to host a workshop. The instructor and an NC ECHO representative will travel to the institution, work with registration and marketing to ensure attendance, and “bring the workshop” to the place. This kind of structure demonstrates NC ECHO’s willingness to serve the community for which it is committed. Other metadata training opportunities include a full-day section as part of the Digitization Institute ([www.ncecho.org/conted/digitization.asp](http://www.ncecho.org/conted/digitization.asp)). As NC ECHO incorporates increasing numbers of metadata schemes into the metadata lexicon, workshops will be held to diffuse those schemes to the NC ECHO community.

Workshops are only one way to provide access to metadata knowledge and skills to the NC ECHO community. NC ECHO gives numerous presentations that focus on metadata fundamentals as well as detailed examinations of metadata systems. In addition, a “Metadata Matters” column has become a regular feature of the NC ECHO newsletter ([www.ncecho.org/newsletter.asp](http://www.ncecho.org/newsletter.asp)). This column informs the NC ECHO community of new and emerging metadata standards, tools developed for the community and available through NC ECHO, and working group achievements. Maintaining open lines of communication and encouraging participation through the column provides another way for the metadata messages to get out.

Overall, metadata systems can only be implemented effectively by partner institutions if the professionals have the knowledge and skills to apply the solutions. Through training, presentations, and open lines of communication, NC ECHO strives to maintain relevance and currency for partner institutions. This assures that all cultural heritage institutions will be active and equal partners in the state-wide community.

*Metadata approaches: “seek a metadata consultation”*

The significance of providing easy access to metadata expertise cannot be over-estimated. Some institutions require just a sounding board while others benefit from on-site consultations to establish sophisticated metadata programs that will be sustainable and long-lasting. Due to the variety of metadata needs, the project has made metadata consultations available for any partner institution on request. One of the overriding principles of NC ECHO has been the importance of the institutions themselves. This is clearly demonstrated by the support provided by NC ECHO for its staff to do on-site visitations to all institutions as part of the survey and is extended to the metadata portion of the project.

As an institution develops its metadata implementation, it is free to request a metadata consultation by email or phone. The metadata coordinator works with the institution either through electronic mail, over the phone, on-site visits, or, as in many cases, a combination of all of the above. This allows the institution to instigate the metadata consultation, to define its own specific metadata needs in conjunction with its technological sophistication and capabilities, and to learn valuable skills for continuing

success in metadata creation. To advertise these consultations, a "Seek a Metadata Consultation" button is included on the NC ECHO home page and metadata initiative pages. Other efforts to encourage consultations include reminding readers through the "Metadata Matters" newsletter column and encouraging professionals through workshops and presentations. Metadata consultations are growing in frequency as institutions are becoming more aware of the service. It is assumed that the metadata consultation rate will only increase in the next year as more and more institutions are exposed to it.

To date, the metadata coordinator has consulted with a variety of different institutions. The most advantageous type of consultation from a "metadata first" approach is one that involves consultation at the outset. For example, a public library and museum were interested in creating an online portal for the collections of the museum. They were at the beginning stages and were trying to decide on the best approach. They sought a metadata consultation at that point to discuss the importance of descriptive fields for the artifacts in the museum. The size of the museum precluded professional museum staff, so consultations were with a volunteer librarian from a local university. Throughout the consultation, metadata concepts were discussed in a librarian's framework (MARC cataloging). At the same time, discussions included evaluating workflow and staff time to devote to the project without compromising metadata quality.

Other consultations involve questions regarding the application of NC Dublin Core for records, review of metadata records and more sophisticated metadata problems including the customization of NC ECHO tools developed for NCEAD, on-site training, and facilitation, to highly developed stylesheet additions for EAD. Throughout the consultation process, no issue is too insignificant, no metadata too meager to be considered important and worthy of attention. Confirming the importance of all metadata needs in the NC ECHO community through these consultations directly supports the all-inclusive nature of the project.

### **Conclusion**

For all of these approaches to be successful, and indeed for the project itself to succeed, partner institutions need to feel that they are partners not subsidiaries. The importance of marketing can not be underestimated for any state-wide project, but it bears special consideration when you are asking the staff of these institutions to devote time, energy, and resources to the creation of something that can, on the face of it, be intimidating and frightening. Debunking the metadata myths of technology through training and outreach is one way to create an open and productive environment; communicating metadata information in an informal and non-hostile manner is another.

Participation in metadata initiatives, as seen through working groups, the dissemination of information in training and outreach, and the personalized attention through the consultations places each partner institution on equal footing. At NC ECHO, metadata solutions do not descend from on-high, from a core that is not cognizant of its periphery, from some "black box" that says "just do it". It comes from the working groups formed from partner institutions and through NC ECHO, succeeds by cooperative effort. These working groups make clear that NC ECHO enjoys the active participation of members from partner institutions. In every single consultation and training opportunity, no matter what the topic, NC ECHO asks for input,

experience, and participation in the decision-making process. Through this dialog the standards become comprehensible, institutions find solutions that are sustainable, and NC ECHO learns how it can support its partners' endeavors. Above all, these strategies represent a "teaching them to fish" approach to metadata in a consortial environment. It stresses empowerment over product in order to embed long-term sustainability for the institutions as well as the project.

These metadata approaches reflect the mission of NC ECHO: to be an all-inclusive resource for North Carolina cultural heritage institutions to improve access to their materials. From the button and aluminum Christmas tree museum to the hallmark collections of rare books and manuscripts, from the sophisticated art collections to the local artists' works displayed in post offices, from the scientific and archaeological research facilities to the historic site plantations of tobacco and local flora and fauna, NC ECHO seeks to address the needs of its partner institutions in the pursuit of access. NC ECHO demonstrates that much evidence of the human record can be found in North Carolina, and metadata is the gateway to those precious artifacts for today and the future.

**Note**

1. See [www.mtsu.edu/~kmiddlet/stateportals.html](http://www.mtsu.edu/~kmiddlet/stateportals.html) for a comprehensive list of statewide and regional digitization projects.