

An Analysis of the Work of the National Information Systems Task Force

RICHARD H. LYTLE

Abstract: This article contains a summary of the history of the National Information Systems Task Force (NISTF; 1977-82), a statement of the primary products of NISTF's work, and an assessment of the progress made in information exchanged since 1982. The history of NISTF's changing view of its mission is more than past history. Many readers will find that their view of information networks is similar to NISTF's naive starting point. It is hoped that these readers will follow the development of the NISTF mission and gain insight into what is happening now, based on the MARC format and other results of NISTF's work.

About the author: Richard H. Lytle has been the director of the Office of Information Resource Management, Smithsonian Institution, since 1982. Prior to that he served as Archivist of the Smithsonian (1970-82); University Archivist, Rice University (1968-70); University Archivist, Washington University (1964-70); and Local Records Archivist, State of Illinois (1963-64). He received the A.M. in history from Washington University (1963) and the Ph.D. in information science from the University of Maryland (1979). Lytle has served the Society in the following capacities: member of Council (1977-82); Chair, Archives of Science Committee (1972-82); Chair, Automated Records and Techniques Task Force (1976-78); Chair, National Information Systems Task Force (1977-82); member of program committee (1972); organizing member of Status of Women Task Force and member (1972-74); nominating committee (1981-82, as Council member). Lytle also served as the representative of the Society for the History of Technology on the Joint Committee on the Archives of Science and Technology (1978-81). Lytle was named a Fellow of the Society in 1981.

This article is a slightly revised version of the paper presented at the NISTF Conference on "Prospects for Archival Information Exchange," 14-16 March 1983, at the Hoover Institution, Stanford University, in Palo Alto, California.

Introduction

WHIG HISTORY WOULD BE KIND to the National Information Systems Task Force (NISTF). The present perception of the task force as a producer of useful results, such as the new MARC format, could be assumed to demonstrate certain progress from initial definition of mission in 1977 through completion of final projects. In other words, we could assert that we knew what we were doing from the outset. In truth our progress was not at all that sure. In fact, NISTF fumbled, thrashed about for a mission definition, and almost went out of business in 1978–79 before mobilizing itself into effective action in the years 1980–82. So let us discard any notion that NISTF progressed in an orderly fashion from the project's inception to its completion.

The purpose of this paper is to provide a brief chronology and an analysis of NISTF's work. Although instant history may be suspect and the importance of the subject matter questioned, I believe the experience is worth recounting. It may have value for those who continue NISTF's work. The viewpoint is mine, although I have solicited comments from NISTF members.

Chronological Summary, 1977–80

In October 1977, the Council of the Society of American Archivists considered whether to give formal endorsement to the National Historical Publications and Records Commission (NHPRC) database project. Some Council members, reflecting concerns among their constituents, asked how the NHPRC project related to the National Union Catalog of Manuscript Collections (NUCMC). There were other less well de-

fined concerns, such as whether Council should endorse any project without careful study. Council asked me to establish a task force that would report back at Council's spring meeting on how to approach the issue of national information systems for archives and manuscript collections. SAA President Walter Rundell appointed members of the task force.¹

Because NISTF was given no funds, it relied heavily on discussion among members in the Washington area, supplemented by correspondence and telephone contact with others. Reducing our thoughts to print proved to be difficult. In March 1978 the task force submitted to Council a report that recommended that the SAA involve the profession as widely as possible in developing national information systems. The report further observed that no existing contender—neither NHPRC nor NUCMC—was likely to become the sole national system. Although these conclusions may seem trivial today, NISTF had focused on the fact that a national system would consist of pieces supported by a variety of institutions. There would be no monolithic database in the sky. We would have to coordinate pieces in order to fashion a system.²

Having made this beginning, NISTF went into hibernation for the remainder of 1978 and most of 1979. The reasons were mostly personal: I was on sabbatical and no one else on Council pursued the matter. Unfortunately, the initial NISTF report did not indicate a course of action. NISTF meetings were held at annual SAA conferences, but no visible progress was made. Some members became disheartened.

In 1979, NISTF membership was al-

¹*American Archivist* 41 (January 1978): 120. The original members were David Bearman, Richard Berner, Maynard Brichford, John Butler, Vivien Cartmell, Charles Dollar, Tom Hickerson, and Ed Papenfuse.

²Richard H. Lytle, "A National Information System for Archives and Manuscript Collections," *American Archivist* 43 (Summer 1980): 423–26.

tered and activity increased.³ One reason for the revival was my return from sabbatical. More important, SAA members wanted a role for the profession in molding developing national information systems such as the NHPRC database. Archivists would have to act if they wished to influence the major institutions that were planning national information systems.

NISTF members realized that they could not achieve much without funding. We could meet only at SAA conferences, and we had no staff support. Thus the major activities of the period 1979 to mid-1980 were the redefinition of the mission and the formulation of projects for grant applications. From time to time, we had felt unappreciated by Council when they did not fund us; but the necessity to make a sound grant application was a blessing because we had to think much harder about what we were doing. Guidance from staff of the National Endowment for the Humanities (NEH) was very important to NISTF's development.

NEH did fund NISTF through initial planning grants, which ran from June 1980 through June 1981, and the major grant, which ran from July 1981 through December 1982. The major grant was extended to mid-1983, without increased funding, to support a conference in March 1983. In addition to the funded meetings of NISTF and its working groups, the major grant supported a full-time project director. Full-time staffing, in the person of David Bearman, proved to be the critical factor in NISTF's achievements.

Definition of Mission, 1980

During late 1979 and mid-1980, NISTF fundamentally redefined its mission. Although the change can now be rather clearly described, none of us saw it very clearly at the time. The 1977 Council resolution stated:

The Council of the Society of American Archivists supports efforts to increase knowledge about the nation's documentary heritage and to improve the techniques of controlling this information.

The Society appreciates the accomplishments of both NUCMC and NHPRC in furthering the objective of our profession in this regard, and welcomes particularly the forthcoming NHPRC automated guide to archival repositories.

The Council takes special interest in programs to create national information systems for archival holdings because these programs have an impact on professional standards and techniques, on individual and institutional members and their descriptive activities, and on the resources available for archival needs.

Therefore, the Council directs the formation of a task force headed by Richard Lytle (1) to consider the extent and implication of such current national programs, (2) to anticipate the role the Society might play in their implementation, and (3) to report the findings to the Council by its spring meeting for further action.⁴

Although some members of Council believed in 1977 that NISTF was established to help the Society and the profession decide between the NHPRC database and NUCMC, that was never in fact our objective.

³Members of the reconstituted task force were Maynard Brichford, John Daly, Charles Dollar, Larry Dowler, Max Evans, Steven Hensen, Tom Hickerson, Charles Palm, and Nancy Sahli. When David Bearman returned from a period out of the country, he rejoined the task force.

⁴*American Archivist* 41 (January 1978): 120.

In its 1978 report, the task force had clearly rejected the idea of a monolithic database for archives and manuscript collections as unrealistic and probably undesirable. The report further focused on the process for national information system planning:

The crux of the question of professional involvement is whether a planning process can be devised which involves large numbers of archivists and yet produces results. The broadest purpose of this planning would be to create a national information system for archives and manuscript collections derived from the intellectual resources of the archival profession. Not only will a system thus derived be sound technically, it will by the process used to create it, maximize its acceptance by the profession and therefore its probability of success.⁵

No ✓
What did NISTF think it was doing in 1978? The most fundamental assumption of the first few years was that the object of our concern was an information retrieval system to make archival collections widely available to researchers. Although most archivists suspected that library information systems would not accommodate archives, archivists' thinking was nevertheless dominated by the national union catalog model. Individual NISTF members undoubtedly had different versions of our objective in mind, but most of us thought we were working on an implementation—an end-user information retrieval system that the archival profession could somehow cause to happen. During the period 1977–80, then, NISTF struggled to determine what a national information system for archives and manuscript collections should look like and what role the profession should play in its construction and maintenance. We realized that in fact the system would consist of pieces “owned”

by a number of organizations. We had progressed beyond the database-in-the-sky approach.

In retrospect, our focus on a national union catalog function was quite naive. ✓
Our heads were filled with unexplored assumptions concerning everything from technical details to the economics of a national system. Our most fundamental assumption was that we knew why information would be exchanged between archives. We thought we knew that a national information system should and could be constructed for end-user information retrieval. The new definition of our objectives was dramatically less ambitious. We attempted to establish the preconditions for archival information exchange, a relatively narrow and technical task compared with the notion of establishing a national system. We had come to the sobering conclusion that we did not know how or why archivists and archival institutions would desire and be able to exchange information. But we knew that information systems were being established in some areas, and that we could make a practical contribution by providing a process for standardizing data that archives did wish to exchange and a standard format for exchange of that data in machine-readable form.

Another reason for restricting our mission was that otherwise we were led into the depths of the descriptive standards problem, which we had no hope of resolving anytime soon. To be thorough about it, a comprehensive national system would have to be founded on standard descriptive practice. NHPRC and NUCMC had circumvented this problem in their own ways, and other SAA efforts to arrive at standards of description had not achieved professional recognition. Since many of our debates were based on the assumption that we

⁵NISTF 1978 report to Council, Society of American Archivists Archives, University of Wisconsin Archives, Madison, Wis.

were working toward construction of a particular system, i.e., an implementation, we assumed that we had to cope with the descriptive standards problem in depth. Some of us, among whom I counted myself, were becoming quite unhappy with that notion of mission. Others—notably Richard Berner—have either failed to realize that shift in our objective or have disagreed with our decision. But had NISTF attempted to deal with the descriptive standards problem, we would have produced neither our data element dictionary nor the exchange format.

The standard launched by NISTF is what I call a permissive descriptive standard. Basing our work on Elaine Engst's findings that descriptive data elements are applicable to a wide range of archival institutions and materials, we constructed a common data element dictionary.⁶ The purpose was to ensure that if a repository uses a given descriptive element, that element is used in a standard manner. We were not attempting to determine which descriptive elements are used. Moreover, NISTF did not go very far at all in the most difficult area of descriptive practice—standardization of the values entered in data elements. For example, we did not deal with standardization of subject entries. We avoided these tasks, not because we thought they were unimportant, but because detailed descriptive standards must be created for a reason—a need to exchange information—and we did not know why archivists want to exchange information.

Once we began to question our unexamined assumptions, we realized that a national information system probably would be justified on the basis of its usefulness to archival organizations rather than to end users. Moreover, systems created for internal purposes could have capabilities that might support data exchange for end-user research.

This realization removed a barrier that we had constructed between NISTF concerns and internal archival information systems. If our original national union catalog concept were ever to be realized, information systems that could support that function also must have economic value to archival organizations.

From its inception, NISTF always found itself dealing with technical and political issues, often inextricably combined. The task force was established when the NHPRC database project was aggressively expanding; the refusal to define the problem as a choice between existing programs was a political as well as a technical decision. Most subsequent issues had significant or even determining political ingredients. For example, we determined to stay within ANSI Z-39 standards, which meant MARC, but we did not say "MARC" initially. We knew that we simply had to produce a MARC format to bring the major research libraries into our data exchange provisions. The political dimensions of this decision are still with us, since a few archivists are complaining that a MARC format cannot meet archival requirements. In my opinion, however, that statement will remain a philosophical or dogmatic assertion until someone can demonstrate an archival requirement that the MARC format cannot accommodate or cannot be changed to accommodate. In all fairness, it should be noted that librarians have their own dogmas concerning MARC as well, some of which were at issue in our work. There are many other political issues lurking about in NISTF activities and products.

NISTF's new mission statement emerged in 1980–81. The task force recommended that the archival profession adopt two fundamental criteria for evaluating information systems: (1) the information needs of the individual repository, and (2) the use of a standard

⁶Engst's report is in the SAA Archives.

format to facilitate the exchange of data between repositories. As conceived by the task force, any future national information system for archives and manuscript repositories would involve interconnecting existing and emerging databases, some multi-institutional and others controlling the holdings of individual institutions. The articulation of these databases into a viable national network would require that existing and developing systems adopt a standard format for exchange purposes. Designing such a format was, therefore, the second step toward a national information system. Finally, the profession could plan how best to proceed toward the establishment of actual national systems.

NISTF Program and Products, 1980-82

Three factors in late 1979 and early 1980 caused NISTF to change its direction. First, we had to make application to funding agencies, and that meant specifying products and other results of our being funded. The second factor was the likelihood of revision of the MARC format for manuscript collections and the establishment of implementations by the Research Libraries Group. Archivists would have to organize their efforts quickly if they were to effect these important developments. The third factor was the return to NISTF of David Bearman, who had a better idea of practical possibilities than the rest of us had.

Sometime during the period late 1979 to mid-1980, the fundamental problems inherent in our assumption that we were designing an implementation—a national information system—began to dawn on us. Perhaps the national political scene, with its trend away from governmental programs and toward services that were entirely or at least largely self-supporting, had an impact. In any case, this fundamental change of orientation explains NISTF's success.

The activities of NISTF from July 1981 through early 1983 are fully documented by task force products. The reports, standards, and "think pieces" are available in the literature or from the SAA office in Chicago. They are briefly summarized below.

(A) *Descriptive Data Elements*. As described above, we built on the initial empirical study of data elements used in archival information systems. NISTF assembled a working group consisting of representatives of the Library of Congress, the National Archives, the Research Libraries Group, the NHPRC database staff, and NHPRC project representatives to develop a comprehensive and permissive data element standard. The standard was comprehensive because it included all types of repositories and records management activities, and it was permissive because it aimed to standardize current practice rather than establish prescriptive norms. In September 1982, Council accepted the data element dictionary as the beginning of a process for maintaining standards and established the Standing Committee on Archival Information Exchange. Updated data element standards may be obtained from the SAA office in Chicago.

The study by Elaine Engst had verified what some of us had assumed all along: that a relatively small number of descriptive data elements accounted for all of the descriptive practice of American archives. These descriptive elements for the most part could be applied without regard to nature of repository (archives or manuscript collection) and without regard to the archivists' sacred principle of hierarchical level. The descriptive data element dictionary is further empirical proof of this generalization, and I hope that contributors to the archival literature will take heed.

(B) *Machine-Readable Format for Exchange of Data about Archives and*

Manuscript Collections. While the data element standard was intended for manual as well as automated systems, computerized exchange of data was targeted as a critical area. The working party established a draft format that was acceptable to the library and archival parties involved. The standard, a new MARC format, was accepted by MARBI, the American Library Association standards arm, and by the SAA Council.

The MARC format is now maintained jointly by the Library of Congress and the SAA. The format accommodates the second edition of the *Anglo-American Cataloguing Rules* (AACR-2), but it also accommodates any other descriptive convention and will accommodate a thoroughly archival descriptive convention if that ever appears. The new MARC format makes possible communication of information about archives and manuscript collections in the bibliographic utilities and between our major research libraries.

(C) *Repository Information Systems.* Upon realizing that data exchange among archives must have payoff to participating repositories, NISTF assumed an interest in internal information systems. An essential prerequisite to automation of information systems is understanding the information environment of archives. The urge to concentrate on hardware and software must be resisted until functional requirements of archives for information systems are defined—until the information environment is studied and rigorously described.

David Bearman became interested in applying a systems analysis methodology to the archival environment and tested the Structured Analysis and Documentation Technique in a number of repositories. Several members of the task force assisted him in generalizing his analyses, which are available as examples of the methodology. As a result of this ex-

perience, we have reason to believe that generalized software may be developed to support many information functions in archival institutions.

(D) *Communications.* NISTF members, especially the project director, have communicated regularly with the archival profession. That is really an understatement. David Bearman and other members of the task force have attended meetings of virtually every regional archival association and have visited many archival repositories. We have published in American and other archival journals, and we methodically appeared at Professional Affinity Group (PAG) meetings and other task force meetings at SAA conferences. We did all of this “communicating” because we could not otherwise achieve our objectives. The data elements project—and, to a lesser degree, the machine-readable format—depended upon input and criticism from the archival community. With a few disappointing exceptions, we received our critique. I believe it is fair to say that we met all of our objectives in communicating to the profession. Some may be glad to hear from us no more.

(E) *Scenarios.* Having reduced our major task to manageable proportions—having refused to attempt definition of a national information system—we returned in the end to the larger questions. In what kinds of information exchanges can or should archival institutions engage? What role should the profession take in these developments?

The scenarios are too detailed for recounting here, but the idea of scenarios is worth mention. We attempted to generate by a matrix approach all of the options for information exchange we could think of. We came up with some strange notions, and most were discarded; but we found the approach to be very worthwhile because it generated possibilities we would not otherwise have

considered. One possibility thought by some of us at the time to be outlandish soon became fact when Chadwyck-Healey proposed their for-profit edition of repository finding aids. The possibilities generated by the matrix approach were reduced to plausible models for archival information exchange. The scenarios are descriptions of how the models might be achieved.

After NISTF, 1982-present

NISTF recommended its own dissolution to Council, and the dissolution became official at the conclusion of a conference held at the Hoover Institution in March 1983. There was good reason to disband NISTF. Its major objectives had been accomplished, and plans for further work did not require a body with NISTF's broad charge.

The Hoover Institution conference brought formal closure to the NEH-funded NISTF work and aimed at setting future directions. The real purpose of the conference was to decide what direction to take next. I will not attempt to recount the conference discussion. A summary and transcripts are available through the SAA office. I believe we will see NISTF's work as a focal point for many initiatives by institutions to apply automation to archives and to develop information exchange. Moreover, impact of the MARC format goes beyond information exchange; it opens up the library automation marketplace to archival institutions.

When NISTF was dissolved, Council established the Committee on Archival Information Exchange (CAIE). At the Hoover Institution Conference, the CAIE defined its mission as the promotion, encouragement, and support of effective means for exchange and dissemination of information about archival holdings. Establishment of CAIE was required to maintain the data element dictionary and to jointly maintain the

MARC format with the Library of Congress. The CAIE has been active. Probably its most important work to date is the nearly completed guide for archives on use of the MARC format.

The SAA intends to support the application of automation to archives beyond its sponsorship of CAIE. Depending on identification of funding, SAA intends to support archival institutions in planning and implementing automation by setting standards, by recommending methods of analyzing requirements, and by providing a limited consultation service. Day-to-day support to archival institutions is important, since information exchange must be based in information systems that address local as well as wider needs.

The most exciting progress since March 1983 has been made by individual institutions or institutional consortia. Examples of institutions or consortia presently active in considering applications of the MARC record are Yale, Cornell, and Stanford universities; the Hoover Institution and the Research Libraries Group; the New York State Archives; the Archives Division of the State Historical Society of Wisconsin; the Smithsonian Institution Archives; the Historical Department of the Church of Jesus Christ of Latter-day Saints; the National Archives; and the Presidential Libraries. These grass-roots efforts must be nurtured by the profession. A consortia of state archives to develop an integrated archival information system comes to mind as a very useful strategy. Real progress will be made by archival institutions and groups of institutions, however—not by central planning agencies and SAA committees. Funding can be expected from federal and other sources once archival institutions have identified a sound direction, substantiated by commitment of their own resources.

Conclusion

To its members, NISTF was an experience more than it was a project. I can say without qualification that NISTF work and my other contacts with task force members were the most significant professional experience of my archival career. We started with a conviction of the importance of our task and in great confusion about almost everything else, and we surprised ourselves many times with our progress. Permit me a few comments that illustrate the significance of the NISTF experience for me.

Most importantly for me, the doubts I had long held about archival theory or dogma were sustained. In many ways, the archival assertion that archives are different was disproved. For example, it was asserted that descriptive data elements must be tied to hierarchical level (whatever that means) and therefore could not be represented in library information systems. SPINDEX was touted as an archival information system, presumably because of the physical and logical representation of hierarchy in its database structure. I had never been able to understand the archival fervor for hierarchy, and I immediately distrusted the assertion about data elements. In fact, that assertion fell before the empirical evidence, which showed no significant connection between descriptive categories or elements and the hierarchical levels of organizations with which records may be associated. The importance of hierarchy evaporated before our eyes. Since I had been keenly aware of this issue from the beginning of our discussion about data elements, I followed the argument closely in our later

work. The uncritical acceptance of a poorly defined notion of hierarchy is widespread and has significant impact on archival practice as well as archival theory. Bearman and I will publish a paper on that topic. My purpose in mentioning it here is to give an example of how NISTF work had a very significant impact on my thinking about archival theory.

Archivists have not had much interest in empirical data about the characteristics of archives, including their use. The descriptive data element dictionary is in fact a significant source of data about the descriptive practices of archival institutions. Will someone exploit this data for research purposes? The NISTF experience reinforced my concerns that archivists should attempt to pursue research into the use of archives. At the least, a study of the end-user utilization of NUCMC would be of theoretical and practical value.

If the NISTF experience reinforced my rejection of the uniqueness of archives as an information resource, it also reinforced my conviction that the power of archival methods of collective description (and therefore of retrieval) had hardly been tapped. Archivists do not realize how powerful a method of retrieval they have in an approach that controls documentation through its creating activity. That power is applicable to current records as well as archives; indeed, it makes no sense to apply it only to non-current records. Perhaps a further realization of the power of the provenance method of retrieval, related to my earlier work, was the most important result of the NISTF experience for me.