

Guidelines for the Application of Art Documentation Standards

A Proposal to the
Preservation and Access Division of the
National Endowment for the Humanities

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Art documentation, used by scholars in all disciplines of the humanities, is generated by many institutions, including museums, libraries, publishers, visual resource collections, and scholars themselves. It takes many forms, such as databases and textual documents. Texts may be published (e.g., exhibition catalogs and scholarly articles) or unpublished (e.g., conservation reports or museum provenance records); each genre shares certain formal characteristics. But despite the increased access offered by the Internet, humanities scholars still have difficulty finding and using resources dispersed among institutions.

In the early 1990's, the NEH-funded Art Information Task Force (AITF) provided a useful analysis of the scope and content of art information in the *Categories for Description of Works of Art* (CDWA). The CDWA serves as a foundation, identifying the content recorded in different systems within a common framework. Unfortunately, uniformity in processing data created by those "following" the CDWA has not resulted, for the *Categories* do not contain specific guidelines for recording art information in fielded databases or for marking-up texts. Different communities have adopted different semantics and syntax within the CDWA's conceptual structure.

Building on the CDWA and other successful standardization efforts – the Visual Resource Association's Data Standard (the VRA Core), the J. Paul Getty Trust's *Union List of Artists Names* (ULAN) and *Art and Architecture Thesaurus* (AAT) – the Art Museum Image Consortium (AMICO) proposes to lead a two-year project to identify the range of current documentation practices, develop common approaches for recording art information in fielded databases, and propose guidelines for XML markup of semi-structured textual genres. The resulting *Guidelines for the Application of Art Documentation Standards* will be based on an empirical analysis of existing practices, reviewed by broad professional discussion, and tested and evaluated through their application in the largest multi-institutional collation of multimedia art documentation, the AMICO Library.

AMICO has experience in bringing art documentation from many institutions into such a uniform database. As of July 1999, we have integrated documentation of more than 50,000 works from twenty-five museums. The creation of the AMICO Library has demonstrated that the CDWA is a viable framework; we can map our systems to the field level. But users in the AMICO University Testbed (1998-99 academic year) made it clear that consistent search results are key to usability. Agreement on guidelines for recording data and for marking-up the supplementary texts for use across organizational and professional boundaries is needed to enable this.

Guidelines for the Application of Art Documentation Standards will facilitate the creation of interoperable online art resources. A Working Group of the AMICO Editorial Committee will develop guidelines for recording art information that build on existing standards, and reflect current practice. The Working Group (which includes active members of ARLIS, CAA, MCN, and VRA) will make recommendations for practice, participate in a community dialogue on alternatives, and re-assess the consistency and usability of datasets that apply their draft recommendations (aided by automated conversion routines). An Advisory Committee, including formal representatives of the Visual Resources Association, Art Libraries Society of North America, J. Paul Getty Trust, and Research Libraries Group, will establish strategies and priorities and offer professional review.

Within AMICO, the curators, editors, art librarians, museum registrars, and visual resource curators create and manage a vast array of different kinds of art documentation. Curators, scholars, museum educators, and students would greatly benefit from being able to search aggregated collections coherently. Not only would scholars be able to locate materials relevant to their research but, once located, they would be able to analyze its aspects. Consistent representation of art information will improve interoperability and enable records to be moved among, or merged within systems, with predictable and desired results. The publication (print and web-based) of *Guidelines for the Application of Art Documentation Standards* will facilitate the creation of quality networked information resources, and leverage the results of investments made across the community, by facilitating interoperability. Consistent representation of art documentation will enable the movement of data between applications and the integration of records from multiple sources. This result is nothing less than what scholars and students in the arts and humanities already expect.

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The Narrative

Significance

The Internet has created an expectation that information can be searched seamlessly and retrieved in a form suitable for use in diverse applications. Existing web-based applications demonstrate that this is possible, but in the arts and humanities, the utility of distributed collections of resources is still overwhelmed by inconsistencies in the way that network-accessible content is represented. These varied practices prevent discovery, retrieval, sorting, and integrating results. Differences arise even when documentation is created by professionals attempting to apply existing standards, because they lack guidelines for where, when or how to apply them. *Guidelines for the Application of Art Documentation Standards* at the level of data values could support cross-database searching and enable the distributed library of art documentation to be used in scholarship as a more integrated whole. Consistent representation of art documentation will also enable the movement of data between applications, and the integration of records from multiple sources. This result is nothing less than what scholars and students in the arts and humanities already expect.

Without further consensus on the application for art documentation standards, consistency in distributed applications will remain an unfulfilled dream. But the path forward is clear. Just as the *Anglo-American Cataloguing Rules (AACRII)* acts as an application guideline for bibliographic data elements and therefore has enabled integration of distributed catalogs for most published literature, and the *Text Encoding Initiative (TEI)* provides application guidelines for mark-up of many genres of scholarly texts, agreement on *Guidelines for the Application of Art Documentation Standards* would open the way to building a richer digital library in the future. An ever-expanding body of art documentation is being created in electronic form, both in growing museum collections information systems and during the preparation of publications and exhibition catalogs. In addition, museums are creating new genres of documentation delivered online; museum educators have found the Internet a powerful means of reaching new audiences and are delivering electronic interpretive material to satisfy this community.

The professions engaged in creating art documentation are ready to agree to application guidelines. A decade of standardization efforts have led to acceptance of the *Categories for Description of Works of Art (CDWA)*. Data structures that reference the CDWA, such as the AMICO Data Dictionary and the VRA Core Data Standard are themselves now widely referenced and used. Vocabularies, providing data values for many likely data fields including Creator-Name (the *Union List of Artists Names - ULAN*) and Materials, Styles/Periods/Groups/Movements, Object-Type, and Creator-Role (the *Art and Architecture Thesaurus - AAT*), are widely accepted as authoritative and our project team includes many of those who led these pioneering initiatives.

The time is also ripe to establish application guidelines. Critically, several large scale collaborations are underway that could go their own direction, establishing distinct rules for specific applications. Not only could these initiatives benefit by sharing common guidelines, but developing such guidelines collaboratively will keep these groups from becoming invested in different approaches that will, in the end, hinder future integration. Project Participants, the Art Museum Image Consortium (AMICO), Art Libraries Society of North America (ARLIS/NA), Visual Resources Association (VRA Core Project), Research Libraries Group, and the J. Paul Getty Trust, have named professionals to our team with a history of standards development and a deep understanding of the rationale for developing common guidelines.

The project participants agree that there is a great deal of value in the existing body of art documentation standards. They also acknowledge that the community needs to go one more step before our data will be fully compatible. What is lacking (although saying so is a bit like pointing out that the emperor is wearing no clothes) is agreement on how to apply existing standards within databases and/or to the mark-up of texts. Until those creating and managing art documentation have and use such guidelines, their commitment to standards does not lead to commonality in data recording. There remain many standards to choose from, and no guidelines to make the choice: c.f. the publication this month (June 1999) of a new Visual Resources Association *Bulletin* describing more than 50 "major subject classifications" in use in important repositories worldwide (see Appendix C). We need to ensure that the effort invested in these pieces of the solution pays off.

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Fortunately, many of the same recent developments in computing that are creating pressure for better access to distributed resources are also reducing barriers to integrating data created and maintained by communities that have historically followed different practices. A decade ago, any application guideline for art information, would have required absolute agreement on a single data recording standard (a political impossibility given the different conventions in place in the professions). Recent developments in data processing methods (described below) make it possible for *Guidelines for the Application of Art Documentation Standards* to provide more than one method of recording the same data, when the established practices of different communities (museums, slide curators, librarians, or editors) are justifiably different. For example, AMICO has created tools that make it possible to index dates or measurements expressed following different text conventions, by defining and codifying their formal properties and applying computer-based rules to their normalization. This strategy of allowing known variations to co-exist allows us to focus efforts on areas where such formal conventions have not been present and are needed, or on the places where it is not possible to create equivalencies among practices. Similarly newly developed computer-based tools make it possible to isolate (parse) indexable values out of free-text strings to support more uniform indexing. Using programs to apply these parsing algorithms to existing data, we expect to harmonize large bodies of existing art documentation in the AMICO Library (projected to exceed 150,000 works of art by the end of the project), once agreement is reached on cataloging guidelines.

Each of the major standardization projects of the 1990's developed guidelines which contribute to, but do not directly address, the creation of consistent documentation of works of art. The need for more detailed guidelines was understood, but each project focused first on agreement about data content standards. This was essential; these early collaborations would have jeopardized their success if they had tried to become prescriptive about data value standards at the same time as developing consensus on the areas in which standards were needed. *Guidelines for the Application of Art Documentation Standards* will take the community the "next step", ensuring that we are ready to take advantage of emerging new Internet-based tools that support information discovery and retrieval, and that we are positioning arts and humanities information to play a full role in the emerging world of networked information resources.

Significantly, the times have changed. Both the community and the technology are more sophisticated. Our understanding of where and when we need consistency is more fully developed, and we have tools at our disposal that can support data analysis and reformatting. We're experienced in managing and participating in collaborative projects with dispersed project teams. Users are demanding the capability to search across and among collections, to retrieve and manipulate information from many sources. This sea-change makes us optimistic that this project can succeed now, when it would have been unlikely to in the past.

The Narrative: History

The history of this project has its roots in numerous guidelines and standards for documentation of art developed by foundation-funded collaborative projects during the 1990's. Our Advisory Committee is building on experience and expertise in collaborative projects and community-based standards development which its members developed in these previous standards projects. While these succeeded in creating consensus, and their products have been widely endorsed, they fell short of providing explicit guidance on the use of database fields and the recording of data values, or on how specific content elements should be marked-up in unstructured and semi-structured texts. As a consequence, those standards are not consistently applied by those creating art documentation. And few tools exist to support their implementation and use.

The Context: Structured Textual Documentation Standards

The *Categories for Description of Works of Art* (CDWA) created by the Art Information Task Force, (AITF), an NEH funded collaboration of the College Art Association (CAA) and the J. Paul Getty Trust, articulates a very valuable set of categories that facilitates mapping of data from various systems. But the CDWA necessarily eschewed any concrete definition of "field or data element" guidelines; the *Categories* are silent on rules for formatting data values and provide little guidance about how one should record information. Thus, the CDWA has provided the conceptual underpinnings for a number of systems, but results of its use diverge at an operational level.

The *Union List of Artists Names* (ULAN) developed by the J. Paul Getty Trust, is an obvious authority for values of the important "Creator" element (as defined by CDWA). But, by design it provides many different forms of each artist's name and does not establish any one recording practice as a guideline. ULAN provides no guidance on how to format a name for display or indexing, or on where various forms of a name might appear in a catalog record for a work of art, or how they might be identified within a semi-structured text.

The *Art and Architecture Thesaurus* (AAT) also from the Getty, defines a large number of terms in different conceptual hierarchies. The terms and their conceptual context are important sources for consistency of indexing. But the hierarchies themselves do not correspond to "fields" (or to CDWA categories). Guidelines must be developed for what level of term in AAT is appropriate, as these would clarify what strategies for systems to reflect the higher level concepts in a hierarchy should be designed. (see Lansì 1998).

Both ULAN and the AAT have been implemented by the Research Libraries Group (RLG) which is currently designing tools to use them to better define user's queries directed at a range of arts and humanities data resources.

Work on the *Visual Resources Association Core Data Standard* (VRA Core) has identified data elements from CDWA but not yet yielded guidelines for recording information within those fields. Prototypes of data exchange conducted during the VISION project in 1998-99 revealed the need for greater uniformity in data value recording; in this users of the VRA Core created fielded data which could not be integrated at the data value level (see Lanzi/McRae 1999).

As noted above, there are many other community-based initiatives, cited in the bibliography of this proposal, that address other parts of the art-documentation spectrum.

The Context: Semi-structured Text Documentation Standards

There has been considerably less work developing standards for documentation of art in unstructured and semi-structured textual documents, although the community has been generally accepting of the direction set by the Text Encoding Initiative (TEI) and the Consortium for Computer Interchange of Museum Information (CIMI). The TEI defines mark-up guidelines for many genres of documents, but does not address many types specific to art documentation; as it was developed as a tool for converting existing texts to electronic form, TEI guidelines do not focus on rules for formulating data values (since their goal is to represent the texts as found). TEI Guidelines also not provide means for identifying of CDWA *Categories* as found within specific types of documents.

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As part of a project on data interchange with funding from the US Department of Commerce Technology and Information Infrastructure Assistance Program (TIIAP), and the Consortium for Computer Interchange of Museum Information (CIMI) tested an SGML Document Type Definition (DTD) for markup of exhibition catalogs. They are now considering the implications of moving this DTD into a form compliant with Extensible Markup Language - XML, a dialect of SGML that is rapidly gaining acceptance (CIMI Workplan 1999). The CIMI DTD project was not designed to develop content standards, but to test SGML as an interchange mechanism and a means of marking up existing content. While this contribution is a valuable foundation, exhibition catalogs are only one genre of art documentation.

Likewise, leaders in applying Encoded Archival Description (EAD) mark-up (an SGML Document-Type-Definition) to museum practices, such as the Museums in the Online Archive of California (MOAC) project, have been focused on mapping museum content to the element level within the EAD DTD. They have not created guidelines for consistently expressed data values.

In summary, the community has wide experience in identifying the structure of textual documents, but has not yet developed widely used implementation guidelines. Three key elements are missing in the current efforts to extend standard methods of text mark-up to the universe of art documentation: 1) identifying the genres art documentation that are often created and that can be readily marked-up consistently; 2) defining the content to be marked-up, building directly on the work of the CDWA to identifying intellectual categories, and on the work in field-level expression of these concepts in structured databases; and 3) defining a suite of mark-up tags and rules for their utilization.

In addition, the overhead of creating fully parsable SGML documents has been greatly lessened by the emergence of XML. Developments in XML in the past year have led to such rapid acceptance of this mark-up language. In the past several months the TEI, EAD and CIMI initiatives have set an XML "expression" of their data standards as a task for the coming year. Other major metadata projects, led by the Dublin Core, are also committed to XML. We expect XML to be the means for the expression of both the electronic art documentation genres and for the *Guidelines for the Application of Art Documentation Standards* themselves. (This builds on our XML expression of the AMICO Data Dictionary).

Why Now? A Climate of Collaboration

The community is ready to take the next step. Representatives from each of these major standards initiatives have joined the Advisory Committee for this project, reflecting a widespread recognition of the need for the next level of standards that can ensure integration of the results of their various efforts: common application guidelines. In the past few years, all these groups have experienced the problems of bringing large sets of data from many sources together. We've consistently found that integration does not end with mapping fields. Indeed, in many ways the problems begin there.

The compilation of data by the REACH Project at RLG, the VISION (VRA Core Prototype) Project at RLG, the Image Directory (an Academic Press Publication), and the Museum Educational Site Licensing Project (MESL), the Making of America (MOA) and the various Dublin Core (DC) Metadata Testbeds, including that of CIMI, have demonstrated that data from diverse sources can be mapped at the field level (data content standardization) but still not serve the needs of users because of divergence in recording (cataloging) practices. We can bring content together but with consistent rules for its representation it simply doesn't "gell" as a whole. As illustrated by the history of these projects, collaborative efforts often flounder, and cost more than anticipated, when the results of their efforts don't "add up" because the content of contributed resources is expressed differently.

Art museums and other art collecting institutions have developed a framework for an unprecedented collaboration. The Art Museum Image Consortium (AMICO) was formed in 1997 by twenty-three large North American art museums, following six months of intensive planning by their staff members. AMICO is a not-for-profit, member-governed consortium designed to enable the distribution and educational use of museum multimedia documentation. It creates and distributes (in collaboration with existing not-for-profit network information providers), the compiled AMICO Library of digital documentation of members' collections. Educational institutions and libraries subscribe to AMICO, enabling their users to conduct research and teach with a growing body of multimedia art documentation.

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AMICO has been grappling with the issue of standardizing data values in art documentation as we have created two annual editions of the AMICO Library (the "Testbed Library" in 1998-99 and the first public Library edition in 1999-2000). This experience has motivated us to create tools that identify the range of practices among members collaborating in construction of the AMICO Library, by analyzing term occurrences and usage of fields in the AMICO Data Dictionary. We've also designed forums (such as our Editorial Committee) in which discussion of good practice guidelines can take place. Mapping of many different systems to the AMICO Data Dictionary, online editing tools using web forms, distributed data submission including uploading of files, and interactive validation of submitted files against the AMICO Data Specification, have been tested successfully as new members have joined the AMICO Consortium. Collections Documentation System vendors have also worked to develop export routines that convert data stored in proprietary formats to the AMICO Data Specification, to enable its broad distribution and use.

We propose to build on our discussions of practice and tools development efforts, and extend them to include others in the broader community who are engaged in the creation and distribution of art documentation; participants in this project include representatives of the appropriate standards or cataloging working groups of the Art Libraries Society of North America (ARLIS/NA), Visual Resources Association (VRA), J. Paul Getty Trust, and Research Libraries Group (RLG). We believe that we can collectively institutionalize the use of the standards that have already been developed only by bringing together all the players in the art standards community to develop *Guidelines for the Application of Art Documentation Standards*.

Collaboration at the outset will assure that the community can agree on application guidelines to take our collective work forward in a way that most benefits users. While AMICO could develop its own solutions and publish yet one more internally consistent database without links to other resources, scholars, students, educators and AMICO member museums have recognized the benefit of common guidelines to help them create catalog records and other art documentation. Data value rules will enable integration of their internal data resources with each other, and with the broader universe of art documentation.

The Technical Framework

Technically, now is a good time to take this step. The 1990's, which brought the World Wide Web, also gave us powerful technologies for manipulating data and declaring relations between distributed data sets created following different methodologies. The use of "data typing" (identifying and using expressions of information that share a formal representation) matured substantially in the 1990's. Even non-expert users of the Internet probably recognize the term "MIME types," referring to the data types known to Internet applications. Typed data can describe itself (as belonging to a class, for example) and exploit "methods" (simple object oriented programs) designed for their data type. A trivial, but relevant, example is that through declaration as a date, the entered data string "June 1, 1999" can be stored as 19990601, and displayed for viewers in the U.S. as 6/1/99 and for viewers in Europe as 01/06/99. Meaning is preserved in all these variations. In art documentation there are many dates and many conventions for expressing them in different communities; by defining the range of these, we can, for example, translate the date "c.840 - not after 873" so that it can be integrated with other ways of expressing the same date. Much like those struggling with the Y2K problem (who worry about having only two ASCII characters to express a date and are converting to four ASCII characters) humanists must make the "Y1K", and "Y minus1K" conversions possible when we are converting long textual and numeric expressions of dates into computer processable data strings.

Data typing, is being powerfully used in the Web environment. eXtensible Mark-up Language (XML) which will soon supplant the now more common Hypertext Mark-Up Language (HTML) in the next few years, supports a richer representation of document contents and publicly accessible registries of rules for data typing called "namespaces", enabling the declaration, within a document, of which standards for data values the author is following. A framework for content declaration called the Resource Description Format (RDF) has been developed under the aegis of the World Wide Web Consortium (W3C). RDF development is taking place in close collaboration with the Dublin Core Data Modeling Working Group, in order to ensure that Dublin Core data can be expressed in XML/RDF. As a member of the Dublin Core Advisory Committee and the co-chair of its "Schema Integration Working Group", co-PI David Bearman will bridge this project's work and the

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technological strategies for its implementation. We want to ensure that art information is well positioned to take advantage of this new development, which is expected to be widely deployed.

These technical developments make two important things possible in our project to define *Guidelines for the Application of Art Documentation Standards*. First, the methods developed to manage data of various types allow us to permit a wider range of expressions of the same underlying concepts in merged datasets than was the possible with pre-1990's technologies. This means that long-established conventions in use in different professional communities need not be abandoned simply because they differ from those being used by another group. AMICO has been using this strategy to make conversions between widely different expressions of the same underlying meaning in the data it receives from its many members.

Secondly, the standards created by a number of communities can co-exist within an XML/RDF network, as long as they use the same strategies for declaring themselves. Data created following different standards can inter-operate if constructed using the same application guidelines and expressed using the same metadata declaration mechanism. As a test of this assumption, AMICO is pioneering the expression of all its metadata in XML/RDF; we see the framework being developed by the Dublin Core initiative as a potential lingua franca that will put art documentation into a broader information context.

When developing *Guidelines for the Application of Art Documentation Standards* we expect to express test data sets created by applying draft application guidelines in XML/RDF in order to make our results available for easy interchange and distributed discovery and retrieval. This decision reflects a belief that XML is the appropriate mark-up framework to use today. Things could change during the course of the project, but we are confirmed in our assumption by the decision of the TEI, EAD and CIMI to implement XML in their projects within the coming year (1999/2000).

The Narrative: Methodology and Standards

The methods developed for this project are open and consultative. We propose to begin with a review of existing work, including those sources mentioned above and many more cited in the appended bibliography (see Appendix B). Drawing on the expertise of our Advisory Committee, that represents the community broadly, we will review proposed standards, examine them in the context of existing practice, propose guidelines, test these both in data creation and computer-assisted data transformation, invite public comment on the rules and test results, revise proposed guidelines if necessary, and then codify recommendations in the *Guidelines* publication.

Our method can be summarized in the following a six-step approach to defining common application guidelines for art documentation:

- 1) *Analyze*: Empirically examine a broad range of art documentation practice as represented in existing database records and texts. Review previously published and proposed standards.
Goal: Understand the "state of the problem" and where each community can contribute experience and expertise.
- 2) *Define Requirements*: Conduct a focused discussion between representatives of different professions involved in documenting art about the attributes of acceptable practices, relating these to the CDWA .
Goal: Identify areas where common practices are essential to support information discovery and interoperability. Agree on evaluation criteria.
- 3) *Draft Recommendations*: Where it is necessary or desirable to adopt a uniform solution, a consensus will be sought on a single recommended practice. Where it is not necessary, or where differences in conventions are deeply imbedded in practices of different communities they will be codified and guidelines written to transform variations to a common target for computer processing.
Goal: A preliminary articulation of *Guidelines* with rules and/or options for recording data.
- 4) *Discuss and Review*: Release the draft recommendations to the broader community for comment and criticism.
Goal: Peer-review of recommendations
- 5) *Test and Evaluate*: Test the application of the proposed guidelines on existing data. Review results based on evaluation criteria to ensure *Guidelines* as proposed deliver the desired benefits (accessibility and interoperability).
Goal: "Reality check" to see if implementation of recommendations is feasible and if anticipated benefits result.
- 6) *Disseminate*: Publish the guidelines in forms that will make them easy to use. Distribute tools to assist in the retrospective conversion of existing data.
Goal: Broad public access to the *Guidelines* and distribution of tools to support creation of more consistent network-accessible art documentation.

A Phased Approach

As the challenges and issues related to fielded text (databased descriptions of works of art) are more straightforward, we'll begin working with this genre. This will be the first phase of the project (Phase I). Once we've agreed on strategies for categories of structured data, we'll generalize from our approaches to apply results to broader range of textual genres. Our analysis of critical categories for information discovery and interoperability in the database environment will thus inform the development of priorities for the mark-up of text in semi-structured documents. This will be the second phase of the project (Phase II). At this stage, we will apply guidelines developed each data type in a database environment to that category as it is found in other art documentation genres, such as an Exhibition Checklist. Taking a two-phased approach helps assure that we don't spend a lot of time hammering out agreement on how to deal with aspects of a textual art documentation genre unrelated to the CDWA or the guidelines for structured documentation defined in Phase I.

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Each of these stages in our methodology is described in more detail, below. Stages 1-5 of the methodology will be repeated, sequentially, for structured and semi or un-structured text.

1) Analyze Existing Data and Standards

Empirical examination of the range of practice as represented in "real data" is a crucial step if resulting application guidelines are to be usable. Fortunately, a ready source of the range of art museum documentation is available in the AMICO Library. As it is comprised of contributions of multimedia documentation from AMICO member institutions, it reflects art documentation practice in museums throughout North America. The AMICO Library will be complemented by the test data set compiled by the Visual Resources Association and the Research Libraries Group VISION Project in 1999, and catalogs of art libraries available online from members of ARLIS. Tools developed by AMICO to display unique occurrences of terms in fields and to identify types of disparities in textual (display) expressions of fields, will provide baseline information on existing practices.

We'll also review the web-based, published and "gray" art documentation standards literature, outlined in the attached bibliography and supplemented by others where required, in order to ensure we take into account the full expertise of the community. And we'll review the formal and informal results of the data integration projects to date, including MESL, REACH, VISION, AMICO (year 1998, 1999, and 2000 libraries), and CIMI's DC Testbed.

During this analysis, we expect that clusters of different kinds of data types (such as names, dates, measurements) and functionalities (index terms vs. display fields) will emerge. From these we will design a strategy for addressing common issues and problems across categories. The results of this phase, including the bibliography of standards and the preliminary outline of needed guidelines, will be distributed on the project web site.

2) Define Requirements

Face-to-face meetings of the Project Team, followed by closed on-line discussions, will be used to arrive at consensus about the requirements for the use of data in each CDWA category. This will subsequently be used to assess the success of the application of each recommended practice. For example, in recording of measurement information, the item being measured, the dimension of that item, the unit of measurement, the value of the measurement, and the reliability of that value are all discrete pieces of information commonly found in expressions such as "17 cm. x 29 cm. sheet, unframed" or "cover, lip circumference roughly 19 inches". Discussion will need to address requirements for each of these discrete elements of data, such as "sort by size", before application guidelines could state how each might be recorded. Priorities will be established for required levels of standardization, by asking questions such as "Do these data support retrieval, sorting, calculation?" and "How would a lack of standardization affect a scholar's ability to compile and analyze information drawn from multiple sources?".

Each recommendation will be tested and refined by the Working Group. The Project Team will have the opportunity to explore and work with tools which AMICO has developed to overcome differences in expressions of art documentation, including a variety of automatic parsing and value comparison tools. Such automated routines make it possible to normalize data when different recording practices are used quite consciously by different communities. AMICO will support this work, developing and enhancing our existing tools as requested, and exploring new opportunities to harmonize data values using automated tools as the requirements definition and data analysis proceeds.

Where the Advisory Committee is considering recommending more than one possible approach to data recording, recommendations will be dependent on the articulation of rules for data transformation and the successful prototyping of automated routines to obtain comparable machine-processable input from different forms of expression. This strategy will be used only when the Advisory Committee feels the guidelines would achieve greatest adherence by respecting different conventions between the professions.

3) Draft Recommendations

Once requirements are clear, the Working Group will draft recommendations for the recording of data in each field. Based on concrete review of data and preliminary tests, the Working Group will make recommendations for an application guideline for each element of information. By relating recommendations to concrete examples from different documentation sources and to the sources of

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professional conventions on which they in turn were based, the Working Group will provide both an analytical and a pedagogical framework for implementing the resulting draft *Guidelines for the Application of Art Documentation Standards*.

4) Discuss and Review

After draft recommendations have been reviewed by the Advisory Committee, the Project Manager will coordinate the distribution of a preliminary version of the *Guidelines* on the project web site. A public on-line forum will be announced, that will include participation of the Advisory Committee and the Working Group. An announcement of the forum will be sent to appropriate professional listservs (such as VRA-L, ARLIS-L, CAAH, MCN-L, MUSEUM-L, and AMICO.announce) by the member of the Advisory Committee from that professional community. We hope that this invitation of comment from "within" will encourage broad participation. Specific personal invitations for comment from experts who have expressed interest in the project will also be made. The online discussion itself will be managed as a publicly-available threaded archive so that anyone can view previous discussion points and add their own comments. (A time delay for moderator review may be introduced if we find that the list is being posted to for unrelated purposes, as occasionally happens in the Internet environment.)

The discussion period has also been scheduled so that in both Phase I and Phase II, it coincides with the winter meeting dates of the College Art Association, Visual Resources Association and Art Libraries Society, to take advantage of further opportunities to encourage discussion.

We'll use this peer-review of the draft *Guidelines* to hear opinions on the recommendations, identify other issues and perspectives, entertain suggestions about alternatives or additional matters that should be included in the final version, and gather requirements for revision.

5) Test and Evaluate

Demonstrating that Application Guidelines are practical to apply and that they produce the anticipated benefits is crucial to their success and widespread acceptance. We will follow the example set by the Internet Engineering Task Force (IETF) which has had tremendous success in implementation by not considering anything ready for recommendation until fully functioning applications are demonstrated. While the draft *Guidelines* are out for public review, we will test large-scale application to the test data sets acquired in our analysis.

The success of tools to standardize a range of existing values or to map comparable values when more than one recording format is approved, will be tested and evaluated at this stage to ensure that the recommendations made can be applied to "legacy data". The results of this standardization or conversion will be assessed by the Advisory Committee to ensure that our desired goals (such as interoperability, and improved integration) are met. Where necessary, as recommended by the Advisory Committee or required by failed testing, the *Guidelines* will be revised and reissued.

The *Guidelines* will be therefore fully tested against the AMICO Library and other test data sets compiled by the Working Group, prior to final recommendation and publication.

6) Disseminate Application Guidelines

Following review, testing, and evaluation, further discussion in face-to-face and on-line meetings of the Project Team will finalize the *Guidelines for the Application of Art Documentation Standards*. The method of presenting the *Guidelines* is crucial to their acceptance and use. Various alternative presentation formats and methods of online interaction with the guidelines will be developed for consideration by the Working Group and Advisory Committee. The final publication, synthesizing all recommendations and required revisions, and including significant examples drawn from the data testing and evaluation, will be prepared.

The final *Guidelines for Application of Art Documentation Standards* will be published in print and on the Web. The Web version will also include an online "Tool Box" that assembles the various routines used to analyze and standardize the data, and makes them available for community use. In addition, the Project Team will coordinate presentations of the recommendations at relevant professional conferences, and in print and in online venues.

The Narrative: Plan of Work

The Project will be conducted in two phases. In the first phase, the first four steps of the Methodology – Data Analysis, Requirements Definition, Drafting Recommendations, Discussion and Testing of Draft Recommendations – will be conducted with respect to fielded (highly structured or database) art information. In the second phase the process will be repeated, building on the consensus achieved for structured information, with semi-structured and unstructured textual documentation.

Organization

Immediately after receiving notification of a funding award, we will advertise the position Project Manager (Job Description in Appendix A-4). Once hired, the Project Manager will review project background, and compile materials to be distributed on the project web site, which will be constructed with the assistance of the Technical Director.

Phase I - Structured and Fielded Data

Principal Investigators will define a detailed agenda for the Advisory Committee meeting. The state of standards development and application will be reviewed, especially with respect to developments since the writing of the proposal in May 1999 in rapidly evolving areas of practice such as XML based data interchange, qualified Dublin Core, methods of identifying schemas, and revision of the TEI recommendations. Criteria for data analysis and recommended practice will be defined for use by the Working Group.

Invitations will be issued to the Advisory Committee for an initial meeting. In late May 2000, the Advisory Committee will meet with the Project Manager and Technical Director to review all aspects of the specific project deliverables and methods.

In June and July 2000, following the Advisory Committee meeting, the Technical Director will create listings from AMICO member data submissions to illustrate the nature of recording variations in common data fields across a wide range of art documentation. The Project Manager will survey the standards literature, relating its recommendations to the results of the data analysis. This empirical data will be presented to the Working Group online, and then discussed in detail at a meeting in July where initial field guidelines will be proposed and the range of possible automatic data transformations will be considered.

By Sept 2000, the Working Group will have reviewed all data fields found in art databases and implied by the *Categories for Description of Works of Art*. Working on clusters defined by data-types, the Working Group will begin framing possible recording practices guidelines. In online discussion during the fall, it will take into account preliminary evaluation by the Technical Director of the impact of these recommendations on the test datasets.

By December 2000, after preliminary review of these test results, the Working Group and Advisory Group will hold a joint meeting at which they will finalize a proposal for the application of field level data value recording standards. These draft *Guidelines for the Application of Art Documentation Standards: Structured Data* will be released for discussion and comment in January 2001. The proposal will be made available over the World Wide Web on a project site with a facilitated threaded and moderated online discussion.

Throughout the first quarter of 2001, these discussions among members of the broader profession, will be joined by Advisory and Working Group members. The Project Manager, through public announcements and email, will seek to engage a broad segment of the interested community – documentalists and end-users – and moderate the online forum.

During the first quarter of 2001, the full recommendations of the Structured Data Guidelines will be applied to AMICO Library. Tests and results will be reported by the Project Manager to the Working Group and Advisory Committee.

Phase II - Application Guidelines for mark-up of semi-structured and unstructured texts

Beginning in January of 2001, the Working Group and Project Manager will begin (using online meetings among its members) to identify text documentation genres prevalent in art documentation

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centers. These are both published forms of semi-structured documentation such as exhibition catalogs, scholarly articles, and auction catalogs, and unpublished forms of documentation such as accession committee files, conservation reports, exhibition label text, and docent briefings. In the spring of 2001, the Project Manager will collect samples of the full range of the identified art documentation genres from participants, and solicit examples from the field. Drawing on the analysis of structure texts, preliminary possibilities for mark-up of these documents will be prepared for a Working Group meeting in May 2001. Following this meeting, preliminary proposals will be circulated to the Advisory Committee. Further discussion and initial application of the drafts will take place over the spring, leading to a Working Group meeting in August 2001. This meeting will finalize a plan to govern testing by the Technical Director that will take place in the fall of 2001.

Following the further analysis and discussion, a Joint meeting of the Advisory Committee and Working Group will formulate a proposal on use of mark-up for unstructured and semi-structured art documentation text genres at a meeting in December 2001. These will be released for public discussion on the web and at professional meetings in January 2002. Meanwhile, the proposals for mark-up of unstructured/semi-structured documentation genres will also be applied to the AMICO Library during the first quarter of 2002. The results will be evaluated by the Advisory Committee, Working Group, and Principal Investigators.

The Project Manager together with members of the Working Group and the Advisory Group, will make presentations on the final proposals at meetings of four major professional associations most directly involved with art documentation (ARLIS, CAA, VRA, and AAM) in the spring of 2002. In April 2002, a final joint meeting of the Advisory Committee and Working Group will review the database evaluation and mark-up evaluation data and make its final proposal. This meeting will also review proposals for the design and structure of the final reports in paper and online.

The final two months of work by the project staff, will involve preparation and publication of the Final Report and *Guidelines for the Application of Art Documentation Standards*.

A chronological Project Timeline follows.

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The Narrative: Plan of Work: Timeline

Project Time Period: May 2000 - June 2002

Date	Staff	Phase	Task	Task Description
Apr-00	Principal Investigators		Administration	Notify Participants, Recruit Project Manager, Schedule Initial Meetings
May-00	Principal Investigators		Administration	Hire Project Manager
May-00	Principal Investigators		Dissemination	Project Web Site Announced
May-00	Adv. Ctte. mtg.		Oversight	Project plans reviewed and methods re-examined
June-July -00	Proj. Mgr. & Tech. Dir.	Phase 1	Analysis	Identify sources for sample structured text databases + extract term occurrences
Jul-00	WG mtg.	Phase 1	Analysis	Preliminary assessment of data by Working Group
Jul - Aug 00	WG	Phase 1	Analysis	Field level guidelines debated in online discussions
Sep-00	WG mtg.	Phase 1	Requirements	Drafting of recommended practices for data fields begun
Sep - Nov 00	Proj Mgr. & Tech. Dir.	Phase 1	Evaluation (preliminary)	Initial Analysis of Impact of First Draft on test dataset
Dec-00	Adv. Ctte. & WG mtg.	Phase 1	Recommendation	Data Field Recording Proposal Formulated
Jan-01	Proj Mgr.	Phase 1	Discussion	Recommended Practices for Fielded Data Released online
Jan - Mar 01	Professional Community	Phase 1	Discussion	Public Discussion of Data Field Proposals
Jan - Mar 01	Proj Mgr. & Tech. Dir.	Phase 1	Evaluation	Application of Proposed Guidelines to compiling AMICO Library
Jan-Apr 01	WG	Phase 2	Analysis	Sources identified for sample unstructured/semi-structured text documentation + genres classified
May-01	WG mtg.	Phase 2	Analysis	Preliminary assessment by Working Group
June-July -01	WG	Phase 2	Analysis	Mark-up guidelines debated in online discussions
Aug-01	WG mtg.	Phase 2	Requirements	Documentation Genres Mark-up Proposal
Sep - Nov 01	Proj Mgr. & Tech. Dir.	Phase 2	Evaluation (preliminary)	Initial Analysis of Impact of Draft for Mark-up
Sept-Nov 01	WG	Phase 2	Recommendation	Text Mark-up Proposal debated online
Dec-99	Adv. Ctte. & WG mtg.	Phase 2	Recommendation	Text Mark-up Proposal Formulated
Jan-March 02	Professional Community	Phase 2	Discussion	Public Discussion of Mark-up Proposals
Jan - March 02	Tech. Dir.	Phase 2	Evaluation	Apply Documentation Genres Mark-up to AMICO Library
Jan-May 02	Professional Community	Phases 1 & 2	Dissemination	Presentations of Guidelines at ARLIS, VRA, AAM, CAA
Apr-02	Adv. Ctte. & WG mtg.	Phases 1 & 2	Evaluation	Final review of database & mark-up evaluation data and edits of Application <i>Guidelines</i>
May-Jun 02	PIs & Proj. Man.	Phases 1 & 2	Dissemination	Preparation/Publication of Final report
Jun 02	PIs	Phases 1 & 2	Dissemination	Release of <i>Guidelines for the Application of Art Documenation</i> and Report

The Narrative: Staffing

Co-Principal Investigators Jennifer Trant and David Bearman, will direct the activities of a Project Team comprised of an Advisory Committee, Working Group, Project Manager and AMICO staff. The Advisory Committee will provide strategic direction for the project; its general approaches will be applied, tested and made concrete by a Working Group. A Project Manager, on the staff of AMICO, will be charged with the overall coordination of various threads of activity and supervision of other AMICO staff assigned to provide technical expertise and clerical support.

- The *Co-Principal Investigators*, Jennifer Trant and David Bearman will lead the analysis and synthesis of documentation practice, facilitate meetings of the Advisory Committee and Working Group and direct the development of the project's reports and publications.

Jennifer Trant serves as the Executive Director of the Art Museum Image Consortium (AMICO). She is also Editor-in-Chief of *Archives and Museum Informatics: the cultural heritage informatics quarterly* from Kluwer Academic Publishers; is co-chair of Museums and the Web and ichim99 conferences; and serves on the program committee of the Digital Libraries 1999 and the Board of the Media and Technology Committee of the American Association of Museums. She has been involved in art documentation standards throughout her career: in 1997 she was responsible for Collections and Standards Development at the Arts and Humanities Data Service, King's College, London, England. From 1991 to 1997, she consulted regarding the application of technology to the mission of art galleries and museums. Clients included the Getty Information Institute (then the Getty Art History Information Program) for whom she managed the Imaging Initiative and directed the activities of the Museum Educational Site Licensing Project (MESL). She also prepared the report of the Art Information Task Force (AITF), entitled *Categories for the Description of Works of Art* for the College Art Association and AHIP. A specialist in arts information management, Trant has worked with automated documentation systems in major Canadian museums, including the National Gallery of Canada and the Canadian Centre for Architecture, where she developed and implemented common cataloguing standards for the Prints and Drawings, Photographs, and Archives Collections. (See vita in Appendix A-3.)

David Bearman serves as Director for Research and Strategy of AMICO. He has been President of Archives & Museum Informatics since 1987. Prior to 1987 he served as Deputy Director of the Smithsonian Institution Office of Information Resource Management. Bearman has been a leader and participant in standardization efforts for two decades. He served as Director of the National Information Systems Task Force of the Society of American Archivists, which developed the MARC-AMC format, from 1980-82. Bearman founded, set the strategic direction for, and chaired the Initiative for Computer Interchange of Museum Information (CIMI) from 1987-1992. He currently serves on the Advisory Committee for the Dublin Core initiative. Bearman has directed application of information standards as a consultant to the J. Paul Getty Trust, Canadian Heritage Information Network (CHIN) and Australian Museums Online (AMOL), and has authored numerous articles on the application of data standards and the challenges of using them in distributed environments. (See vita in Appendix A-3.)

- The *Project Manager*, hired for the duration of the project, will ensure that the project tasks are conducted in a timely fashion and that all necessary support is provided to the Advisory Committee and Working Group. The Project Manager will conduct research where necessary, draft reports, develop the content for the project web page, moderate mailing lists, and coordinate the publication of the *Guidelines*. The Project Manager will be to be hired by AMICO on a two year contract. A Job Description is attached as Appendix A-4.
- *AMICO's Technical Director* will provide technological and programming support to the project, for the collation of the test data set, data analysis, development of routines to map between various expressions of data values, creation of XML representations of both structured data and semi-structured texts, creation of tools to convert data among various expressions, and the development of the project web site, and online publication.

Brad Dietrich serves as Technical Director for the Art Museum Image Consortium (AMICO). Bringing a background in Computer Science and Information Technology and experience with database to web integration projects, he is responsible for developing tools being used by AMICO

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to translate data from diverse structures of its members' systems for common indexing. (See vita in Appendix A-3.)

- *Clerical support* and editorial assistance will be provided on an as-needed basis by AMICO's Administrative Assistant, giving the project the greatest possible flexibility to draw on assistance as required by its schedule. Tasks will include discussion list maintenance, copy editing of reports, updating web pages and layout of presentations.
- The *Advisory Committee* consists of experienced art documentation professionals involved in standards development and representing ARLIS/NA, AMICO, the J. Paul Getty Trust, RLG, and the VRA. It will provide overall direction to the project, reviewing and approving plans and assessing the recommendations of the Working Group. This group will also define evaluation criteria for the project, and assess results both before they are made public for review and comment and before final publication.
 - The Art Libraries Society of North America (ARLIS/NA), represented by Daniel Starr, Museum of Modern Art (*pending Board approval*)
 - The Art Museum Image Consortium (AMICO), represented by Susan Chun, Metropolitan Museum of Art, Chair, Editorial Committee
 - The J. Paul Getty Trust, represented by Murtha Baca, Manager, Standards Projects, assisted by Patricia Harpring
 - The Research Libraries Group (RLG), represented by Tony Gill, Member Initiatives Officer
 - The Visual Resources Association, represented by Elisa Lanzi, Data Standards Committee Chair

Biographical sketches of the members of the Advisory Committee are in Appendix A-1.

- The *Working Group* will be drawn from members of the AMICO Editorial Committee, consisting of editors, registrars, librarians and visual resource curators from AMICO museums, joined by members of the Advisory Committee and the Project Manager and supported by AMICO's Technical Director. They will conduct the detailed element by element review of data practices, identify commonalities, formulate recommendations, review tests of the application of indexing tools, participate in online discussion of suggested guidelines, and draft final recommendations for review by the Advisory Committee.

A full list of members of the AMICO Editorial Committee is in Appendix A-2.

The Narrative: Dissemination

We plan to make communication and dissemination a critical part of our project plan, for *Guidelines* will be of no use if they are not followed. A project web site will be established in the first months of our activity, to inform the community of our agenda and solicit input. Online discussions, linked to the site, will serve as a forum for the discussion issues and the review of draft guidelines, when they are made available for online peer review. We'll maintain an online discussion list to facilitate review and comment, and make its archive accessible on the web site as well. When completed, the *Guidelines for the Application of Art Documentation Standards* will be available on the Web and in print.

Content and Structure of the Guidelines

The *Guidelines for the Application of Art Documentation Standards* will be organized according to the *Categories for the Description of Works of Art* (CDWA). This will ensure that the logic of their presentation is familiar. For each data element (field level, not category) there will be one or more acceptable recording formats. References will be provided to the standard that is represented by the recommended data value or syntax. When there is more than one acceptable data value scheme, the transformation rules to a canonical form will be provided. References to all the standards that apply to a data element will be provided. In each case, examples of real data will be included, configured correctly, alongside samples of the pre-existing data values that informed the recommendation. Examples will also illustrate the application of the guidelines in structured or fielded databases, and their application in a range of genres of semi-structured and unstructured texts.

Guidelines for the Application of Art Documentation Standards are software and interchange format independent. The fielded guidelines will be suitable for application within existing and future commercial and in-house collections management systems. The mark-up guidelines will be suitable for use with XML, SGML and future mark-up languages, but this project will leave it to others, particularly the Consortium for Computer Interchange of Museum Information (CIMI), to assure that the actual mechanisms for data interchange for cultural heritage information accommodate its application guidelines. We will work with these constituencies to ensure they are aware of the contribution to be made by the *Guidelines*.

Our online publication of the *Guidelines* will also include links to tools developed during the course of the project to analyze and standardize data. These will be made available freely to aid in the application of the *Guidelines*.

Schedule and Means of Dissemination

Results of our work will be disseminated online, in print and in conference presentations at five stages in the development of the guidelines.

Specifically results will be disseminated:

- 1) In draft, for on-line for discussion in threaded discussion lists and on the project web site
- 2) In final form, in print
- 3) In final form on the web site, as a searchable HTML document, with linked tools and examples, and as a PDF (Portable Document Format) version of the print report in downloadable form
- 4) In summary, in conference presentations and publications

Results will be disseminated at the stage of:

- 1) Data analysis (Review of standards and summary of empirical findings of data analysis)
- 2) Draft Recommendation (of the Advisory Committee and Working Group)
- 3) Testing and Evaluation (as applied to the AMICO Library)
- 4) Completion of *Guidelines for Application of Art Documentation Standards*
- 5) Project Report

Community involvement in the formulation of the *Guidelines* will be solicited. The co-Principal Investigators will invite comment and review from experts. The Project Manager will facilitate participation in the online review phase by asking direct questions from time to time. The archive of the online discussion will continue to be available, and will be addressed in the recommendations of the Project.

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Findings of tests run on the AMICO database will be made publicly searchable to demonstrate different degrees of coherence obtained by different processes, and to encourage debate on the degree of flexibility/rigidity required in the cataloging rules. We'll summarize our tests and evaluations in the preparation of the final *Guidelines*.

The final report and recommendations of the project, *Guidelines for the Application of Art Documentation Standards*, will be published in print and online. The final six months of the project coincide with the dates of the annual meetings of ARLIS, VRA, AAM, and CAA; the project will propose sessions at each of these conferences to introduce the *Guidelines* and demonstrate the benefits of their application.

Copies of the print version of *Guidelines for the Application of Art Documentation Standards* will be distributed to members of the standards, cataloging or documentation committees of relevant professional organizations (the Visual Resources Association, College Art Association, Art Libraries Association, Museum Computer Network, American Association of Museums and others). Individual copies will be distributed on request at cost.

The Narrative: Digital Technology

Nothing being done technically to support this project is novel or proprietary. Everything we plan to do will use widely available and well documented open source code and create publicly documented data sets and routines. While we cannot predict in advance what the XML/RDF specification will be in 2002 when the project concludes, we will employ the then-latest specification in the content and our publication of the *Guidelines*.

The digital technology employed in this project will principally be used for three purposes.

Data Analysis and Standardization

We will construct test data sets, analyze them, and apply the application guidelines. This involves:

- 1) assembling data from the participants and those in the broader community contributing samples of art documentation for consideration by the Working Group
- 2) analyzing the occurrences of data values and data content structures in the submitted data
- 3) applying suggested algorithms to the data to transform expressions into their canonical forms
- 4) documenting the transformation tools created to make equivalencies between different representations

Note: Since the purposes of this project are to define application guidelines for structured, semi-structured and unstructured textual documentation of art, the environment we will be using for the project is one that supports rapid character string analysis, simple data typing, transformation of relational databases declared in SQL to Sybase RDBMS, perl and scripting languages. AMICO has a license from RedHat to use its maintained version of Linux and uses a free distributed version of Sybase. Together these have served as a suitable environment for these processes and will continue to be used since it is cost-effective and supports a full range of open source tools and methods.

Communication

We will create a public web presence for the project, publishing drafts of documents, providing for searchable data to display the results of applying data normalization routines recommended by the *Guidelines*, and providing a place that professionals from the broader community to make comments, upload and download documents, and participate in a public discussion. The same facilities will be used in a password-protected web space to support the drafting work of the Advisory Committee and the Working Group. This involves:

- 1) maintaining a secure server
- 2) establishing password control to private directories
- 3) maintaining a mail list server with web archiving (Esquire/Hypermail open source)
- 4) creating a web site (HTML, Apache open source)
- 5) installing a search engine (ht://Dig)

Note: These web-based capabilities are all currently supported for all AMICO members, with separate spaces for participants in AMICO projects such as the University Testbed (1998-99), the IUPUI K-12 Project (1999-2000), and each AMICO committee. These are extensions of many more complex web-based functionalities we maintain using an Apache web-server for Internet Explorer and Netscape browsers. Some functions require generation 4.0+ browsers to support the requirements of the java and cgi scripts we write to maintain session-state and support interactivity, but most functionality is available to any web browser.

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Document Representation

Once the application guidelines have been agreed, their implementation in all the datasets acquired during the life of the project will be undertaken. The resulting data will be published in the then current version of the XML/RDF standard (or appropriate other data interchange standards supporting open exchange of metadata as accepted by the international community at that time). This involves:

- 1) Development of tools using perl, cgi and java scripts that transform data expressions. Testing these tools. Documenting them and making the code publicly available.
- 2) Applying the tools, once they fully reflect the application guidelines, to the full AMICO Library, and publishing the year 2002 AMICO Library, estimated to consist of 150,000+ works of art, fully conforming to the *Guidelines for Application of Art Documentation Standards*.
- 3) Expressing the full year 2002 AMICO Library textual documentation in XML/RDF.

Note. AMICO is currently working closely with the authors of the RDF specification and the Dublin Core Data Model Working Group to test expressions of the AMICO Library in RDF. The full database in this form will be presented at the DC7 meeting in Frankfurt Germany at the end of September 1999. Prior to the start of this project, the Consortium for Computer Interchange of Museum Information (CIMI) will also be finalizing its Guidelines to the Dublin Core for Museums, which will be taken into account in the publication.

**The Budget
(NEH Form)**

The Budget: Narrative

Project Personnel

The co-principal investigators will be funded to devote 20% of their time to the project (50% NEH/50% from AMICO). The Project Manager will serve full time for 24 months. Technical Support will be provided by the AMICO Technical Director who will devote 30 days to analysis, data conversion, testing and tools development. Editorial and Administrative Support will be provided by the AMICO administrative assistant averaging 25% time.

Consultant Personnel

A Web Designer will be engaged to structure the Project web site and make it attractive and easy to use despite the large amount of information it will contain and functions it will serve.

A Publications Designer will be contracted to design templates for the publication of the *Guidelines*, which will be laid out using desktop publishing systems at AMICO.

Advisory Committee Members will donate a minimum of 16 days each to the project, for meeting attendance (8 days), and preparation and follow up (8 days).

Working Group Members will donate a minimum of 24 days each to the project, for meeting attendance (12 days), and online work, preparation, and follow up (12 days).

Travel

All meetings will be held in Pittsburgh to save costs of travel for AMICO staff: the two co-PIs and Project Manager. A Pittsburgh venue also allows us to use contributed space from AMICO for meetings and to obtain known, and inexpensive, hotel rates. Because Pittsburgh is a hub for USAirways, participants from throughout the United States can reach it directly. This makes it possible for East Coast participants to arrive the day of the meeting and for West Coast participants to leave the day the meeting ends, also reducing overall costs to the project.

The Advisory Committee is budgeted for four meetings of two days duration. The Working Group is budgeted for six meetings of two days duration. While the groups will meet together on occasion, this has no impact on overall costs. Funding is provided to permit one person representing the project to make a presentation at each of four conferences in the winter/spring of 2002 (ARLIS, VRA, AAM, and CAA).

Travel is budgeted based on average airfare at \$600 per trip. Per diems in Pittsburgh are calculated at \$125 for hotel, \$50 for food and local travel. Per diems outside Pittsburgh are calculated at \$200, based on average costs for recent conference hotel venues.

Supplies and Materials

office supplies are averaged against AMICO's experience in coordinating working groups to date. These expenses are largely for materials used to prepare for meetings and products of meetings being mailed to participants. Normal office supplies and regular phone and postage are accounted for as indirect costs.

Services

Computer equipment (hardware enhancements and software upgrades) and networking costs includes acquisition and setup of a personal computer for the Project Manager and the costs associated with additional space and accounts for the AMICO web server.

Publications printing reflects a recent quote by First Impression Printing, of Pittsburgh, PA based on 250 pages, 1000 copies, black and white only except two color cover.

Matching Funds

Total matching funds from participants and AMICO contributions significantly exceeds the NEH requirement of 20%.

Appendix A

Project Participants and Members of Advisory Board

Appendix A-1: Advisory Committee

Murtha Baca, J. Paul Getty Trust

Murtha Baca is Manager of Standards Initiatives, Research Institute for the History of Art and the Humanities at the J. Paul Getty Trust. Baca holds a Ph.D. in Art History and Italian Literature from the University of California, Los Angeles. She has worked for more than a decade in the field of data standards and controlled vocabularies for art-historical information, most recently with emphasis on access to images and related data online. She has taught workshops and classes on indexing and accessing cultural heritage information, and on multilingual equivalency work in North American and Europe. Her recent articles include "From Authority File to Retrieval Tool: the *Union List of Artist Names*" (*Computers and the History of Art* vol. 6, no. 2, 1997) and "Making Sense of the Tower of Babel: A Demonstration Project in Multilingual Equivalency Work" (*Terminology: International Journal of Theoretical and Applied Issues in Specialized Communication*, 1997). She oversaw the production and publication of the *Categories for the Description of Works of Art* hypertext document and booklet, and co-edited, with Patricia Harpring, a special double issue of the journal *Visual Resources* (vol. XI, nos. 3–4, 1996) devoted to the *Categories*. She heads a Getty-wide working group for metadata standards and online access to research materials and images, and represents the Getty Information Institute on the International Terminology Working Group, whose collaborative projects include a recently completed multilingual lexicon of liturgical objects. Dr. Baca oversaw the publication in four languages of *Guidelines for Forming Language Equivalents: A Model Based on the Art & Architecture Thesaurus* (Getty Information Institute, 1996), and is currently managing a joint project with the Chilean Ministry of Education to provide Spanish-language equivalents for several of the hierarchies in the *Art & Architecture Thesaurus*.

Patricia Harpring will assist Baca. Harpring is Senior Editor of the Getty Vocabulary Program in Los Angeles, which produces the *Getty Thesaurus of Geographic Names*[™], *Union List of Artist Names*[®], and the *Art & Architecture Thesaurus*[®]. She holds a Ph.D. in Art History from Indiana University and an M.A. from Syracuse University's Florence Fellowship program. She has worked on data standards and controlled vocabularies for art-historical materials for more than a decade, including work with CIMI and ISO. She co-edited (with Murtha Baca) the publication of *Categories for the Description of Works of Art* as well as the special issue of the journal *Visual Resources* devoted to the CDWA. Her publications include a monograph on the fourteenth-century Sienese painter Bartolo di Fredi, and various articles on standards and vocabularies, including "Can Flexibility and Consistency Coexist? Issues in Indexing, Mapping, and Displaying Museum Information." (*MCN: Spectra*. Museum Computer Network, XXVI/1, 1999, 33) and "How forcible are right words!: Overview of Applications and Interfaces Incorporating the Getty Vocabularies." (*Museums and the Web 1999: Selected Papers*, Bearman, David and Jennifer Trant, ed., 1999). Before coming to the Vocabulary Program, Ms. Harpring worked for the National Gallery of Art in Washington, D.C., and for the Foundation for Documents of Architecture.

David Bearman, Director, Strategy and Research, AMICO

See Vita following, in Appendix A-3

Susan Chun, Metropolitan Museum of Art, NY (Chair AMICO Editorial Committee)

Susan Chun is Senior Editor for New Media and Technology Applications and Marketing Manager for Publications at The Metropolitan Museum of Art. At the Met, she oversees editorial activity for interdepartmental publishing projects, which include the museum's collections management system, its web site, and its multimedia publications. She serves on the Museum task forces for Internet publishing; content and asset management and archiving; and documentation standards (where she has initiated a project to evaluate cataloguing practices in each of the museum's eighteen curatorial departments). She is project manager for the Museum's scholarly publications, including the annual *Metropolitan Museum of Art Journal* and the symposium volumes on new scholarship, and also oversees publishing and distribution arrangements for the approximately 35 books published annually by the Museum. In 1990 and 1991, she participated in the development of the first edition of The Metropolitan Museum of Art *Guide to Editorial Style and Procedures*, a style guide used in a number of

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American museums, and is currently supervising preparation of an expanded and updated edition of the volume. She has held positions at the Asia Society in New York, where she served as Publications Manager for the Galleries; at Random House/Alfred A. Knopf, where she developed and implemented a corporate-wide database for estimating, tracking, and analyzing book costs and specifications; and at the Philadelphia Museum of Art. She currently serves as chair of the AMICO Editorial Committee and of the Program Committee of the International Association of Museum Publishers.

Elisa Lanzi, Chair, Data Standards Committee Visual Resources Society (VRA)

As Manager of the Art & Architecture Thesaurus, a project of the Getty Information Institute, Elisa directed staff, expenditures, production, and outreach initiatives for this vocabulary standard. As chair of the VRA Data Standards Committee, Lanzi was instrumental in initiating the VISION project and currently serves as co-coordinator of that project, with Ricky Erway of the Research Libraries Group. Elisa Lanzi has more than ten years of experience specializing in public relations, marketing, and development and has held management positions including Director of Public Relations & Membership at the Bennington Museum, National Accounts Manager with Henry Holt, and Assistant Director at the Bennington College Library. Elisa Lanzi is an active participant in numerous professional organizations and has held appointed and elected offices, including chair of the Visual Resources Association Data Standards Committee, the Controlled Vocabulary Special Interest Group of the Museum Computer Network, the Standards Committee of the Art Libraries Society of North America, the Visual Arts Data Service, and the New England Museum Association

Tony Gill, Research Libraries Group (RLG)

Tony Gill is employed by the Research Libraries Group as a Program Officer for Member Initiatives, with a specific responsibility for facilitating collaborative activities in the visual arts and cultural heritage arenas. He came to RLG from the United Kingdom, where he was responsible for managing the development of the ADAM (Art, Design, Architecture & Media Information Gateway, part of the Electronic Libraries Programme), and for the initial project management of the Visual Arts Data Service (part of the UK's Arts & Humanities Data Service). Prior to this, he was Technical Outreach Manager at the Museum Documentation Association, where he provided impartial advice on the best use of information technology for museums and galleries in the UK. Gill has degrees in communication in Computing (Middlesex University) and Physics & Philosophy (King's College, London). He is the author of a number publications on the applications of information technology in the arts & humanities, including "The MDA Guide to Computers in Museums" and "Metadata and the World Wide Web".

Daniel Starr, Art Libraries Society of North America (ARLIS/NA) - *pending ARLIS/NA Board approval*

Daniel Starr, Chief Librarian, Technical Services and Planning, The Museum of Modern Art Library, since 1996, and Chair and Member of the Cataloging Advisory Committee, The Art Libraries Society of North America, since 1983, has been active in art cataloging since 1977. He is currently involved in the implementation of a new collection management system for The Museum of Modern Art, and is participating in efforts to provide integrated access to research information using linkages between the museum's collection management system, its integrated library system, and its Web site.

Jennifer Trant, Executive Director, AMICO

See Vita following in Appendix A-3.

Project Manager, Ex Officio

See Job Description following in Appendix A-4.

Appendix A-2: AMICO Editorial Committee

Chair: Susan Chun, The Metropolitan Museum of Art

Albright-Knox Art Gallery	Doug Dreishpoon
Art Gallery of Ontario	Liana Radvak
Art Institute of Chicago	Bernd Jesse, Alan Newman, Greg Tschann
Asia Society Galleries	Helen Abbott
Center for Creative Photography	Marcia Tiede
Cleveland Museum of Art	Mary Suzor
Frick Collection	Bill Stout
J. Paul Getty Museum	Erin Coburn
	Amy Noel
Los Angeles County Museum of Art	Margaret Gray, Rebecca Lachter, Garrett White
The Metropolitan Museum of Art	Julie ZefTel
Minneapolis Institute of Arts	Tammy Sopinski Perlman
Musée d'art contemporain de Montréal	Benoit Bissonnette
Museum of Fine Arts, Boston	Nancy Allen
National Gallery of Canada	Greg Spurgeon
National Museum of American Art, Smithsonian Institution	Mary Ellen Guerra
San Francisco Museum of Modern Art	Marla Misunas, Thom Sempere
San Jose Museum of Art	Patty Hickson, Karen Kienzle
Walker Art Center	Robin Dowden
Whitney Museum of American Art	Jennifer Bernstein, May Castleberry, Suzanne Quigley

Appendix A-3: Project Staff Resumés

Jennifer Trant

David Bearman

Brad Dietrich

Appendix A-4: Project Manager Job Description

Project Manager: *Guidelines for the Application of Art Documentation Standards* Project

Summary of Responsibilities

The Project Manager will administer a 24 month funded project for the Art Museum Image Consortium, a non-profit association of major art collecting institutions in North America. This project will define guidelines for application of existing standards for art documentation and test the application of these guidelines on large bodies of existing database and unstructured textual resources.

Working under the direction of the Principal Investigators, the incumbent will coordinate the work of AMICO staff assigned to the project, and manage and serve as staff to the Advisory Committee and Working Group. In the role of providing staffing to the Advisory Committee, the incumbent will help draft agendas, conduct research, prepare background papers, take minutes and prepare reports. In the role of providing staff support to the Working Group, the incumbent will collect and analyze data, identify relevant standards, test draft recommendations against existing datasets, work with the AMICO Technical Director to test automated data conversion routines.

The Project Manager also coordinates project communications, writing content for the Project Web Site, serving as moderator of online discussions both for the Working Group and Advisory Committee internally, and facilitating public online review of draft proposals.

In support of the overall management of the project, the incumbent will direct the work of Technical Director and clerical staff assigned to the project.

Supervisor

The Project Manager reports to the Executive Director of AMICO.

Qualifications

Hands-on experience in the creation of digital documentation of works of art; experience in collaborative standards development projects; team player with successful track record building consensus.

Comfortable working in an online environment. Facility with internet applications (web browser, email, ftp, etc.), word processing, spreadsheets, and HTML markup required. Web page authoring and desktop publishing experience preferred.

Minimum Education: Graduate degree in Art History or related cultural studies or humanities field; or Master of Library Science with strong undergraduate subject knowledge.

Term of Employment

The position is a full-time 26 month contract. Work will be located in Pittsburgh PA. Applications should be prepared to start work by end of May 2001.

Salary

\$46,000 p.a. plus benefits

Appendix B

Acronyms, Standards Documents and Bibliography

Acronyms

AAT. Art and Architecture Thesaurus. An on-going vocabulary project of the J. Paul Getty Trust, <<http://www.gii.getty.edu/vocabulary/aat.html>>

AMICO. Art Museum Image Consortium <<http://www.amico.org>>

ARLIS/NA. Art Libraries Society of North America. <<http://www.lib.duke.edu/lilly/arlis/>>

CIMI. Consortium for the Computer Interchange of Museum Information. <www.cimi.org>

Dublin Core. The Dublin Core workshop series is an initiative to define a simple content description model for electronic resources <<http://purl.org/DC>>

EAD. Encoded Archival Description. An SGML expression of an archival finding aid <<http://www.loc.gov/ead/>>

GII. Getty Information Institute, a former operating program of the J. Paul Getty Trust <<http://www.gii.getty.edu>> Many of its programs are now operated by the Getty Research Institute <<http://www.getty.edu/gri>>

ICOM/CIDOC. International Council of Museums, International Committee on Documentation. <www.cidoc.icom.org/>

IETF. Internet Engineering Task Force. <http://www.ietf.org/>

MDA. Museum Documentation Association, UK-based museum standards body, and publishers of the SPECTRUM standard. <www.mda.org.uk>

MESL. Museum Educational Site Licensing Project. An experiment in educational use of museum digital documentation, involving 7 collections, 7 universities and the Getty Information Institute. www.gii.getty.edu/mesl/

MIME (Multipurpose Internet Mail Extensions), A registry of data types used on the Internet (see: [ftp://ftp.isi.edu/in-notes/iana/assignments/media-types/media-types](http://ftp.isi.edu/in-notes/iana/assignments/media-types/media-types))

MOAC. Museums in the Online Archive of California.

RDF. Resource Description Framework. A metadata framework recommended by the World Wide Web Consortium. <<http://www.w3.org/RDF/>>

REACH Record Export for Art and Cultural Heritage. A Project of RLG. <www.rlg.org/reach.html>

RLG. Research Libraries Group. <<http://www.rlg.org>>

SGML. Standard Generalized Markup Language.

TIIAP (Telecommunications and Information Infrastructure Assistance Program, U.S. Dept. of Commerce <<http://www.ntia.doc.gov/otiahome/tiiap/>>

ULAN. Union List of Artists Names. An on-going project of the J. Paul Getty Trust <http://www.gii.getty.edu/vocabulary/ulan.html>

Guidelines for the Application of Art Documentation Standards: Appendix B

VISION. A project of RLG and the VRA to test the VRA Core. <www.rlg.org/vision.html>

VRA. Visual Resources Association www.oberlin.edu/~art/vra/vra.html

XML. EXtended Markup Language. Specifications at: <http://www.xml.com/axml/axml.html>

W3C. World Wide Web Consortium. The standards setting body for the WWW. <http://www.w3.org>

Data and Content Standards

AMICO Data Specification. Art Museum Image Consortium. *AMICO Data Specification*. Comprised of "Text Record Specification, Image and Multimedia Specification, and the AMICO Data Dictionary. <www.amico.org/docs/dataspec.html>

AMICO Map 1998. *Map of the AMICO Data Dictionary to other Element/Attribute Sets* <www.amico.org/docs.html>

AMICO. University Testbed Research Meeting and Results June 3 - 4, 1999
<http://www.amico.org/projects/u.mtg.99/u.results.html>

ARLIS/NA. Cataloging Advisory Committee. Annual Reports detail the issues facing the ARLIS cataloging community <<http://www.lib.duke.edu/lilly/arlis/reports/9901catadvis.htm>>

Art and Architecture Thesaurus. Originally published in hard copy by Oxford University Press, but maintained up to date, online at <http://www.gii.getty.edu/vocabulary/aat.html>.

CDWA 1998. Art Information Task Force, *Categories for the Description of Works of Art*, College Art Association and Getty Art History Information Program. <www.gii.getty.edu/cdwa>

CIDOC Core Categories. *International Guidelines for Museum Object Information: The CIDOC Information Categories*. International Committee for Documentation of the International Council of Museum, 1995. <www.cidoc.icom.org/guide/guide.htm>

CIDOC 1998. CIDOC Reference Model. Object oriented model of museum information. maintained by Nick Crofts and Pat Reed, CIDOC Documentation Standards Group. www.ville-ge.ch/musinfo/cidoc/oomodel/

CIMI 1999. Consortium for the Computer Interchange of Museum Information(CIMI). *Guide to Best Practice: Dublin core (Dc 1.0 = RFC 2413)* Version 0.3.1, March 30, 1999 <www.cimi.org/documents/meta_bestprac_v031.html>

CIMI 1997. Consortium for the Computer Interchange of Museum Information (CIMI). The CIMI Document Type Definition [for Exhibition catalogs] Version 4.0
www.cimi.org/downloads/CIMI_SGML/cimidtd.pdf

SPECTRUM Guide. Museum Documentation Association (MDA). *Standards in Action, A Guide to Using SPECTRUM*. 1997

SPECTRUM. Museum Documentation Association (MDA). *SPECTRUM The UK Museum Documentation Standard*, second edition, 1997. <www.mda.org/spectrum.htm>

Union List of Artists Names. Available in machine-readable form only from
<http://www.gii.getty.edu/vocabulary/ulan.html>

VRA Core. Visual Resources Association Data Standards Committee. *The Core Categories for Visual Resources*, Version 2.0, October 15, 1997. <www.oberlin.edu/~art/vra/wc1.html>

Guidelines for the Application of Art Documentation Standards: Appendix B

Word Hoard. Museum Documentation Association (MDA). *Word Hoard*, a guide to terminology resources of relevance to museums. <www.mdocassn.demon.co.uk/wrdhrd1.htm>

Word Hoard Bibliography. Museum Documentation Association (MDA). *Bibliography of Terminology Sources* <www.mdocassn.demon.co.uk/biblio.htm>

Articles and Papers

Arms, William Y., Christophe Blanchi, Edward A. Overly, "An Architecture for Information in Digital Libraries" *D-Lib Magazine*, February 1997 [ISSN 1082-9873]

Baca, Murtha and Patricia Harpring eds. Art Information Task Force. Categories for the Description of Works of Art. *Visual Resources* v.11 #3-4, 1996 (p.241-436)

Bearman 1996. Bearman, David *Research Agenda for Networked Cultural Heritage* (Santa Monica CA, Getty Art History Information Program, 1996) p.7-22; "Archiving and Authenticity", p.63-67

Bearman 1995a. Bearman, David. "Standards for Networked Cultural Heritage", *Archives and Museum Informatics*, vol. 9, 1995, p.279-307.

Bearman 1995b. Bearman, David. "Data Relationships in the Documentation of Cultural Objects", in *Categories for Description of Works of Art* a special issue of *Visual Resources*, Vol. 11, p.295-306.

Bearman 1995c. Bearman, David, "Information Strategies and Structures for Electronic Museums", *Information: The Hidden Resource, Museums and the Internet*. Proceedings of the Seventh International Conference of the MDA, 1995 ed. by Anne Fahy and Dr. Wendy Sudbury (Cambridge, UK, Museum Documentation Association, 1995) p.5-22

Bearman, 1995d. Bearman, David, "Museum Strategies for Success on the Internet", *Museum Collections and the Information Superhighway* (London, Science Museum, 1995) p.15-27; also published in *Spectra*, vol.22#4 p.18-24 <<http://www.nmsi.ac.uk/infosh/bearman.htm>>

Bearman 1995e, Bearman, David, "Towards a Reference Model for Business Acceptable Communications", <<http://www.lis.pitt.edu/~nhprc/prog6-5.html>>

Bearman 1994a. Bearman, David, "Thesaurally Mediated Retrieval", *Visual Resources*, Vol. 10, pp.295-307.

Bearman 1994b. Bearman, David, "Beyond Connectivity", *AV Update* (ISSN -0818-2507) #21, September 1994, p.5-20

Bearman, 1994c. Bearman, David, "Cultural Heritage Information Standards in a Networked World", in *Prometheus: New Technologies in Culture* (Athens, Lambrakis Research Foundation) p.39-52; revised in *Archives and Museum Informatics*, vol.8#2 p.91-107

Bearman 1993. Bearman, David "Multimedia and Museum Requirements for Networking", in *Multimedia and Networking*, Proceedings of the Library of Congress Network Advisory Committee Meeting December 7-9 1992, Network Planning Paper #24 (Washington DC, Library of Congress, 1993) pp.16-23; reprinted in *Spectra*, vol. 21 #2 p.15-19

Bearman 1992. Bearman, David, "Documenting Documentation", *Archivaria*, #34, Summer 1992, p.33-49.

Bearman 1991. Bearman, David, "Museum Information Standards: Progress and Prospects", in Stephen M. Spivak and Keith A. Winsell eds., *A Sourcebook of Standards Information* (Boston, G.K. Hall, 1991) p.253-265

Bearman, 1990a. Bearman, David, "Can MARC Accommodate Archives and Museums: Technical and Political Challenges", in Toni Petersen and Pat Molholt eds., *Beyond the Book: Extending MARC for Subject Access* (Boston, G.K. Hall, 1990) p.237-245

Bearman, 1990b. Bearman, David "Framework for Terminology Standards in Museums", in D. Andrew Roberts ed., *Proceedings of the International Conference on Terminology for Museum Documentation* (Cambridge, Museum Documentation Association, 1990) p.7-14

Guidelines for the Application of Art Documentation Standards: Appendix B

- Bearman, 1989a. Bearman, David, "A Framework for Museum Standards", *Spectra*, Vol. 16 #2 (Summer, 1989) 1-5
- Bearman, 1989b. Bearman, David, "Description Standards", *American Archivist*, vol.52#4, (1989) pp. 514-19
- Bearman 1988. Bearman, David, "Strategy for Development and Implementation of Archival Description Standards", in *Toward International Descriptive Standards for Archives*, Papers presented at the ICA Invitational Meeting of Experts on Descriptive Standards, National Archives of Canada 4-7 October 1988 (Munich, K.G. Saur, 1993) pp. 161-171
- Bearman/Perkins 1993. David Bearman with John Perkins, "The Standards Framework for Computer Interchange of Museum Information", *Spectra*, vol. 20 #2&3, p.1-61 CIMI Standards Framework
- Bearman/Petersen 1991. Bearman, David and Toni Peterson, "Retrieval Requirements of Faceted Thesauri in Interactive Information Systems" in Susanne Humphrey and Barbara Kwasnik, *Advances in Classification Research: Proceedings of the 1st ASIS SIG/CR Classification Research Workshop* (Medford NJ, Learned Information, 1991)
- Bearman/Trant 1998a, Bearman, David, and Jennifer Trant. "Authenticity of Digital Resources: Towards a Statement of Requirements in the Research Process", *D-Lib Magazine*, June 1998. <www.dlib.org/dlib/june98/06bearman.html>
- Bearman/Trant 1998b. Bearman, David, and Jennifer Trant. "Unifying Cultural Memory," *Information Landscapes for a Learning Society*, Networking and the Future of Libraries, UKOLN: The UK Office of Library and Information Networking, volume 3, 1998. 207-234.
- Bearman/Trant 1997a. Bearman, David, and Jennifer Trant. eds. and intro. *Museums and the Web 97: selected papers*. Archives & Museum Informatics. 1997.
- Bearman/1997b. Bearman, David, and Jennifer Trant. *Museum Interactive Multimedia 1997: cultural heritage systems design and interfaces*. Archives & Museum Informatics 1997.
- Bearman/Trant 1997c. Bearman, David, and Jennifer Trant., "Beyond Simple Resource Discovery: A framework for metadata declarations of disciplinary schema to support research in heterogeneous collections," International Symposium on Information Technology in Museums - Integrated Applications, Bonn Germany, December 1-2, 1997.
- Blackaby and Sandore, 1997. Blackaby, Jim and Beth Sandore. "Building Integrated Museum Information Retrieval Systems: Practical Approaches to Data Organization and Access". *Archives and Museum Informatics: the cultural heritage informatics quarterly*, vol. 11, no. 2, 1997, 117-146.
- Bower 1993. Bower, James. "Vocabulary Control and the Virtual Database", *Knowledge Organization*, vol.20, 1993, p.4-7
- CIMI Workplan 1999. Consortium for Computer Interchange of Museum Information 1999. CIMI 1999 Program of Work <http://www.cimi.org/about/program_99.html>
- Greenstein/Trant 1996. Greenstein, D. and J. Trant. "The Arts and Humanities Data Service. Collecting digital research data; building a framework for digital resource preservation and interchange," *Ariadne* (July/August, 1996) <ukoln.bath.ac.uk/ariadne/>
- Lanzi/McRae 1999. Lanzi, Elisa and Linda McRae, eds., VRA Core Categories for Visual Resources, *VRA Bulletin* v.25 #4 (p. 29-104)
- Lanzi 1998. *Introduction to Vocabularies: Enhancing Access to Cultural Heritage Information*, Los Angeles: J. Paul Getty Trust.
- Lynch 1997. Clifford A. Lynch. "The Uncertain Future for Digital Visual Collections in the University". *Archives and Museum Informatics, the cultural heritage informatics quarterly*. Vol. 11, no. 1, 5-13
- McClung 1995. McClung, Patricia. *Digital Image Access Project*. Research Libraries Group, Inc.
- MESL 1998a. Christie Stephenson and Patricia McClung eds. *Delivering Digital Images: Cultural Heritage Resources for Education*. (The Museum Educational Site Licensing Project, v.1) Los Angeles: Getty Information Institute, 1998.

Guidelines for the Application of Art Documentation Standards: Appendix B

- MESL 1998b. Patricia McClung and Christie Stephenson. eds. *Images Online: Perspectives on the Museum Educational Site Licensing Project*. (The Museum Educational Site Licensing Project, v.2) Los Angeles: Getty Information Institute, 1998.
- Molholt & Petersen 1993. Molholt, Patricia and Petersen, Toni. "The Role of the "Art and Architecture Thesaurus" in Communicating about Visual Arts", *Knowledge Organization*, vol. 20, 1993, p.30-34.
- Sandore/Shaik 1998. Sandore, Beth and Najmuddin Shaik. "Report of the Instructor and Student Evaluation of the MESL Image Database." In *MESL: Delivering Digital Images*. Santa Monica: The Getty Information Institute, 1998.
- St. Pierre/Tanara 1998. St. Pierre, M., & Tanara, J. *The CIMI Interoperability Testbed: An Implementor's Perspective*. 1998. <www.bluelangel.com/NewsAndInfo/Articles/mcn.html>
- Stam, Dierdre and Angela Giral, eds. *Linking Art Objects and Art Information*, Library Trends v.37 #2 (p.117-264)
- Trant/Bearman 1997. Trant, Jennifer and D. Bearman, "The Art Museum Image Consortium: Licensing Museum Digital Documentation for Educational Use", *Spectra*, Fall 1997. <www.archimuse.com/papers/amico.spectra.9708.html>
- Trant 1998. Trant, Jennifer. "When All You've Got's the Real Thing: museums and authenticity in a networked world," *Archives and Museum Informatics: the cultural heritage informatics quarterly*, Vol. 12, no. 2, 1998 [at press].
- Trant 1996. Trant, Jennifer. "New Models for Distributing Digital Content: The Museum Educational Site Licensing Project," *Digital Imaging Access and Retrieval*, ed. by. P. Bryan Heidorn and Beth Sandore, the 33rd Annual Clinic on Library Applications of Data Processing, University of Illinois, Urbana-Champaign, March 1996, Urbana-Champaign: University of Illinois at Urbana-Champaign, 1997, 29-41.
- Trant 1996. Trant, Jennifer. "The Arts and Humanities Data Service (AHDS) and the UK Office for Library and Information Networking (UKOLN): A coordinated strategy to identify shared metadata requirements. A proposal to the information Services Sub-Committee (ISSC) of the Joint Information Systems Committee (JISC) of the Higher Educational Funding Councils (HEFCs). Submitted by L. Dempsey and D. Greenstein. Drafted by J. Trant. September 6, 1996.
- Trant 1996. Trant, Jennifer. "Images on the Network: Challenges and Opportunities," American Council of Learned Societies, Annual Meeting, Washington D.C., April 1996; and the ACLS *Newsletter*. <www.acls.org/n44trant.htm>
- Trant 1996. Trant, Jennifer. "The Museum Educational Site Licensing (MESL) Project: An Update," *Spectra*, the Journal of the Museum Computer Network, Spring 1996. <www.archimuse.com/papers/jt.mesl.spectra9511.html>
- Trant 1996. Trant, Jennifer. "The Getty AHIP Imaging Initiative: A Status Report," in *Archives and Museums Informatics, Cultural Heritage Information Quarterly*, Vol. 9, no. 3, 1995, 262-278, and *Information Services and Use*, Vol. 15, no. 4, 1995, 353-364. www.archimuse.com/papers/jt.eva.95.html
- Trant 1992. "Integrating Access to the Collections of the Canadian Centre for Architecture," *Computers in the History of Art*, Winter 1992.
- Trant 1993. Trant, Jennifer. "'On Speaking Terms": Towards Virtual Integration of Art Information", *Knowledge Organization*, vol.20, p.8-11
- Turner 1994. James Turner, "Indexing film and video images for storage and retrieval," *Information Services & Use*, Vol. 14 (1994) 225-236.
- Van House 1996. Van House, Nancy A., Mark H Butler, Virginia Ogle, Lisa Schiff. "User-Centered Iterative Design for Digital Libraries", *D-Lib Magazine*, February 1996.

Appendix C

Recent Announcement of VRA Document on Subject Classification

The Visual Resources Association Publications Advisory Committee is pleased to announce the publication of another in its Special Bulletin Series.

SUBJECT CLASSIFICATION FOR VISUAL COLLECTIONS: AN INVENTORY OF SOME OF THE PRINCIPAL SYSTEMS APPLIED TO CONTENT DESCRIPTION IN IMAGES

by Dr. Colum Hourihane
VRA Special Bulletin No. 12, 1999

Fifty classification systems are described in this publication. Computer system, contact persons, addresses and web site address, if available, are given for each project along with brief descriptions of the systems and references. An appendix and selected ICONCLASS bibliography are included along with a general bibliography on subject classification.

Sample entry:

Witt Library, Courtauld Institute of Art, University of London
John Sunderland
Somerset House
The Strand
London WC2R 0RN
England
0171-873-2745
0171-973-2772 (fax)
<http://www.Courtauld.ac.uk>

Collection: Since its foundation in the 1890s the Witt Library has had its own in-house system which has been used to catalog one and three-quarter million images of Western art from the later middle ages (1200) to the present period.

System: Images are filed principally on the basis on national school, and secondly on an alphabetical criterion. Within each artist's work a series of principal subject headings is used which may be further subdivided into secondary subject matter. There are twenty-four primary subject headings which are fixed and not expandable. These include Old Testament, Still Life, Saints, Fruits and Flowers, and so on. The secondary headings within the New Testament are fixed but otherwise this division is expandable. For example, Portraits may be subdivided into Half Length with Hand, etc. Landscapes may be subdivided into those with certain features or without them, e.g. Landscape with water, with bridges, etc. The Library is presently being computerized using ICONCLASS.

Appendix D

Letters of Support

Collaborators

Art Libraries Society of North America, from Daniel Starr, Chair, Cataloging Committee (*pending Board approval*)

J. Paul Getty Trust, from Murtha Baca, Manager, Standards Programs

Research Libraries Group, from James Michalko, President

Visual Resources Association, from Elisa Lanzi, Chair, Data Standards Committee

AMICO Members:

The Metropolitan Museum of Art, Phillipe de Montebello, Director

Whitney Museum of American Art, Maxwell L. Anderson, Director

Appendix E

History of Grants