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March 1, 1999

To: MnLINK Steering Committee
System X Contract Group

From: Charlene Mason, Chair, System X Technical Group

Subject: System X Technical Group Report

On behalf of the System X Technical Group, I am pleased to submit our report to you. It comes to you in several parts: a) the base report which is a summary of our work and our findings and b) multiple appendices which are the results of our work and respond to different parts of our charge.

Over-Arching Issues

As the work of the System X Technical Group drew to a close, it was necessary for us to go back to first principles, those over-arching issues identified by the Vendor Evaluation Team it believed were critical in contract negotiation and could cause the contract negotiations to break down. They are as follows:

- If DRA is not willing or can't work with the Gateway vendor
- If DRA is not willing or can't work with the MnLINK Project in addressing certain critical functional and technical needs
- If there is a significant delay in the delivery of the product
- If there is a significant cost over-run in the product
- If there is a lack of demonstrated functionality as specified in the contract or DRA's response to the Request for Proposals
- If local data, including bibliographic data, cannot be preserved in conversion and managed functionally

Of these issues, the System X Technical Group found four to be of particular concern at this time:

- If there is a significant delay in the delivery of the product
  The slippage of dates with regard to delivery of modules is of major concern to the System X Technical Group.

- If there is a lack of demonstrated functionality as specified in the contract or DRA's response to the Request for Proposals
  The lack of available functionality was a major concern for the System X Technical Group in its work of evaluation of the Taos system.

- If local data, including bibliographic data, cannot be preserved in conversion and managed functionally.
  The ability of Taos to accommodate the local record needs of the libraries currently using PALS is of major concern to the System X Technical Group.

The System X Technical Group also identified another over-arching issue with regard to Taos, which was not in the VET report:

- If locally defined parameters, including policies, roles, locations, passwords, and calendars, cannot be locally set and maintained.
  The size, complexity, and management of a centralized parameters table is of major concern to the System X Technical Group. Even though DRA has plans to address this concern, the development of the additional functionality should be monitored.

Recommendations

The System X Technical Group was able to reach a high degree of consensus about the issues to be negotiated in a contract with DRA for the Taos product. These issues are outlined in Appendix B-1 and Appendix B-2. In Appendix B-2, which is confidential for use of the System X Contract Group, priorities for these issues are provided. There was a fairly high degree of consensus for the priorities.

Although not part of the charge to the System X Technical Group, the System X Technical Group might have made a recommendation to proceed or not proceed with a contract with DRA for Taos, following the pattern of the work of the Gateway Technical Group report. However, the Group is unable to reach a consensus about such a recommendation. Some of the System X Technical Group believes that DRA is unable to address the issues in the over-arching issues list to meet the needs of MnLINK participants and is unable to provide a timely delivery of the Taos product. Other members of the Group believe that Taos will be developed within a reasonable timeline and, once fully developed, will meet the needs of MnLINK, especially if the identified contract issues can be worked out.

The System X Technical Group does believe that no vended integrated library system will be successful for the libraries mandated by legislation to be on a common system until the local record issue is addressed. The issue of cataloging practices and the implications of cataloging in a consortium with a unit record needs to be further explored and the issues need to be resolved.

Conclusion

I recommend strongly that the System X Technical Group be excused with accolades once the Library Planning Task Force makes its recommendation to the Higher Education Services Office. Over the past six months, it has put in untold hours compiling lists of issues, listening to constituent potential users of System X, working with DRA to sort out functionality and developments, and in preparation of the report before you. They have done this work with enthusiasm and vigor, even though the task was sometimes daunting, especially since some Taos functionality is still under development. Many have traveled long distances to meetings every

Friday and all have had to put aside other work responsibilities to participate on this committee. The discussion at the meetings has been frank and open, with significant wrestling with issues to reach the consensus represented in this report. I do not think that the MnLINK Steering Committee could have put together a stronger group to do this very significant task. Whatever the outcome of the decisions to be made, the System X Technical Group deserves your thanks for providing a strong foundation for those decisions.

Report

MnLINK Project System X Technical Group
March 1, 1999

Introduction

On April 22, 1998 the Library Planning Task Force accepted the recommendations of the MnLINK Project Vendor Evaluation Team (VET), including one for System X which follows:

> The Library Planning Task Force proceed with negotiations with DRA leading to a formal contract to install the proposed TAOS system as System X for the MnLINK Project.
>
> In making this recommendation, the Vendor Evaluation Team agreed that MnLINK could expect to have a fully functional, user friendly system available within a reasonable timeline. At the same time, MnLINK would be connecting itself to a forward-looking company with a solid track record and a visionary plan.

(The full report of the Vendor Evaluation Team from which this is excerpted can be found on the MnLINK Web Site: http://www.mnlink.org.)

After the review of the Gateway vendor and the start of contract negotiations for that portion of the MnLINK Project, the System X Technical Group was formed and charged. Members of this group have been drawn from the projected System X user libraries, including the Minnesota State Universities and Colleges (MnSCU), the University of Minnesota, state agencies, private colleges, public libraries, and the K-12 community. The composition of the group includes current library users of several different automated systems. Diversity of library background, experience and expertise, and opinion are well represented in the group. A list of members may be found in Appendix A.

The group was charged to carry out several tasks:

- "identifying and then clarifying, with the vendor and other users of the system, the technical, functional, and development issues which need to be addressed either in contract negotiations or in implementation of ...System X..."

  The list of these issues may be found in Appendix B-1. The confidential version of the contract issues with priorities and other contract negotiation related information is in Appendix B-2. Implementation issues identified by the System X Technical Group may be found in Appendix D.

- creating a list of issues from a variety of sources, working with DRA representatives "to understand and clarify all issues remaining about the response of the vendor to the RFP."

  The detail of how this was accomplished is described later in this report. The results of this work are in Appendix B-1; a list of implementation issues may be found in Appendix D.

- "focus on viable alternative methods of providing the functionality desired and [provide] an evaluation of the benefits of various alternative methods"

The System X Technical Group did pursue a number of alternative methods with DRA; those results are reported in Appendix B-1. In addition, it charged a small group to look at the local record issues and review possible options for handling them within DRA. This report and the charge to the group may be found in Appendix C.

- "determine whether benchmarking of the proposed DRA system is necessary and arrange for such testing, if appropriate."

  The System X Technical Group felt it was pre-mature to benchmark the Taos system and recommends that such benchmarking be built into the contract. Recommendations for possible benchmarking scenarios have been included in Appendix B-3.

- "continue the work of the Gateway Technical Group of coordinating the discussion and resolution of the technical issues between DRA and OCLC."

  The System X Technical Group participated in an initial meeting between DRA and OCLC where several important issues of interaction between the two systems were worked out. Subsequently, DRA and OCLC have independently and with the help of the MnLINK Mankato staff pursued any other issues which needed resolution.

- "recommend the acceptance criteria for the DRA system."

  The MnLINK User Groups have been assigned this responsibility; the System X Technical Group agreed to coordinate the results of their work. However, the User Groups have been told to not pursue this work until after the System X Technical Group report has been released to the public. Therefore, there will be no acceptance criteria for the Group to recommend.

- "determine
  a) issues the vendor will be addressing during the normal course of development.
  b) issues to be part of the contract negotiation process
  c) issues to be addressed during implementation"

  Appendix B-1 contains the technical and functional issues the System X Technical Group believes should be part of the contract negotiation process, including comments on important functionality DRA has under development of which the Group is aware. Not all functionality specified by the RFP is listed in Appendix B-1. The System X Technical Group took a broader view of its charge and focused its efforts on that functionality which it believed was of most importance or which would be more difficult to implement in the MnLINK environment. In addition, although important, much of the functionality specified in the RFP is standard in all vendor products and was assumed to be part of the DRA Taos product. Acceptance testing should cover all of the specified functionality, not just those functions that are part of the contract negotiation process.

  Appendix B-3, "Benchmarking Issues" includes suggestions for benchmarking Taos or any other System X product. Appendix B-4, "Unicode and Support for Multiple Scripts", focuses on issues of major concern to libraries having a wide variety of languages represented in their collections, including those not printed in the Roman alphabet. Appendix B-5, "Requirements for Import and Export of MARC21 Bibliographic, Authority, and Holdings Records", addresses issues relating to

sharing records between System X and other systems, including national resources for bibliographic records. Finally, Appendix B-6, "Conflict and Error Conditions Related to Authority Control", provides a general outline of the types of reports needed for database maintenance for an integrated library system.

Appendix D contains identified issues of possible interest to libraries implementing System X.

- "In its report(s) to the MnLINK Steering Committee, the System X Technical Group should:
  a) identify in priority order issues for contract negotiations, including alternatives and any possible cost considerations. ...
  b) identify issues outside of the contract negotiation process about which the MnLINK Steering Committee and MnLINK participants need to be aware for a successful implementation of System X"

  As mentioned above, the contract issues may be found in Appendix B-1 and the implementation issues in Appendix D. The confidential version of the contract issues with priorities and other contract negotiation related information is in Appendix B-2.

The full charge to the System X Technical Group may be found in Appendix A.

Timeline of Work

Although the System X Technical Group had originally hoped to finish its work by the end of 1998, it became apparent early on that this was a very ambitious schedule. The group was charged on September 1, 1998 and shortly thereafter participated in the joint meeting between DRA and OCLC. It spent most of the fall gathering information in preparation for its meeting with DRA on December 1-2, 1998. During December, January, and February, the group has been working on its recommendations for this report.

Since the meeting with DRA, there has not been an opportunity for another full update on activities and developments with regard to the Taos product. The System X Technical Group has contacted DRA staff about many issues that have come up during the preparation of the report on contract issues. This report should be considered a snapshot in time needing to be updated during contract negotiations, as appropriate. It may well be that contract issues identified by the System X Technical Group will be in the Taos product or in the Taos development schedule by the time the contract is negotiated and signed.

Process

In order to cast its net as widely as possible to find all the issues which needed to be examined during the course of its work, the System X Technical Group scheduled meetings during the fall with each of the Vendor Evaluation Team Working Groups. The members of the Working Groups were asked to reflect upon the information about Taos functionality they had learned during the process of their work and to identify those issues which were of particular concern or might have been missed in the process of developing the recommendations leading up to the VET report of April, 1998. In addition, all of the Working Group reports were reviewed as well as the DRA response to the RFP. A call was also put out to the MnLINK community in general asking for any input it wished to provide. At the PALS User Group meetings held in late October 1998, attendees created a list of issues for the new system, which was subsequently provided to the System X Technical Group.

The System X Technical Group also asked for more recent information from DRA about Taos and in response to our queries, DRA provided several documents under non-disclosure agreements.

By the time the System X Technical Group went to St. Louis on December 1-2, 1998 to meet with the DRA staff, it had a long list of issues for discussion. During the two days in St. Louis, the group met with at eight staff including Mike Mellinger, President and CEO who is also in charge of development of Taos; Berit Nelson, Project Manager; Stephen Newman, Director of Worldwide Sales; Cindy Lazzara, Strategic Account Manager and the primary liaison between DRA and the MnLINK project and Steve Falk, manager of conversion and implementation for Taos customers.

While at DRA the Group saw demonstrations of various parts of Taos, including some under development, and had the opportunity to ask questions about what they saw and didn't see. They also quizzed the DRA staff about the underlying functionality and technical structure of the Taos product.

Since returning from St. Louis, the Group has spent considerable time clarifying the issues, especially those requiring contract negotiations, and in prioritizing them. Each issue has been reviewed by the entire System X Technical Group, discussed, and then agreed upon. The work in Appendix B is the result of an informed process with a high degree of consensus by the Group that these are the important issues to negotiate if a contract is negotiated with DRA for the Taos product.

The System X Technical Group charged a small group of people from PALS libraries, the University of Minnesota, and CLIC libraries to investigate "development of functionality to manage local bibliographic information in a consortial environment". Specifically the group was charged to

1) investigate approaches to using the DRA bibliographic and holdings records to meet the needs of the PALS libraries on an ongoing basis;
2) review options for treatment of local data and how to handle local data elements;
3) identify those local data needs that can be handled in Taos and outline the changes a library would need to make in its processes for Taos to manage the data;
4) identify those local data needs that cannot be handled in Taos. If possible, specify the changes that need to be addressed by DRA in its product.

The report and conclusions of the Task Force on Local Record Issue is in Appendix D.

Review of Over-Arching Issues

In the April, 1998 report of the Vendor Evaluation Team, six issues were raised as over-arching in moving towards a contract and project with DRA:

> In making this recommendation, the Vendor Evaluation Team has identified several major considerations, which are over-arching in negotiating a contract with DRA and could cause the negotiations to break down. In addition these are conditions for which penalty or escape clauses should be written into the contract:
> - If DRA is not willing or can't work with the Gateway vendor
> - If DRA is not willing or can't work with the MnLINK Project in addressing certain critical functional and technical needs
> - If there is a significant delay in the delivery of the product
> - If there is a significant cost over-run in the product
> - If there is a lack of demonstrated functionality as specified in the contract or DRA's response to the Request for Proposals

- If local data, including bibliographic data, cannot be preserved in conversion and managed functionally

In its review, it became quite clear that while the System X Technical Group could agree upon the technical issues which needed to be in a contract if one were developed, some of the over-arching issues identified in the VET report were of greater concern. Taking them one at a time:

- **If DRA is not willing or can't work with the Gateway vendor**
  DRA has exhibited willingness to work with OCLC. At the meeting with OCLC in early September, both vendors worked with the MnLINK representatives to understand how copyright tracking could work within the MnLINK environment. At the American Library Association meeting in January 1999 there was a DRA press release about work with OCLC leading to an open protocol for authentication.

- **If DRA is not willing or can't work with the MnLINK Project in addressing certain critical functional and technical needs**
  Although there is an extensive list of technical issues in Appendix B, assessing the willingness of DRA to address them is difficult until MnLINK enters into formal contract negotiations with DRA.

- **If there is a significant delay in the delivery of the product**
  In the course of responding to the MnLINK RFP and working with the MnLINK project since November 1997, DRA has provided a number of different timelines for when certain modules and functionality for Taos will be available. These are summarized in Appendix E to this report. As can be seen, the timeline proposed has repeatedly slipped both from the RFP response and from the timeline provided to the VET in April 1998. For some modules, such as the online catalog, many had the perception during the vendor demonstrations in early 1998 that the module was almost complete. For other modules, such as Interlibrary Loan and Bindery, the slippage is even more significant. As noted below, under the discussion of functionality, even during the visit of the System X Technical Group to DRA in early December 1998, few modules were available for review and required functionality was missing.

  The slippage of dates with regard to delivery of modules is of major concern to the System X Technical Group.

- **If there is a significant cost over-run in the product**
  The System X Technical Group is not in a position to assess this issue, as discussion of proposed costs is part of contract negotiation. The quoted prices from DRA did not include any customization necessary to handle the local record issues discussed below and in the report of the Local Record Issue Task Force. Additional custom programming not identified as part of the RFP process includes the ability to share prediction pattern records within MnLINK across DRA databases and across servers and to handle the merged OCLC control numbers for obsolete records still in use by libraries using System X. There are additional DRA costs for other custom programming and application program interfaces, which were indicated in their response to the RFP.

  Given the complexity of the PALS record structure, there may well be extra conversion costs for the PALS libraries, both on the part of DRA and the part of PALS and PALS libraries. In addition, MnLINK may want to purchase an additional server for reports and backup.

Software to check 856 links;, generate barcodes at the local libraries for patrons, items and class lists; and for data reduction at the server sites may also be required. Additional unknown and unfunded implementation and operating costs are also of concern to some of the System X libraries.

- **If there is a lack of demonstrated functionality as specified in the contract or DRA's response to the Request for Proposals**
  During the December visit, the following Taos modules had no functions available for review: serials (except for check-in and claiming), acquisitions, interlibrary loan, media booking, reserves, bindery, and accounting functions. Circulation, the online catalog, and cataloging were partially available. Having so few modules completed makes it impossible to evaluate the required interaction and integration among the different modules. In addition, the report writing software is a third party product that was not demonstrated.

  The lack of current functionality also affected the ability of the System X Technical Group to identify possible contract issues. It was not able to test or experiment with the system in any way, except for being able to see briefly the public online catalog version of a Taos database in the last weeks of its work. With no installed customer base, the Group also was not able to discuss issues of functionality with other customers nor to travel to an implemented site to work directly with the library staff to review alternative ways of managing library processes.

  The lack of available functionality was a major concern for the System X Technical Group in its work of evaluation of the Taos system.

- **If local data, including bibliographic data, cannot be preserved in conversion and managed functionally.**

  While many of the local record issues can be managed in alternate ways within the Taos product, there is additional functionality specified in the RFP that cannot be provided within the Taos product as currently developed. Examples of such functionality identified by the Task Force on Local Record Issue include making local modifications to the bibliographic record and indexing these modifications in such a way as to retrieve and display locally records specific to that library.

  An additional concern is the cost of conversion of the PALS records into the Taos database. The result will be to invest a significant amount of staff time and money into merging libraries' information onto a composite bibliographic record and develop programming to move some pieces of information from the bibliographic record to the holdings record.

  The System X Technical Group recognizes that the issue of cataloging practices and the implications of cataloging in a consortium with a unit record needs to be further explored to discover if it is possible to maintain the same service to patrons by altering the methods of cataloging.

  The ability of Taos to accommodate the needs of the libraries currently using PALS is of major concern to the System X Technical Group.

The System X Technical Group also identified another over-arching issue with regard to Taos, which was not in the VET report:

- **If locally defined parameters, including policies, roles, locations, passwords, and calendars, cannot be locally set and maintained.**

  Currently PALS allows its member libraries to work directly with the tables controlling these functions in their local libraries. This allows the local library to make changes as necessary without having to work through a central service staff. It also reduces the size of central service staff needed and allows the changes to take affect immediately. Currently within Taos all of this information is maintained in one central table managed centrally.

  The size, complexity, and management of a centralized parameters table is of major concern to the System X Technical Group. Even though DRA has plans to address this concern, the development of the additional functionality should be monitored.

Recommendations

The System X Technical Group was able to reach a high degree of consensus about the issues to be negotiated in a contract with DRA for the Taos product. These issues are outlined in Appendix B-1 and Appendix B-2. In Appendix B-2, which is confidential for use of the System X Contract Group, priorities for these issues are provided. There was a fairly high degree of consensus for the priorities.

Although not part of the charge to the System X Technical Group, the System X Technical Group might have made a recommendation to proceed or not proceed with a contract with DRA for Taos, following the pattern of the work of the Gateway Technical Group report. However, the Group is unable to reach a consensus about such a recommendation. Some of the System X Technical Group believes that DRA is unable to address the issues in the over-arching issues list to meet the needs of MnLINK participants and is unable to provide a timely delivery of the Taos product. Other members of the Group believe that Taos will be developed within a reasonable timeline and, once fully developed, will meet the needs of MnLINK, especially if the identified contract issues can be worked out.

The System X Technical Group does believe, however, that no vended integrated library system will be successful for the libraries mandated by legislation to be on a common system until the local record issue is addressed. The issue of cataloging practices and the implications of cataloging in a consortium with a unit record needs to be further explored and the issues need to be resolved.

System X Technical Group Report
Appendix A

MnLINK System X Technical Group
Charge

The MnLINK System X Technical Group will be responsible for identifying and then clarifying, with the vendor and other users of the system, the technical, functional, and development issues which need to be addressed either in contract negotiations or in implementation of the System X integrated library system for the MnLINK Project. Although the MnLINK System X Technical Group reports formally to the MnLINK Steering Committee, the results of the work of its work are also to be integrated into the contract negotiation process and to be shared with potential users of System X. The work of the System X Technical Group, as it relates to contract negotiations, is considered to be confidential.

In particular, the System X Technical Group should review the issues for System X implementation and operation, as identified in Appendix A of the Vendor Evaluation Team report. The Group should also add to this list issues: 1) from a review of the RFP response from the vendor; 2) from the review of the vendor during demonstrations and other meetings identified by the various Working Groups in their reports; 3) from feedback from other MnLINK participants, including Working Group members, and through public input into the process. The Group should work directly with the DRA representatives to understand and clarify all issues remaining about the response of the vendor to the RFP.

The investigation should also focus on viable alternate methods of providing the functionality desired and an evaluation of the benefits of various alternate methods. The Group should also determine whether benchmarking of the proposed DRA system is necessary and arrange for such testing, if appropriate. With regard to implementation of the Gateway in the proposed MnLINK environment, It may be asked to continue the work of the Gateway Technical Group of coordinating the discussion and resolution of the technical issues between DRA and OCLC. In addition, it may also be requested to recommend the acceptance criteria for the DRA system which will be used both in the contract and as a basis for development of scenarios to test the DRA software as various modules are released.

As a result of this work the System X Technical Group should determine

a) issues the vendor will be addressing during the normal course of development
b) issues to be part of the contract negotiation process
c) issues to be addressed during implementation

In its report(s) to the MnLINK Steering Committee, the System X Technical Group should:

a) identify in priority order issues for contract negotiations, including alternatives and any possible cost considerations. For these issues the System X Technical Group may be expected to prepare contract language.

b) identify issues outside of the contract negotiation process about which the MnLINK Steering Committee and MnLINK participants need to be aware for a successful implementation of System X.

In collaboration with the MnLINK Steering Committee and the MnLINK Project Team, the System X Technical Group shall develop a timeline and methodology for its work, anticipating submission of a final report by December 23, 1998 if at all possible.

The MnLINK Project budget will cover direct expenses for persons serving on this Group. In addition, if a person has to arrange for a substitute at his or her place of work, the MnLINK Project Budget will help pay for such a substitute.

CKMason 2/28/99

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System X Technical Group Report
Appendices

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System X Technical Group Report
Appendix B-1

Issues for Taos Contract with DRA
Arranged by Function

Introduction

The issues presented in this appendix represent a high degree of consensus by the System X Technical Group about the functionality needing to be negotiated with DRA in order to have a successful implementation of Taos. They do not, however, represent all of the issues in the RFP, many of which can be assumed should be in any standard integrated library system. The System X Technical Group assumes that the DRA response to the RFP will be attached to the contract. It further assumes the contract will speak only to the issues of importance, such as those in this appendix, or issues where DRA now believes that the answer provided in the RFP will no longer be valid. In addition, it is critical that acceptance testing cover all of the features DRA agreed to provide in its RFP response, as modified by the contract negotiations.

The System X Technical Group was not able to evaluate directly much of the functionality represented in the RFP because it is not yet available. Many of the sections are thus more general than might be desired. The System X Contract Group may want to be able to amend the contract with greater specificity, as each function becomes available and can be further evaluated.

Some of the requested functionality may now be available. The last review with DRA of Taos was during the visit of the System X Technical Group in early December 1998, although the Group has been in communication with DRA staff about specific issues since then. It may well be that contract issues identified by the System X Technical Group will be in the Taos product or in the Taos development schedule by the time the contract is negotiated and signed.

Below, the issues for contract negotiation are arranged randomly by function. The Technical Services section is arranged differently because of the complexity of the issues and because many requirements are common to all technical services functions. It begins with the overarching issues (common requirements) and them lists requirements by broad functional requirements and issue.

Each contract issue is in bold with the relevant MnLINK RFP requirement statement numbers. This is followed by some further explanation of the issue, when needed or appropriate.

DRA often said "fully compliant" in their November 1997 response to the RFP. In the intervening months since their submission, it has become difficult to sort out what "fully compliant" might have meant. In many cases, it may mean that the function was in the Classic DRA system and they planned to have it in the Taos system. In other cases, however, the response was "fully compliant" when the functionality does not exist in the Classic system. In both cases, the functionality often was not available for review. The System X Technical Group has tried to ferret out these discrepancies and put them in this report.

All implementation issues identified by the System X Technical Group may be found in Appendix D.

Online Public Access Catalog

1. The system must allow the user to browse forward and backward in all browse-able indexes. [RFP 6.2.1.20]

Currently if a user misspells a word in searching any of the browse-able indexes, he or she can browse forward and backward. If the user spells the word correctly, he or she can only browse forward from that point. (Example: Gon with the Wind). DRA recognizes this as a bug and intends to fix it.

2. General keyword result sets must be sorted in reverse chronological order, with the option of further arrangement using format information. Well ordered browse lists must be generated for results of phrase and keyword in heading searches with the primary, secondary, and tertiary sorts as defined by the ALA Filing Rules. [RFP 6.2.2.6]

This issue is not explicitly defined in the RFP, but 6.2.2.6 touches upon it. Currently, keyword results are sorted by DBCN (DRA Database Control Number) in LIFO (last record in, first record displayed) order. There is an option to sort them by format. According to DRA, they are working on getting the default keyword search sorted in reverse chronological order. DRA intends to define primary, secondary, and tertiary sorts in browse lists following ALA filing rules.

3. The user must have the ability to navigate a large results set by jumping to a specific point in the set. [no RFP reference]

This functionality is important in instances when the number of results is large and cannot, for example, be viewed all in one sitting. One idea is that of using "landmarks," e.g. by clicking on alpha characters to jump within phrase or keyword-in-heading results or clicking on dates to jump within keyword results. A patron could view records 1-150 today and go through 151-250 tomorrow. If the patron can't go directly to 151 or thereabouts, navigation becomes a clumsy task.

4. The user must be able to mark individual records for printing, downloading, and e-mailing. [RFP 6.2.2.4]

Currently Web2 provides the capability of printing and downloading an entire hit list. It is also possible to block data on the screen and e-mail the result to yourself. However, other functionality such as being able to mark individual items for export and select a specific format for exported records is not yet available. DRA plans further enhancements to the current features.

5. The system Z39.50 client must be able accept and display OPAC records transmitted by other Z39.50 servers. [RFP 5.2.2.1]

Currently, location and call number are available in full displays of records from DRA databases and databases of other vendors DRA has worked with. When DRA begins supporting the old and new OPAC record formats, it should be possible to display holdings from any Z39.50 database that supports one of those formats, since the data will be in a consistent place. MnLINK will initially be using the WebZ client from OCLC to provide access to other catalogs, but it is possible that over time some System X libraries will need this functionality.

6. A library must be able to have preset defaults, provided by Web2 through IP address detection, so that the initial search and display of results is limited to a specific location or set of locations. The user must be able to easily change this default and select other locations, libraries, or groups of libraries. [RFP 6.2.1.26]

DRA, during the visit to St. Louis, said this requirement was to be available in the version now shipping, but it was not demonstrated. Later correspondence with DRA stated that the ability to limit display of results of a search by location was in the version of Taos shipped in December 1998, but they were doing additional structural work on this type of limit to improve performance. Other DRA users have identified bugs in the current version.

7. The system must be able to turn off automatic right-hand truncation of an individual search string. [no RFP requirement]

Sometimes automatic right-hand truncation will not allow display of all items of interest, basically because it stops at an exact match. If a user wants to look for items about cats, but only enters "cat" as the search term, the result set will not include items having "cats" in the record.

8. The system must be compliant with Minnesota ADA requirements. (The interface must provide a no-frames option that can be displayed using a text browser such as Lynx.) [RFP 3.1.9; 5.1.2.7]

As of January 1, 1999, a new state statute became effective. This new law requires solicitations released after January 1 1999 to include specific language about access to technology for the visually impaired. According to Paul Stembler and Betsy Hayes of the Department of Administration (January 5, 1999), our RFP was not required to contain this language because the RFP was released and award was made before the law went into effect. They advised that we should follow the guidelines in the law if practicable (considering costs, availability, and so forth).

9. The system must allow for multiple Web interfaces to the online catalog. It must be possible to distribute the interface building and maintenance to member libraries. [no RFP requirement]

The MnLINK Project, as a matter of course, does not want to encourage a large variety of interfaces because it makes it more difficult for users to move among different libraries. However, during the process of the work of the System X Technical Group, it became apparent that an important issue in a consortial system was the ability of the online catalog to reflect a specific library's collection and for libraries to have the ability to adjust their interfaces to meet local needs. The user interface design plays a large role in providing this functionality. Because the expectation is that local libraries would be able to maintain these interfaces, it is important that it is relatively easy to build and update them.

10. The system must provide labels based on indicator values. In addition it is expected that each library will be able to determine which subject headings will be displayed based on field tag and indicator value. [RFP 6. 2.2.2]

The core functionality to label the type of subject heading [Library of Congress, National Library of Medicine, children's. local, etc.] being displayed was not demonstrated during the visit in December. Even though the second part of the statement above was not explicitly defined in the RFP, it is important that each library be able to determine which subject headings will be displayed.

11. The system must provide a "summary" holdings display from which the user can easily move to a detailed holdings display. [RFP 6.2. 1.39]

DRA has invited MnLINK to provide DRA with suggestions about what this display might look like.

12. A user must be able to page backward and forward among the records associated with multiple headings in a browse-able index result without returning to the headings list. [RFP 6.2.1.24, 6.3.1.12]

While 6.2.1.24 does not specifically mention browsing backwards or forwards, in 6.3.1.12 (in a different context) browsing both forward and backward is mentioned. This functionality, which makes it easier for the user to navigate the online catalog, was not demonstrated during the visit in December.

13. The system must be able to limit a keyword search to a specific MARC field or fields. [RFP 6.2.1.12]

Often it is useful to be able to limit a search of a keyword to a specific field, such as title or format, to focus the search more tightly and reduce the number of unwanted records in the result set. An example is looking for books by Shakespeare. A search of the keyword "Shakespeare" against all fields and all records picks up many items about Shakespeare and his writings that can be eliminated by limiting the search to "Shakespeare" as an author.

14. The DRA Z39.50 server must export online catalog records and holdings (old format now and later new format when implemented). [RFP 5.2.2.1]

MnLINK needs this functionality now so holdings can be shown for DRA sites accessible via the MnLINK Gateway.

15. The system must be able to select multiple headings from a list to launch a new search. [RFP 6.2.1.29]

This will allow a user to select several headings and do a combined search on all of them rather than having to perform a search on each heading one at a time.

16. The online catalog must provide a search history with numbered sets, so that those sets may be further used for searching, displaying, and exporting. [RFP 6.2.1.2]

DRA indicated to the System X Technical Group during its visit to St. Louis that they have had a lot of requests for this functionality. DRA has this requirement in their development schedule.

Circulation

1. The system must provide the following print products on demand:

a. **Date due slips** [RFP 6.1.4.4]
b. **Circulation receipts** [RFP6.3.1.9]
c. **Hold slips** [RFP 6.3.1.42]
d. **Fine receipts** [RFP 6.3.4.9, 6.3.4.11]
   It is assumed that a display of patron fine information could be sent to a printer connected to the workstation. It does not appear that the system can print a fine receipt on demand except by a screen dump of the library staff workstation display to an attached printer. It may be possible to print a statement of account, including fines, from the patron information available from the online catalog.
e. **Pull slips** [RFP 6.3.2.38]
   The system must be able to direct the printing of pull slips to the correct printer related to the location in which the item is located.
f. **Barcodes** [no RFP requirement]
   Barcodes are a major issue for school media specialists who print out class lists of barcodes rather than issue patron cards to their students. A third party vendor could provide this functionality.
g. **Backup transactions report** [RFP 6.3.1.63]

As of December 1998, no printing capabilities were demonstrated by DRA.

2. The system must be able to schedule reports and notices to print in a batch process. [RFP 6.1.4.3, 6.3.6.2]

Libraries using System X need to be able to print notices on demand. Neither printing capabilities nor the report writing module was demonstrated as of December 1998.

Note: For further information on the report writing module, see the section on Reports and Report Writing later in this appendix.

3. The system must automatically notify a patron when an item on hold is declared lost or missing. [RFP 6.3.1.58, 6.3.1.59]

The option to maintain a hold on a lost item was identified by the academic libraries as a useful feature.

4. The system must be able to distinguish between a patron bar code and an item bar code when using a scanner to check out/in items in the circulation client. [RFP 6.3.1.4]

PALS has the ability to recognize a patron bar code and, when scanned in, to immediately display a checkout screen ready to accept item bar codes. Likewise, at the screen prompt, if an item bar code is scanned in, it is immediately discharged.

5. The system must be able to circulate items easily even when the item is not in the catalog database. [RFP 6.3.1.18]

Notes about "On the Fly" (OTF) record creation taken during meeting in St. Louis:

If the flag is set at the creation of the OTF record (while in circulation mode), then a message appears whenever circulation activities occur. Setting the flag also allows reporting of items with status of "on the fly". OTF conversion starts with the unattached bar code. The system then prompts for optional title information, which only creates an item record and no MARC21 catalog record. Libraries will need to have information in an indexable field (852 sub-field h) which can be retrieved via technical services client (acquisitions, cataloging, serials) in order to retrieve the item record. The technical services client has a button for staff searching mode which will allow access to 852 sub-field h indexes.

Quick cataloging, available via Alt-Q in the circulation client, brings up a template for a brief bibliographic record. A MARC21 record is created behind the scenes, to which the bar code is attached. The record is available within the online catalog.

If an item is an "on the fly" item, it is not searchable in the online catalog. But if a quick cataloging record is created, it is then searchable from the online catalog

6. The system must be able to report patron status throughout the server; e.g., good standing, blocked somewhere, blocked everywhere. [RF P 6.3.1.6]

The concern here is twofold. Libraries currently in a consortial relationship will want to access patron records of all the consortia members to determine whether a patron is in good standing at a member library. Conversely, some libraries, especially school libraries, may not want students blocked from checking out materials in the school media center even though they may be blocked at a public library.

7. The system must be able to retain and archive transaction history and statistics when an item is removed from the database. [RFP 6.3.1.68]

No demonstration of statistics archiving was shown to the Technical Group during its December 1998 visit to DRA.

8. The system must have the ability to inventory the collection or portions of it, including providing reports of shelving errors, missing items, and shelf inventory lists in call number order by location. It must be possible to use a portable scanning device to collect inventory information. [RFP 6.3.8]

This requirement was not discussed with DRA at the December 1998 meeting. The RFP also requests a report of mismatches between circulation records and bibliographic records that the database design of Taos does not make possible. PALS has an inventory module which is used heavily by libraries.

9. Information about the patron making the single most previous charge on an item must be accessible via the circulation staff client. [no RFP requirement]

According to DRA during the December visit, previous patron history for an item is on their development schedule. Taos, at local option as some libraries will not want to keep this data, will retain information on the last patron to use the item.

10. The system must provide the ability to edit patron records while in backup mode. [RFP 6.3.1.62]

The ability to change or update patron information, such as address fields, could be helpful for public libraries using backup circulation in a bookmobile setting. DRA is willing to discuss this requirement further to determine the needed functionality.

11. The system should have the ability to define fixed or tiered charges for overdue items. [RFP 6.3.4.17]

The System X Technical Group expressed interest in optionally either setting a flat fee (set amount for each period of time, such as an hour, day, week) or a tiered charge (a certain amount for the first 10 days, another amount for the next 10 days, etc.).

12. The stored transactions from circulation backup must be automatically uploaded when the online system becomes available. [RFP 6.3.1.62]

Library staff have requested automatic upload from circulation workstations in backup mode when system operations or access is restored. Manual restore from circulation workstation backup is insufficient when many sites use student assistants. Notes from the December trip to DRA indicate that "when the system comes back up, [the system administrators or local library staff] will have to manually send the file of transactions." Most library systems do not offer automatic upload of circulation transactions. No demonstration of a backup system was provided by DRA, but it is on their development schedule.

13. Audit trail and online history file for patron financial transactions. [RFP 6.3.4.8]

No demonstration of an audit trail was shown to the Technical Group during its December 1998 visit to DRA.

14. The system must offer the option of allowing patrons to update their address files without library staff intervention. [no RFP requirement]

Academic librarians on the VET Circulation Working group expressed an interest in this feature, because it is difficult to keep current addresses on file for students. School and public libraries may not want this option made available to their patrons.

15. A backup circulation function must be provided that can be used to charge, renew, and discharge items and to create patron records and on-the-fly circulation records when the online system is unavailable. [RFP 6.3.1.62]

Many library staff have requested easy entry into a workstation backup mode for circulation transactions (including checkout, check-in, and input/update of patron data). This speaks to a strong desire for circulation transaction backup to run transparent to the library staff person. No demonstration of a backup system was provided by DRA, but it is on their development schedule.

Reserves

1. Items on reserve must be fully indexed and integrated with the online catalog; that is, it should not be necessary to enter a "reserve room" to search for reserve items. The system must have the ability to restrict searches to reserve items only and to a specific reserve collection. [RFP 6.3.5.1, 6.3.5.12, 6.3.5.2, 6.3.5.6]

The location of an item and its availability status must be readily available to the patron through an online catalog search. The patron must be able to restrict searches to reserve items only and to specific reserve locations. Quick cataloging would allow for searching by title of uncataloged reserves according to the discussions with DRA in St. Louis (December 1-2 1998). The system should allow materials on reserve to be retrieved by all access points available to other materials. The reserve item must be accessible from the online catalog by keyword indexing of named values, course name/number/section and teacher(s)/professor(s) names. This requirement is on DRA's development schedule.

2. Functionality for items on reserve must be fully integrated with the circulation and financial system, providing for charging/discharging, check out periods, overdue/fining/billing procedures, and use statistics. [6.3.5.4, 6.3.5.18, 6.3.5.19, 6.3.5.20]

All of the requested functionality as defined in the RFP is not yet available, although the DRA response stated, "fully compliant." The reserve module must have 1) full indexing and integration with the catalog; 2) the ability to restrict searches to reserve materials in a specific location; 3) access by keyword indexing of course name, item name, section, and teacher name; 4) full integration with circulation; and 5) full integration with the financial system. Most of these requirements are on DRA's development schedule.

3. The system must provide the same features for electronic reserves as for traditional reserve formats. [RFP 6.3.5.21]

Electronic reserves must be an integral part of any planned reserve module and is not yet available in the Taos product.

4. The system must notify a patron who has placed a hold when the requested item is recalled for reserve. The system must automatically cancel all holds and recalls on an item that is recalled for reserve or that is declared lost. [RFP 6.3.1.58]

5. Patron access to electronic reserve materials linked through the reserves module must be authenticated through the system using the appropriate local institution authentication service. [no RFP requirement; part of 6.3.5.21]

As electronic reserves increase in proportion to print reserves, this feature will be of increasing importance. It will be incumbent upon individual institutions to provide authentication to the course level.

Media Booking

1. The acceptable completion of a media booking module as described in the RFP must be in the contract. [RFP 6.8]

A media booking system was included in the RFP and is considered to be an important component of an integrated library management system. The module for Taos has not been developed. The information presented during the December 1-2 trip to DRA indicates that DRA will develop a media booking module but this development is later in their development schedule.

2. The system must provide information about equipment, location, schedule and requester and maintain a tracking history. [RFP 6.8.2, 6.8.3, 6.8.9, 6.8.16, 6.8.17]

See the discussion under the previous point for comments.

3. Full integration with the circulation and financial systems must be provided to support loan periods, checkout and override, recall, reserves, patron data, and other circulation functions. [RFP 6.8.4, 6.8.5, 6.8.11, 6.8.14]

See the discussion under the previous point for comments.

4. It is expected that DRA will work cooperatively with MnLINK staff in the development of the media booking module. [no RFP requirement]

Although this is not mentioned in the RFP, the PALS staff are developing a booking module to be ready by June 1999. This expertise in developing this functionality could be used to the benefit of both MnLINK and DRA.

Remote Circulation

The following definition of remote circulation as developed by the MnLINK Project Gateway Technical Group is used here also:

> The MnLINK Project Gateway Technical Group understands remote circulation to mean the following: When a request is made for an item at another library, an electronic item surrogate (information about the copy requested) is copied to the requesting library's local system database at the time the physical item (returnable) is sent to the requesting library. The requesting library then has a bibliographic record it can use in its home circulation system to manage the item. The item is directly charged out to the individual and standard notices are generated by the home system. If fines or other charges are due, they are handled by the home circulation system. When the item is returned to the lending library and all other transactions, such as fines, associated with the item are cleared, the item surrogate is removed from the home library system. This all happens automatically with no staff mediation.

Note: The System X Technical Group did not address the remote circulation functionality during the meeting with DRA in St. Louis in December. Further exploration of the functionality including a demonstration needs to take place. This exploration should also include an evaluation about which of the following issues are contract issues and which are implementation issues.

1. Requests originating via the remote circulation function of DRA must appear in the interlibrary loan file for the patron, reflecting their total number of requests from outside institutions. [RFP 6.3.2.2]

At the joint OCLC/DRA meeting held with the Gateway Technical Group in August 1998, it was decided that libraries would choose whether to use System X or the Gateway for their interlibrary loan traffic. This decision was based on the need to have comprehensive materials tracking and dynamic copyright information. It's possible that libraries who choose to use the remote circulation function will need to use the DRA ILL system to track all of their materials. DRA should work with OCLC to insure this functionality exists on MnLINK day one of implementation of interlibrary loan.

2. The routing of circulation requests among libraries must include the establishment of profiles of lending libraries. The use of these profiles should include features such as load leveling and prioritization. These profiles must be able to be set at the local library. [RFP 6.3.2.5, 6.3.2.6, 6.3.2.7]

The description of routing of requests provided by DRA in its response to the RFP does not match the functionality requested in the RFP. This needs to be clarified.

3. The lending library must be able to include a note when an item is not filled indicating the reason. This would be useful under certain circumstances such as when the item is currently unavailable for loan but will be available soon. [RFP 6.3.2.34]

4. The user prompts must be clear and include specific information regarding the progress of the request. The system must allow for options at the local level controlling parameters such as the number of requests that can be placed at one time. The user must be able to specify the pick-up location and be notified when the item is available. [RFP 6.3.2.9, 6.3.2.12, 6.3.2.17, 6.3.2.22]

It is important to assure that the functionality provided meets the needs of the users.

5. The system must allow the library staff to manage the requests. [RFP 6.3.2.20, 6.3.2.21, 6.3.2.24]

It is important to assure that the functionality provided meets the needs of the library staff.

6. The printing of pull slips must include features such as the ability to profile the location where pull slips are printed, printing on demand, and scheduled printing. [RFP 6.3.2.37, 6.3.2.38, 6.3.2.39]

One area that will need to be clarified is the integration of interlibrary loan and remote circulation requests within DRA. These operations should be combined in the printing process. The ability to direct the printing of pull slips is also very important.

Interlibrary Loan

Note: The interlibrary loan system has not been developed yet for either DRA's Classic or Taos products, nor was it described in any detail at the meeting in St. Louis in December. Interlibrary loan will need to be further defined with specific criteria for functionality included as the system is developed. Interlibrary loan is on the DRA development schedule.

1. The system must be able to support the latest version of the ISO 10160/10161 Interlibrary Loan Application Service Definition and Protocol Specification. [RFP 6.3.9.4]

The ISO protocol provides for the transfer of interlibrary loan requests among different servers and services, including the OCLC provided MnLINK Gateway servers.

2. The transfer of requests between System X and the Gateway must result in comprehensive patron and material tracking. [RFP 6.3.9.1, 6.3.9.10]

At the joint OCLC/DRA meeting held with the Gateway Technical Group in August 1998, it was decided that libraries would choose whether to use System X or the Gateway for their interlibrary loan traffic. This decision was based on the need to have comprehensive materials tracking and dynamic copyright information. DRA must work with OCLC to insure this functionality exists on MnLINK day one of implementation.

3. The user prompts must be clear and include specific information regarding the progress of the request. The system must allow for options at the local level controlling parameters such as the number of requests that can be placed at one time. The user must be able to specify the pick-up location and be notified when the item is available. [RFP 6.3.9.3, 6.3.9.27, 6.3.10.12, 6.3.10.16, 6.3.11.10]

It is important to assure that the functionality provided meets the needs of the users.

4. The system must allow for comprehensive library staff management capabilities. This should include the sending of messages between the borrowing and lending libraries. [RFP 6.3.10.6, 6.3.10.22, 6.3.11.28]

It is important to assure that the functionality provided meets the needs of the library staff.

5. There must be parameters for setting conditions under which the system will automatically reject requests. These should include both patron (i.e. too many outstanding requests) and item (i.e. non-circulating item) conditions. [RFP 6.3.9.26, 6.3.9.28]

6. The system must be able to handle requests to document suppliers. Document requests must interface with searching the online catalog and support simultaneous searching of multiple databases. The search functions for document delivery must be fully integrated with the online catalog. Locally held items must be identified and rules must determine whether the request can be made. [RFP 6.3.9.5.c., 6.3.10.4, 6.3.10.4.a., 6.3.10.13]

The "trading partners" concept for handling requests from unaffiliated users for fee-based document delivery needs to be explored with DRA.

7. There must be a blank work form for the use of patrons and library staff. The system must allow for the re-initiation of requests that were not filled. [RFP 6.3.10.3]

8. The interlibrary loan system must include profiles of potential lending libraries, which can be set locally and must include features such as load leveling. An explanation of how this is done is needed to include the use of "need by" dates. [RFP 6.3.9.29, 6.3.9.30, 6.3.9.31, 6.3.10.19]

9. The system must have the ability to check to determine whether items being requested are held locally. The processing of items that are held locally should be at the discretion of the local library, i.e., cancel the request, route for library staff review, send the request on to the first potential lender. The system must have the ability to process requests for locally held items. [RFP 6.3.10.11, 6.3.11.4.a]

Checking for local holdings and allowing for a number of possible actions at the local library's discretion was not specifically addressed in this section of the RFP. Also, there needs to be clarification as to how locally held requests are handled within the DRA system.

10. Copyright tracking must include user prompts when the number of items being requested has exceeded copyright limits. Library staff must have the ability to override copyright limit violations. [RFP 6.3.9.12, 6.3.9.13, 6.3.11.23, 6.3.11.24, 6.3.11.25, 6.3.11.26]

There needs to be an understanding on the part of DRA of the copyright tracking requirements within MnLINK.

11. The system must have the ability to profile the routing of requests, messages, and other print products in a way that allows each product to have a different profile. MINITEX needs to be set as the supplier of last resort or, at the local library option, earlier in the string. [RFP 6.3.9.5, 6.3.9.24, 6.3.9.30]

DRA also needs to address how Taos will handle the specific needs of MINITEX in user initiated requesting, so requests are routed to the appropriate place.

12. It is expected that DRA will work cooperatively with MnLINK staff in the development of the interlibrary loan module. [no RFP reference]

Although this is not mentioned in the RFP, the PALS staff have developed an interlibrary loan system that is rich in functionality and this expertise could be used to the benefit of both MnLINK and DRA.

13. Authentication of the patron must include validation against the local authentication source. Information regarding the patron must be transferred to the interlibrary loan request. [RFP 6.3.10.8.a, 6.3.10.8.b, 6.3.10.8.d, 6.3.10.9]

Technical Services

I. Overarching Issues for Technical Services

1. Tight integration is required among all functional modules. A dynamic, seamless interface is required across and within the various modules (acquisitions, serials, cataloging, circulation, binding, interlibrary loan, and accounting). Integration must allow:

- **easy navigation among various functions (e.g., processing notes as part of check-in display, quick access to payment history from the serials check in screen);**

- **ability to pull display data from appropriate modules (e.g., serial records show claim history [serials module], order and payment data [acquisitions module], and circulation and browse statistics [circulation] all on same screen;**
- **ability to move between functions without backing out of the module (e.g., edit a note in serial check-in record when logged into cataloging module).** [RFP 6.1.3.2, 6.1.3.4, 6.5.1.2, 6.5.1.3, 6.5.1.6, 6.6.1.1, 6.6.1.2, 6.6.2.4, 6.6.2.10, 6.6.4.1]

Specifically:

- The integration and interface specifically between the acquisitions and serials modules is mandatory, but **all** modules must "talk" to each other and share data.
- The ability to retrieve data related to a specific function must never be more than 2 mouse clicks away.
- The full range of functionality must be available to the library staff person without having to log into a different module (e.g., perform a serials function when logged into acquisitions module).

As of December 1998 there was neither an acquisitions module nor an interlibrary loan module. The serials module consisted of check-in and claiming only. The required integration was not demonstrated during the visit to DRA. The lack of some modules and missing functionality in others made the testing of the requested interface capabilities impossible.

2. Shared Technical Services files. The system must provide the ability to view other libraries' technical services files (check-in, vendor, ordering, etc.) both on the same server and on other Taos servers within MnLINK. Security parameters must prevent the display of sensitive institution specific records or fields [RFP 6.5.2.21, 6.6.2.5]

Specifically:

- Taos must provide the ability to view check-in records within a DRA DataBase (DRADB)
- Taos must provide the ability to view order files within a DRADB.
- Taos must provide the ability to view technical services files across DRADBs.
- Taos must provide the ability to view technical services files across MnLINK servers.
- Security parameters must secure sensitive institution level information, fields, and records from display. MnLINK should work with DRA to define local fields and records needing to be hidden.

An example of the needed functionality: a staff person from a MnSCU library can look at the University of Minnesota's acquisitions record for "The Century", but not see who requested it. During the December visit, DRA stated that library staff would be able to search the vendor, acquisitions, and serial records within a single DRA DataBase (DRADB). Due to the lack of fully developed acquisitions and serials modules, DRA was not able to demonstrate how local information is blocked in the display to a staff person in another library.

3. EDI. Taos must provide the ability to electronically transmit to and receive from various vendors acquisitions, accounting, serial, and binding related data such as: purchase orders, purchase order confirmation, invoicing, claiming, subscription orders, cancellations, and payment history. [RFP 5.2.1.11, 5.2.3.5, 6.5.3.2, 6.5.4.5, 6.5.4.6, 6.6.3.7, 6.6.4.3]

Specifically:

- Needed EDI functionality must be available on MnLINK day one of each module: acquisitions, serials, binding, etc
- EDI may be X.12 compatible initially, but must be EDIFACT compliant eventually.

According to DRA's response to 5.2.1.11 and 5.2.3.5, the system has the functionality of Invoices, Purchase Order, Purchase Order Acknowledgement, and Functional Acknowledgement. As of December 2, 1998 this functionality was not available in Taos. DRA staff is rewriting their EDI programming and gave the following status report: invoicing completed, purchase orders in process, claims not yet scheduled. Currently DRA expects to incorporate the EDI functionality into Taos acquisitions to be available at or soon after Taos acquisitions is available. The EDI functionality will probably be a separate license.

4. Label production. The system is required to be able to create, edit, and print spine and/or pocket labels as part of various technical services functions (e.g., serials check-in, cataloging, binding). [RFP 6.4.2.15, 6,6,2,24]
Specifically:

- Taos must support multiple label types (e.g. SP1, SL4, SL6, SL7, etc.).
- Taos must support preset formats (e.g., Library of Congress call number dividing the characters and digits of number onto 2 lines) for multiple call number schemes. Library staff must be able to easily override preset formats.
- Taos must support multiple call number schemes (e.g., Library of Congress, Dewey Decimal, SuDOC, UN Document Number, accession number, etc.).
- Taos must support creation of a location stamp for printing based on location code or size designation.
- Library staff must have ability to edit individual labels before printing.
- Library staff must have ability to specify the number of labels to print.
- Taos must work with multiple printer types (e.g., laser, dot matrix, networked).
- Label printing must be available upon implementation of any Taos technical services module.
- Taos must be able to automatically number labels for multi-volume sets.

As of December 1998, Taos had no label functionality, but it is on their development schedule.

II. Acquisitions and Accounting

NOTE: As of the group's meeting with DRA on December 1-2, 1998 the acquisitions module of Taos was not available for evaluation or testing. All of the issues and functionality outlined in section 6.5 of the RFP need to be closely monitored as these modules are released, particularly those items to which DRA replied either compliant or fully compliant.

Specifically:

- The full range of functionality to which DRA responded "compliant", "fully compliant" or "compliant by xx/xx/xx date" must be available on MnLINK day one of this module
- DRA must supply a delivery date for each item in listed in the RFP. The System X Contract Group should negotiate with DRA about each item responded to as "compliant" in the RFP response but which will not be available on MnLINK day one of Taos acquisitions module. The Contract Group should negotiatate an assurance of functionality as described and delivery dates, incorporating any penalties as necessary.
- The System X Contract Group should negotiate with DRA an acceptable timetable for the delivery of the functional items in the RFP to which DRA responded with a "not compliant" or "Compliant ... but." The Contract Group may determine the priorities of any items not specifically addressed in this report.

1. Hierarchical fund structure. Taos must provide a parent/child fund structure, with balanced accounts that can be subdivided into multiple accounts and subdivided again. The total of all sub-accounts in a parent/child structure must equal the value of the parent account. [RFP 6.5.5.15]
Specifically:

- Taos must have true hierarchical fund structure where the balance in a given parent (overall) account and the total of the balances for children (sub-accounts) of that parent match.

Currently, Taos allows for the creation of sub-accounts based on a naming convention. Funds in sub-accounts aren't tied to the higher account and are not forced to balance.

2. Desiderata file. Taos must provide the ability to create at the local library level a desiderata file.
[no RFP requirement, but see RFP 6.5.2.23, 6.5.2.26]

A desiderata file is defined as the ability to enter an order into a pending file and assign an ordering priority code, which may be used to trigger creation of a purchase order for all items of that priority code. The library staff person is allowed to enter titles he/she desires to purchase at a later date (funds permitting), or as funds become available, or which require the approval of another library staff member or members.

Allusions to functionality that could be used as a desiderata file are made in the pieces of the RFP listed above (Records with status of pending). As of December 2, 1998 DRA does not provide this functionality, but may be interested in a joint development project with MnLINK.

3. Taos must provide for a paperless interface between its acquisitions module and the institutional accounting system for seamless transfer of financial data (e.g. vendor payments, patron charges and fines, interlibrary loans) without the need to key information into both systems. Taos must be able to both export financial data (patron fees, purchases, etc.) and import financial data (clearing fines from payments to the Bursar). [RFP 6.5.6, especially 6.5.6.1; 6.5.7.7]
Specifically:

- DRA must deliver appropriate APIs on MnLINK day one of each module (acquisitions, serials, circulation, etc,)
- DRA must develop facilities for importing financial data from institutional accounting systems, e.g., information on fines or other charges paid by users.
- The System X Contract Group should negotiate any additional costs for development of the Application Program Interfaces (APIs).
- Maintenance of APIs must be provided by DRA.
- DRA must provide specifications for the purchase and accounting information file and process before implementation so local programming can begin as soon as possible, thus ensuring this feature is ready when implementation does occur.

API's will be needed for some import/export situation, but may not be necessary for acquisitions. MnLINK libraries will need the ability to transfer purchase and accounting transaction data from acquisitions to local external accounting systems. This could be via an API, but more likely would be a transaction file export from Taos that would be massaged by local programming and then entered into the appropriate accounting system. DRA has said that APIs would be required for data import. As of December 1998, there was no acquisitions module to evaluate.

Note: see also the Systems Operations section for a related requirement.

4. Audit trails. The system must provide the ability to track all stages of an order, from request through receipt and payment. [RFP 6.5.4.8, 6.5.4.18, 6.5.5.5, 6.5.5.8]
Specifically:

- Taos must be able to track transfers between funds, complete with an historical record (audit trail) of these transactions.
- Taos must be able to disencumber and re-encumber funds, complete with an historical record (audit trail) of these transactions.

During the December site visit, DRA informed us that the ability to disencumber and re-encumber and to trace activity would be available earlier in the development schedule than the ability to maintain a history of actions.

5. Shared vendor file. The system must have a single file of vendor information available to all member institutions on a given server. The file must include public data (e.g., vendor name, address, telephone number, etc.) as well as in institution specific (secured) data (e.g., account numbers, discounts, contact names, etc.). [RFP 6.5.2.9, 6.5.7.1, 6.5.7.2, 6.5.7.3, 6.5.7.5, 6.5.7.8, 6.5.7.13, 6.5.7.14, 6.5.7.15]
Specifically:

- The vendor file must secure sensitive institution level information from display. MnLINK should work with DRA to define local fields needing to be hidden.
- Taos must supply the functionality for each individual institution on the server to add data to the vendor record, including local data and notes; to produce vendor performance reports at the institution and server level; to connect vendor record fields to the local accounting system; and to control automatic claiming and cancellation by vendor.
- Library staff must have the ability to search the vendor file across DRADBs.

- Library staff must have the ability to search the vendor files across MnLINK servers.

The union vendor file was not discussed during the December meeting in St. Louis with DRA.

III. Serials

NOTE: As of the group's meeting with DRA on December 1-2, 1998 the Taos serials module was not complete. Only some basic check-in features were demonstrated. All of the issues and functionality outlined in sections 6.6.1 – 6.6.3 of the RFP need to be closely monitored as this module is released, particularly those items to which DRA replied either compliant or fully compliant.

Specifically:

- The full range of functionality to which DRA responded "compliant", "fully compliant" or "compliant by xx/xx/xx date" must be available on MnLINK day one of this module.
- DRA must supply a delivery date for each item in listed in the RFP. The System X Contract Group should negotiate with DRA about each item responded to as "compliant" in the RFP response but which will not be available on MnLINK day one of the serials module. The Contract Group should negotiate an assurance of functionality as described and delivery dates, incorporating any penalties as necessary.
- The System X Contract Group must negotiate with DRA an acceptable timetable for the delivery of the functional items in the RFP to which DRA responded with a "not compliant" or "Compliant ... but." The Contract Group may determine the priorities of any items not specifically addressed in this report.

1. The system must provide for automatic collapse/update of holdings when a volume is bound or an alternate format arrives (microfilm, CD-ROM, etc.). All of the circulation and routing data from the individual issues of title must be compressed and transferred to the single volume item record. [RFP 6.6.2.27]
Specifically:

- Taos must be able to transfer statistical data from issues to volume or from paper to micro-format.
- Taos must be able to collapse of holdings when volume is bound or alternate format arrives.

As of December 1998 the Taos serials module did not have this functionality. DRA staff informed the System X Technical Group that holdings compression/expansion in on their development schedule. DRA has no programming for the transfer of statistical data from record to record when a format changes, but has commented that it is a good idea.

2. Sharing of prediction patterns. Copy patterns created for serials check-in must be shareable among System X participants. [no RFP requirement]
Specifically:

- Taos must be able to copy prediction patterns within a single DRADB.
- Taos must be able to copy prediction patterns across multiple DRADBs on the same server.
- Taos must be able to copy prediction patterns across multiple MnLINK servers.
- The System X Contract Group should negotiate any additional costs resulting from this additional programming.

Sharing of prediction patterns would be especially useful for titles with complex delivery patterns as the pattern could be created once and shared rather than recreating the pattern at each institution. Currently DRA intends to allow the copying of pattern records within a single DRADB, but not across DRADBs on the same server, nor across servers (between Minneapolis and Mankato). DRA expressed an interest in providing this functionality.

3. Check-in processing notes. The data needed to process items must be displayed on the check-in screen to include at a minimum, location, call number, copy number, and any processing information (e.g. print label, laminate, send to Vertical File) [RFP6.6.2.8, 6.6.2.9, 6.6.2.11]
Specifically:

- Taos must create an item record at point of check-in. An interface between serial and circulation is required and should be no more than 1 click away from the check-in screen.
- Taos must read in the barcode and store it in an appropriate location during the check-in process.
- The following notes must be available on the check-in screen: location, call number, copy number, enumeration and chronology of issue, processing (e.g. laminate, Vertical File, print label, etc.), notification of routing slip.

4. SICI check in of periodicals. Taos must allow a library staff person to identify an item to be checked-in using the SICI barcode as the primary identifier. [RFP 6.6.2.7]
Specifically:

- Taos must be able to identify and check-in items via SICI barcode.

As of December 1998 check-in by SICI barcode was not available. DRA does have this requirement on their development schedule.

5. During the check-in process, search only the bibliographic records which have check-in records attached to them. Taos must allow a library staff person, as part of the check-in process, to search only the bibliographic records related to the check-in process (used for check-in, claiming, etc.) rather than the entire bibliographic database (all records in catalog). [RFP 6.6.2.7]
Specifically:

- Taos must allow for the indexing of the title, alternative title(s), and series title(s) fields in the serials record.
- The System X Contract Group should negotiate any additional costs resulting from this additional programming.

The RFP doesn't specifically request the indexing of fields for only those bibliographic records with active check-in records in the serial module. This indexing would significantly improve the identification of serials for check-in by title requested in 6.6.2.7 and increase the speed with which the correct check-in record is located. For example, a title search of "Time" in the serial records would retrieve 8 records; the same search in the online catalog retrieves 155 records. As of December 1998 DRA did not have plans to create this kind of index.

6. Routing. Taos must be able to create and maintain lists of people to whom each issue of a title is sent for review. [RFP 6.6.2.23]
Specifically:

- Taos must be able to print out routing list at check-in and then, at local option, be able to route the item without circulation routines.
- Taos must be able to route items, at local option, using circulation routines (each person must check out item and return item before sending it to next person).
- The System X Contract Group should negotiate an acceptable timeline for the development of the functionality of deleting a specific name from all routing lists.

This functionality was not available for demonstration during the System X Technical Group's December 1998 site visit to St. Louis.

IV. Bindery

NOTE: As of the group's meeting with DRA on December 1-2, 1998 the Taos bindery module was not available for evaluation or testing. All of the issues and functionality outlined in sections 5.2.1.12 and 6.6.4 of the RFP need to be closely monitored as this module is released, particularly those items to which DRA replied either compliant or fully compliant.

The bindery module must generate a notice when a complete or partial run of a title making up a bound volume is received. It must track binding information (color, typeface, spine title info, etc.) and allow for the generation of binding slips/reports and/or electronic transfer of data to bindery. [RFP 5.2.1.12. 6.6.4]

Specifically:

- The full range of functionality to which DRA responded "compliant", "fully compliant" or "compliant by xx/xx/xx date" must be available on MnLINK day one of this module.
- DRA must supply a delivery date for each item in listed in the RFP. The System X Contract Group should negotiate with DRA about each item responded to as "compliant" in the RFP response but which will not be available on MnLINK day one of the bindery module. The Contract Group should negotiate an assurance of functionality as described and delivery dates, incorporating any penalties as necessary.
- The System X Contract Group must negotiate with DRA an acceptable timetable for the delivery of the functional items in the RFP to which DRA responded with a "not compliant" or "Compliant ... but." The Contract Group should determine the priorities of any items not specifically addressed in this report.

The bindery module is on DRA's development schedule.

V. Cataloging and Authority Control

NOTE: As of the group's meeting with DRA on December 1-2, 1998 the Taos cataloging module was not complete. All of the issues and functionality outlined in sections 6.4 of the RFP need to be closely monitored as this module is released, particularly those items to which DRA replied either compliant or fully compliant.

Specifically:

- The full range of functionality to which DRA responded "compliant", "fully compliant" or "compliant by xx/xx/xx date" must be available on MnLINK day one of this module.
- DRA must supply a delivery date for each item in listed in the RFP. The System X Contract Group should negotiate with DRA about each item responded to as "compliant" in the RFP response but which will not be available on MnLINK day one of the cataloging module. The Contract Group should negotiate an assurance of functionality as described and delivery dates, incorporating any penalties as necessary.
- The System X Contract Group must negotiate with DRA an acceptable timetable for the delivery of the functional items in the RFP to which DRA responded with a "not compliant" or "Compliant ... but." The Contract Group may determine the priorities of any items not specifically addressed in this report.

1. Taos must provide a browse-able call number index by location or group of locations This function must include the ability to enter a call number and browse forward and backward within an institution, branch, or collection shelf list. [RFP 5.2.6.1]

Specifically:

- Call number data used create the separate indices (LC, Dewey, SuDOC, etc.) must be pulled from the holdings record and not the bibliographic record. MnLINK System X libraries will store local call numbers in the holdings records, not in the bibliographic record.
- Taos must provide the ability to browse both forward and backward within the call number display.
- Local call numbers associated with specific locations must be indexed to provide a shelf-list for a specific location or location group of an institution (e.g., display only call numbers in Reference Collection).
- Taos must provide the ability to browse forward and backward within the location specific call number display.
- The System X Contract Group should negotiate with DRA an acceptable timeline for the sort and browse of additional call number schemes: ANSCR (Music schemes), UN Document Number, etc.

DRA plans to include the shelf listing functionality as part of its integrated technical services client, but they have not supplied a delivery date for this client. DRA is developing the browse index on LC call number and is also working on the Dewey sort and browse. The general ASCII sort is on their schedule, as is a SuDOC number sorting and browse function. DRA is interested in obtaining a good Su DOC call number sort from any one who has developed one

2. **Improved record creation and editing of bibliographic records. Taos must provide:**
   - **improved data entry/edit screens for leader, 006, 007, and 008 (fixed field data elements, additional material characteristics, physical characteristics, fixed fields) in a labeled display rather than as a single line of characters**
   - **library staff-friendly method for entering diacritics**
   - **the ability to add fields anywhere in the bibliographic record and automatically rearrange fields into a defined order** [no RFP requirement]

   Specifically
   - The System X Contract Group should request a mock-up display of what DRA is planning to provide and/or specifications for the labels for the 006-008 fields.
   - Taos must provide a labeled form for the input and display of leader, 006, 007, 008 fields.
   - Taos must provide a simple method of entering diacritics from within the cataloging module, via a combination of key strokes option and via a pull down menu option.
   - The file of graphic representation of characters with descriptive text must be accessible via a pull down menu.
   - The system must match the order in national standards (AACR2 and the LC Subject Cataloging Manual) for the order of variable fields in the MARC21 record so that 5xx, 6xx, 7xx fields will not necessarily be in strict numerical order. For example, the first subject heading should correspond to the classification number chosen for the item; as a result a 651 field may precede a 650 field.
   - Library staff must be able to reorder individual tags.
   - Library staff must be able to input a command to rearrange tags into defined tag order.
   - The tag order must be maintained on records imported from other bibliographic utilities.
   - Library staff must be able to initiate a command to rearrange the tag order on imported records into a defined tag order.

These issues are not specifically mentioned in the RFP mainly because they deal with workflow and staff-friendliness of Taos rather than functionality. MnLINK needs to have a product that is easy to use for library staff with a wide range of cataloging skills. The product needs to fulfill the needs of K-12 librarians through research library original catalogers.

Currently the leader, 006 and 007 fields, and the 008 field are each represented as a single line of data, while a preferred method for library staff of handling this data staff is through labeled displays. DRA currently has labeled displays for these fields and is working on the more useful "OCLC-like" displays.

In the current Taos cataloging module, the library staff person must toggle out of bibliographic record and open a separate file for Roman alphabet diacritics and non-Roman character sets in order to input information in foreign languages. Also in the current Taos technical services client, the library staff person must insert a MARC21 tag in the location cataloger wants it (e.g. entering a 246 tag in between the 245 and 250 tags).

3. **Import facilities. Taos must be able to:**
   a. import (add) bibliographic, authority, and holdings records [RFP 6.4.1.1, 6.4.1.2]
   b. perform online overlay of bibliographic, authority, and holdings records [RFP 6.4.1.9, 6.4.1.11, 6.4.1.12, 6.4.1.13, 6.4.1.14]
   c. allow automatic creation of a holdings record when a bibliographic record is imported online. [RFP 6.4.1.5]

   Specifically:
   - Taos must provide for automatic overlay of bibliographic and holdings records.
   - Library staff must be able to block or over ride the automatic overlay of bibliographic and holdings records.
   - Taos must provide for library staff-controlled overlay of bibliographic and holdings records.
   - Taos must provide the ability to create routines for the ongoing import and overlay process, based on source of records.

- Taos must provide the ability to tailor import and overlay routines for each record source, including the ability to add holdings data to existing records rather than overlay bibliographic data, as in loading of records from vendors.
- In with regard to DRA's response to 6.4.1.13 (the ability to define which types of records will be affected by overlay), the System X Contract Group should determine if this feature is indeed a part of the Taos import routines.
- Taos must support of online or batch overlay of authority records. MnLINK should prepare detailed requirements specifications for enhancement of this process.
- Local libraries and consortia must be able to define fields where no overlay is possible.
- The system must automatically create holdings records including call number and location data as specified in the RFP.
- Taos must create holdings records automatically during batch loading of records.
- Taos must create holdings records automatically for shelf ready materials during batch loading.

For online import, DRA has chosen to use the capture of records via Z39.50. Currently, this process requires more than one command but is reasonably efficient. For batch import, DRA can handle either FTP or tape files. The batch process is controlled at the server, rather than the library staff client level.

Online overlay allows library staff to replace an existing record in the system with a different version of the record (upgraded or enhanced, for example) using the existing control numbers and maintaining any associated links (check-in records, circulation data, acquisitions data, etc.). An example would be to overlay a brief record created for acquisition of an item with a fully cataloged record available for import from another bibliographic utility when the item is received.

At our December meeting, DRA stated that they would provide library staff controlled sooner and automatic online overlay later in their development work. Library staff-controlled online overlay is a critical first step, but DRA should also provide automatic overlay.

DRA's batch import routines do support addition, overlay, or merge of matching bibliographic records. One enhancement needed is the ability to use OR between match statements, as well as within them. They must also support addition, overlay, or merge of authority and holdings records.

MnLINK should prepare detailed requirements specifications for bibliographic and holdings import. Key points to include are:

- Ability to specify whether incoming bibliographic and authority records will: 1) be added as new records in all cases or when match criteria are not met; or 2) overlay (i.e. replace) existing records when match criteria are met; or 3) be merged with existing records when match criteria are met
- Ability to specify match criteria, and to use Boolean operators in match statements
- Ability to specify treatment of each tag (add, delete, replace) when records are merged
- Automatic generation of a new holdings record when a new bibliographic record is added to the database
- Automatic addition of location, call number, and item data to holdings records generated during import based on 1) library staff-controlled templates for online import or 2) data in incoming bibliographic records specified in job parameters for batch import.

  See also Appendix B-5, "Requirements for Import and Export of MARC21 Bibliographic, Authority, and Holdings Records" for a fuller explanation of the requirements for import and export.

With regard to automatic creation of a holdings record when a bibliographic record is imported online, DRA replied library staff must create the holdings record.. At the December 1998 meeting, DRA indicated its expectation to provide "import/export routines, including automatic creation of holdings and item data" to University of California, Los Angeles (UCLA) in January 1999. In a latter communication DRA indicated that this functionality has not yet been delivered to UCLA, but is in their development schedule. It is unclear whether the functionality being provided for UCLA will meet the needs of libraries using System X.

MnLINK should prepare detailed requirements specifications for import of holdings information. Key points to include are:

- ability to specify whether incoming holdings records will: 1) be added as new records in all cases or when match criteria are not met; or 2) overlay (i.e. replace) existing records when match criteria are met; or 3) be merged with existing records when match criteria are met
- ability to specify match criteria, and to use Boolean operators in match statements
- ability to specify treatment of each tag (add, delete, replace) when records are merged.
- automatic generation of a new holdings record when match criteria for an incoming and existing holdings record are not met
- overlay or merge of holdings data when holdings record match criteria are met
- automatic addition of location, call number, and item data to holdings records generated during import based on 1) library staff-controlled templates for online import or 2) data in incoming bibliographic records specified in job parameters for batch import.

  See also Appendix B-5, "Requirements for Import and Export of MARC21 Bibliographic, Authority, and Holdings Records" for a fuller explanation of the requirements for import and export.

4. Holdings records. Appropriate data from holdings records should be indexed for library staff and public retrieval and displayed in the online catalog. In addition, there should be hot links from 856 fields in holdings records.

Specifically:

- Indexing of holdings data: It must be possible to keyword index any MARC21 data from holdings records, and to make those indexes available in the online catalog if desired.
- Online catalog results when holdings data is searched: When an online catalog user searches data in holdings records or combines a search of data in bibliographic records with a search of data in holdings records, the resulting online catalog display must be the same as that for a search of bibliographic data only.
- 856 fields: 856 fields in holdings records must: 1) be displayed in the online catalog and 2) include hot links to the resource described in the field.
- Display of holdings data in the online catalog: At a minimum, the following holdings data must be included in a detailed display of holdings in the online catalog.
  - 843 $ a b c d e f m n 3
  - 845 $a b c d 3
  - 852 $b c h i k l m t z
  - 856 $a u z 3
  - 853/4/5 $a-h, i-m, o t z
  - 863/4/5 $a-h, i-m, o t z
  - 866/7/8 $a z
  - 877/7/8 $l t z 3
- The detailed display must include an entry for each item. Location level data (e.g. 852 $z) must be repeated for each item in the location. Copy level data must be repeated for each item in the copy.

Since holdings records were not discussed at length at the December meeting, the status of DRA work is not entirely clear. Known gaps in the list below are the lack of hot links from 856 fields and anomalous results for online catalog searches of holdings data. Though DRA displays of holdings data in the online catalog are extensive, the System X Technical Group is not certain whether all applicable fields are included in the displays. As a result of the meeting of the MnLINK System X Local Record Issue Task Force and discussions with DRA, the following gaps have been identified in DRA's current holdings record functionality:

- Information about URLs in the 856 field, which may be specific to a given library. In order to be functional this field has be indexed and displayed in the online catalog, and the URLs themselves provided with hot links to the actual site.

- Indexing and display of all appropriate tags in the holdings record. Currently only 852 and 853/854/855 and possibly the 867/868 tags display in the public client; display of all tags occurs only in the technical client. In order for other notes approved for the holdings record to display, most importantly tags 843-reproduction note and 845-terms governing use and reproduction, they have to be entered into the public note sub-field of the 852 tag. This strips the field tag resulting in loss of control.

This issue is also covered in the Systems Operations section. It is also of importance for users of the online catalog.

5. Taos must maintain links between records in a DRADB and merged OCLC bibliographic records, including cross-referencing of OCLC deleted record control numbers for items in a DRADB. [no RFP requirement]
Specifically:

- Taos must handle the replacement of the several duplicate records with the single OCLC record.
- Taos must provide for the transfer of all associated records (holdings, item, check-in, order, etc.) from the obsolete record to the new (merged) record.
- Taos must provide for the transfer of all local, institution specific data and bibliographic fields from the obsolete record to the new (merged) record.
- Taos must provide notification to the MnLINK member libraries of the merging of records. Data provided should include: title, Taos control number, obsolete OCLC control number, new OCLC control number, and any institutional specific data in the bibliographic record.
- The System X Contract Group should negotiate any possible cost increases due to customization needed for this functionality.

Most MnLINK System X participant libraries maintain holdings on the OCLC online cataloging system. When OCLC finds duplicate records for the same item, a single record is selected to represent the item and the duplicate records are deleted from the database. OCLC stores the control numbers of the deleted records as a cross-reference OCLC 019 tag. The cross-reference tag is used to link activity (update, produce, delete, etc.) done on the "single" OCLC record to the "obsolete" record residing in the local catalog.

6. Validation of headings (authority control). During bibliographic record validation, headings in bibliographic records must be compared to headings in an authority file (Library of Congress Name, Library of Congress Subject, National Library of Medicine Medical Subject Headings, and other authority records). Headings in the bibliographic records must not be validated against occurrences of headings in the bibliographic records, but against the actual authority files.
Specifically:

- Validation of headings in bibliographic records must be made against true authority files, which include locally established headings, not merely against occurrences in the database. (For example, 650 0 must be validated against a controlled file of LC subject headings; 650 2 validated against a controlled National Library of Medicine subject heading file).
- Validation must be made against authorized headings, cross-references, and non-matches (locally defined headings).
- All headings in a record must be validated following the edit of a single heading.
- Library staff must be able to easily replace or edit the existing forms of headings with authorized forms during the validation process, either via mouse click or keystroke combination. Cutting and pasting should not be required.
- Taos must identify blind references and notify library staff when found. The System X Contract Group should verify how blind cross references are handled, and determine whether DRA must do any further work to meet MnLINK needs.
- Taos must monitor and report on interactions between hierarchically related headings.
- Taos must create a printed report of conflicts between authority file records and headings in bibliographic records. This report must be run at intervals specified by the system administrators as a batch product.
- The system must verify **all** controlled fields in the bibliographic record during validation, not only fields just edited.

Appendix B-6, "Conflict and Error Conditions Related to Authority Control" also has further information about MnLINK requirements for this issue.

Authority control was not demonstrated during the December 1998 visit although DRA hoped to have "authority control for normal operations" available for demonstration during the ALA Mid-winter Conference (January 1999).

In particular, interactions between bibliographic and authority record data are complex pieces of functionality that the System X Technical Group was not able to review. As of the December visit, Taos was only able to validate an edited authority field. The system must validate all authority fields, whether edited or not. In later communication DRA has stated that they do plan to allow a general verification command that wil look at the selected record regardless of whether fields were edited.

The Technical Group also has concerns that DRA's validation of headings will be made only against the "authorized"-type fields in the DRADB rather than against a separate, truly controlled files such as the Library of Congress Subject Headings, National Library of Medicine's Medical Subject Headings (MESH), or Sears List of Subject Headings. Later communication from DRA indicated that they plan to validate headings against external sources, provided the source is accessed via the DRA search engine or DRANET.

Both of these issues need to be monitored as contract negotiations progress.

7. Validation of data other than headings. Taos must validate data in MARC21 bibliographic , holdings, and authority records. Validation must occur before records are entered into the database and whenever records are edited. Validation must be available in a real time, online environment (e.g., during record editing) and in batch mode (e.g., during batch import of records). The system must check for:

- **validity of leader, 006, 007, and 008 values**
- **validity of tag and sub-field values**
- **validity of indicator values**
- **repeatability of tags and subfield values**
- **validity of relationships between related fields (Example: record has a 490 tag; therefore, the library staff person is prompted to add required 830 tag.)** [RFP 6.4.1.15, 6.4.2.6]

Specifically:

- Taos must provide all of the validation functions as required in the RFP.
- Taos must provide for ongoing, real time record validation.
- Taos must provide for validation in batch processing.
- Taos must validate all fields in the record, not just the controlled fields.
- Taos must verify all fields existing in records, not only those edited or added.
- Taos must force full record validation whenever a record is imported, created, or edited.
- Taos must provide the option of adding or returning a record to the database without making the necessary corrections.
- DRA must supply standardized validation tables
- Taos must provide local control of record validation tables for modifications and updates. (e.g. changing valid tagging in 260 from "0 _ " to "_ _")
- Taos should test for correctness between related field (e.g. if 490 1 exists then record requires an 830 field)

Even though DRA planned to have this functionality as of September 1998, it was not available for demonstration and evaluation during our December trip. DRA responded to 6.4.1.15 in terms of batch programs, but library staff will require ongoing, real-time validation.

8. URL Validation. The system must periodically test the validity of Internet site URLs coded into the MARC21 records. Reports of URL failures, including type of failure, must be made available to libraries. [no RFP requirement]

Currently DRA is including an 856 index as one of their recommended standard indexes as a step towards allowing a DRA-provided verification process. In the shorter term, Taos users will be ale to produce an html-formatted report via Safari, the third party report writer, that will allow the use of an off-the-shelf checker for 856 data. All corrections will be manual. In addition, the technical services workstation can currently check these links on an individual basis. And, because there is an index to the URLs, it is also possible to write PERL scripts to check the links. DRA has this functionality as a possible future development issue.

9. Global change feature. Taos must provide the ability to replace text in a group of bibliographic records, including, in a single transaction, replacing, editing, adding or deleting text strings and any sub-fields, delimiters, and indicators. Fields capable of change must be of all types, not just controlled fields. [RFP 6.4.1.15, 6.4.3.4]
Specifically:

- Library staff must be able to change any text string in all bibliographic and holdings records having that text string.
- Taos must be able to limit changes of a text string to specific tags, indicators, sub-fields, or fixed field data positions.
- Library staff must be able to review of consequences of global changes before the changes are actually made to the database.
- Library staff must be able to rearrange heading elements based on sub-field code alone in conjunction with a partial heading text (see 6.4.3.4 c.).

DRA responded that Taos was compliant, but this functionality was not available for demonstration or review during the December 1998 visit. DRA does not yet have global change capabilities for authority headings but it is on their development schedule. The RFP requested the ability to make global changes in bibliographic, holdings and authority records. DRA responded only for authority controlled fields, but library staff require the full functionality requested in 6.4.3.4.

DRA has requested a list of global changes MnLINK will require in the Taos system. DRA will review list to determine what they can do generically, what they will do as customization, and what could be done with PERL scripts.

10. Export of records. Taos must be able to export records to systems that libraries using System X report their holdings to, e.g., OCLC, RLIN, etc. Libraries must also be able to send records to a vendor for purposes of enhancement, e.g., adding table of contents to a record. [5.2.1.3, 5.2.1.4]
Specifically,

- Taos must provide the ability to export bibliographic and holdings data to OCLC and RLIN and other utilities as needed, and to send records to vendors for enhancing

Currently, DRA has a generic record export program for bibliographic, authority, and holdings records that allows selection of records based on date(s). What it cannot do is combine data, e.g., take data from holdings and from non-MaRC21 item records and place that data into designated fields and su-fields in the bibliographic record during export. Though the RFP unfortunately does not state specific requirements for export, library staff need to be able to continue existing export processes, including reporting bibliographic and holdings data to OCLC and RLIN, and sending records to vendors for processing (e.g. table of contents enrichment by BNA). DRA does have a combined bibliographic and holdings export on their development schedule.

MnLINK must prepare detailed requirements specifications for this functionality. Key points to include are:

- export of holdings records (first priority) and authority records (second priority) as well as bibliographic records
- ability to select records for export based on criteria such as: creation or update dates for each type of record, location, specified fixed field values, presence or absence of text flags in defined fields
- ability to use Boolean operators AND and OR between selection criteria

- ability to specify which fields are to be output in each type of record
- ability to concatenate files of records or record numbers chosen during the selection process for conversion and output in a single file.
- ability to write records to tape or ftp files and to create standard labels for those files.

Additional information on import and export requirements may be found in Appendix B-5, "Requirements for Import and Export of MARC21 Bibliographic, Authority, and Holdings Records."

11. DRANET. MnLINK System X Contract Group should consider subscribing to DRANET on behalf of all of the System X libraries. [no RFP requirement]
Specifically,

- DRANET needs to be Z39.50 accessible, so records may be transferred in real time for cataloging purposes.
- The System X Contract Group should consider negotiation of a usage fee for DRANET, to allow the resources to be in place if and when MnLINK institutions decide to access it.

DRANET is a service which provides access to many databases, including those with bibliographic and authority records. Included in the base access are Library of Congress cataloging records (MARC21) and authority records and ERIC (a database of resouces relating to research in education). Other files of interest include the Government Publications Office Monthly Catalog records, Books In Print records, the National Library of Medicine Subject Headings, and the Library of Congress Subject Headings.

Reports and Report Writer

1. The system must provide management information and reporting utilizing standard and locally customized reports. [RFP 6.1.4.1, 6.7.1.1]

2. The system must provide an internal customized report generator. [RFP 6.7.1.2]

3. The system must provide for converting existing management data. [RFP 6.1.4.3, 6.7.1.3]

4. The system must provide for data export for the purpose of generating reports and printing. [RFP 6.1.4.4, 6.7.1.4]

5. A library staff person must be able to create customized reports on demand. [RFP 6.1.4.2, 6.7.1.6]

6. It must be possible to pull information for reports from multiple files. [RFP 6.7.1.8]

7. It must be possible to generate reports with data from various levels, including local library and server-wide. [RFP 6.1.4.6, 6.7.1.9]

8. The system is expected to create reports with library specific data. [RFP 6.1.4.5, 6.7.1.10]

On February 8th, in responding to a System X Technical Group inquiry, Berit Nelson of DRA wrote, "We're (DRA) aiming to emulate the Classic standard reports in Taos. The ones we are focusing on first are..." Ms Nelson then proceeded to list 12 major reports.

A limited number of system-generated reports or report writing capabilities are available at present. The DRA response to the RFP stated, "DRA offers new levels of reporting capabilities in a character-cell based environment, UDMS (User Data Management System) from Interactive Software Systems Inc." Currently a third party product, Safari, is proposed, rather than the UDMS. In the same February 8th memo, Ms Nelson stated that demo CD of Safari would be available after the DRA User Conference. She also stated that reports could be named with output dates using Safari. Licensing issues may need to be addressed if a third party product is used.

The level of database knowledge and expertise that is required by library staff using the report writer remains a concern. A staff person in each library or system should have the information (for example of the data dictionary for the system) and ability to create customized on-demand reports without needing programming skills.

9. The performance of the system must not be affected by the generation of scheduled and on-demand reports. The system must be able to automatically stop a report that exceeds defined limits. [RFP 6.7.1.5]

10. The system must provide controlled access to the data, including discrimination of what data is controlled and at what level. [no RFP requirement in section 6.7]

This topic was discussed at during the December 1-2 meeting in St. Louis. Information received then indicated that there is a separate set of security tables for the report writer, with sign-on via the library staff person's name and password. It is possible to limit who has the security to use or modify a template or use a particular report.

Note: This requirement is also identified in the Systems Operations section below.

11. DRA must provide a data dictionary for Taos sufficiently prior to the implementation of the systme by MnLINK to allow time for orderly migration of data from existing systems. [no RFP requirement]

Currently there is no overall data dictionary for Taos, although those for bibliographic records, authority records, and holdings records are almost done. The rest of the work is in the DRA development schedule.

System Operations

1. Issues with the policies/parameters table/s

a. The system must allow for tiered distributed management and maintenance of system policies and parameters table/s, including system passwords and authorizations, locations, policy and rules, and calendars. Each participating library on a single server site must have the option of managing system policies and parameters table/s for that library independent of server site personnel. [RFP Section 6 Introduction, 6.1.2.1, 6.1.2.2, 6.3.7.1]

Specifically:

- convert the policy table to XML. This will allow comments that will help system administrators discern structure. This minimal change only allows central server site administrators to "read" the policies table with greater accuracy; it does not provide for distributed maintenance.
- allow distributed maintenance of policies table.
  Developments required to support distributed maintenance:
  - GUI interface to the policy table.
  - multiple simultaneous library staff access to the policy table.
  - library staff security limited by location or group of locations.
  - data validation routines that prevent common errors.
  - multiple views of data that assist in maintaining consistency.
  - real time policy table update.

Currently, the DRA policy table is a single large file. Following update, the new version of the file must be loaded using a batch program. Since comments are not possible, it is difficult to discern the structure of the file. While it is possible to set up separate parameters for each location, the way the file is structured and updated makes centralized maintenance a virtual and cumbersome necessity. MnLINK needs to be able to distribute some maintenance. DRA recognizes this as a concern and wants to provide a means to allow access to the location specific components (employee privileges at a location, location policies) to privileged library staff so as to make editing of the policies efficient and to distribute at least some of the management work. The creation (not maintenance) of staff records and privileges will probably remain centralized.

DRA has indicated that work on a new policy editor will be a major priority for development.

Ideally, maintenance of policy tables could be handled at either a central or local level. Some libraries prefer local control and believe it will reduce the incidence of errors. Other libraries would prefer that central staff with a high level of expertise maintain their policy tables. MnLINK libraries should assess the skills required and available locally and centrally to determine what maintenance should be handled centrally and what should be distributed. With regard to the Mankato server, central maintenance would be cumbersome, costly, and would not respond sufficiently to local needs.

b. The system must allow for 1) library staff to control (change) passwords after initial assignment by local person authorized to maintain local policy table; 2) library staff security to be defined for multiple locations that are not necessarily hierarchically related on a single server; and 3) field level security, especially in acquisitions and accounting records. [RFP 6.1.1.1]

Currently, maintenance of library staff security, like all other aspects of the DRA policy table, would have to be handled centrally. The general requirements for distributed maintenance of the policy table would meet many MnLINK needs. However, MnLINK also needs the additional features for library staff security; it is required for MnLINK day one implementation.

As part of the revamp of access rights, DRA has the following functionality on their development schedule: field level security for patron and item records, field level security for holdings records; field level security for acquisition and accounting records. DRA is focusing on improvements in such areas as where library staff need security to add or edit holdings for different locations.

c. The system must support distributed dissemination of output, including reports, in appropriate format to designated devices in the receiving library. [no RFP requirement]

It must be possible to distribute system-generated output to a desired output device. It is not clear in the response to the RFP or in subsequent investigations how DRA proposes to solve this issue in a highly distributed environment. Ideally, DRA would provide a mechanism so that a default output device or directory may be profiled for authorized user-ids and for each library location. System staff should have the ability to override this default when needed.

2. DRA should integrate security for the report writer with other security in the parameters table. [no RFP requirement]

Note: This requirement is also in the Reports and Report Writer section above.

3. The system must provide backup facilities that 1) do not require system downtime; 2) result in 100% data recovery if backup media is not damaged; and 3) allow complete forward recovery facilities. [RFP 5.1.53, 9.3.9, 9.3.10]

In a January 8, 1999 e-mail message, DRA described two means of doing system backups: 1) use of UNIX utilities or 2) use of Object Store utilities. DRA also stated that there were pros and cons with each method. It appears that MnLINK needs could be met through the use of Object Store utilities, but the procedure should be further investigated.

Technical staff operating MnLINK servers will need to work with DRA to determine which backup and forward recovery methods will best meet MnLINK needs. They will need to consider both system availability and data integrity. DRA is still working on forward recovery.

4. It must be possible to define separate indexes based on indicator values for a specified tag, e.g. indexes for different subject heading or call number schemes. Further, it must be possible to index data in addition to call numbers and barcodes in holding records, e.g. 856 fields specific to a location. [RFP 5.2.3]

The RFP does not cover definition of indexes based on indicator values; however, this feature is critical. A basic assumption in the RFP is that most library-specific data will be carried in bibliographic records.

If it is instead carried in holdings records, the ability to index the holdings data and merge the display of holdings record data with display bibliographic record data in the online catalog is very important. DRA stated that indexing of holdings record tags is possible. DRA's capabilities regarding the display issues need to be investigated further.

Notes: The definition of separate indexes by indicator values, such as for subject headings and call numbers is also a requirement in the Technical Services Cataloging and Authority Control and Online Catalog sections above. See also Appendix B- 3, "Benchmarking Issues."

5. The system needs to provide for automatic maintenance of certain statistics in various cumulations.

While not delineated in the RFP, DRA should develop functionality for providing transaction and database size statistics in various cumulations online. Statistics should be:

- available by location and cumulated by defined groups of locations.
- available in various cumulations, e.g., today, yesterday; month-to-date, previous month; year-to-date, previous year.
- available for a variety of transactions, e.g., circulation transactions by patron or item type as determined in the policy tables, serial module transactions, acquisition module transactions, cataloging transactions by shelflist and call number ranges, online catalog usage by library and by call number ranges by library, database size breakdowns by library, etc.

Transaction and database size statistics can be produced using the report writer; however, having them readily available online would be useful. The "canned" reports planned for Taos "emulate DRA Classic standard reports," but it is not clear what cumulations would be available nor whether many of the statistics outlined above would be available in real-time.

Whether or not DRA should provide program utilities to compress and concatenate the logger file information for statistical processing and provide a mechanism to merge the daily logger files into manageable units to be used for additional historical statistics report processing has been discussed. What is required is a means of removing all non-statistical data from the logger file, then archiving the reduced file for future reference and manipulation. What is not clear is whether this is a facility DRA must provide or whether there are readily available third party tools to accomplish this facility.

6. DRA must provide APIs for import of data from 1) institutional directories of users for creation of patron files, and 2) institutional financial systems, e.g., fine payment information. Further DRA must provide facilities for export of data to campus financial systems, e.g., payments to materials vendors, fines owed information, etc. [RFP 6.1.6.8, 6.3.3.4, 6.5.6.1]

DRA currently has an API for import of user information for patron file creation. They do not have facilities for exporting or importing data to/from institutional accounting systems. Other DRA customers have also requested the ability to export of financial data. DRA will work with customers to provide an API to assist with import and export and they complete the acquisitions module.

Note: This requirement is also identified in the Technical Services Acquisitions section above.

7. The system must provide the capability of removing all records for a given library from a single server (allow an individual library to withdraw from the consortium-supported server). [RFP 5.1.3.4]

When DRA has had these issues with their Classic product, they have found that there are so many issues that custom software makes the most sense.

System X Technical Group Report
Appendix B-1

Issues for Taos Contract with DRA
Arranged by Function

Introduction

The issues presented in this appendix represent a high degree of consensus by the System X Technical Group about the functionality needing to be negotiated with DRA in order to have a successful implementation of Taos. They do not, however, represent all of the issues in the RFP, many of which can be assumed should be in any standard integrated library system. The System X Technical Group assumes that the DRA response to the RFP will be attached to the contract. It further assumes the contract will speak only to the issues of importance, such as those in this appendix, or issues where DRA now believes that the answer provided in the RFP will no longer be valid. In addition, it is critical that acceptance testing cover all of the features DRA agreed to provide in its RFP response, as modified by the contract negotiations.

The System X Technical Group was not able to evaluate directly much of the functionality represented in the RFP because it is not yet available. Many of the sections are thus more general than might be desired. The System X Contract Group may want to be able to amend the contract with greater specificity, as each function becomes available and can be further evaluated.

Some of the requested functionality may now be available. The last review with DRA of Taos was during the visit of the System X Technical Group in early December 1998, although the Group has been in communication with DRA staff about specific issues since then. It may well be that contract issues identified by the System X Technical Group will be in the Taos product or in the Taos development schedule by the time the contract is negotiated and signed.

Below, the issues for contract negotiation are arranged randomly by function. The Technical Services section is arranged differently because of the complexity of the issues and because many requirements are common to all technical services functions. It begins with the overarching issues (common requirements) and them lists requirements by broad functional requirements and issue.

Each contract issue is in bold with the relevant MnLINK RFP requirement statement numbers. This is followed by some further explanation of the issue, when needed or appropriate.

DRA often said "fully compliant" in their November 1997 response to the RFP. In the intervening months since their submission, it has become difficult to sort out what "fully compliant" might have meant. In many cases, it may mean that the function was in the Classic DRA system and they planned to have it in the Taos system. In other cases, however, the response was "fully compliant" when the functionality does not exist in the Classic system. In both cases, the functionality often was not available for review. The System X Technical Group has tried to ferret out these discrepancies and put them in this report.

All implementation issues identified by the System X Technical Group may be found in Appendix D.

Online Public Access Catalog

1. The system must allow the user to browse forward and backward in all browse-able indexes. [RFP 6.2.1.20]

Currently if a user misspells a word in searching any of the browse-able indexes, he or she can browse forward and backward. If the user spells the word correctly, he or she can only browse forward from that point. (Example: Gon with the Wind). DRA recognizes this as a bug and intends to fix it.

2. General keyword result sets must be sorted in reverse chronological order, with the option of further arrangement using format information. Well ordered browse lists must be generated for results of phrase and keyword in heading searches with the primary, secondary, and tertiary sorts as defined by the ALA Filing Rules. [RFP 6.2.2.6]

This issue is not explicitly defined in the RFP, but 6.2.2.6 touches upon it. Currently, keyword results are sorted by DBCN (DRA Database Control Number) in LIFO (last record in, first record displayed) order. There is an option to sort them by format. According to DRA, they are working on getting the default keyword search sorted in reverse chronological order. DRA intends to define primary, secondary, and tertiary sorts in browse lists following ALA filing rules.

3. The user must have the ability to navigate a large results set by jumping to a specific point in the set. [no RFP reference]

This functionality is important in instances when the number of results is large and cannot, for example, be viewed all in one sitting. One idea is that of using "landmarks," e.g. by clicking on alpha characters to jump within phrase or keyword-in-heading results or clicking on dates to jump within keyword results. A patron could view records 1-150 today and go through 151-250 tomorrow. If the patron can't go directly to 151 or thereabouts, navigation becomes a clumsy task.

4. The user must be able to mark individual records for printing, downloading, and e-mailing. [RFP 6.2.2.4]

Currently Web2 provides the capability of printing and downloading an entire hit list. It is also possible to block data on the screen and e-mail the result to yourself. However, other functionality such as being able to mark individual items for export and select a specific format for exported records is not yet available. DRA plans further enhancements to the current features.

5. The system Z39.50 client must be able accept and display OPAC records transmitted by other Z39.50 servers. [RFP 5.2.2.1]

Currently, location and call number are available in full displays of records from DRA databases and databases of other vendors DRA has worked with. When DRA begins supporting the old and new OPAC record formats, it should be possible to display holdings from any Z39.50 database that supports one of those formats, since the data will be in a consistent place. MnLINK will initially be using the WebZ client from OCLC to provide access to other catalogs, but it is possible that over time some System X libraries will need this functionality.

6. A library must be able to have preset defaults, provided by Web2 through IP address detection, so that the initial search and display of results is limited to a specific location or set of locations. The user must be able to easily change this default and select other locations, libraries, or groups of libraries. [RFP 6.2.1.26]

DRA, during the visit to St. Louis, said this requirement was to be available in the version now shipping, but it was not demonstrated. Later correspondence with DRA stated that the ability to limit display of results of a search by location was in the version of Taos shipped in December 1998, but they were doing additional structural work on this type of limit to improve performance. Other DRA users have identified bugs in the current version.

7. The system must be able to turn off automatic right-hand truncation of an individual search string. [no RFP requirement]

Sometimes automatic right-hand truncation will not allow display of all items of interest, basically because it stops at an exact match. If a user wants to look for items about cats, but only enters "cat" as the search term, the result set will not include items having "cats" in the record.

8. The system must be compliant with Minnesota ADA requirements. (The interface must provide a no-frames option that can be displayed using a text browser such as Lynx.) [RFP 3.1.9; 5.1.2.7]

As of January 1, 1999, a new state statute became effective. This new law requires solicitations released after January 1 1999 to include specific language about access to technology for the visually impaired. According to Paul Stembler and Betsy Hayes of the Department of Administration (January 5, 1999), our RFP was not required to contain this language because the RFP was released and award was made before the law went into effect. They advised that we should follow the guidelines in the law if practicable (considering costs, availability, and so forth).

9. The system must allow for multiple Web interfaces to the online catalog. It must be possible to distribute the interface building and maintenance to member libraries. [no RFP requirement]

The MnLINK Project, as a matter of course, does not want to encourage a large variety of interfaces because it makes it more difficult for users to move among different libraries. However, during the process of the work of the System X Technical Group, it became apparent that an important issue in a consortial system was the ability of the online catalog to reflect a specific library's collection and for libraries to have the ability to adjust their interfaces to meet local needs. The user interface design plays a large role in providing this functionality. Because the expectation is that local libraries would be able to maintain these interfaces, it is important that it is relatively easy to build and update them.

10. The system must provide labels based on indicator values. In addition it is expected that each library will be able to determine which subject headings will be displayed based on field tag and indicator value. [RFP 6. 2.2.2]

The core functionality to label the type of subject heading [Library of Congress, National Library of Medicine, children's. local, etc.] being displayed was not demonstrated during the visit in December. Even though the second part of the statement above was not explicitly defined in the RFP, it is important that each library be able to determine which subject headings will be displayed.

11. The system must provide a "summary" holdings display from which the user can easily move to a detailed holdings display. [RFP 6.2. 1.39]

DRA has invited MnLINK to provide DRA with suggestions about what this display might look like.

12. A user must be able to page backward and forward among the records associated with multiple headings in a browse-able index result without returning to the headings list. [RFP 6.2.1.24, 6.3.1.12]

While 6.2.1.24 does not specifically mention browsing backwards or forwards, in 6.3.1.12 (in a different context) browsing both forward and backward is mentioned. This functionality, which makes it easier for the user to navigate the online catalog, was not demonstrated during the visit in December.

13. The system must be able to limit a keyword search to a specific MARC field or fields. [RFP 6.2.1.12]

Often it is useful to be able to limit a search of a keyword to a specific field, such as title or format, to focus the search more tightly and reduce the number of unwanted records in the result set. An example is looking for books by Shakespeare. A search of the keyword "Shakespeare" against all fields and all records picks up many items about Shakespeare and his writings that can be eliminated by limiting the search to "Shakespeare" as an author.

14. The DRA Z39.50 server must export online catalog records and holdings (old format now and later new format when implemented). [RFP 5.2.2.1]

MnLINK needs this functionality now so holdings can be shown for DRA sites accessible via the MnLINK Gateway.

15. The system must be able to select multiple headings from a list to launch a new search. [RFP 6.2.1.29]

This will allow a user to select several headings and do a combined search on all of them rather than having to perform a search on each heading one at a time.

16. The online catalog must provide a search history with numbered sets, so that those sets may be further used for searching, displaying, and exporting. [RFP 6.2.1.2]

DRA indicated to the System X Technical Group during its visit to St. Louis that they have had a lot of requests for this functionality. DRA has this requirement in their development schedule.

Circulation

1. The system must provide the following print products on demand:

a. **Date due slips** [RFP 6.1.4.4]
b. **Circulation receipts** [RFP6.3.1.9]
c. **Hold slips** [RFP 6.3.1.42]
d. **Fine receipts** [RFP 6.3.4.9, 6.3.4.11]
   It is assumed that a display of patron fine information could be sent to a printer connected to the workstation. It does not appear that the system can print a fine receipt on demand except by a screen dump of the library staff workstation display to an attached printer. It may be possible to print a statement of account, including fines, from the patron information available from the online catalog.
e. **Pull slips** [RFP 6.3.2.38]
   The system must be able to direct the printing of pull slips to the correct printer related to the location in which the item is located.
f. **Barcodes** [no RFP requirement]
   Barcodes are a major issue for school media specialists who print out class lists of barcodes rather than issue patron cards to their students. A third party vendor could provide this functionality.
g. **Backup transactions report** [RFP 6.3.1.63]

As of December 1998, no printing capabilities were demonstrated by DRA.

2. The system must be able to schedule reports and notices to print in a batch process. [RFP 6.1.4.3, 6.3.6.2]

Libraries using System X need to be able to print notices on demand. Neither printing capabilities nor the report writing module was demonstrated as of December 1998.

Note: For further information on the report writing module, see the section on Reports and Report Writing later in this appendix.

3. The system must automatically notify a patron when an item on hold is declared lost or missing. [RFP 6.3.1.58, 6.3.1.59]

The option to maintain a hold on a lost item was identified by the academic libraries as a useful feature.

4. The system must be able to distinguish between a patron bar code and an item bar code when using a scanner to check out/in items in the circulation client. [RFP 6.3.1.4]

PALS has the ability to recognize a patron bar code and, when scanned in, to immediately display a checkout screen ready to accept item bar codes. Likewise, at the screen prompt, if an item bar code is scanned in, it is immediately discharged.

5. The system must be able to circulate items easily even when the item is not in the catalog database. [RFP 6.3.1.18]

Notes about "On the Fly" (OTF) record creation taken during meeting in St. Louis:

If the flag is set at the creation of the OTF record (while in circulation mode), then a message appears whenever circulation activities occur. Setting the flag also allows reporting of items with status of "on the fly". OTF conversion starts with the unattached bar code. The system then prompts for optional title information, which only creates an item record and no MARC21 catalog record. Libraries will need to have information in an indexable field (852 sub-field h) which can be retrieved via technical services client (acquisitions, cataloging, serials) in order to retrieve the item record. The technical services client has a button for staff searching mode which will allow access to 852 sub-field h indexes.

Quick cataloging, available via Alt-Q in the circulation client, brings up a template for a brief bibliographic record. A MARC21 record is created behind the scenes, to which the bar code is attached. The record is available within the online catalog.

If an item is an "on the fly" item, it is not searchable in the online catalog. But if a quick cataloging record is created, it is then searchable from the online catalog

6. The system must be able to report patron status throughout the server; e.g., good standing, blocked somewhere, blocked everywhere. [RF P 6.3.1.6]

The concern here is twofold. Libraries currently in a consortial relationship will want to access patron records of all the consortia members to determine whether a patron is in good standing at a member library. Conversely, some libraries, especially school libraries, may not want students blocked from checking out materials in the school media center even though they may be blocked at a public library.

7. The system must be able to retain and archive transaction history and statistics when an item is removed from the database. [RFP 6.3.1.68]

No demonstration of statistics archiving was shown to the Technical Group during its December 1998 visit to DRA.

8. The system must have the ability to inventory the collection or portions of it, including providing reports of shelving errors, missing items, and shelf inventory lists in call number order by location. It must be possible to use a portable scanning device to collect inventory information. [RFP 6.3.8]

This requirement was not discussed with DRA at the December 1998 meeting. The RFP also requests a report of mismatches between circulation records and bibliographic records that the database design of Taos does not make possible. PALS has an inventory module which is used heavily by libraries.

9. Information about the patron making the single most previous charge on an item must be accessible via the circulation staff client. [no RFP requirement]

According to DRA during the December visit, previous patron history for an item is on their development schedule. Taos, at local option as some libraries will not want to keep this data, will retain information on the last patron to use the item.

10. The system must provide the ability to edit patron records while in backup mode. [RFP 6.3.1.62]

The ability to change or update patron information, such as address fields, could be helpful for public libraries using backup circulation in a bookmobile setting. DRA is willing to discuss this requirement further to determine the needed functionality.

11. The system should have the ability to define fixed or tiered charges for overdue items. [RFP 6.3.4.17]

The System X Technical Group expressed interest in optionally either setting a flat fee (set amount for each period of time, such as an hour, day, week) or a tiered charge (a certain amount for the first 10 days, another amount for the next 10 days, etc.).

12. The stored transactions from circulation backup must be automatically uploaded when the online system becomes available. [RFP 6.3.1.62]

Library staff have requested automatic upload from circulation workstations in backup mode when system operations or access is restored. Manual restore from circulation workstation backup is insufficient when many sites use student assistants. Notes from the December trip to DRA indicate that "when the system comes back up, [the system administrators or local library staff] will have to manually send the file of transactions." Most library systems do not offer automatic upload of circulation transactions. No demonstration of a backup system was provided by DRA, but it is on their development schedule.

13. Audit trail and online history file for patron financial transactions. [RFP 6.3.4.8]

No demonstration of an audit trail was shown to the Technical Group during its December 1998 visit to DRA.

14. The system must offer the option of allowing patrons to update their address files without library staff intervention. [no RFP requirement]

Academic librarians on the VET Circulation Working group expressed an interest in this feature, because it is difficult to keep current addresses on file for students. School and public libraries may not want this option made available to their patrons.

15. A backup circulation function must be provided that can be used to charge, renew, and discharge items and to create patron records and on-the-fly circulation records when the online system is unavailable. [RFP 6.3.1.62]

Many library staff have requested easy entry into a workstation backup mode for circulation transactions (including checkout, check-in, and input/update of patron data). This speaks to a strong desire for circulation transaction backup to run transparent to the library staff person. No demonstration of a backup system was provided by DRA, but it is on their development schedule.

Reserves

1. Items on reserve must be fully indexed and integrated with the online catalog; that is, it should not be necessary to enter a "reserve room" to search for reserve items. The system must have the ability to restrict searches to reserve items only and to a specific reserve collection. [RFP 6.3.5.1, 6.3.5.12, 6.3.5.2, 6.3.5.6]

The location of an item and its availability status must be readily available to the patron through an online catalog search. The patron must be able to restrict searches to reserve items only and to specific reserve locations. Quick cataloging would allow for searching by title of uncataloged reserves according to the discussions with DRA in St. Louis (December 1-2 1998). The system should allow materials on reserve to be retrieved by all access points available to other materials. The reserve item must be accessible from the online catalog by keyword indexing of named values, course name/number/section and teacher(s)/professor(s) names. This requirement is on DRA's development schedule.

2. Functionality for items on reserve must be fully integrated with the circulation and financial system, providing for charging/discharging, check out periods, overdue/fining/billing procedures, and use statistics. [6.3.5.4, 6.3.5.18, 6.3.5.19, 6.3.5.20]

All of the requested functionality as defined in the RFP is not yet available, although the DRA response stated, "fully compliant." The reserve module must have 1) full indexing and integration with the catalog; 2) the ability to restrict searches to reserve materials in a specific location; 3) access by keyword indexing of course name, item name, section, and teacher name; 4) full integration with circulation; and 5) full integration with the financial system. Most of these requirements are on DRA's development schedule.

3. The system must provide the same features for electronic reserves as for traditional reserve formats. [RFP 6.3.5.21]

Electronic reserves must be an integral part of any planned reserve module and is not yet available in the Taos product.

4. The system must notify a patron who has placed a hold when the requested item is recalled for reserve. The system must automatically cancel all holds and recalls on an item that is recalled for reserve or that is declared lost. [RFP 6.3.1.58]

5. Patron access to electronic reserve materials linked through the reserves module must be authenticated through the system using the appropriate local institution authentication service. [no RFP requirement; part of 6.3.5.21]

As electronic reserves increase in proportion to print reserves, this feature will be of increasing importance. It will be incumbent upon individual institutions to provide authentication to the course level.

Media Booking

1. The acceptable completion of a media booking module as described in the RFP must be in the contract. [RFP 6.8]

A media booking system was included in the RFP and is considered to be an important component of an integrated library management system. The module for Taos has not been developed. The information presented during the December 1-2 trip to DRA indicates that DRA will develop a media booking module but this development is later in their development schedule.

2. The system must provide information about equipment, location, schedule and requester and maintain a tracking history. [RFP 6.8.2, 6.8.3, 6.8.9, 6.8.16, 6.8.17]

See the discussion under the previous point for comments.

3. Full integration with the circulation and financial systems must be provided to support loan periods, checkout and override, recall, reserves, patron data, and other circulation functions. [RFP 6.8.4, 6.8.5, 6.8.11, 6.8.14]

See the discussion under the previous point for comments.

4. It is expected that DRA will work cooperatively with MnLINK staff in the development of the media booking module. [no RFP requirement]

Although this is not mentioned in the RFP, the PALS staff are developing a booking module to be ready by June 1999. This expertise in developing this functionality could be used to the benefit of both MnLINK and DRA.

Remote Circulation

The following definition of remote circulation as developed by the MnLINK Project Gateway Technical Group is used here also:

> The MnLINK Project Gateway Technical Group understands remote circulation to mean the following: When a request is made for an item at another library, an electronic item surrogate (information about the copy requested) is copied to the requesting library's local system database at the time the physical item (returnable) is sent to the requesting library. The requesting library then has a bibliographic record it can use in its home circulation system to manage the item. The item is directly charged out to the individual and standard notices are generated by the home system. If fines or other charges are due, they are handled by the home circulation system. When the item is returned to the lending library and all other transactions, such as fines, associated with the item are cleared, the item surrogate is removed from the home library system. This all happens automatically with no staff mediation.

Note: The System X Technical Group did not address the remote circulation functionality during the meeting with DRA in St. Louis in December. Further exploration of the functionality including a demonstration needs to take place. This exploration should also include an evaluation about which of the following issues are contract issues and which are implementation issues.

1. Requests originating via the remote circulation function of DRA must appear in the interlibrary loan file for the patron, reflecting their total number of requests from outside institutions. [RFP 6.3.2.2]

At the joint OCLC/DRA meeting held with the Gateway Technical Group in August 1998, it was decided that libraries would choose whether to use System X or the Gateway for their interlibrary loan traffic. This decision was based on the need to have comprehensive materials tracking and dynamic copyright information. It's possible that libraries who choose to use the remote circulation function will need to use the DRA ILL system to track all of their materials. DRA should work with OCLC to insure this functionality exists on MnLINK day one of implementation of interlibrary loan.

2. The routing of circulation requests among libraries must include the establishment of profiles of lending libraries. The use of these profiles should include features such as load leveling and prioritization. These profiles must be able to be set at the local library. [RFP 6.3.2.5, 6.3.2.6, 6.3.2.7]

The description of routing of requests provided by DRA in its response to the RFP does not match the functionality requested in the RFP. This needs to be clarified.

3. The lending library must be able to include a note when an item is not filled indicating the reason. This would be useful under certain circumstances such as when the item is currently unavailable for loan but will be available soon. [RFP 6.3.2.34]

4. The user prompts must be clear and include specific information regarding the progress of the request. The system must allow for options at the local level controlling parameters such as the number of requests that can be placed at one time. The user must be able to specify the pick-up location and be notified when the item is available. [RFP 6.3.2.9, 6.3.2.12, 6.3.2.17, 6.3.2.22]

It is important to assure that the functionality provided meets the needs of the users.

5. The system must allow the library staff to manage the requests. [RFP 6.3.2.20, 6.3.2.21, 6.3.2.24]

It is important to assure that the functionality provided meets the needs of the library staff.

6. The printing of pull slips must include features such as the ability to profile the location where pull slips are printed, printing on demand, and scheduled printing. [RFP 6.3.2.37, 6.3.2.38, 6.3.2.39]

One area that will need to be clarified is the integration of interlibrary loan and remote circulation requests within DRA. These operations should be combined in the printing process. The ability to direct the printing of pull slips is also very important.

Interlibrary Loan

Note: The interlibrary loan system has not been developed yet for either DRA's Classic or Taos products, nor was it described in any detail at the meeting in St. Louis in December. Interlibrary loan will need to be further defined with specific criteria for functionality included as the system is developed. Interlibrary loan is on the DRA development schedule.

1. The system must be able to support the latest version of the ISO 10160/10161 Interlibrary Loan Application Service Definition and Protocol Specification. [RFP 6.3.9.4]

The ISO protocol provides for the transfer of interlibrary loan requests among different servers and services, including the OCLC provided MnLINK Gateway servers.

2. The transfer of requests between System X and the Gateway must result in comprehensive patron and material tracking. [RFP 6.3.9.1, 6.3.9.10]

At the joint OCLC/DRA meeting held with the Gateway Technical Group in August 1998, it was decided that libraries would choose whether to use System X or the Gateway for their interlibrary loan traffic. This decision was based on the need to have comprehensive materials tracking and dynamic copyright information. DRA must work with OCLC to insure this functionality exists on MnLINK day one of implementation.

3. The user prompts must be clear and include specific information regarding the progress of the request. The system must allow for options at the local level controlling parameters such as the number of requests that can be placed at one time. The user must be able to specify the pick-up location and be notified when the item is available. [RFP 6.3.9.3, 6.3.9.27, 6.3.10.12, 6.3.10.16, 6.3.11.10]

It is important to assure that the functionality provided meets the needs of the users.

4. The system must allow for comprehensive library staff management capabilities. This should include the sending of messages between the borrowing and lending libraries. [RFP 6.3.10.6, 6.3.10.22, 6.3.11.28]

It is important to assure that the functionality provided meets the needs of the library staff.

5. There must be parameters for setting conditions under which the system will automatically reject requests. These should include both patron (i.e. too many outstanding requests) and item (i.e. non-circulating item) conditions. [RFP 6.3.9.26, 6.3.9.28]

6. The system must be able to handle requests to document suppliers. Document requests must interface with searching the online catalog and support simultaneous searching of multiple databases. The search functions for document delivery must be fully integrated with the online catalog. Locally held items must be identified and rules must determine whether the request can be made. [RFP 6.3.9.5.c., 6.3.10.4, 6.3.10.4.a., 6.3.10.13]

The "trading partners" concept for handling requests from unaffiliated users for fee-based document delivery needs to be explored with DRA.

7. There must be a blank work form for the use of patrons and library staff. The system must allow for the re-initiation of requests that were not filled. [RFP 6.3.10.3]

8. The interlibrary loan system must include profiles of potential lending libraries, which can be set locally and must include features such as load leveling. An explanation of how this is done is needed to include the use of "need by" dates. [RFP 6.3.9.29, 6.3.9.30, 6.3.9.31, 6.3.10.19]

9. The system must have the ability to check to determine whether items being requested are held locally. The processing of items that are held locally should be at the discretion of the local library, i.e., cancel the request, route for library staff review, send the request on to the first potential lender. The system must have the ability to process requests for locally held items. [RFP 6.3.10.11, 6.3.11.4.a]

Checking for local holdings and allowing for a number of possible actions at the local library's discretion was not specifically addressed in this section of the RFP. Also, there needs to be clarification as to how locally held requests are handled within the DRA system.

10. Copyright tracking must include user prompts when the number of items being requested has exceeded copyright limits. Library staff must have the ability to override copyright limit violations. [RFP 6.3.9.12, 6.3.9.13, 6.3.11.23, 6.3.11.24, 6.3.11.25, 6.3.11.26]

There needs to be an understanding on the part of DRA of the copyright tracking requirements within MnLINK.

11. The system must have the ability to profile the routing of requests, messages, and other print products in a way that allows each product to have a different profile. MINITEX needs to be set as the supplier of last resort or, at the local library option, earlier in the string. [RFP 6.3.9.5, 6.3.9.24, 6.3.9.30]

DRA also needs to address how Taos will handle the specific needs of MINITEX in user initiated requesting, so requests are routed to the appropriate place.

12. It is expected that DRA will work cooperatively with MnLINK staff in the development of the interlibrary loan module. [no RFP reference]

Although this is not mentioned in the RFP, the PALS staff have developed an interlibrary loan system that is rich in functionality and this expertise could be used to the benefit of both MnLINK and DRA.

13. Authentication of the patron must include validation against the local authentication source. Information regarding the patron must be transferred to the interlibrary loan request. [RFP 6.3.10.8.a, 6.3.10.8.b, 6.3.10.8.d, 6.3.10.9]

Technical Services

I. Overarching Issues for Technical Services

1. Tight integration is required among all functional modules. A dynamic, seamless interface is required across and within the various modules (acquisitions, serials, cataloging, circulation, binding, interlibrary loan, and accounting). Integration must allow:

- **easy navigation among various functions (e.g., processing notes as part of check-in display, quick access to payment history from the serials check in screen);**

- **ability to pull display data from appropriate modules (e.g., serial records show claim history [serials module], order and payment data [acquisitions module], and circulation and browse statistics [circulation] all on same screen;**
- **ability to move between functions without backing out of the module (e.g., edit a note in serial check-in record when logged into cataloging module).** [RFP 6.1.3.2, 6.1.3.4, 6.5.1.2, 6.5.1.3, 6.5.1.6, 6.6.1.1, 6.6.1.2, 6.6.2.4, 6.6.2.10, 6.6.4.1]

Specifically:

- The integration and interface specifically between the acquisitions and serials modules is mandatory, but **all** modules must "talk" to each other and share data.
- The ability to retrieve data related to a specific function must never be more than 2 mouse clicks away.
- The full range of functionality must be available to the library staff person without having to log into a different module (e.g., perform a serials function when logged into acquisitions module).

As of December 1998 there was neither an acquisitions module nor an interlibrary loan module. The serials module consisted of check-in and claiming only. The required integration was not demonstrated during the visit to DRA. The lack of some modules and missing functionality in others made the testing of the requested interface capabilities impossible.

2. Shared Technical Services files. The system must provide the ability to view other libraries' technical services files (check-in, vendor, ordering, etc.) both on the same server and on other Taos servers within MnLINK. Security parameters must prevent the display of sensitive institution specific records or fields [RFP 6.5.2.21, 6.6.2.5]

Specifically:

- Taos must provide the ability to view check-in records within a DRA DataBase (DRADB)
- Taos must provide the ability to view order files within a DRADB.
- Taos must provide the ability to view technical services files across DRADBs.
- Taos must provide the ability to view technical services files across MnLINK servers.
- Security parameters must secure sensitive institution level information, fields, and records from display. MnLINK should work with DRA to define local fields and records needing to be hidden.

An example of the needed functionality: a staff person from a MnSCU library can look at the University of Minnesota's acquisitions record for "The Century", but not see who requested it. During the December visit, DRA stated that library staff would be able to search the vendor, acquisitions, and serial records within a single DRA DataBase (DRADB). Due to the lack of fully developed acquisitions and serials modules, DRA was not able to demonstrate how local information is blocked in the display to a staff person in another library.

3. EDI. Taos must provide the ability to electronically transmit to and receive from various vendors acquisitions, accounting, serial, and binding related data such as: purchase orders, purchase order confirmation, invoicing, claiming, subscription orders, cancellations, and payment history. [RFP 5.2.1.11, 5.2.3.5, 6.5.3.2, 6.5.4.5, 6.5.4.6, 6.6.3.7, 6.6.4.3]

Specifically:

- Needed EDI functionality must be available on MnLINK day one of each module: acquisitions, serials, binding, etc
- EDI may be X.12 compatible initially, but must be EDIFACT compliant eventually.

According to DRA's response to 5.2.1.11 and 5.2.3.5, the system has the functionality of Invoices, Purchase Order, Purchase Order Acknowledgement, and Functional Acknowledgement. As of December 2, 1998 this functionality was not available in Taos. DRA staff is rewriting their EDI programming and gave the following status report: invoicing completed, purchase orders in process, claims not yet scheduled. Currently DRA expects to incorporate the EDI functionality into Taos acquisitions to be available at or soon after Taos acquisitions is available. The EDI functionality will probably be a separate license.

4. Label production. The system is required to be able to create, edit, and print spine and/or pocket labels as part of various technical services functions (e.g., serials check-in, cataloging, binding). [RFP 6.4.2.15, 6,6,2,24]
Specifically:

- Taos must support multiple label types (e.g. SP1, SL4, SL6, SL7, etc.).
- Taos must support preset formats (e.g., Library of Congress call number dividing the characters and digits of number onto 2 lines) for multiple call number schemes. Library staff must be able to easily override preset formats.
- Taos must support multiple call number schemes (e.g., Library of Congress, Dewey Decimal, SuDOC, UN Document Number, accession number, etc.).
- Taos must support creation of a location stamp for printing based on location code or size designation.
- Library staff must have ability to edit individual labels before printing.
- Library staff must have ability to specify the number of labels to print.
- Taos must work with multiple printer types (e.g., laser, dot matrix, networked).
- Label printing must be available upon implementation of any Taos technical services module.
- Taos must be able to automatically number labels for multi-volume sets.

As of December 1998, Taos had no label functionality, but it is on their development schedule.

II. Acquisitions and Accounting

NOTE: As of the group's meeting with DRA on December 1-2, 1998 the acquisitions module of Taos was not available for evaluation or testing. All of the issues and functionality outlined in section 6.5 of the RFP need to be closely monitored as these modules are released, particularly those items to which DRA replied either compliant or fully compliant.

Specifically:

- The full range of functionality to which DRA responded "compliant", "fully compliant" or "compliant by xx/xx/xx date" must be available on MnLINK day one of this module
- DRA must supply a delivery date for each item in listed in the RFP. The System X Contract Group should negotiate with DRA about each item responded to as "compliant" in the RFP response but which will not be available on MnLINK day one of Taos acquisitions module. The Contract Group should negotiatate an assurance of functionality as described and delivery dates, incorporating any penalties as necessary.
- The System X Contract Group should negotiate with DRA an acceptable timetable for the delivery of the functional items in the RFP to which DRA responded with a "not compliant" or "Compliant ... but." The Contract Group may determine the priorities of any items not specifically addressed in this report.

1. Hierarchical fund structure. Taos must provide a parent/child fund structure, with balanced accounts that can be subdivided into multiple accounts and subdivided again. The total of all sub-accounts in a parent/child structure must equal the value of the parent account. [RFP 6.5.5.15]
Specifically:

- Taos must have true hierarchical fund structure where the balance in a given parent (overall) account and the total of the balances for children (sub-accounts) of that parent match.

Currently, Taos allows for the creation of sub-accounts based on a naming convention. Funds in sub-accounts aren't tied to the higher account and are not forced to balance.

2. Desiderata file. Taos must provide the ability to create at the local library level a desiderata file.
[no RFP requirement, but see RFP 6.5.2.23, 6.5.2.26]

A desiderata file is defined as the ability to enter an order into a pending file and assign an ordering priority code, which may be used to trigger creation of a purchase order for all items of that priority code. The library staff person is allowed to enter titles he/she desires to purchase at a later date (funds permitting), or as funds become available, or which require the approval of another library staff member or members.

Allusions to functionality that could be used as a desiderata file are made in the pieces of the RFP listed above (Records with status of pending). As of December 2, 1998 DRA does not provide this functionality, but may be interested in a joint development project with MnLINK.

3. Taos must provide for a paperless interface between its acquisitions module and the institutional accounting system for seamless transfer of financial data (e.g. vendor payments, patron charges and fines, interlibrary loans) without the need to key information into both systems. Taos must be able to both export financial data (patron fees, purchases, etc.) and import financial data (clearing fines from payments to the Bursar). [RFP 6.5.6, especially 6.5.6.1; 6.5.7.7]
Specifically:

- DRA must deliver appropriate APIs on MnLINK day one of each module (acquisitions, serials, circulation, etc,)
- DRA must develop facilities for importing financial data from institutional accounting systems, e.g., information on fines or other charges paid by users.
- The System X Contract Group should negotiate any additional costs for development of the Application Program Interfaces (APIs).
- Maintenance of APIs must be provided by DRA.
- DRA must provide specifications for the purchase and accounting information file and process before implementation so local programming can begin as soon as possible, thus ensuring this feature is ready when implementation does occur.

API's will be needed for some import/export situation, but may not be necessary for acquisitions. MnLINK libraries will need the ability to transfer purchase and accounting transaction data from acquisitions to local external accounting systems. This could be via an API, but more likely would be a transaction file export from Taos that would be massaged by local programming and then entered into the appropriate accounting system. DRA has said that APIs would be required for data import. As of December 1998, there was no acquisitions module to evaluate.

Note: see also the Systems Operations section for a related requirement.

4. Audit trails. The system must provide the ability to track all stages of an order, from request through receipt and payment. [RFP 6.5.4.8, 6.5.4.18, 6.5.5.5, 6.5.5.8]
Specifically:

- Taos must be able to track transfers between funds, complete with an historical record (audit trail) of these transactions.
- Taos must be able to disencumber and re-encumber funds, complete with an historical record (audit trail) of these transactions.

During the December site visit, DRA informed us that the ability to disencumber and re-encumber and to trace activity would be available earlier in the development schedule than the ability to maintain a history of actions.

5. Shared vendor file. The system must have a single file of vendor information available to all member institutions on a given server. The file must include public data (e.g., vendor name, address, telephone number, etc.) as well as in institution specific (secured) data (e.g., account numbers, discounts, contact names, etc.). [RFP 6.5.2.9, 6.5.7.1, 6.5.7.2, 6.5.7.3, 6.5.7.5, 6.5.7.8, 6.5.7.13, 6.5.7.14, 6.5.7.15]
Specifically:

- The vendor file must secure sensitive institution level information from display. MnLINK should work with DRA to define local fields needing to be hidden.
- Taos must supply the functionality for each individual institution on the server to add data to the vendor record, including local data and notes; to produce vendor performance reports at the institution and server level; to connect vendor record fields to the local accounting system; and to control automatic claiming and cancellation by vendor.
- Library staff must have the ability to search the vendor file across DRADBs.

- Library staff must have the ability to search the vendor files across MnLINK servers.

The union vendor file was not discussed during the December meeting in St. Louis with DRA.

III. Serials

NOTE: As of the group's meeting with DRA on December 1-2, 1998 the Taos serials module was not complete. Only some basic check-in features were demonstrated. All of the issues and functionality outlined in sections 6.6.1 – 6.6.3 of the RFP need to be closely monitored as this module is released, particularly those items to which DRA replied either compliant or fully compliant.

Specifically:

- The full range of functionality to which DRA responded "compliant", "fully compliant" or "compliant by xx/xx/xx date" must be available on MnLINK day one of this module.
- DRA must supply a delivery date for each item in listed in the RFP. The System X Contract Group should negotiate with DRA about each item responded to as "compliant" in the RFP response but which will not be available on MnLINK day one of the serials module. The Contract Group should negotiate an assurance of functionality as described and delivery dates, incorporating any penalties as necessary.
- The System X Contract Group must negotiate with DRA an acceptable timetable for the delivery of the functional items in the RFP to which DRA responded with a "not compliant" or "Compliant ... but." The Contract Group may determine the priorities of any items not specifically addressed in this report.

1. The system must provide for automatic collapse/update of holdings when a volume is bound or an alternate format arrives (microfilm, CD-ROM, etc.). All of the circulation and routing data from the individual issues of title must be compressed and transferred to the single volume item record. [RFP 6.6.2.27]
Specifically:

- Taos must be able to transfer statistical data from issues to volume or from paper to micro-format.
- Taos must be able to collapse of holdings when volume is bound or alternate format arrives.

As of December 1998 the Taos serials module did not have this functionality. DRA staff informed the System X Technical Group that holdings compression/expansion in on their development schedule. DRA has no programming for the transfer of statistical data from record to record when a format changes, but has commented that it is a good idea.

2. Sharing of prediction patterns. Copy patterns created for serials check-in must be shareable among System X participants. [no RFP requirement]
Specifically:

- Taos must be able to copy prediction patterns within a single DRADB.
- Taos must be able to copy prediction patterns across multiple DRADBs on the same server.
- Taos must be able to copy prediction patterns across multiple MnLINK servers.
- The System X Contract Group should negotiate any additional costs resulting from this additional programming.

Sharing of prediction patterns would be especially useful for titles with complex delivery patterns as the pattern could be created once and shared rather than recreating the pattern at each institution. Currently DRA intends to allow the copying of pattern records within a single DRADB, but not across DRADBs on the same server, nor across servers (between Minneapolis and Mankato). DRA expressed an interest in providing this functionality.

3. Check-in processing notes. The data needed to process items must be displayed on the check-in screen to include at a minimum, location, call number, copy number, and any processing information (e.g. print label, laminate, send to Vertical File) [RFP6.6.2.8, 6.6.2.9, 6.6.2.11]
Specifically:

- Taos must create an item record at point of check-in. An interface between serial and circulation is required and should be no more than 1 click away from the check-in screen.
- Taos must read in the barcode and store it in an appropriate location during the check-in process.
- The following notes must be available on the check-in screen: location, call number, copy number, enumeration and chronology of issue, processing (e.g. laminate, Vertical File, print label, etc.), notification of routing slip.

4. SICI check in of periodicals. Taos must allow a library staff person to identify an item to be checked-in using the SICI barcode as the primary identifier. [RFP 6.6.2.7]
Specifically:

- Taos must be able to identify and check-in items via SICI barcode.

As of December 1998 check-in by SICI barcode was not available. DRA does have this requirement on their development schedule.

5. During the check-in process, search only the bibliographic records which have check-in records attached to them. Taos must allow a library staff person, as part of the check-in process, to search only the bibliographic records related to the check-in process (used for check-in, claiming, etc.) rather than the entire bibliographic database (all records in catalog). [RFP 6.6.2.7]
Specifically:

- Taos must allow for the indexing of the title, alternative title(s), and series title(s) fields in the serials record.
- The System X Contract Group should negotiate any additional costs resulting from this additional programming.

The RFP doesn't specifically request the indexing of fields for only those bibliographic records with active check-in records in the serial module. This indexing would significantly improve the identification of serials for check-in by title requested in 6.6.2.7 and increase the speed with which the correct check-in record is located. For example, a title search of "Time" in the serial records would retrieve 8 records; the same search in the online catalog retrieves 155 records. As of December 1998 DRA did not have plans to create this kind of index.

6. Routing. Taos must be able to create and maintain lists of people to whom each issue of a title is sent for review. [RFP 6.6.2.23]
Specifically:

- Taos must be able to print out routing list at check-in and then, at local option, be able to route the item without circulation routines.
- Taos must be able to route items, at local option, using circulation routines (each person must check out item and return item before sending it to next person).
- The System X Contract Group should negotiate an acceptable timeline for the development of the functionality of deleting a specific name from all routing lists.

This functionality was not available for demonstration during the System X Technical Group's December 1998 site visit to St. Louis.

IV. Bindery

NOTE: As of the group's meeting with DRA on December 1-2, 1998 the Taos bindery module was not available for evaluation or testing. All of the issues and functionality outlined in sections 5.2.1.12 and 6.6.4 of the RFP need to be closely monitored as this module is released, particularly those items to which DRA replied either compliant or fully compliant.

The bindery module must generate a notice when a complete or partial run of a title making up a bound volume is received. It must track binding information (color, typeface, spine title info, etc.) and allow for the generation of binding slips/reports and/or electronic transfer of data to bindery. [RFP 5.2.1.12. 6.6.4]

Specifically:

- The full range of functionality to which DRA responded "compliant", "fully compliant" or "compliant by xx/xx/xx date" must be available on MnLINK day one of this module.
- DRA must supply a delivery date for each item in listed in the RFP. The System X Contract Group should negotiate with DRA about each item responded to as "compliant" in the RFP response but which will not be available on MnLINK day one of the bindery module. The Contract Group should negotiate an assurance of functionality as described and delivery dates, incorporating any penalties as necessary.
- The System X Contract Group must negotiate with DRA an acceptable timetable for the delivery of the functional items in the RFP to which DRA responded with a "not compliant" or "Compliant ... but." The Contract Group should determine the priorities of any items not specifically addressed in this report.

The bindery module is on DRA's development schedule.

V. Cataloging and Authority Control

NOTE: As of the group's meeting with DRA on December 1-2, 1998 the Taos cataloging module was not complete. All of the issues and functionality outlined in sections 6.4 of the RFP need to be closely monitored as this module is released, particularly those items to which DRA replied either compliant or fully compliant.

Specifically:

- The full range of functionality to which DRA responded "compliant", "fully compliant" or "compliant by xx/xx/xx date" must be available on MnLINK day one of this module.
- DRA must supply a delivery date for each item in listed in the RFP. The System X Contract Group should negotiate with DRA about each item responded to as "compliant" in the RFP response but which will not be available on MnLINK day one of the cataloging module. The Contract Group should negotiate an assurance of functionality as described and delivery dates, incorporating any penalties as necessary.
- The System X Contract Group must negotiate with DRA an acceptable timetable for the delivery of the functional items in the RFP to which DRA responded with a "not compliant" or "Compliant ... but." The Contract Group may determine the priorities of any items not specifically addressed in this report.

1. Taos must provide a browse-able call number index by location or group of locations This function must include the ability to enter a call number and browse forward and backward within an institution, branch, or collection shelf list. [RFP 5.2.6.1]

Specifically:

- Call number data used create the separate indices (LC, Dewey, SuDOC, etc.) must be pulled from the holdings record and not the bibliographic record. MnLINK System X libraries will store local call numbers in the holdings records, not in the bibliographic record.
- Taos must provide the ability to browse both forward and backward within the call number display.
- Local call numbers associated with specific locations must be indexed to provide a shelf-list for a specific location or location group of an institution (e.g., display only call numbers in Reference Collection).
- Taos must provide the ability to browse forward and backward within the location specific call number display.
- The System X Contract Group should negotiate with DRA an acceptable timeline for the sort and browse of additional call number schemes: ANSCR (Music schemes), UN Document Number, etc.

DRA plans to include the shelf listing functionality as part of its integrated technical services client, but they have not supplied a delivery date for this client. DRA is developing the browse index on LC call number and is also working on the Dewey sort and browse. The general ASCII sort is on their schedule, as is a SuDOC number sorting and browse function. DRA is interested in obtaining a good Su DOC call number sort from any one who has developed one

2. **Improved record creation and editing of bibliographic records. Taos must provide:**
   - **improved data entry/edit screens for leader, 006, 007, and 008 (fixed field data elements, additional material characteristics, physical characteristics, fixed fields) in a labeled display rather than as a single line of characters**
   - **library staff-friendly method for entering diacritics**
   - **the ability to add fields anywhere in the bibliographic record and automatically rearrange fields into a defined order** [no RFP requirement]

   Specifically
   - The System X Contract Group should request a mock-up display of what DRA is planning to provide and/or specifications for the labels for the 006-008 fields.
   - Taos must provide a labeled form for the input and display of leader, 006, 007, 008 fields.
   - Taos must provide a simple method of entering diacritics from within the cataloging module, via a combination of key strokes option and via a pull down menu option.
   - The file of graphic representation of characters with descriptive text must be accessible via a pull down menu.
   - The system must match the order in national standards (AACR2 and the LC Subject Cataloging Manual) for the order of variable fields in the MARC21 record so that 5xx, 6xx, 7xx fields will not necessarily be in strict numerical order. For example, the first subject heading should correspond to the classification number chosen for the item; as a result a 651 field may precede a 650 field.
   - Library staff must be able to reorder individual tags.
   - Library staff must be able to input a command to rearrange tags into defined tag order.
   - The tag order must be maintained on records imported from other bibliographic utilities.
   - Library staff must be able to initiate a command to rearrange the tag order on imported records into a defined tag order.

These issues are not specifically mentioned in the RFP mainly because they deal with workflow and staff-friendliness of Taos rather than functionality. MnLINK needs to have a product that is easy to use for library staff with a wide range of cataloging skills. The product needs to fulfill the needs of K-12 librarians through research library original catalogers.

Currently the leader, 006 and 007 fields, and the 008 field are each represented as a single line of data, while a preferred method for library staff of handling this data staff is through labeled displays. DRA currently has labeled displays for these fields and is working on the more useful "OCLC-like" displays.

In the current Taos cataloging module, the library staff person must toggle out of bibliographic record and open a separate file for Roman alphabet diacritics and non-Roman character sets in order to input information in foreign languages. Also in the current Taos technical services client, the library staff person must insert a MARC21 tag in the location cataloger wants it (e.g. entering a 246 tag in between the 245 and 250 tags).

3. **Import facilities. Taos must be able to:**
   a. **import (add) bibliographic, authority, and holdings records** [RFP 6.4.1.1, 6.4.1.2]
   b. **perform online overlay of bibliographic, authority, and holdings records** [RFP 6.4.1.9, 6.4.1.11, 6.4.1.12, 6.4.1.13, 6.4.1.14]
   c. **allow automatic creation of a holdings record when a bibliographic record is imported online.** [RFP 6.4.1.5]

   Specifically:
   - Taos must provide for automatic overlay of bibliographic and holdings records.
   - Library staff must be able to block or over ride the automatic overlay of bibliographic and holdings records.
   - Taos must provide for library staff-controlled overlay of bibliographic and holdings records.
   - Taos must provide the ability to create routines for the ongoing import and overlay process, based on source of records.

- Taos must provide the ability to tailor import and overlay routines for each record source, including the ability to add holdings data to existing records rather than overlay bibliographic data, as in loading of records from vendors.
- In with regard to DRA's response to 6.4.1.13 (the ability to define which types of records will be affected by overlay), the System X Contract Group should determine if this feature is indeed a part of the Taos import routines.
- Taos must support of online or batch overlay of authority records. MnLINK should prepare detailed requirements specifications for enhancement of this process.
- Local libraries and consortia must be able to define fields where no overlay is possible.
- The system must automatically create holdings records including call number and location data as specified in the RFP.
- Taos must create holdings records automatically during batch loading of records.
- Taos must create holdings records automatically for shelf ready materials during batch loading.

For online import, DRA has chosen to use the capture of records via Z39.50. Currently, this process requires more than one command but is reasonably efficient. For batch import, DRA can handle either FTP or tape files. The batch process is controlled at the server, rather than the library staff client level.

Online overlay allows library staff to replace an existing record in the system with a different version of the record (upgraded or enhanced, for example) using the existing control numbers and maintaining any associated links (check-in records, circulation data, acquisitions data, etc.). An example would be to overlay a brief record created for acquisition of an item with a fully cataloged record available for import from another bibliographic utility when the item is received.

At our December meeting, DRA stated that they would provide library staff controlled sooner and automatic online overlay later in their development work. Library staff-controlled online overlay is a critical first step, but DRA should also provide automatic overlay.

DRA's batch import routines do support addition, overlay, or merge of matching bibliographic records. One enhancement needed is the ability to use OR between match statements, as well as within them. They must also support addition, overlay, or merge of authority and holdings records.

MnLINK should prepare detailed requirements specifications for bibliographic and holdings import. Key points to include are:

- Ability to specify whether incoming bibliographic and authority records will: 1) be added as new records in all cases or when match criteria are not met; or 2) overlay (i.e. replace) existing records when match criteria are met; or 3) be merged with existing records when match criteria are met
- Ability to specify match criteria, and to use Boolean operators in match statements
- Ability to specify treatment of each tag (add, delete, replace) when records are merged
- Automatic generation of a new holdings record when a new bibliographic record is added to the database
- Automatic addition of location, call number, and item data to holdings records generated during import based on 1) library staff-controlled templates for online import or 2) data in incoming bibliographic records specified in job parameters for batch import.

  See also Appendix B-5, "Requirements for Import and Export of MARC21 Bibliographic, Authority, and Holdings Records" for a fuller explanation of the requirements for import and export.

With regard to automatic creation of a holdings record when a bibliographic record is imported online, DRA replied library staff must create the holdings record.. At the December 1998 meeting, DRA indicated its expectation to provide "import/export routines, including automatic creation of holdings and item data" to University of California, Los Angeles (UCLA) in January 1999. In a latter communication DRA indicated that this functionality has not yet been delivered to UCLA, but is in their development schedule. It is unclear whether the functionality being provided for UCLA will meet the needs of libraries using System X.

MnLINK should prepare detailed requirements specifications for import of holdings information. Key points to include are:

- ability to specify whether incoming holdings records will: 1) be added as new records in all cases or when match criteria are not met; or 2) overlay (i.e. replace) existing records when match criteria are met; or 3) be merged with existing records when match criteria are met
- ability to specify match criteria, and to use Boolean operators in match statements
- ability to specify treatment of each tag (add, delete, replace) when records are merged.
- automatic generation of a new holdings record when match criteria for an incoming and existing holdings record are not met
- overlay or merge of holdings data when holdings record match criteria are met
- automatic addition of location, call number, and item data to holdings records generated during import based on 1) library staff-controlled templates for online import or 2) data in incoming bibliographic records specified in job parameters for batch import.

  See also Appendix B-5, "Requirements for Import and Export of MARC21 Bibliographic, Authority, and Holdings Records" for a fuller explanation of the requirements for import and export.

4. Holdings records. Appropriate data from holdings records should be indexed for library staff and public retrieval and displayed in the online catalog. In addition, there should be hot links from 856 fields in holdings records.

Specifically:

- Indexing of holdings data: It must be possible to keyword index any MARC21 data from holdings records, and to make those indexes available in the online catalog if desired.
- Online catalog results when holdings data is searched: When an online catalog user searches data in holdings records or combines a search of data in bibliographic records with a search of data in holdings records, the resulting online catalog display must be the same as that for a search of bibliographic data only.
- 856 fields: 856 fields in holdings records must: 1) be displayed in the online catalog and 2) include hot links to the resource described in the field.
- Display of holdings data in the online catalog: At a minimum, the following holdings data must be included in a detailed display of holdings in the online catalog.
  - 843 $ a b c d e f m n 3
  - 845 $a b c d 3
  - 852 $b c h i k l m t z
  - 856 $a u z 3
  - 853/4/5 $a-h, i-m, o t z
  - 863/4/5 $a-h, i-m, o t z
  - 866/7/8 $a z
  - 877/7/8 $l t z 3
- The detailed display must include an entry for each item. Location level data (e.g. 852 $z) must be repeated for each item in the location. Copy level data must be repeated for each item in the copy.

Since holdings records were not discussed at length at the December meeting, the status of DRA work is not entirely clear. Known gaps in the list below are the lack of hot links from 856 fields and anomalous results for online catalog searches of holdings data. Though DRA displays of holdings data in the online catalog are extensive, the System X Technical Group is not certain whether all applicable fields are included in the displays. As a result of the meeting of the MnLINK System X Local Record Issue Task Force and discussions with DRA, the following gaps have been identified in DRA's current holdings record functionality:

- Information about URLs in the 856 field, which may be specific to a given library. In order to be functional this field has be indexed and displayed in the online catalog, and the URLs themselves provided with hot links to the actual site.

- Indexing and display of all appropriate tags in the holdings record. Currently only 852 and 853/854/855 and possibly the 867/868 tags display in the public client; display of all tags occurs only in the technical client. In order for other notes approved for the holdings record to display, most importantly tags 843-reproduction note and 845-terms governing use and reproduction, they have to be entered into the public note sub-field of the 852 tag. This strips the field tag resulting in loss of control.

This issue is also covered in the Systems Operations section. It is also of importance for users of the online catalog.

5. Taos must maintain links between records in a DRADB and merged OCLC bibliographic records, including cross-referencing of OCLC deleted record control numbers for items in a DRADB. [no RFP requirement]
Specifically:

- Taos must handle the replacement of the several duplicate records with the single OCLC record.
- Taos must provide for the transfer of all associated records (holdings, item, check-in, order, etc.) from the obsolete record to the new (merged) record.
- Taos must provide for the transfer of all local, institution specific data and bibliographic fields from the obsolete record to the new (merged) record.
- Taos must provide notification to the MnLINK member libraries of the merging of records. Data provided should include: title, Taos control number, obsolete OCLC control number, new OCLC control number, and any institutional specific data in the bibliographic record.
- The System X Contract Group should negotiate any possible cost increases due to customization needed for this functionality.

Most MnLINK System X participant libraries maintain holdings on the OCLC online cataloging system. When OCLC finds duplicate records for the same item, a single record is selected to represent the item and the duplicate records are deleted from the database. OCLC stores the control numbers of the deleted records as a cross-reference OCLC 019 tag. The cross-reference tag is used to link activity (update, produce, delete, etc.) done on the "single" OCLC record to the "obsolete" record residing in the local catalog.

6. Validation of headings (authority control). During bibliographic record validation, headings in bibliographic records must be compared to headings in an authority file (Library of Congress Name, Library of Congress Subject, National Library of Medicine Medical Subject Headings, and other authority records). Headings in the bibliographic records must not be validated against occurrences of headings in the bibliographic records, but against the actual authority files.
Specifically:

- Validation of headings in bibliographic records must be made against true authority files, which include locally established headings, not merely against occurrences in the database. (For example, 650 0 must be validated against a controlled file of LC subject headings; 650 2 validated against a controlled National Library of Medicine subject heading file).
- Validation must be made against authorized headings, cross-references, and non-matches (locally defined headings).
- All headings in a record must be validated following the edit of a single heading.
- Library staff must be able to easily replace or edit the existing forms of headings with authorized forms during the validation process, either via mouse click or keystroke combination. Cutting and pasting should not be required.
- Taos must identify blind references and notify library staff when found. The System X Contract Group should verify how blind cross references are handled, and determine whether DRA must do any further work to meet MnLINK needs.
- Taos must monitor and report on interactions between hierarchically related headings.
- Taos must create a printed report of conflicts between authority file records and headings in bibliographic records. This report must be run at intervals specified by the system administrators as a batch product.
- The system must verify **all** controlled fields in the bibliographic record during validation, not only fields just edited.

Appendix B-6, "Conflict and Error Conditions Related to Authority Control" also has further information about MnLINK requirements for this issue.

Authority control was not demonstrated during the December 1998 visit although DRA hoped to have "authority control for normal operations" available for demonstration during the ALA Mid-winter Conference (January 1999).

In particular, interactions between bibliographic and authority record data are complex pieces of functionality that the System X Technical Group was not able to review. As of the December visit, Taos was only able to validate an edited authority field. The system must validate all authority fields, whether edited or not. In later communication DRA has stated that they do plan to allow a general verification command that wil look at the selected record regardless of whether fields were edited.

The Technical Group also has concerns that DRA's validation of headings will be made only against the "authorized"-type fields in the DRADB rather than against a separate, truly controlled files such as the Library of Congress Subject Headings, National Library of Medicine's Medical Subject Headings (MESH), or Sears List of Subject Headings. Later communication from DRA indicated that they plan to validate headings against external sources, provided the source is accessed via the DRA search engine or DRANET.

Both of these issues need to be monitored as contract negotiations progress.

7. Validation of data other than headings. Taos must validate data in MARC21 bibliographic , holdings, and authority records. Validation must occur before records are entered into the database and whenever records are edited. Validation must be available in a real time, online environment (e.g., during record editing) and in batch mode (e.g., during batch import of records). The system must check for:

- **validity of leader, 006, 007, and 008 values**
- **validity of tag and sub-field values**
- **validity of indicator values**
- **repeatability of tags and subfield values**
- **validity of relationships between related fields (Example: record has a 490 tag; therefore, the library staff person is prompted to add required 830 tag.)** [RFP 6.4.1.15, 6.4.2.6]

Specifically:

- Taos must provide all of the validation functions as required in the RFP.
- Taos must provide for ongoing, real time record validation.
- Taos must provide for validation in batch processing.
- Taos must validate all fields in the record, not just the controlled fields.
- Taos must verify all fields existing in records, not only those edited or added.
- Taos must force full record validation whenever a record is imported, created, or edited.
- Taos must provide the option of adding or returning a record to the database without making the necessary corrections.
- DRA must supply standardized validation tables
- Taos must provide local control of record validation tables for modifications and updates. (e.g. changing valid tagging in 260 from "0_ " to "__")
- Taos should test for correctness between related field (e.g. if 490 1 exists then record requires an 830 field)

Even though DRA planned to have this functionality as of September 1998, it was not available for demonstration and evaluation during our December trip. DRA responded to 6.4.1.15 in terms of batch programs, but library staff will require ongoing, real-time validation.

8. URL Validation. The system must periodically test the validity of Internet site URLs coded into the MARC21 records. Reports of URL failures, including type of failure, must be made available to libraries. [no RFP requirement]

Currently DRA is including an 856 index as one of their recommended standard indexes as a step towards allowing a DRA-provided verification process. In the shorter term, Taos users will be ale to produce an html-formatted report via Safari, the third party report writer, that will allow the use of an off-the-shelf checker for 856 data. All corrections will be manual. In addition, the technical services workstation can currently check these links on an individual basis. And, because there is an index to the URLs, it is also possible to write PERL scripts to check the links. DRA has this functionality as a possible future development issue.

9. Global change feature. Taos must provide the ability to replace text in a group of bibliographic records, including, in a single transaction, replacing, editing, adding or deleting text strings and any sub-fields, delimiters, and indicators. Fields capable of change must be of all types, not just controlled fields. [RFP 6.4.1.15, 6.4.3.4]
Specifically:

- Library staff must be able to change any text string in all bibliographic and holdings records having that text string.
- Taos must be able to limit changes of a text string to specific tags, indicators, sub-fields, or fixed field data positions.
- Library staff must be able to review of consequences of global changes before the changes are actually made to the database.
- Library staff must be able to rearrange heading elements based on sub-field code alone in conjunction with a partial heading text (see 6.4.3.4 c.).

DRA responded that Taos was compliant, but this functionality was not available for demonstration or review during the December 1998 visit. DRA does not yet have global change capabilities for authority headings but it is on their development schedule. The RFP requested the ability to make global changes in bibliographic, holdings and authority records. DRA responded only for authority controlled fields, but library staff require the full functionality requested in 6.4.3.4.

DRA has requested a list of global changes MnLINK will require in the Taos system. DRA will review list to determine what they can do generically, what they will do as customization, and what could be done with PERL scripts.

10. Export of records. Taos must be able to export records to systems that libraries using System X report their holdings to, e.g., OCLC, RLIN, etc. Libraries must also be able to send records to a vendor for purposes of enhancement, e.g., adding table of contents to a record. [5.2.1.3, 5.2.1.4]
Specifically,

- Taos must provide the ability to export bibliographic and holdings data to OCLC and RLIN and other utilities as needed, and to send records to vendors for enhancing

Currently, DRA has a generic record export program for bibliographic, authority, and holdings records that allows selection of records based on date(s). What it cannot do is combine data, e.g., take data from holdings and from non-MaRC21 item records and place that data into designated fields and su-fields in the bibliographic record during export. Though the RFP unfortunately does not state specific requirements for export, library staff need to be able to continue existing export processes, including reporting bibliographic and holdings data to OCLC and RLIN, and sending records to vendors for processing (e.g. table of contents enrichment by BNA). DRA does have a combined bibliographic and holdings export on their development schedule.

MnLINK must prepare detailed requirements specifications for this functionality. Key points to include are:

- export of holdings records (first priority) and authority records (second priority) as well as bibliographic records
- ability to select records for export based on criteria such as: creation or update dates for each type of record, location, specified fixed field values, presence or absence of text flags in defined fields
- ability to use Boolean operators AND and OR between selection criteria

- ability to specify which fields are to be output in each type of record
- ability to concatenate files of records or record numbers chosen during the selection process for conversion and output in a single file.
- ability to write records to tape or ftp files and to create standard labels for those files.

Additional information on import and export requirements may be found in Appendix B-5, "Requirements for Import and Export of MARC21 Bibliographic, Authority, and Holdings Records."

11. DRANET. MnLINK System X Contract Group should consider subscribing to DRANET on behalf of all of the System X libraries. [no RFP requirement]
Specifically,

- DRANET needs to be Z39.50 accessible, so records may be transferred in real time for cataloging purposes.
- The System X Contract Group should consider negotiation of a usage fee for DRANET, to allow the resources to be in place if and when MnLINK institutions decide to access it.

DRANET is a service which provides access to many databases, including those with bibliographic and authority records. Included in the base access are Library of Congress cataloging records (MARC21) and authority records and ERIC (a database of resouces relating to research in education). Other files of interest include the Government Publications Office Monthly Catalog records, Books In Print records, the National Library of Medicine Subject Headings, and the Library of Congress Subject Headings.

Reports and Report Writer

1. The system must provide management information and reporting utilizing standard and locally customized reports. [RFP 6.1.4.1, 6.7.1.1]

2. The system must provide an internal customized report generator. [RFP 6.7.1.2]

3. The system must provide for converting existing management data. [RFP 6.1.4.3, 6.7.1.3]

4. The system must provide for data export for the purpose of generating reports and printing. [RFP 6.1.4.4, 6.7.1.4]

5. A library staff person must be able to create customized reports on demand. [RFP 6.1.4.2, 6.7.1.6]

6. It must be possible to pull information for reports from multiple files. [RFP 6.7.1.8]

7. It must be possible to generate reports with data from various levels, including local library and server-wide. [RFP 6.1.4.6, 6.7.1.9]

8. The system is expected to create reports with library specific data. [RFP 6.1.4.5, 6.7.1.10]

On February 8th, in responding to a System X Technical Group inquiry, Berit Nelson of DRA wrote, "We're (DRA) aiming to emulate the Classic standard reports in Taos. The ones we are focusing on first are..." Ms Nelson then proceeded to list 12 major reports.

A limited number of system-generated reports or report writing capabilities are available at present. The DRA response to the RFP stated, "DRA offers new levels of reporting capabilities in a character-cell based environment, UDMS (User Data Management System) from Interactive Software Systems Inc." Currently a third party product, Safari, is proposed, rather than the UDMS. In the same February 8th memo, Ms Nelson stated that demo CD of Safari would be available after the DRA User Conference. She also stated that reports could be named with output dates using Safari. Licensing issues may need to be addressed if a third party product is used.

The level of database knowledge and expertise that is required by library staff using the report writer remains a concern. A staff person in each library or system should have the information (for example of the data dictionary for the system) and ability to create customized on-demand reports without needing programming skills.

9. The performance of the system must not be affected by the generation of scheduled and on-demand reports. The system must be able to automatically stop a report that exceeds defined limits. [RFP 6.7.1.5]

10. The system must provide controlled access to the data, including discrimination of what data is controlled and at what level. [no RFP requirement in section 6.7]

This topic was discussed at during the December 1-2 meeting in St. Louis. Information received then indicated that there is a separate set of security tables for the report writer, with sign-on via the library staff person's name and password. It is possible to limit who has the security to use or modify a template or use a particular report.

Note: This requirement is also identified in the Systems Operations section below.

11. DRA must provide a data dictionary for Taos sufficiently prior to the implementation of the systme by MnLINK to allow time for orderly migration of data from existing systems. [no RFP requirement]

Currently there is no overall data dictionary for Taos, although those for bibliographic records, authority records, and holdings records are almost done. The rest of the work is in the DRA development schedule.

System Operations

1. Issues with the policies/parameters table/s

a. The system must allow for tiered distributed management and maintenance of system policies and parameters table/s, including system passwords and authorizations, locations, policy and rules, and calendars. Each participating library on a single server site must have the option of managing system policies and parameters table/s for that library independent of server site personnel. [RFP Section 6 Introduction, 6.1.2.1, 6.1.2.2, 6.3.7.1]

Specifically:

- convert the policy table to XML. This will allow comments that will help system administrators discern structure. This minimal change only allows central server site administrators to "read" the policies table with greater accuracy; it does not provide for distributed maintenance.
- allow distributed maintenance of policies table.
  Developments required to support distributed maintenance:
  - GUI interface to the policy table.
  - multiple simultaneous library staff access to the policy table.
  - library staff security limited by location or group of locations.
  - data validation routines that prevent common errors.
  - multiple views of data that assist in maintaining consistency.
  - real time policy table update.

Currently, the DRA policy table is a single large file. Following update, the new version of the file must be loaded using a batch program. Since comments are not possible, it is difficult to discern the structure of the file. While it is possible to set up separate parameters for each location, the way the file is structured and updated makes centralized maintenance a virtual and cumbersome necessity. MnLINK needs to be able to distribute some maintenance. DRA recognizes this as a concern and wants to provide a means to allow access to the location specific components (employee privileges at a location, location policies) to privileged library staff so as to make editing of the policies efficient and to distribute at least some of the management work. The creation (not maintenance) of staff records and privileges will probably remain centralized.

DRA has indicated that work on a new policy editor will be a major priority for development.

Ideally, maintenance of policy tables could be handled at either a central or local level. Some libraries prefer local control and believe it will reduce the incidence of errors. Other libraries would prefer that central staff with a high level of expertise maintain their policy tables. MnLINK libraries should assess the skills required and available locally and centrally to determine what maintenance should be handled centrally and what should be distributed. With regard to the Mankato server, central maintenance would be cumbersome, costly, and would not respond sufficiently to local needs.

b. The system must allow for 1) library staff to control (change) passwords after initial assignment by local person authorized to maintain local policy table; 2) library staff security to be defined for multiple locations that are not necessarily hierarchically related on a single server; and 3) field level security, especially in acquisitions and accounting records. [RFP 6.1.1.1]

Currently, maintenance of library staff security, like all other aspects of the DRA policy table, would have to be handled centrally. The general requirements for distributed maintenance of the policy table would meet many MnLINK needs. However, MnLINK also needs the additional features for library staff security; it is required for MnLINK day one implementation.

As part of the revamp of access rights, DRA has the following functionality on their development schedule: field level security for patron and item records, field level security for holdings records; field level security for acquisition and accounting records. DRA is focusing on improvements in such areas as where library staff need security to add or edit holdings for different locations.

c. The system must support distributed dissemination of output, including reports, in appropriate format to designated devices in the receiving library. [no RFP requirement]

It must be possible to distribute system-generated output to a desired output device. It is not clear in the response to the RFP or in subsequent investigations how DRA proposes to solve this issue in a highly distributed environment. Ideally, DRA would provide a mechanism so that a default output device or directory may be profiled for authorized user-ids and for each library location. System staff should have the ability to override this default when needed.

2. DRA should integrate security for the report writer with other security in the parameters table.
[no RFP requirement]

Note: This requirement is also in the Reports and Report Writer section above.

3. The system must provide backup facilities that 1) do not require system downtime; 2) result in 100% data recovery if backup media is not damaged; and 3) allow complete forward recovery facilities. [RFP 5.1.53, 9.3.9, 9.3.10]

In a January 8, 1999 e-mail message, DRA described two means of doing system backups: 1) use of UNIX utilities or 2) use of Object Store utilities. DRA also stated that there were pros and cons with each method. It appears that MnLINK needs could be met through the use of Object Store utilities, but the procedure should be further investigated.

Technical staff operating MnLINK servers will need to work with DRA to determine which backup and forward recovery methods will best meet MnLINK needs. They will need to consider both system availability and data integrity. DRA is still working on forward recovery.

4. It must be possible to define separate indexes based on indicator values for a specified tag, e.g. indexes for different subject heading or call number schemes. Further, it must be possible to index data in addition to call numbers and barcodes in holding records, e.g. 856 fields specific to a location. [RFP 5.2.3]

The RFP does not cover definition of indexes based on indicator values; however, this feature is critical. A basic assumption in the RFP is that most library-specific data will be carried in bibliographic records.

If it is instead carried in holdings records, the ability to index the holdings data and merge the display of holdings record data with display bibliographic record data in the online catalog is very important. DRA stated that indexing of holdings record tags is possible. DRA's capabilities regarding the display issues need to be investigated further.

Notes: The definition of separate indexes by indicator values, such as for subject headings and call numbers is also a requirement in the Technical Services Cataloging and Authority Control and Online Catalog sections above. See also Appendix B- 3, "Benchmarking Issues."

5. The system needs to provide for automatic maintenance of certain statistics in various cumulations.

While not delineated in the RFP, DRA should develop functionality for providing transaction and database size statistics in various cumulations online. Statistics should be:

- available by location and cumulated by defined groups of locations.
- available in various cumulations, e.g., today, yesterday; month-to-date, previous month; year-to-date, previous year.
- available for a variety of transactions, e.g., circulation transactions by patron or item type as determined in the policy tables, serial module transactions, acquisition module transactions, cataloging transactions by shelflist and call number ranges, online catalog usage by library and by call number ranges by library, database size breakdowns by library, etc.

Transaction and database size statistics can be produced using the report writer; however, having them readily available online would be useful. The "canned" reports planned for Taos "emulate DRA Classic standard reports," but it is not clear what cumulations would be available nor whether many of the statistics outlined above would be available in real-time.

Whether or not DRA should provide program utilities to compress and concatenate the logger file information for statistical processing and provide a mechanism to merge the daily logger files into manageable units to be used for additional historical statistics report processing has been discussed. What is required is a means of removing all non-statistical data from the logger file, then archiving the reduced file for future reference and manipulation. What is not clear is whether this is a facility DRA must provide or whether there are readily available third party tools to accomplish this facility.

6. DRA must provide APIs for import of data from 1) institutional directories of users for creation of patron files, and 2) institutional financial systems, e.g., fine payment information. Further DRA must provide facilities for export of data to campus financial systems, e.g., payments to materials vendors, fines owed information, etc. [RFP 6.1.6.8, 6.3.3.4, 6.5.6.1]

DRA currently has an API for import of user information for patron file creation. They do not have facilities for exporting or importing data to/from institutional accounting systems. Other DRA customers have also requested the ability to export of financial data. DRA will work with customers to provide an API to assist with import and export and they complete the acquisitions module.

Note: This requirement is also identified in the Technical Services Acquisitions section above.

7. The system must provide the capability of removing all records for a given library from a single server (allow an individual library to withdraw from the consortium-supported server). [RFP 5.1.3.4]

When DRA has had these issues with their Classic product, they have found that there are so many issues that custom software makes the most sense.

System X Technical Group Report
Appendix B-3

Benchmarking Issues

The System X Contract Group should review performance benchmarking of the University of California at Los Angeles (UCLA) installation and operation as part of the contract negotiation. UCLA benchmark data would provide a reasonable foundation for MnLINK acceptance testing subsequent to installation.

The following outlines baseline benchmarks to be tested during implementation. Benchmark standards and procedures should be developed and agreed upon by the previously established MnLINK User Group acceptance testing committees. The goal is to determine the performance of the proposed system in the MnLINK environment and to assure proper configuration of hardware and software to meet performance expectations.

Section 12 of the RFP contains the following details on system performance requirements:

> **12.1.1** Charge, renewal, and discharge commands performed during peak hours are expected to have an average response time of 1 second or less and have a response time during peak hours of less than 5 seconds 99% of the time.
>
> DRA Response: The standard DRA response-time warranties provide both average-load and peak-load response times, and a definition of peak load. Response times range from two seconds for average load to ten seconds for peak load.
>
> **12.1.2** Serials check-ins during peak hours are expected to have an average response time of 3 seconds or less and have a response time of less than 6 seconds 99% of the time.
>
> DRA Response: See 12.1.1.
>
> **12.1.3** Non-Boolean public access catalog searches during peak hour are expected to have an average response time of 2 seconds or less and be less than 10 seconds 98% of the time.
>
> DRA Response: See 12.1.1.
>
> **12.1.4** Boolean searches during peak hour are expected to have an average response time of no more than 6 second, except that one additional second may be allowed for each 2,000 matching records.
>
> DRA Response: See 12.1.1.
>
> **12.1.5** Input and update functions during peak hour are expected to have an average response time of 2 seconds or less and be less than 8 seconds at least 99% of the time.
>
> DRA Response: See 12.1.1.
>
> **12.2** The system is expected to provide a "transaction in progress" visual indication for transactions which exceed 3 seconds response time at 2 second intervals until the response is provided.
>
> DRA Response: System is fully compliant.
>
> **12.3** The vendor is expected to provide adequate sizing and scalability information in this and other responses and/or other ways to validate the proposed sizing and scalability of their system. ... Actual sizing examples are preferred over extrapolation in arriving at estimated capacity.

DRA Response: (Lengthy response omitted here.)

12.4 MnLINK reserves the right to develop tests at the time of initial installation or at any time during the contract to determine that the vendor is able to comply with the following requirements in this RFP and the vendor's response to the RFP, as well as any future enhancements the vendor provides:

a) Transaction throughput capacity and response time—to determine that the provided system is performing at vendor designated levels.
b) Hardware functionality—to determine that the hardware provided by the vendor works
c) Module functionality—to determine that the software provided by the vendor performs all functions attested to by the vendor.
d) Conversion testing—to determine that all appropriate databases and records from former systems have been converted correctly.
e) Database loading and index building—to determine both the accuracy of the database loading and subsequent built indexes and the length of time to reload the database and index it.

DRA Response: We believe system acceptance should be tied to tests which demonstrate the performance and reliability of the system.

Our standard contract includes clauses tying acceptance to successful completion of such tests, as well as clauses which provide mutual protection for both parties. ... We would be pleased to work with you to develop mutually agreeable acceptance tests to demonstrate system performance and reliability.

Specific testing criteria for enumeration of 12.4 above are to be developed by the appropriate acceptance testing committee. The main criteria for the benchmarking plans developed by the acceptance testing groups should include:

1) Test environment: size of database, hardware configuration, transactions loads and mix of transactions
2) Performance tests to be run: searching, other transactions, loading records, making index changes, running reports, running required periodic batch jobs
3) Benchmarking software to used
4) Who will be responsible for running and monitoring tests?

The following text, included here as an example only, describes a possible benchmark-test.

Approach

Test scripts developed to simulate the required environment.

A large database loaded to create the test environment. The loading process itself should be a part of the test:

4-5,000,000 bibliographic records from PALS or LUMINA
Full LC authority file from PALS or LUMINA or other source
Full item record load from PALS or LUMINA
Full patron record load from PALS or LUMINA
Holding record load from PALS or LUMINA

Testing to be conducted on proposed hardware platform from DRA.

Load Tests – Bibliographic records

Union Database	No Duplicate Control	Duplicate Control
No Keywords	1,000,000 records	1,000,000 records
	3,000,000 records	3,000,000 records
	5,000,000 records	5,000,000 records
With Keywords	1,000,000 records	1,000,000 records
	3,000,000 records	3,000,000 records
	5,000,000 records	5,000,000 records

Conduct the 12 loads listed above and measure both the CPU and clock time for each of the loads.

Determine if the load times vary linearly with the size of the database

Load Tests -- Authority Records

Load LC authority file in an empty database

Load LC authority file in a full database of
1,000,000 records
3,000,000 records
5,000,000 records

Measure CPU time and clock time for each load

Performance testing can begin after:
A test database is available
A test center (neutral?) is available
The tests have been developed, agreed upon and validated

Performance Test – OPAC searching

Load: 50,000 transactions per hour peak

The following transaction mix should be used:

Type of Search	Location Filtering	Percent of Total
Phrase	90%	10%
Browse	90%	10%
Keyword	90%	40%
Display Set	90%	20%
Display Single	90%	20%

Tests to be conducted on a database of 1,000,000 records
5,000,000 records

Performance Tests – Bibliographic Record Updating

Rerun OPAC tests at:
2,000 transactions per hour with 500 update transactions per hour
10,000 transactions per hour with 500 update transactions per hour

Performance Tests – Circulation Transactions

Rerun OPAC test with the following circulation transactions

Charge:	2,000 transactions per hour
Discharge:	2,000 transactions per hour
Mix:	2,000 transactions per hour of 1000 each type

Mirroring Tests

Repeat bibliographic load tests with keyword indexing and compare load results with non-mirroring results.

Backup / Recovery

Do a full file backup of the entire "before" database and measure wall clock time.
Run the response time tests for Bibliographic record updating and circulation testing
Reload the database and measure wall clock time
After reload, reapply the logged transactions from the response time testing and measure wall clock time.

Full-File Scan Tests

Count the number of records in the bibliographic database with a 250 tag.

Nightly Batch Run Tests

If the system requires and full-file scan tasks (pointer integrity checks, reporting tasks, "dead" record deletes, etc.) execute stand-alone with "average" batch size. Measure wall clock time.

Repeat the above test with 20% peak OPAC transactions running and record the same wall clock time.

Load and index 5,000 bibliographic records with duplicate detection stand-alone. Measure wall clock time.

Repeat the above test with 20% peak OPAC transactions running and record the same wall clock time.

Execute stand-alone with "average" batch size on the portions of the system which run against the database:

Printing:	overdue notices (1,000 overdue notices)
Reporting:	standard/automatic reports
	complex ad-hoc reports
Extracts:	extract all records with
	100 tag
	650 tag
	bib-level s fixed-field

Measure wall clock times

Repeat the above test with 20% peak OPAC transactions running and measure the same wall clock time.

System X Technical Group Report
Appendix B-4

Unicode and Support for Multiple Scripts

To meet library user and staff needs for access to multiple scripts, DRA must develop Unicode-compliant software for:

1. **Displaying records using both Web browsers and Windows NT clients.** In addition to providing basic font and rendering software, DRA must deal with issues such as correct positioning of multiple diacritics modifying the same character, handling multiple script orders within the same record, and displaying variant forms of characters and radicals in different contexts.

2. **Entering data to search for, create, and update records.** While use of Windows NT keyboard maps is a first step in developing this functionality, users will want more intuitive data entry methods, which will vary from script to script.

3. **Indexing records**. DRA must develop script-specific, and in some cases language-specific, rules for normalizing data to create index entries.

4. **Sorting result sets**. DRA must develop rules for sorting that may be script or language-specific, rules for sorting results in multiple scripts, and a means of giving users a choice of sorting conventions.

5. **Printing, downloading, and e-mailing of data**. It must be possible to use other popular software to manipulate data captured through downloading or e-mailing for purposes such as building databases of citations.

6 **Report generation, both for preprogrammed and ad hoc reports**. It must be possible to use other popular software to manipulate report data, e.g. spreadsheet and database software.

7. **Record import and export**. DRA must support real time and batch import and export of Unicode-encoded MARC21 bibliographic, holdings, and authority records, as well as EDI and interlibrary loan transactions.

N.B.: The RFP refers to the Unicode Worldwide Character Standard, Version 1.0 and new versions as approved. The Unicode Standard Version 2.0 was approved and published in 1996.

5.1.4.1. The system is expected to operate within a full TCP/IP environment, including Telnet, FTP, and SMTP. Connections are required to backbone networks and to local area network infrastructures for the system's online data communications with data input and output devices, including computers, printers, and those devices that are capable of displaying and inputting the full ALA character set or the UNICODE set.

DRA Response: The system is fully compliant. The DRA system is an Ethernet based, TCP/IP network, with distributed processing capabilities across local and wide area networks. The DRA system/network can be easily integrated with established networks via a physical Ethernet connection and TCP/IP. Workstations can access the DRA software, other systems, third party databases and/or any Internet destination via the Ethernet network and wide are network connection.

5.2.1.13. The system is expected to support the UNICODE Worldwide Character Standard, Version 1.0, and new versions as approved.

DRA Response: The system is planned to be compliant by 12/31/97. Extensive multilingual capability, along with ease of movement and numerous implementation options are the foundation upon which our TAOS Cataloging module is built. Full UNICODE support lets you enter and display all US MARC-supported character sets—such as Chinese, Japanese, Korean, Cyrillic and Hebrew—on workstations (Windows NT) equipped with appropriate fonts.

5.2.2.7. Given appropriate terminal hardware and software, the system is expected to be able to import, export, store, display (in proper relationship to other displayed characters), and edit all diacritical marks and other characters that comprise the UNICODE Worldwide Character Standard, Version 1 and new versions as approved. SPECIFY whether any special terminal hardware or software is required for this capability, bearing in mind the mandatory requirement for TCP/IP network. If a system has this capability, it is assumed that the bid price includes the cost of any special software that might be required.

DRA Response: The system will be compliant as described below.

DRA Taos takes advantage of full Unicode support, which enable entering and display of all US MARC-supported character sets (such as CJK, Cyrillic and Hebrew).

When the EACC to Unicode mapping is complete, we will be supporting the Unicode mappings of EACC.

The DRA system provides full support for the Unicode standard provided through the Windows NT operating system. Special characters may be input, edited, and validated using the special keyboard maps provided as part of Windows NT.

For display of non-Roman characters via DRA Web2, a workstation with a browser configured to support the Unicode character set will be required. At this time, we have found Microsoft's Internet Explorer to offer the most robust support for Unicode. DRA plans that the Web interface will support display of non-Roman characters by Summer, 1998. Printers used to print diacritical characters must support Unicode fonts ...

9.3.8. The system is expected to support the UNICODE Worldwide Character Standard.

DRA Response: The system has plans to be compliant with Taos. Three-tiered design, combined with incorporation of such standards as UNICODE, means that user interfaces can be customized individually—so, for, example, the same library can offer an expert interface in Chinese and a child's interface in English, fully interchangeable on a single workstation. Taos can even recognize you when you log in and present you with your preferred interface.

In a later response to questions from the Vendor Evaluation Team, DRA said it could provide full Unicode support for Chinese, Japanese, and Korean by July 2000 and full Unicode support of Hebrew, Arabic, and Cyrillic by July 2001.

DRA is very much involved in standards development, as well as the work of ALA committees on application of Unicode in the library community. With an appropriately configured browser, it is currently possible to display some non-Roman data in the Taos OPAC. However, the extent of DRA's progress on all of the tasks involved in full support of multiple scripts is unclear. Meeting the goals outlined above will

require DRA to work with international, national, and library standards makers, other software vendors, and producers of records.

Comments: Full support of multiple scripts through the use of Unicode is of high importance to the University of Minnesota, and of some importance to other MnLink participants. Support for Chinese, Japanese, and Korean is a first priority; support for Arabic, Hebrew, and Cyrillic is a second priority.

System X Technical Group Report
Appendix B-5

Requirements for Import and Export of
MARC21 Bibliographic, Authority, and Holdings Records

Online and Batch Import Definitions

- **Add** = creation of a **new** record in the database
- **Overlay** = complete **replacement** of an **existing** record with an incoming record
- **Merge** = a combination of **retention** of some data in an existing record **and replacement** of some data in a record **or**, in the case of holdings records, both addition of new holdings records and/or replacement of data in existing holdings records

Online and Batch Import/Overlay/Merge Action Specification

In either online or batch mode, it must be possible to specify which of the following actions occurs. Typically, actions will be specified for a particular job in batch mode, and specified at the server or institution level for online mode.

1. Bibliographic Records
   a. All incoming records are added as new records.
   OR
   b. Incoming records that meet match criteria overlay existing records; other records are added as new records.
   OR
   c. Incoming records that meet match criteria are merged with existing records; other records are added as new records.
   OR
   d. Incoming records that meet match criteria are discarded; only linked holdings data is processed.

2. Authority Records
   a. All incoming records are added as new records.
   OR
   b. Incoming records that meet match criteria overlay existing records; other records are added as new records.
   OR
   c. Incoming records that meet match criteria are merged with existing records; other records are added as new record

3. Holdings Records
   a. A holdings record is created when a new bibliographic record is added to the database; holdings record(s) are untouched when an existing bibliographic record is overlaid by or merged with an incoming record.
   OR
   b. Whenever an existing bibliographic record is overlaid by or merged with an existing record, matching holdings record(s) are overlaid, and new holdings records are added when there is no match.
   OR
   c. Whenever an existing bibliographic record is overlaid by or merged with an incoming record, matching holdings records are merged, and new holdings records are added when there is no match.
   OR
   d. Whenever the rule is to discard a matching bibliographic record but process holdings data, new holdings records are added. Note that this kind of processing could be useful if multiple institutions receive records for many of the same titles from vendors and records are processed in batch. In this case, the existing bibliographic record might well be of higher quality than the incoming records, so it should not be overlaid.

Online and Batch Match Criteria

1. Bibliographic and Authority Records
   a. Definition of Conditions for Overlay or Merge
      1) It must be possible to specify the fields and sub-fields to be compared to determine whether two records match.
      2) It must be possible to use Boolean operators AND or OR in the specification of match criteria. E.g.:
         010 $a AND 245 $a
         OR
         020 $a AND 245 $a
         OR
         035 $a AND 245 $a
   b. Overlay or Merge
      When the values specified match in an incoming and an existing record, the system must overlay the existing record with the incoming record or merge the existing and incoming records.

2. Holdings Records
   a. Definition of Conditions for Overlay or Merge
      1) It must be possible to specify the fields and sub-fields to be compared to determine whether two records match.
      2) It must be possible to use Boolean operators AND or OR in the specification of match criteria. E.g.:
         852 $b AND 852 $c AND 852 $t
   b. When the values specified match in an incoming and an existing record, the system must overlay the existing record with the incoming record or merge the existing and incoming records.

Online and Batch Merge Criteria

1. Bibliographic and Authority Records
   a. Merge Actions
      It must be possible to specify an action for each **field tag** in the incoming record, i.e.:
      1) **Add:** Add the incoming field to the existing record in all cases.
      2) **Conditional Add**: Add the incoming field to the existing record **if** data in the incoming field does **not** match data in an existing field with the same tag.
      3) **Discard**: Discard the incoming field.
   b. Default Action
      It must be possible to specify a default action for any incoming field tag for which there is no explicit action defined.

2. Holdings Records
   a. Merge Actions
      It must be possible to specify an action for each **field tag and sub-field** in the incoming record, i.e.:
      1) **Add:** Add the incoming field and sub-field to the existing record in all cases.
      2) **Conditional Add**: Add the incoming field and sub-field to the existing record **if** data in the incoming field and sub-field does not match data in an existing field with the same tag.
      3) **Discard**: Discard the incoming field and sub-field.
   b. Default Action
      It must be possible to specify a default action for any incoming field tag and sub-field for which there is no explicit action defined.

Online Import

1. Bibliographic and Authorities Records
   a. It must be possible to search any Z39.50-compliant server, retrieve MARC21 bibliographic or authority records, and give a single command to send the record(s) to a specified file or load and index the record(s) in a specified database. Records should be added, overlaid, or merged based on actions specified for import.
   b. It must be possible for a site to configure searching of any Z39.50-compliant server without vendor intervention.

2. Holdings Data Linked to New Bibliographic Records
   A holdings record must be automatically generated whenever a new bibliographic record is added to the database.
   a. Fixed Field Values
      Operators must be able to:
      1) Create, save, and modify templates for fixed field values in holdings records automatically created during import.
      2) Use a template to supply fixed field values in all holdings records automatically created during import. Values should remain in effect until the template is changed or for the duration of a session.
   b. Location Data: 852 $a, $b, $c, $k
      Operators must be able to set values for these sub-fields in a template with pull down menus. Values must remain in effect until changed or for the duration of the session. E.g.:

852 $a	852 $b	852 $c	852 $k
MnU	wils	ref	Mfiche

   c. Shelving Scheme and Call Number: 852 first indicator, 852 $h, $i
      1) Operators must be able to set the following values from a pull down menu of choices:
         a) a hierarchical list of call number fields in the bibliographic record. The definition of a hierarchy indicates the use of a Boolean OR operator.
         b) a shelving scheme value that corresponds to each call number field.
         c) instructions for parsing the bibliographic call number field.

      Values set should remain in effect until the operator changes them or ends the session.

      2) The system must:
         a) search for call number fields in the bibliographic record in the order given in the set call number hierarchy
         b) copy the first call number in the hierarchy encountered in the bibliographic record to 852 $h or $h and $i, following the instructions set for parsing.
         c) set the corresponding shelving scheme

      E.g.:

Bib Data	852, Indicator 1	Parsing
050 $a and $b	0	Copy value in 050 $a to 852 $h Copy value in 050 $b to 852 $i
	OR	
090 $a	0	Copy value in first $a to 852 $h Copy value in second and succeeding $a's to 852 $i; replace $a's with blank
	OR	
none	blank	none

Batch Import

1. Records Imported
   It must be possible to import MARC21 bibliographic, authority and holdings records in batch mode. Records should be added, overlaid, or merged based on specifications for the job.
2. Generation of Holdings Data During Bibliographic Record Import
   a. Added records
      When an incoming bibliographic record is added to the database that does not have MARC21 holdings record(s) linked to it, the batch import program must:
      1) Create a holdings record with default fixed field, location, shelving scheme and call number data from a load profile created for the batch job.
      OR
      2) Create a holdings record using data embedded in the incoming bibliographic record. It must be possible to include a table of correspondences between data elements in the bibliographic record and the holdings record in the load profile.
   b. Overlaid or Merged Records
      When an incoming bibliographic record overlays or is merged with an existing bibliographic record, holdings records must be retained, added, overlaid, or merged based on the action defined for the batch load. Data to be added, overlaid, or merged may be taken from:
      1) A load profile for the batch job
      OR
      2) Holdings data embedded in the bibliographic record. In this case, the load profile must include instructions for conversion of data.

Preprocessing of Incoming Records

During both batch and online import, the system must be able to preprocess incoming data as follows:

1. Check Filing Indicators on Bibliographic Records
   Check all filing indicators using values defined for the language in 008/35-37; correct when appropriate.
2. Change Tag and/or Change Sub-field Code
   Change all instances of a single tag number to another tag number, and/or change each instance of a specified sub-field code within a specified tag to a different sub-field code.
3. Omit Sub-fields
   Omit specified sub-field(s) from all instances of specified field(s).
4. Create New Field
   Combine two or more sub-fields from incoming fields to create a new field.

Export

1. Records Exported
   The system must export MARC21 bibliographic, authority, and holdings records and create tape or ftp files of exported records with standard file labels.
2. Selection Criteria
   It must be possible to select records for export using multiple criteria and Boolean operators AND, OR, NOT. Minimally, it should be possible to select records by:
   a. Record creation date range
   b. Record update date range
   c. Record status: on order, in process, cataloged
   d. Record format (bibliographic, holdings, authority)
   e. Bibliographic format (leader/06-07)
   f. Physical format (006, 007 data)
   g. Other fixed field data elements e.g. language, publication date range
   h. Presence or absence of specified variable fields and values within those fields
3. Fields and Sub-fields Exported
   It must be possible to specify which MARC fields and sub-fields will be included in exported records.

System X Technical Group Report
Appendix B-6

Conflict and Error Conditions Related to Authority Control

Note: Although a number of conflict and error conditions are specified below, having the flexibility to customize additional reports for different kinds of maintenance work is as important as any specified list.

General Rules:

Heading verification must be preceded by coding verification. The system must identify coding problems before trying to analyze authority problems.

Heading verification and conflict detection is simplified if the system follows NACO [National Authority Control] normalization rules. Other normalization systems tend to detect conflicts where NACO sees none, and vice versa.

Heading verification needs to be hierarchical. The system should be able to analyze the heading into appropriate components and verify them successively, e.g.,

Name
Name. Title
Name. Title. Language

Corporate name.
Corporate name. Subordinate body.

Subject heading
Subject heading—Subdivision
Subject heading—Subdivision—Subdivision.

The system must be able to report hierarchically which of the components that make up a heading are established in the authority file. A desirable feature would be a secondary report of prior usage of the components of the heading in bibliographic records.

Validation against subdivision authorities, validation of subdivision sequence, and validation of form/genre headings must be developed. Subdivision authorities and form/genre authorities are becoming more widespread, and System X must incorporate them usefully in its validation routines, e.g., comparing subject heading components unmatched in an established heading string against a file of valid free-floating subdivisions.

Some forms of validation must be available during cataloging and catalog maintenance. The operator must be able to machine validate selectively a single heading, or the headings on a single record.

Examples of Useful Reports

1. **Find gaps in authority file.**
   - Bib name fields (X00, X10, X11) not matched by a name authority 1XX. Separate reports for personal, corporate, and conference names would be useful, but not necessary.
   - Bib subject fields (650, 651) not matched by a subject authority 1XX. Separate reports are needed for different subject systems (LCSH, MeSH, etc.).
   - Bib series fields (440, 800, 810, 811, 830, 840) not matched by a series authority 1XX. Matching against serial 130s should be optional.

2. **Find orphaned authority records.**
   - Authority 1XXs not matched by a bibliographic heading field. The need depends upon how System X filters the display of authority references. Separate reports by heading type (name/subject series) are needed.

3. **Find bibliographic/authority and authority/authority conflicts.**
   - Bibliographic fields matching an authority 4XX field. Separate reports by heading type (name/subject series) are needed. It is highly desirable to have the ability to exclude authority 4XXs which normalize identically to the authority's 1XX form in System X's indexing.
   - Authority 1XXs matching an authority 4XX. The comparison needs to be based upon NACO normalization rules.

4. **Find true blind see-also references.**
   - Authority 5XX fields not matched by a bib heading or other authority field. The need for this report depends on how System X filters the display of 5XX references, and how it displays and indexes authority records.

5. **Find duplicate authorities.**
   - Duplicate authority record numbers, matching on 010 |a and |z numbers.
     Duplicate authority 1XXs. The comparison needs to be based on NACO normalization rules with a comparison of heading authorities to heading authorities, subdivision authorities to subdivision authorities. The report must handle different subject heading systems separately.

6. **Find new headings for review.**
   - List of headings new to the database over a given interval of time. This list needs to be sorted by heading type and to indicate results of verification hierarchically. It is desirable to be able to sort the result set more finely (such as, by X00, X10, X11, 650, 651, series)

February 4,1999

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Barbara Brooks, College of St. Catherine

From: Charlene Mason, Chair, MnLINK System X Technical Group

Subject: Task Force on Local Record Issue

One of the major issues identified by the Vendor Evaluation Team in its evaluation of the DRA proposal was "the local record issue" or "development of functionality to manage local bibliographic information in a consortial environment." While some parts of this issue affect all libraries moving to DRA, the concern has been raised most significantly by PALS users who have unique adaptations within the PALS system to handle the input, management and display of local information within bibliographic records.

Although this issue has many facets, including conversion of records, training, possible expansion of resources needed to maintain new processes, I am asking you to serve on a short-term task force to:

1) investigate approaches to using the DRA bibliographic and holdings records to meet the needs of the PALS libraries on an ongoing basis;

2) review options for treatment of local data and how to handle local data elements;

3) identify those local data needs that can be handled in TAOS and outline the changes a library would need to make in its processes for TAOS to manage the data;

4) identify those local data needs that cannot be handled in TAOS. If possible, specify the changes which need to be addressed by DRA in its product.

The intent of this work is to determine if the needs of the PALS libraries for handling local data could be met or enhanced within the DRA environment, even though the process of providing the needed outcomes might be different.

As you know the work of the MnLINK System X Technical Group is rapidly approaching its final report. However, several of you have been working on and thinking about this issue for some time. Given that work, I would like to suggest a deadline of February 18 for your report. It could then be considered at the February 19 meeting of the System X Technical Group.

Kathleen Ashe has agreed to take leadership of this group, for which I am very grateful. I also want to thank you in advance for your careful consideration and efforts to improve all of our understanding of this important issue.

copy: David Barton, MnLINK Executive Director

System X Technical Group Report
Appendix C

LIBRARY SPECIFIC DATA IN THE BIBLIOGRAPHIC RECORD

BACKGROUND

One of the many functions that MnSCU/PALS staff have long valued is the ability in PALS for each library to present library specific information in the bibliographic record to their users and have the related indexing functionality limited to the library's own catalog. As the MnLINK project began to develop, It was recognized that many automated systems do not provide this capability. Before the formal process of selecting a vendor began a memorandum explaining the issue was sent to Ann Kelley, Manager of Programs, Higher Education Services Office. The memorandum identified the two most common ways that vendors handle bibliographic records in a consortial environment, either with a single unit record or with multiple copies of a record, and stated that neither method would serve MnSCU/PALS libraries or their patrons in the MnLINK environment. (Attachment 1) Ann Kelley forwarded this memorandum to those vendors who had expressed an interest in the MnLINK project, including DRA. (Attachment 2)

This issue was addressed twice in MnLINK's Request for Proposal for an automated library system, in Part 5, MnLINK Framework, 5.2.3.3 and in Part 6, System X Requirements and Capabilities, 6.4. In 6.4 the issue was emphasized with the wording **IT IS OF PRIMARY IMPORTANCE**. In the response to both sections of the RFP DRA stated that "The system is fully compliant." (Attachment 3) DRA was invited to participate in the vendor demonstration process in February 1998. At that time DRA was queried on the issue by the public during the open forum, by the Cataloging and Database Maintenance Working Group during closed sessions with the vendor, and at meetings with the Vendor Evaluation Team. It was during this process that DRA identified a possible solution based on the subfield 5 in the USMARC record. Recognizing the importance of this issue to a significant number of mandated MnLINK libraries, the Vendor Evaluation Team in its final recommendations to the Library Planning Task Force included local data in the list of "several major considerations, which are over-arching in negotiating a contract with DRA and could cause the negotiations to break down." (Attachment 4)

On Wednesday, April 22, 1998 on a voice vote with one "no" recorded, the Library Planning Task Force moved to accept all the recommendations specified in the Vendor Evaluation Team report.

In September 1998 the MnLINK System X Technical Group began its work on identifying technical, functional and development issues to be addressed in contract negotiations by the MnLINK System X Contract Group. On October 26th in preparation for the Technical Group's December visit to St. Louis, a question was forwarded to DRA on the status of the development of their subfield 5 proposal for managing local data. A request for further information was received from DRA on October 29th and was responded to immediately by Mike Barnett on November 2nd. We received no further response from DRA prior to our arrival in St. Louis. The issue of local data was raised by the Technical Group at the initial meeting on the first day. DRA's response was focused on the grouping of MnLINK libraries into several DRADBs (DRA DataBases). Essentially the solution was a combination of a unit record within a DRADB and multiple copies of a record among DRADBs. When asked directly about their subfield 5 proposal, DRA stated that they were not able to implement the subfield 5 to meet our objectives. DRA preferred the shared unit record structure.

In December 1998 the Technical Group reviewed the over-arching issues listed in the Vendor Evaluation Team report. Given the finding by DRA that their subfield 5 proposal would not give the MnLINK libraries the functionality specified in the RFP, the group appointed a task force to investigate whether the basic DRA structure of unit record, library specific holdings record and item record, could meet the needs of those libraries concerned with library specific data.

System X Technical Group Report
Appendix C
February 26, 1999

TASK FORCE ON LOCAL RECORD ISSUE

The members of the task force included two librarians from the Technical Group, Kathleen Ashe (Southwest State University) and Tess Kasling (St. John's University/College of St. Benedict), Stephen Hearn (University of Minnesota) and Barb Brooks (College of St. Catherine, member of CLIC consortium) both of whom were on the VET Cataloging and Database Maintenance Working Group, Karen Mateer (Augsburg College, member of CLIC consortium) and Jeanne DeMars (MnSCU/PALS).

In preparation for the task force's work a request for information was sent to the MnSCU/PALS list. (Attachment 5) The request was first sent a few days before Christmas and then again in the middle of January. Replies from 35 institutions were received. These institutions represented the broad spectrum of libraries interested in preserving local data: state universities, private colleges, technical colleges, community colleges, state agency libraries, public and special libraries. Most replies were sent via email, several faxes were sent, and some phone calls were received. In a few cases statements needed to be clarified and the answers came back quickly. Staff at several libraries put a great deal of extra work and thought into their replies, sending print-outs and OCLC bibliographic record numbers to illustrate their points.

The chair of the task force compiled the information received, grouping examples with associated MARC field tags. Most local data needs which could clearly be moved to the library's holdings record were not included in the compilation. For example, statements such as "Library keeps current two years" (of a given periodical title) which some libraries are putting in the 590 note field of the bibliographic record can logically be accommodated in the public notes field of the holdings record. This compilation of local practices formed the basis of discussion when the task force met on February 9th.

A day long meeting was held to review the local data needs identified by the 35 libraries. In addition to the task force members three interested members from the System X Technical Group attended the meeting, Sheila Hatchell (Department of Transportation Library), Adam Marsnik (Normandale Community College), and Michael Barnett (MnSCU/PALS). The day began with a brief history of the CLIC library consortium which has had 30 years experience working in a shared unit record environment. This was followed with a review of some of the issues addressed by the CLIC cataloging group in their monthly meetings over the past few years. These included specifying levels of cataloging each library must adhere to, determining which subject headings must be retained and which must be deleted, and the development of a cataloging policies and procedures manual. It was also noted that because some libraries were slow to change internal procedures, problems were created when records coming into the shared catalog were replacing records that had been extensively edited by another library. CLIC requested custom programming to prevent the automatic overlay of records. Karen Mateer and Barb Brooks agreed that CLIC was able to work with an automated catalog based on a shared unit record because of its 30 year history focused on a shared record. Cited as an equally important factor was the fact that they were a small group (originally 7, now 9) of similar institutions operating in a geographically close area (Twin Cities). The CLIC catalogers meet on a monthly basis. A sense of collegiality and responsibility to the whole has been an important outgrowth of the monthly meetings.

The task force then reviewed the compilation of local data practices identified by the responding libraries. Attached is a revised compilation. Repetitive entrees have been deleted as have a few additional practices which the group agreed could be moved to the holdings record with the provision that the notes fields in the holdings record must be indexed in a general keyword index. (Attachment 6) This list represents some of the local practices which cannot be accommodated in the structure proposed by DRA consisting of a unit record, holdings record and item record.

CONCLUSION

After a review of the library specific practices submitted by the 35 libraries it was evident that some information relating to specific library holdings could be moved from the bibliographic record to an associated holdings record. However it was also evident that there are significant disparities in local cataloging practices that would cause problems in a system where multiple libraries had to share one record. (Refer to examples in Attachment 6)

In direct contrast to the experience of the CLIC libraries with a shared unit record, the MnSCU/PALS libraries have a 20 year history of working with library specific information in the bibliographic record in an automated system. In addition the MnLINK libraries are neither geographically close nor institutionally similar.

It is equally important to note that the holdings of the 35 libraries who responded to the request for information represent 78% of the total records in the MnSCU/PALS database and 83% of the shared records. While it cannot be assumed that *all* library specific information added to the database by these libraries involves jointly owned titles, the libraries' responses, the number of titles held in common, and the number and size of "variant" records currently in the MnSCU/PALS system indicate that local data needs will come in conflict on a shared record. In the case of library specific information on unique titles, it also cannot be assumed that the titles will forever remain uniquely held within MnLINK.

On the national level there has been slow but steady movement toward the accommodation of library specific information in the bibliographic record. OCLC provides an international database based on a shared unit record. In order to address member libraries' needs for institution specific data OCLC added "MARC like" fields to the bibliographic records. These added fields include 590 and 599 (notes fields), 69X (subject fields) and 79X (added entry fields). These fields have been widely used for twenty years by the MnSCU/PALS libraries. Over the past few years MARBI, the national body responsible for the USMARC bibliographic record, has approved the addition of subfield 5 to a number of fields in order to accommodate library specific information on a unit record. With the subfield 5 approved for the 500 and 7XX fields in the USMARC record, these fields now replicate the 59X and 79X OCLC fields. (Attachment 7) Because the subfield 5 has not been approved for all fields in the USMARC bibliographic record, the vendor would need to implement the subfield for the series fields (4XX), the contents and summary notes fields (505/520) and the subject heading fields (6XX) at a minimum. The information related to the subfield 5 would not only need to by displayed to the owning library, but also indexed appropriately and managed by the report writing program.

It has been a belief held by many of the MnSCU/PALS libraries that if their current automated library system is to be replaced, then it should be replaced by a system that at minimum provides functionality currently employed and hopefully new and/or improved capabilities. Although the request for information that went out on the MnSCU/PALS list did not specifically refer to the use of the 59X and 69X fields, 32 of the 35 responding libraries unequivocally stated that they wanted to retain the 59X and 69X fields currently in their catalogs and that they wanted to continue to use these fields. Over the last 20 years MnSCU/PALS libraries have used these fields to provide information and additional access points for their patrons and staff. Libraries have developed consistency and integrity within their own catalogs. Merging all libraries' information onto one bibliographic record will destroy this work. In addition the patron will be faced with an unmanageable record containing misleading and confusing information. Optionally, MnLINK could mandate the removal of all institutional specific data from the bibliographic record.

There are significant implementation issues for the MnSCU/PALS libraries if MnLINK goes forward with a shared

record structure. One result will be additional start-up costs to the libraries to save critical information now in the bibliographic record and transfer it to the holdings record. There will also be ongoing costs both to MnLINK as an organization and to the individual libraries. Developing and maintaining an operational structure to coordinate the activities of eighty-plus catalogers working on a shared record, providing training, and developing policies and procedures will be a challenge.

Simply stated the issue is basically one of autonomy verses standardization. The specifications in the RFP require a system that will give the libraries autonomy. The structure preferred by DRA requires standardization. Possible solutions to some of the issues identified above were supported by some members of this Task Force. (attachment 8) Based on the review of the reported local practices of the MnSCU/PALS libraries, the DRA preferred solution of MnLINK libraries sharing a single unit record would cause significant problems. The issue of cataloging practices and the implications of cataloging in a consortium with a unit record needs to be further explored to discover if it is possible to maintain the same service to patrons by altering the methods of cataloging.

Memorandum

To: E. Ann Kelley
From: Kathleen Ashe, Systems Library, Southwest State University
Patricia Flaherty, Technical Services Coordinator, MnSCU/PALS
Subject: MnLINK Concerns
Date: April 25, 1997

Although the initial participants in the System X component of MnLINK have not yet been determined, it is understood that they will make up a strikingly diverse set of libraries and patrons. The MnSCU/PALS consortium already includes state university, community college, technical college, private college, state agency, and special libraries such as the Minnesota Historical Society. MnLINK will eventually include the U of M libraries, as well as public and school libraries and any combination of these libraries may share a server. Given this diversity, we believe the way that bibliographic records are handled is at the core of making System X work well for all.

In order to serve the needs of such a diverse group, the system must allow each library to maintain the unique identity of its catalog records. This feature, which the MnSCU/PALS libraries have with their current software, is critical to the success of System X. Nationally, this type of system is not typical, so vendors have not had to consider the complex issues it poses. In an initial review of commercial automated library systems available today, it is apparent that this requirement will be a primary concern.

System X users should be able to search the whole catalog, receive one match for a title even if 35 libraries own it, and be able to view their own library's edited version of the bibliographic record. They should also be able to view circulation information for other libraries that own the title.

The two prevailing methods for handling bibliographic records both have limitations. The first method, in which only one jointly-cataloged record is stored for each title, does not allow libraries to maintain unique records. Library-specific information is stored in the attached item records which are not indexed, and is limited to call number, library location, and circulation information. The second method, which stores separate records for each title for each library, raises the specter of multiple hits for a single title as well as questions regarding the efficiency of duplicating millions of records.

The 85 MnSCU/PALS libraries have experience with a catalog structure which provides each library with a bibliographic record reflecting all library-specific information. The system accomplishes this by merging a base record which holds information common to all libraries with a "correction" record which contains edited information specific to that library.

MnSCU/PALS libraries are a diverse group serving unique patron interests. Following long-established policies, each library's catalog represents decisions made in the interests of its patrons. The current database of 4.7 million bibliographic records (2.1 million unique titles) includes substantial individual cataloging which the MnSCU/PALS libraries wish to retain. Fitting the database into a single record system will result either in long, unwieldy, and inaccurate bibliographic records if all information is merged into one record, or in a significant loss of information if one library's record is chosen as the single record and all other edited versions of the bibliographic record are deleted.

Examples that demonstrate why it is important for each System X library to maintain its own bibliographic records are attached.

Libraries sometimes vary from standard cataloging practices.
All MnSCU libraries are committed to following national standards in their cataloging practices. However, there are variations that a library will use that should be reflected only in its own catalog for the purpose of serving that library's patrons as well as accommodating local practices. For example, library XYZ may shelve its periodical titles in title order. The base record used by all libraries will use the authorized form of title as the main entry. Library XYZ's version of the record needs to reflect the shelving title as the main entry. A public or school library may be compelled to vary from national standards more often than a large academic library which will have a strong commitment to standards.

Institution-specific notes vary.
Many libraries in the MnSCU/PALS system enter institution-specific information in notes fields and other indexed fields, which would be inappropriate and misleading if placed in a single record used by all libraries. Among these are: donor information, autographed copies of a title, and instructions to patrons to refer to other sources of information in the individual library.

To include indexed information from one library in the record of another library would add incorrect index pointers to the catalog of the library not affiliated with the enhancement, resulting in bad hits for that library's patrons. The bibliographic record is the proper place for this information. The USMARC Holdings Format in the description and scope of the local text note limits the type of information to be entered.

Institution-specific holdings information varies.
There are libraries with non-circulating collections that prefer to keep their holdings information in the bibliographic record. *Minnesota History* is a periodical held by 36 MnSCU/PALS libraries. Twenty of these libraries have added information relating to their holdings in the notes fields of the bibliographic records. In a system based on one record, the record for *Minnesota History* would display more than twenty notes, each relating to a different library. Libraries use the notes field not only for information relating to issues held, but also format (e.g., microfilm) and shelving information, as when one title has been bound with another.

The MnLINK libraries use a variety of subject headings.
A system that will include academic, special, public, and school libraries will need to accommodate all types of subject headings. A single record based system would make it impossible for an individual library to implement authority control. In order to have authority control, all 50+ participants must be committed to it, must have an understanding of it, and must agree on the thesaurus to be used, which would be impractical in a multi-type system. Such an agreement would make it impossible for individual libraries to continue using subject headings developed locally, based on patron needs that may be contrary to authorized headings.

For example, Hill Reference Library's primary patrons are business people from the St.Paul/Minneapolis area. To improve service, Hill librarians have added the term NAFTA to their records as a subject heading. According to the Library of Congress authority file, NAFTA is not considered a subject, but is treated as a SEE reference in the name/title authority file. (The authorized heading is: Canada. Treaties, etc. 1992 Oct. 7.) So in an authority-based system, Hill Reference Library would not only lose its use of NAFTA, but there would be no SEE reference in a subject search since the authorized form is not a subject form, but is a name/title entry.

To have a single record based system with absolutely no authority control would be unacceptable to many of the libraries. At a minimum, we must have a system that would allow both authority control and local control by each library of its own bibliographic record.

ATTACHMENT 2

Minnesota Higher Education Services Office

400 Capitol Square
550 Cedar Street
Saint Paul, Minnesota 55101

Telephone 612 296-9665
800 657-3866
Financial Aid 612 296-3974
Fax 612 297-8880
E-mail info@heso.state.mn.us
World Wide Web http://www.heso.state.mn.us/
Gopher gopher://gopher.heso.state.mn.us

For the Hearing Impaired:
TTD Relay Metro 612 297-5353
Non-Metro 800 627-3529

April 29, 1997

Ms. Cynthia Lazzara
Account Manager
Data Research Associates (DRA)
P.O. Box 8495
St. Louis, MO 63132-1806

Dear Ms. Lazzara:

I am writing to thank you for taking the time to meet with the Minnesota delegation last February and responding to our questions regarding your products and services. The following is information that is being provided to all vendors that have expressed interest in our project.

The Library Planning Task Force and its RFP Subcommittee are currently revising earlier versions of the Request for Proposal (RFP) for both the shared integrated library system (System X) and for the Gateway System that will connect the different local library systems to the shared system and to each other. The entire planning process has been a collaborative one involving all types of libraries in Minnesota. Since last November, we have been assisted by RMG Consultants by providing advice about our process and proposed system and by participating in drafting portions of the RFP.

Simultaneous with our planning efforts both houses of the Minnesota legislature have passed bills appropriating funds for this project. The current range of funding is $12.0 - 12.76 million which is intended to cover all of the costs of implementation including: project management and administration, record conversion, training, technical support and vendor-provided products and services. The final appropriation for the project will not be known until after May 19, 1997.

The following provides a summary of our thinking regarding issues that have been raised by vendors and by members of working groups involved in the planning process:

- We expect that the RFP will be divided into the different components (including but not necessarily limited to System X and the Gateway System). While having a concern for the interoperability of the different components, we expect that vendors will be able to respond to one or more of the yet-to-be-identified components. Moreover, vendors will be able to partner with each other in responding to the RFP.

- A copy of the data provided with the RFI last fall is enclosed. Please let us know of any additional data that you would need to respond to all or part of the RFP for this project.

- A general project timetable is enclosed. We are currently in the process of identifying libraries for installation during the first phase of the project (from July 1, 1997 - June 30, 1999).

- The libraries currently participating in the MnSCU/PALS system have expressed special concern about the nature of the bibliographic architecture. While this issue is not fully resolved for the RFP, your organization may wish to be aware of these concerns. Therefore, I am enclosing a copy of a memorandum to me outlining the position of these libraries.

- The new MnLINK system must provide for the timely re-indexing of records. I am attaching the current indexing capability of two major systems in Minnesota, the University of Minnesota LUMINA system and the MnSCU/PALS system.

The Minnesota Higher Education Services Office Web Page provides updated information on the Library Planning Task Force including meeting agendas and minutes. Information and documentation on the MnLINK project can be reached through the MHESO Web Page at http://www.heso.state.mn.us/ or at gopher://gopher.heso.state.mn.us/11gopher_root:[_lptf._rfp].

Our goal is to complete the RFP by the beginning of June and to issue it around July 1, 1997. Because of our very compressed time line, we need to receive suggestions for data or other information you would need in the RFP as soon as possible, but no later than May 19, 1997.

You may contact me by e-mail (kelley@heso.state.mn.us) if you have comments or questions about the MnLINK project or process.

Again, thank you for your interest in our project.

Sincerely,

Ann Kelley

E. Ann Kelley
Manager of Programs

Attachments

For display of non-Roman characters via DRA Web2, a workstation with a browser configured to support the Unicode™ character set will be required. At this time, we have found Microsoft's Internet Explorer to offer the most robust support for Unicode™. DRA plans that the Web interface will support display of non-Roman characters by Summer, 1998. Printers used to print diacritical characters must support Unicode™ fonts.

With Taos' incredible power and flexibility, resources across the street or halfway around the world become much more quickly accessible to your library's users, since Taos tears down the barriers to resource-sharing formerly caused by diverse computer systems and the need for multilingual capabilities.

Three-tiered design, combined with incorporation of such standards as Unicode™, means that user interfaces can be customized individually – so, for example, the same library can offer an expert interface in Chinese and a child's interface in English, fully interchangeable on a single workstation. Taos can even recognize you when you log in and present you with your preferred interface.

5.2.3. Record Creation and Maintenance

5.2.3.1. All record creation and maintenance transactions are expected to occur in real time.

DRA: The system is fully compliant. Most activities of the system, such as indexing, transactions and updates, occur in real time. Applications intended for batch processing include overdue and lost item notices to patrons as well as monthly and yearly processing programs. It is also recommended that backups be run in batch daily.

Batch processing time will vary according to what jobs are being run and their sizes. However, overnight processing will not exceed six hours. These jobs may be submitted, via command file, to run at any convenient time; therefore, staff need not be in attendance.

5.2.3.2. The system is expected to support the creation of a bibliographic record, whether it is created online or as a result of data transfer from an external source, to which an order record can be associated.

DRA: The system is fully compliant.

5.2.3.3. The system is expected to store and maintain for each library its bibliographic data, including all institution specific data in USMARC format, and to display that information to each library's users on demand in real time.

DRA: The system is fully compliant.

Most System X libraries wish to preserve existing local notes and headings as well as holdings and to have the ability to continue to handle such information on an individual library basis. They also wish to have the ability to display to their patrons only the notes, headings, and call numbers that are particular to their library.

DRA: The system is fully compliant.

DESCRIBE how this will be accomplished, including but not limited to answers to the following questions. What are the capabilities of the system for maintaining local notes, headings, and holdings? INCLUDE number and size limits. How does the system handle indexing library-specific information? How does the system handle displaying library-specific information?

DRA: *What are the capabilities of the system for maintaining local notes, headings, and holdings? INCLUDE number and size limits.*

DRA supports and displays full USMARC bibliographic, authority and holdings records, including all the notes the library would wish to add. DRA Taos will support 99,999 bytes.

Copy-specific notes (displayable in PAC and/or in non-public areas) are available in MARC Holdings records. A DRA item record includes a note field unlimited to number of characters. Unlimited items can be linked to a single bibliographic record.

The support of authority sources on the database corresponds to the supported MARC authority sources including: Library of Congress Subject Headings, Library of Congress Subject Headings for Children's Literature, Medical Subject Headings (MeSH), the National Agricultural Library Subject Authorities File, the Canadian Subject Headings, Art and Architecture Thesaurus, as well as local subject headings.

The Library has a choice as to the item or holdings records that are available: DRA item records, and Enhanced Holdings records (US MARC Holdings Format).

Descriptions of the item fields follow.

Item ID This is the barcode number for this item. Each copy of a title is assigned a unique ID number. The item information displayed in the bottom half of this screen is for this copy only.

Borrower CNUM This is the database control number for the borrower who currently has this item charged. If this field is blank, no borrower is attached to this item at this time.

Shelf date	As part of the Misshelve Item program the barcode numbers of items on the shelves are scanned in order to create a barcode file. The date this file is processed is the date which appears in this category. If the item's barcode number has not been processed as part of the Misshelve Item program the field will be empty.
Owning agency	This is the six digit agency code for the owning agency of this item.
Permanent location	This is the six digit agency code for the permanent location of this item (it may or may not be the same as the owning agency).
Reading level	For nonacademic libraries, each item is assigned a reading level when it is inventoried: "A" (adult), "Y" (young adult), or "J" (juvenile).
Item statistical categories 1 and 2	The data entered in item statistical category 1 and/or item statistical category 2 will display. If data has not been entered the fields will be blank.
Next location	If this item is en route, this is the code of the agency it is routed to. If it is not en route, this indicates the permanent location of the item.
Last location	If this item is en route, this is the code of the agency that sent it out. If it is not en route, this indicates the permanent location of the item.
Notice sent	This is the date the most recent overdue notice or recall notice (if any) was sent to the borrower who now has this item.
Holding agency	This field will contain the six digit code of the location currently holding the item. It will usually be the item's permanent location, but could also be a library loan location if the item has been library loaned.
Loan out date	If this item was library loaned to another agency, this date indicates the date it was sent to that agency.
Loan return date	If this item was library loaned to another agency, this date indicates the date it is expected back at its permanent location.
Transactions	This is an historical counter recording the total number of transactions for this item. A transaction is a charge, renewal, library loan, or in-house use.

Transactions MTD	This is the total number of transactions month-to-date. This counter is set back to zero when the monthly statistics program is run.
Last transaction	This is the date of the last transaction.
Borrowed	This is the last date this item was charged or renewed.
Due date	If the item is charged, this is the date it is due.
Due hour	This does not appear as a separate field on the screen but the hour displays after the due date. If the item was charged for an hourly loan period, this is the hour it is due. A time displays in this field regardless of whether the loan period is hourly or daily. If it was charged using a daily loan period, the hour due is not taken into consideration when calculating overdue fines.
Price	This is the price of the item. The price may be taken from the bibliographic record or a default price for this material code may be taken from the Policy File. A decision is made when items are inventoried as to which price to use. This price displays when fines are assessed for lost or damaged items.
Inventory date	This is the date this item was added to the database.
Status	This is the current status of the item. The status changes as the item is charged, discharged, marked damaged, etc.
Status date	This is the last date the status of this item changed. A charge does not cause the status date to be updated.
Material	This is the translation from the Policy File for the material code of this item.
Renewals	This number indicates how many time this item has been renewed by the current borrower.
Renew limit	This number indicates how many times this item may be renewed by one borrower. The renew limit is entered when each item is inventoried.
Loan period	This is the default loan period for this item based on its material code and the borrower class. This loan period is for display purposes only. The actual loan period for the current borrower may be different. If the loan period was changed at the time of charge the default loan period still displays.

Call number This is the call number for this item, which may or may not be the same as the call number for the title record at the top of the screen.

Volume The volume number for this item will display here if a volume number has been entered.

Our support of the MARC Holdings Format is provided through our Enhanced Holdings program. The enhancement of your holdings enables both simple and complex holdings to display in detail using the full range of MARC descriptors.

The PAC display of the MARC Holdings Format record provides:

- bibliographic subdivisions for volume, copy, part and number
- captions defined for each level of enumeration
- lengthy copy-specific notes (displayable in PAC and/or in non-public areas)

In addition, use of the holdings format enables you to:

- express alternate number schemes
- display the relationship between the main bibliographic unit, supplementary material and indexes
- describe the physical format
- index call number data for searching capability

Our integration of the standard is distinctive because it includes support in the holding record of single-part, multi-part or serial-item formats, and identical display in PAC of both barcoded and non-barcoded items.

How does the system handle indexing library-specific information?

The Data Research System gives you the ability to index your bibliographic files, including all MARC fields, to meet your specific needs. These specifications will be approved by both the Library and Data Research. A standard list of recommended fields will be supplied by DRA for the conversion process.

Library specific information contained in item records (described above) is accessed directly by entering the barcode number, or by searching the bibliographic database and displaying the item linked to the bibliographic record.

In DRA PAC, searching can be done on any specific field in the MARC record, including the notes and contents fields, or on the entire MARC record. This capability will also be available in Taos staff modules.

In DRA, access points for all modules include Title, Author, ISBN, ISSN, Call Number, Subject, Original Record Control Number, LC Number, Reference/ Miscellaneous Numbers, item barcode, and Database Control Number.

How does the system handle displaying library-specific information?

Full library specific information contained in item records displays as shown above in staff modules. A brief record is also displayed in staff modules. A brief item/holdings display is used in OPAC modules. The library determines which item statuses display, or if items with specific statuses even display. Generally, along with bibliographic title information, an OPAC holdings display includes the item's call number, status, library branch location, material type, and date due if appropriate.

5.2.3.4. The acquisitions subsystem of the system is expected to utilize the system's bibliographic database and not require the creation or maintenance of a separate file of bibliographic records.

DRA: The system is fully compliant.

5.2.3.5. The system is expected to be able to receive and process electronic transmission of acquisitions data, including approval plan information.

DRA: The system is compliant except that in the future, we will be implementing X.12 EDI standards 857 Ship and Billing Notice, 869 Claim Status, and 870 Claim Response. Also, we will be implementing EDIFACT, so that our EDI module will be fully compatible worldwide.

To help you speed up order delivery while reducing costs, we currently offer DRA EDI as an optional part of our DRA Classic system (available to purchase separately). The following are available with DRA EDI:

810 Invoice
850 Purchase Order
855 Purchase Order Acknowledgment
997 Functional Acknowledgment

DRA has implemented each of the BISAC and SISAC standards listed above based on library industry specifics. The following DRA EDI module features are available:

PO and PO Acknowledgment
DRA has implemented the X12 purchase order and purchase order acknowledgment X12 standards that have been endorsed by both SISAC (for serials) and BISAC (for books). Through these standards, you are able to order both books and serials via EDI.

Address - line 2
City, State, Zipcode
Postal Code (International)

When storage facility items are returned, they can be checked in at any participating library, then routed back to the storage facility. The system will checkin the item, alert staff that the items belong to another location, and automatically assign a "route" status to the item. When items are received back at the storage facility, they can be "routed in" and filed back in the appropriate bin.

Brief holdings records for non-System X library holdings can be created. Staff can create a brief bibliographic record and attach a full item record to it. The second option is to enter the material as uncataloged items. Should the library desire to identify the item on notices, a brief author and title may be entered in the call number field in the item record. The third option is to circulate the items "on-the-fly" at charge. By scanning in an item ID number, the operator may create an uncataloged item record. When the item is discharged, the operator will be alerted that the item has been circulated "on-the-fly". If the item is to be attached to a bibliographic record, the operator will be able to link it in the item creation program.

6.4 Database Maintenance and Cataloging

This section describes system capabilities that have to do with the creation and maintenance of bibliographic, authority and holdings records, the records that comprise the catalog database. **IT IS OF PRIMARY IMPORTANCE** that the system maintain each library's individualized bibliographic data. **IT IS OF PRIMARY IMPORTANCE** that local libraries and consortia be allowed to describe how they wish their records to be handled and displayed.

DRA: The system is fully compliant.

6.4.1. Record Creation

6.4.1.1. The system is expected to allow libraries to transfer batches of bibliographic or authority records or individual records from national bibliographic utilities or vendors to a server using file transfer protocol (FTP). The system is also expected to provide a tapeload transfer capability for records which need to be input in this way. It is expected to be possible to convert, index, and load these records into the OPAC in a single command.

DRA: The system is fully compliant.

6.4.1.2. The system is expected to make it possible to (1) search for individual records or small files of records on any Z39.50-compliant server, (2) mark records(s) in the result set for import, and (3) capture, convert, index, and load marked records into the OPAC in a single transaction.

DRA: The system is fully compliant.

Ultimately the Vendor Evaluation Team agreed to move ahead with a recommendation about vendor selection for System X. It also agreed it was necessary in working with the vendors to address concerns about the system(s) chosen as development issues, which would be part of further discussion with the vendor. These might ultimately form a part of the vendor contract. In some cases this may require that the vendor partner with the MnLINK Project to provide expertise for addressing needed development.

System X Evaluation

The evaluation of the four System X vendors consisted of several elements:

1) **Presentation of the costs of each system.** VET was provided with the five-year capitalization and operating costs for each vendor system drawn from their revised "Better and Nearly Final Offers."

2) **A group exercise which outlined the important strengths and weaknesses of each vendor and provided an opportunity for VET to discuss them.** The vendors are discussed individually at the end of the report starting on page 14.

3) **An opportunity for each VET member to vote on the two or three vendor systems which should remain in the group for further evaluation.** In discussion of the results of the poll, the VET concurred with the results and identified the reasons for elimination of two of the vendors:

   VTLS presented a cost estimate for purchasing and running their system of over twelve million dollars. In addition, the development for Virtua, the system bid by VTLS, was considered to have the longest timeline of any of the System X vendors. Both the development timeline and the cost issues removed VTLS from further consideration.

   Innovative Interfaces (III) does not have an architecture which would work easily in the MnLINK environment. In addition, Innovative will be continuing to use its closed, proprietary database in its new Millenium system with the Java implementations built over it. There is no flexibility in the architecture of the system and III seemed to be the least flexible about changes needed to accommodate the MnLINK environment. These issues removed the Millenium proposal from further consideration.

   The results of this work left two vendors: DRA and its new TAOS system and the IBM/CGI-Amicus/Relais system in contention as System X vendors.

4) **An examination of the ratings of the two remaining vendors.** As with the Gateway system, members of the Vendor Evaluation Team prepared ratings for "scope and objectives" and for "vendor qualifications". The functionality ratings were derived from the Working Groups' evaluation of each vendor's system using the criteria prepared before the responses were received to the RFP. The costs of the systems were assigned points in

proportion to the five-year total cost for initial installation and operation. All scores were normalized and assigned proportional weights with the following result:

	Percent Weight	Total Points	DRA	IBM
Cost	15%	150	92	75
Vendor Qualifications	10%	100	79	72
Scope & Objectives	20%	200	114	120
Functionality	55%	550	352	297
Totals	100%	1000	637	564

In the discussion that followed, the Vendor Evaluation Team felt that the scores fairly represented the relative standing of the two vendors. Both had systems under development and both had strengths and weaknesses which tended to balance each other out. Overall DRA had more functionality, both present and planned, needed by MnLINK participants than was presented for the IBM/CGI-Amicus/Relais product.

5) **An evaluation of the trade-offs between the two systems.** At this point the Vendor Evaluation Team developed the following chart of trade-offs between the two systems to further their understanding of the critical differences between the two systems under consideration:

DRA Plus

- Virtual union catalog option, if desired.
- Better understanding of libraries and MnLINK as result of working with a variety of libraries and consortia
- Development of proposed system further along
- Other pressures to implement a tight development schedule because of outstanding contracts
- Knowledgeable staff about library issues
- Object oriented database and programming
- Model interface presented is highly customizable
- Willing to work with library industry partners to develop MnLINK solutions

DRA Minus

- Weak report writer, especially for local staff
- Not as significant willingness to work with MnLINK on specific development issues
- Question of whether timelines for development are realistic

IBM Plus	IBM Minus
• Other involvement with Minnesota projects, such as the student front-end for the Minnesota Virtual University	• Lack of clarity around partnership of three different vendors
• Locally oriented catalog allows for option to continue record structure used in PALS for local bibliographic data	• Development dates too optimistic
• "Deep pockets" from parent companies	• Not much pressure to speed development
• Able to create physical union catalog if desired.	• Poor functionality in operational modules
• Proposed, as part of RFP response, evaluation of MnLINK networking infrastructure	• Little library experience with different types of libraries
• Relational database (Oracle) and Z39.50 internal architecture	• Have no experience converting non-USMARC format data, such as patron records, serial records, item records
• IBM and CGI are very willing to partner with MnLINK on development issues	• Entire response to the RFP must be considered as a whole; individual parts were not bid
• ILL product will probably be ready sooner	
• Presented a single vendor solution for both the Gateway and System X	

The Vendor Evaluation Team agreed that by selecting DRA, MnLINK expects to have a fully functional, user friendly system available within a reasonable timeline. At the same time, MnLINK would be connecting itself to a forward-looking company with a solid track record and a visionary plan.

6) **Consideration of the issue of "preference for a single vendor."** In the RFP, Section 2.7 states, "The State would prefer to contract with a single vendor for the project, but reserves the right to split the elements of the project as needed." Since one of the vendors remaining under consideration (IBM) had submitted a proposal with an integrated Gateway and System X, the VET reviewed each of the three proposals presenting such a scenario. In all three cases there was not enough functionality in either System X and/or the Gateway to make any combined solution as viable as a solution which selected the best System X and the best Gateway solution.

System X Recommendation

The Vendor Evaluation Team recommends that the Library Planning Task Force proceed with negotiations with DRA leading to a formal contract to install their proposed TAOS system as System X for the MnLINK Project.

In making this recommendation, the Vendor Evaluation Team has identified several major considerations, which are over-arching in negotiating a contract with DRA and could cause the negotiations to break down. In addition these are conditions for which penalty or escape clauses should be written into the contract:

- If DRA is not willing or can't work with the Gateway vendor
- If DRA is not willing or can't work with the MnLINK Project in addressing certain critical functional and technical needs
- If there is a significant delay in the delivery of the product
- If there is a significant cost over-run in the product
- If there is a lack of demonstrated functionality as specified in the contract or DRA's response to the Request for Proposals
- If local data, including bibliographic data, cannot be preserved in conversion and managed functionally

In addition the contracts with DRA and OCLC need to be explicit about working together. In both cases their responses to the RFP indicates that this should not be a problem for either vendor.

As with OCLC, the Vendor Evaluation Team and its Working Groups identified specific technical and functional challenges that need to be addressed. A longer list of these appear in Appendix A to this report, but chief among the issues are:

- Implementation of a working authority control system
- Development of functionality to manage local bibliographic information in a consortial environment. A specific solution has been discussed with DRA
- Using MnLINK staff and expertise for development of needed MnLINK functionality, as appropriate

Implementation Recommendations

The Vendor Evaluation Team also reviewed the status of several other issues and wishes to make recommendations concerning them:

Physical or Virtual Union Catalog This issue requires further study that is beyond the scope and expertise of the Vendor Evaluation Team. It is clear from the vendor responses that there are cost implications of implementing a physical union catalog. What is not as clear is whether the benefits would outweigh the cost or whether creating virtual union catalogs as needed would be a better solution in the MnLINK environment. Once the vendor decisions are made, there will be a much clearer framework within which to make a decision about which kind of union catalog would be best for MnLINK.

The Vendor Evaluation Team recommends that the Library Planning Task Force request the MnLINK Steering Committee to immediately appoint a small group, which could address this issue. Expertise for this group can be drawn from the membership of the Vendor Evaluation Team and the Working Groups. The group could also rely upon materials put together earlier when this issue was considered in working on the RFP.

Follow-up on technical, functional, and development issues which still need to be addressed. The Vendor Evaluation Team was not able to consider in its evaluation many functional and technical issues in the depth required for a large project. Many of these issues are listed in Appendix A; it is possible that the vendors of choice are further along in their development in specific areas than the VET was able to ascertain in their relatively brief meetings. In addition, certain technical issues, such as benchmarking, stress testing, and determining the right combination of hardware, software, and networking to achieve acceptable response times still are of high importance.

The Vendor Evaluation Team recommends to the Library Planning Task Force the MnLINK Steering Committee appoint a small group drawn from the membership of the Vendor Evaluation Team and the Working Groups, working in parallel with the contract negotiation process, to clarify technical, functional, and development issues. The results of their work should be integrated into the contract negotiation process and shared with potential users of the Gateway and System X. In considering this proposal, the LPTF needs to understand that the group needs to be kept small because this type of evaluation may require travel to vendor or user sites.

Creation of User Groups. The Library Planning Task Force is encouraged to recommend that the MnLINK Steering Committee proceed to create a User Group structure to facilitate working on implementation issues. It is anticipated that this would be one way to carry forward the expertise brought to and developed in the process of evaluation by members of the Working Groups.

Network Assessment. An assessment of the telecommunications network environment for MnLINK is needed to determine specific recommendations to support the MnLINK environment which should be made to the Minnesota Educational Telecommunications Council and the Office of Technology. This is an issue that could be referred to the MnLINK Steering Committee.

Common Interface. The issues of creation of a MnLINK interface, and other interface issues, such as local customizations, should be referred to the appropriate place in the requested User Group structure, with the understanding that all types of libraries would be involved in the decisions in testing and implementing the necessary interface(s). Vendors should be requested to work closely with the User Group to help with interface modification, if necessary. In addition the User Group should consider involving persons who are currently doing research in interface design so that various iterations of the interface can be tested using a variety of research methods.

Communications. The Vendor Evaluation Team has concerns that communications with the staff of the potential MnLINK participants be clear about the decisions about the choice of vendors for the MnLINK system and the reasons for these choices. The reasons for the decision to proceed with recommending a vendor for System X should also be included in the communications.

To: mnscu-pals@othello.lib.umn.edu
From: Kathleen Ashe <ashe@ssu.southwest.msus.edu>
Subject: Important message—PALS catalogers
Cc:
Bc:
X-Attachments

The System X Technical, Functional Committee needs your help. In order to determine if the DRA TAOS system can accomodate the needs of the PALS libraries, we need information from PALS libraries and catalogers. Based on the information provided by you a subcommittee of the Technical, Functional Committee will assess whether the bibliographic and database structures proposed by DRA will serve the needs of the PALS libraries.

We need to know what bibliographic editing you do in order to serve the patrons and staff of your libraries. Some examples are:

1. Editing the 505 Contents field of a multi-volume individually titled set to reflect only the titles of volumes your library owns. Editing the 300 field for the same purpose.

2. Editing the 650 field in selected cases to remove the "$z United States." This Library believes that their patrons automatically assume that the items in the library have to do with the United States and specify country (and/or other locales) only when it varies from the U.S.

3. Have maintained local practices in the 440 field which may vary from LC practice.

Hopefully many of you will find much of this information in your cataloging policies and procedures manual.

We do not need information concerning specific call number practices, holding libraries or input stamps. This information is managed separately.

We will not be keeping track of which policy or practice is associated with which library, so do not be concerned about sharing what you may feel are "non-standard" practices.

Replies may be sent via email or regular mail. OCLC bib. record numbers or paper copies of records with notations would be helpful. You may also call or fax information to Kathleen Ashe. See address etc. below.

Please send the information as soon as possible. Our deadline for gathering information is Wednesday, January 20th. However if something occurs to you after that date please forward it.

Thank you for your help.

EXAMPLES OF LIBRARY SPECIFIC INFORMATION

IN THE BIBLIOGRAPHIC RECORD

1XX/7XX

For some authors, usually Minnesota authors, libraries want to add death dates to authorized heading forms.

Added entries for particular forms of names frequently used by patrons: AASHTO as a 710 for ease of searching.

245/246

Libraries make changes to 245 rather than putting the variations in a 246 field because the 245 title is the title that will display most prominently to the patron. Use of 246 enables variant searching but not a library's choice of display to the patron when display is based on the main entry.

Library changes the title in the 245 field when title is prefaced by: Better homes and gardens, Sunset, Star wars, Scholastic's magic school bus, Walt Disney's or Walt Disney presents. The original 245 is transferred to a 246 with the indicator for: at head of title. For example: 245 Better homes and gardens 75 years of all-time favorites becomes a 246 and the 245 is changed to 75 years of all-time favorites.

Library transfers title information to a series entry. 245 Travel the world. Great Britain becomes 245 Great Britain and Travel the world is a 440. (#37798034)

246 used for spine titles on bound issues that are specific to one library. "Shelved as" information currently in a 590 field could move to the holdings record but the ability to search by the title as it is used in the library will still be needed.

246 fields in media records show variations in titles from containers. However many libraries repackage media and the 246 one library needs will not be correct for another library.

300

$a For multi-volume sets change the number of volumes to reflect number owned rather than total number issued. Done for clarity rather than holdings information, so that number owned matches number in 300 field.

$a A multi-part title is issued on one or two videocassettes and a library chooses to copy onto individual cassettes. In this case the number of items changes from 2 to 6 videocassettes.

$e Accompanying materials may vary from library to library since publishers do not always advertise or ship the same materials to each library. Information in this field will vary particularly for AV items when publishers/distributors do not send same set of items to each library. Sometimes a library will choose not to keep all items issued, for example multiple copies of tests or manuals. This is also related to the issue discussed with regard to $a when libraries want the 300 field to reflect what they own.

$e Variations in use of "In container" note. This may go in the 300 $e field or in a 500 note. Libraries may choose to re-package items differently and want this reflected in the bibliographic description.

$e 1 computer disk. If library does not make the disk available to the patron or if it is accessed only through a local network or in library PC then this information may vary as will the corresponding 538.

$e item was video with teaching kit. One library owned only the video, 2nd library also owned teaching kit which was added in $e. A 500 note was also added describing items in teaching kit.

362

On serial records representing multiple formats a second 362 is used for information related to electronic version. Will be a problem for those libraries without access to the electronic version, or those which choose not to provide it.

4XX/8XX

4XX/8XX fields are often included in the LC authority files but not always. Libraries are given the option by the rules to vary how they provide access through series entries. One library chose to use a 490 0 while another library has established a 490 1 with an 830 entry. When a Library has established a series and classified it as such variations within the record will cause problems. Significant implementation issue.

Library has established a series statement for a specific collection.

Series statements in media formats are a particular problem. These series titles are less often found in the authority files. It is difficult to determine what is a series title, a variant title, or title information. A cataloger will use packaging, format and location of wording, prominence of lettering and other variables to make a determination. Interpretations will vary among libraries.

With video sets what one Library has established as a main entry another has used for a 440 (or 490 1/830).

5XX

Close captioned for the hearing impaired. A matching subject heading 650 0 Video recordings for the hearing impaired is usually used with this note. Until 1997 guidelines for when to input a new record did not address closed captioned versions. Policy had been to edit the record that matched the video in hand to include this information. This is very important information to many libraries and a unit record could reflect inaccurate information. An associated 538 note might also be needed: "to see closed captions must have special equipment or equipment made after 1993." Implementation issue.

Several libraries edit the 505 field in a record with multiple volumes, each individually titled. If they don't own all the titles the indicator is changed to 505 1 for Incomplete contents and the titles not owned are edited out.

505/520 has on rare occasions been edited to remove "offensive" language. Not reported by a K-12 library but may also be an issue for school and public libraries.

500 note fields may be important to a particular library community and not another, but every 500 in a record will appear to all. There is not an ability at the local level to control which 500's display and which do not, nor to control the order in which they display.

586 is a free-text field. A library will establish specific wording for certain awards which will be used in searching. This wording may not be consistent across libraries. Oscars vs. Academy Awards.

520 Several libraries reported that they edit this field with their patrons in mind using specific terminology relevant to their libraries. One library's edited 520 may not provided the access required by another library. Significant implementation issue.

Many libraries have edited the 555's on serial records to display only those indexes or finding aids that they have available to the patrons in their libraries.

Library Specific Information
Attachment 6
February 26, 1998

590/599 - 1

590 and 599 are fields defined by OCLC for library specific information. A unit record makes it impossible for libraries to use these fields as intended. Although these fields are not part of the USMARC format, MARBI has recognized the need for libraries to be able to manage some of this type of information in the bibliographic record and has approved the use of the $5 for Library specific information in an increasing number of fields. Although in the RFP DRA stated that they believed they could use this indicator to provide the functionality specified in the RFP, they have since stated that they cannot. (St. Louis visit, December 1998).

DRA TAOS not only cannot provide a institution specific view of an edited bibliographic record, it also cannot provide locally specific indexing. Therefore keyword search terms provided by one library in a 590/599 or a 690 will not have meaning within another library's catalog. This will destroy the integrity that libraries do try to establish and maintain in their catalogs.

A certain amount of the information that libraries now put in the 590 field will logically transfer to the public or non-public notes subfields in the holdings record. Examples of this type of note have not been listed. However as one library pointed out, there is some information that could go in the holdings record but which the library may prefer to display as a note in the bibliographic record. Libraries want to retain this option.

The 599 field is a differentiable local note which provides more flexibility than the 590 for display and searching because of the locally definable indicators and subfields from a to z. Uses libraries make of these fields will not be of help or even understandable to other libraries, yet they will apply to all.

Examples of notes:

590 A workstation PC 13 in Reference area; second disc in CD-ROM case GV 561.S6 disc 2. -- Also received examples with references to software available at particular workstations through the library's local area network.

590 Indexes the microform publications owned by XXX State University that are theses and dissertations (1949-) collected by the International Institute for Sport and Human Performance (University of Oregon).

599 MSF FY99. This note is used by all MnSCU libraries to track purchases out of special funds provided by the legislature.

599 Academic libraries enter program area information or course names.

599 MnDot report research numbers. These are input in the 599 for display purposes as well as indexing needs.

590/599 - 2

599 Minnesota State document numbers. These are input in the 599 for display purposes as well as indexing needs.

590 Clarifying information on a confusing title.

590/599 Many libraries use these fields for gift or special collection information when the items are in the general collection and not in a particular holding library or location. Some libraries specified that they preferred this

information in the bibliographic record rather than in the holdings record. There may be associated 690 entries.

590 "A local note may also be used ... to reflect something of local interest" (No example given).

590 Used for information on a print/electronic resource record that the print issues were transferred to another institution. There would be no holdings record since there were no physical holdings. Bibliographic record remains for electronic link to same resource.

Metro Community College Film and Video Consortium (MCCFVC). This is a subgroup within the PALS system which has set up a system to share film and video titles. This group makes extensive use of the 590/599 and 690 fields to accomplish this. These institutions do not interlibrary loan film or video titles. Not all film and video titles purchased by these institutions are available for sharing within the subgroup. Normal circulation and ILL policies and procedures do not provide the same functionality that this system does for the group.

MCCFVC also uses the 599 to develop metro-wide lists. 599 Women's Studies.

599 XXX State University faculty research.

When a library has multiple 590/599 fields to move to the holdings record, stuffing it all into the $x (Public notes subfield) and/or the $z (Staff notes subfield) will be a display problem. We will need a way to format the subfields so that each piece of information is easily discernable. In addition, as the MARC tags are stripped from the information when it is moved to these subfields, the library's control of the information will be lost.

Currently, when a search is made on a term found in the holdings record in the OPAC, the patron will be presented with the holdings record and will need to make the jump from there to the associated bib record.

650/651

Library deletes $x Periodicals from subject headings on titles that are not in the serials holding library so that patrons will not look for the item in the Periodical Collection. (This is a library that uses the circulation subsystem so location information is available. This practice is also used to limit searches and lists to a specific subset. More than one library reported this practice.)

For juvenile fiction Library routinely changes the subdivision Fiction to Juvenile fiction or adds this subdivision for access. SEE BELOW

Library deletes the following subdivisions: Juvenile literature, Juvenile fiction, Juvenile poetry, Popular works, Miscellanea. Also deletes ",American"

Library removes $z United States except when it is followed by a subdivision that requires the additional qualification, i.e. foreign relations.

Some libraries use Audiobooks, some use Talking books.

One library needs: Spanish language materials – Bilingual–Juvenile literature. Another wants to edit this to Spanish language materials.

On a record with two similar subject headings library will remove 650 0:
650 0 Lipizzaner horse $x Juvenile literature
650 1 Lipizzaner horse

Library creates geographic headings not found in the LC subject authority file according to LC subject heading practice. Codes these 651 04. This may not be a problem but all libraries will need to come to a consensus on these practices.

"We do edit 650 fields" examples were not given but library was not referring to adding additional 650's. That practice was listed separately.

Library adds $x Study and teaching to materials in library's curriculum text collection. Library understands that this is non-standard practice.

Library uses MESH headings, deletes LCSH.

Library uses only LCSH and LC Children's subject headings, deletes MESH and NAL subject headings.

Currently DRA TAOS cannot limit subject headings that display in the library's OPAC by indicator. If a library chooses to display 650's it receives LC, NAL, MESH and Children's.

690/699 - 1

With hypertext links in the subject fields the problem created when every library's 690 resides on one unit record is acerbated. Within the establishing library's catalog a 690 will have meaning and consistency. When it appears on a title held jointly with another library, the patron in the second library will be mislead through the hypertext link. DRA TAOS cannot deblind subject headings within a library's OPAC. While this situation will occur with any subject hot link, the frequency of occurrence will multiply with 690's.

690 Internet resource. This is a subject access point used by many but not accepted by all libraries. In addition it will be a false indicator for those cases where electronic access is provided on a serial and/or monographic record and the library does not provide access.

Though this usage is now obsolete, OCLC used to define this field for serial subject headings. We have many old serial records which still reflect this usage. Implementation issue if decision is made to go with unit record and drop 690's).

Benedictine/Catholic subject headings

Many libraries have used for special collections and/or gift collections.

Special libraries have use this field often to provide searching methods specific to their collections and patrons:

Consultant's report
MPCA
Advanced transportation systems
NAFTA

Used to build reading lists relating to specific programs within an institution or a group of institutions or by interest area:

BUSINESS
Economics
Journals

In addition to Internet resource, terms used to track specific forms:

CR-ROM	French material
Software holdings	Periodical TRM

Several libraries responded that they added non-LC subject headings in 690, but gave no other information.

Used for faculty publications, theses, and in the case of Minnesota authors.

690/699 - 2

Citations for mandated reports, written in standard legal form.

For each LCMR report, the library also includes citations to the law that funded the report. It may not technically be a "mandated" report, but the libraries have come to depend on having this citation in the catalog record.

Examples:

690 Minn. Stat. 270.067 Subd. 6(b)

690 1980 Minn. Laws Chap. 265 Art. 1 Subd. 4

690 1980 Minn. Laws First Spl. Sess. Chap. 1 Sec. 2 Subd. 5

If a report has more than one cite the libraries use multiple 690 fields, one for each cite.

856

This field resides in the bibliographic record, although DRA has plans to support it in the holdings record as well. It presents significant problems on a unit record for a print version of a serial or monograph when there is a link to an electronic version. A library may need to remove 856 links if there is a cost for the electronic access or for other local restrictions. A record may have multiple 856 links to a press release, HTML form, PDF form, etc. One library may choose to provide access only to the HTML form, another library may want to provide all links.

856 can vary for each library when dealing with paid-for titles. A web resource may be accessed free for its Table of Contents by any one at one site. Full access may be at other sites and these can be numerous depending on what vendor is being used to access the title.

Many state publications are now available in both print and electronic form. A Library with a limited number of PC's for patron use wants to limit their patrons to using the print version so that their PC's will not be used as readers.

760-787 linking fields

767 links to microform records from print records may be a problem for libraries that only own the paper.

Variations in ways to handle supplements and related titles. One library may prefer title on one record with supplement noted in 515 field, another may prefer separate records.

Library used 785 00 to provide access to journal title when two disparate journals were bound together in one volume.

FIELDS AUTHORIZED FOR INSTITUTION SPECIFIC ENTRIES IN THE USMARC BIBLIOGRAPHIC FORMAT

(Subfield $5 : Institution to which field applies)

246 Varying form of title

500 General note

501 With note

(Not in field 505 however this field has indicators which allow libraries to specify Partial contents (only selected parts are listed) or Incomplete contents (library does not own all)

506 Restrictions on access note

540 Terms Governing Use and Reproduction Note

541 Immediate Source of Acquisition Note

561 Ownership and Custodial History

562 Copy and Version Identification Note

583 Action Note

584 Accumulation and Frequency of Use Note

585 Exhibitions Note

655 Index Term–Genre/Form

700 Added Entry–Personal name

710 Added Entry–Corporate Name

711 Added Entry–Meeting Name

730 Added Entry–Uniform Title

740 Added Entry–Uncontrolled Related/Analytical Title

880 Alternate Graphic Representation

Local Data Issues: Another Viewpoint

Note: The following attachment provides an alternative viewpoint on some of the issues in the report provided the Task Force on Local Record Issue. Although endorsed by some of the members of the Task Force, it does not represent either a consensus view of that Task Force or of the System X Technical Group. The System X Technical Group had a chance to comment on the attachment; these suggestions were reviewed. Suggestions which clarified the issues or corrected errors of understanding were incorporated into the document. The resulting work has been included in the System X Technical Group report to provide a more complete history of the work of the Group.

There is an assumption throughout the formal report of the Task Force on Local Record Issue that the need for full local autonomy is simply a given. This itself makes the problem virtually unsolvable by tying too many complex questions into one and leaving very little room for negotiation, innovation, and compromise. The list of reported local practices discussed at the task group's meeting was very useful, in that it made it possible to differentiate between kinds of problems, and to propose a range of solutions, e.g.,

- moving some local notes to the holdings record;
- accepting some kinds of variation within a single database;
- setting up a separate database to accommodate records built to the standards of a different community (e.g., school libraries);
- establishing consortial policies on the use of local data fields in System X bibliographic records.

To say that there are "local practices which cannot be accommodated in the structure proposed by DRA consisting of a unit record, holdings record and item record" oversimplifies and underestimates the array of solutions implicit in the DRA Taos system that can accommodate the differences we are dealing with.

The report's interpretation of national cataloging trends focuses too narrowly on a single, atypical system (OCLC, a bibliographic utility), and on a few developments like the authorizing of subfield 5s in the bibliographic record. This misses larger, countervailing trends. The development of MARC Holdings, a whole new record format, is evidence precisely of the desire of the larger library community to move local data off the bib record to its own, location specific record structure within local systems. OCLC does not use the holdings format, but this is due more its unusual role as a bibliographic utility and its heavy investment in past practices than to national trends. The newer integrated library systems such as DRA's Taos and Endeavor's Voyager, recently purchased by the Library of Congress, do implement the MARC holdings record, which provides an alternative and arguably better solution to the problem of maintaining many kinds of local data in the catalog.

The list of local practices which libraries have reported makes clear the biggest problem with local library "autonomy." Some of the practices cited are problematic. Though they may be functional at a purely local level, in the larger context of regional and state library use they misrepresent works, misinform library users, and make it more difficult to move from one catalog to another. The legislature is interested in using MNLINK and System X to establish a broader base for resource sharing in the state, and this will inevitably benefit from greater adherence to standards. Standard library practices are not arbitrary. They are grounded on a wide base of experience with organizing library materials and providing service to library users. To argue that consortial policy must legitimize any and all contrary local practices is to be on the wrong side of the issue of what providing good service to library users means. MnLINK and System X should promote adherence to standards and assist local libraries in finding standards-based solutions to library-specific needs, rather than promoting divergent, non-standard solutions.

SPECIFIC LOCAL DATA ISSUES

The next section responds to the field-by-field list of local data problems contained in the Task Force report. In some instances greater detail is provided than in others in the interest of clarity.

The 300 field (physical description) problems can be reasonably addressed in DRA with holdings record data. For example, partial holdings or differing local aggregation patterns can be represented in holdings 866 fields more clearly and appropriately than in the 300. Consortial policies should address the question of when and how to add "accompanying material" notes to the bibliographic record.

The multiple 362s (dates of publication/volume designation) problem is part of the unresolved multiple versions issue (i.e., how can multiple versions of a title be described and accessed by a single bibliographic record?), and not a problem specific to DRA.

The 1XX/7XX (choice of main entry) problems can be reasonably addressed in DRA with cross references and public notes in MARC authority records.

The 245/246 (title/variant title) problems vary between cases over which good catalogers might disagree over but could come to agreement, and cases where local practice is clearly contrary to basic cataloging rules. The latter should not be encouraged. Also, note that the $5 subfield has been included in the 246 field, so the consortium could easily agree to accept local 246 binding titles, for example, flagged $5 for the holding library. DRA's inability to implement selective search and display based on $5s doesn't mean that $5 might not have legitimate uses in a shared DRA database.

The 4XX/8XX (series) issues need to be addressed at a consortial level. It's true that a unit record cannot accommodate differences over whether or not to trace a series. But a consortial policy to generally trace series (which is in line with the national policy on series tracing promulgated through NACO and BIBCO) could resolve many of these problems. Series authorities could also be used to resolve many of the problems with variant forms of a series title.

The closed captioning problem could probably be handled during conversion, using data currently present in the bibliographic record (including PALS correction records) to determine whether to load the record as an uncaptioned or closed captioned version. If there is no way currently to distinguish which version a library holds, then this is a re-cataloging problem, and not one that DRA or conversion can solve.

The other 500-589 (notes) problems could generally be handled by a consortial agreement to prefer more information over less on the unit record. Careful conversion decisions should be made to ensure that the most complete 505s (contents notes) are retained and that unique and useful 520s are not lost. The consortium should set standards for uncontrolled terms like the names of awards in 586s to ensure effective cross-catalog searching. Censoring 5XXs should not be encouraged.

The 590 and 599 (local notes) fields will continue to be valid in DRA, but their use should be addressed by consortial policies, since they will be local to the consortium. Much of the current data in 590/599 will be moved from these generic fields to more clearly designated fields elsewhere. Reviewing the examples cited in the Task Force report:

- location of software on particular terminals could move to holdings 852 subfield z (public location note);
- general notes true for all copies of the title should move to the bibliographic record 500 field;
- notes used to track purchases by fund should move to the DRA acquisition record (required by contract);
- document numbers should move to appropriate indexable and displayable standard number bibliographic fields (024 and 027);

- notes used to make a title searchable by some extraneous, location-specific characteristic (by academic program, by special collection designation, by local faculty participation) could move to the holdings 852 subfield z.

Holdings records do not require that a physical item be held, so their fields can be used regardless of physical holdings. The cases cited where the library simply "prefers" to use a bibliographic record note do not adequately explain the reason or need for doing so.

The Metro Community College Film and Video Consortium (MCCFVC) situation is a highly improvised solution. The consortium could come up with a comparable improvised solution that would work in DRA.

The 65X (subject heading) field problems should be addressed by a consortial policy favoring adherence to the standards of the corresponding subject system. The consortium could also decide to support a number of the 690 or 650: 4: practices cited in the examples (e.g., law citations for mandated reports), since these will be valid fields in DRA, and true for all copies. DRA should be required in the contract to distinguish between different subject systems for indexing and display based on second indicators. Practices that delete standard headings or portions of headings should not be encouraged.

Some of the uses of 69Xs could also be moved to keyword-searchable fields in the holdings record, since our discussion indicated that in some cases the 69X was being used simply to put searchable terms (e.g., "Economics," "NAFTA,") in the record, and not to add local heading strings or hierarchies. In some cases, 69Xs are holdovers of past limitations on putting subject headings in serial records, which could now be recoded 65X. Form terms ("Journals," "CD-ROM," "Internet resource," etc.) should be moved to 655 fields (form/genre heading) and eventually brought under authority control.

Using the 856 (electronic access) in holdings records, rather than bibliographic records, is something the cataloging community generally is desirous of doing. The consortium and other DRA customers should work with DRA to ensure that holdings record 856s are properly displayed, indexed, and hot linked.

The serial aggregation differences (which serial title covers which span of issues) noted under 760-787 (linking entry fields) do constitute a case where different records for the "same" materials should be tolerated. The issues of marking, classifying, shelving, and record keeping for serials are too complex to permit a unit record solution across the board. However, predominant patterns of aggregation will probably emerge after the initial database is created, so that a small number of records will suffice to represent the aggregations patterns of a large number of libraries.

CONCLUSION

The discussion at the February 9th meeting of the Task Group found accommodations within the DRA system for most if not all of the problems for which there reasonably should be accommodation. The formal report of the group does not represent the range of alternative solutions and accommodations which emerged from the meeting. Contracting for System X must require the new system to meet our needs for handling MARC data accurately and flexibly; but it would be a mistake to require that the new system start by replicating our status quo. Implementing System X will certainly be complex and difficult, and converting library data for the new system will require careful attention to a multitude of local concerns. But it also promises to help us to build a stronger, more cohesive library community in Minnesota, and to provide Minnesotans with clear, consistent access to the wealth of the state's library resources.

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Appendix D

Implementation Issues

Online Catalog

1. When there are two OPAC formats to be supported in Z39.50, as is being recommended, the system administrator has to know which format the other site is supporting, and include that information in the settings file for that site.

2. The user interface design plays a large role in the ability of the online catalog to display the local collection. The issue of one or many interfaces to the catalog and how those interfaces would be designed and maintained is a significant implementation issue.

Circulation

1. A simple-to-use template to create quick cataloging records will be needed if student workers will be entering MARC data at circulation terminals when an item circulates "on the fly".

2. If an "on the fly" record is created rather than "quick cataloging" record, it will not be visible in the online catalog. This is because it must have data in the MARC bibliographic fields in order to be indexed and display in the online catalog ("quick cataloging"). OTF records, while easier to create, do not have the advantage of displaying in the online catalog, although they may retrieved in staff mode.

Technical Services

1. Depending on the amount of flexibility DRA can provide as to type of label stock used (pin-feed or laser), libraries may have to purchase new label stock and/or printers in order to print labels.

2. DRA did not supply a date for completion of the acquisitions module for TAOS. Libraries will most likely want to switch over to a new acquisitions system at the beginning of a new fiscal year. Since the majority of MnLINK libraries share the same fiscal year cycle, July-June, careful scheduling for acquisitions and accounting cut-over(s) will be required.

3, API's will be needed for some import/export situations, but may not be necessary for acquisitions. MnLINK libraries will need the ability to transfer purchase and accounting transaction data from acquisitions to local external accounting systems. This could be via an API, but more likely would be a transaction file export from TAOS that would be massaged by local programming and then entered into the appropriate accounting system. MnLINK will not want to run separate file transfers for each library every day, one for each institution. Therefore, some customized programming will be needed to batch this data together for more efficient use and transfer.

4. The purchase of any specialized equipment necessary for reading SICI, UPC, and other code will be the responsibility of MnLINK System X participants.

5. MnLINK will need to monitor possible additional costs resulting from DRA mapping of existing (historical) fund data from local systems to Taos.

6. MnLINK must develop rules for mapping call numbers in bibliographic records to corresponding holdings records.

7. In a single (unit) record environment, decisions would have to be reached by the consortium as to the defined order of tags desired in the bibliographic record.

8. In a single (unit) record environment, the consortium would also have to address the rearranging of primary subject heading to match item classification. Six separate institutions may have 6 different classifications which complicates agreements about order of subject headings.

9. Libraries will need to work closely with DRA on conversion of existing location data, particularly since some data that is currently implicit must be made explicit. E.g., when oversize "stamps" are currently automatically supplied by an automated system based on values in 300 $c, the conversion specifications must include instructions to check the 300 $c value and supply appropriate text in the holdings record. Existing location codes such as four letter OCLC holdings symbols often include multiple levels of location data; e.g., XXXX may equal Main Library, Reference Collection, Index Collection. All of these levels of location data must be considered during conversion

10. Implementing authority control in System X will significantly enhance the system's ability to present headings logically and consistently and to provide access via synonymous and related terms. To reach this goal, a series of actions and decisions are needed:

- determine the overall structure of the System X database(s) and an algorithm for merging records from contributing libraries;
- set consortial policies for authority control on new and existing records;
- contract with an authority processing vendor to update bibliographic headings on incoming ecords and cumulate shared bibliographic and authority files(s);
- contract with an authority processing vendor for ongoing processing of new headings, and determine how to monitor and support this work in libraries;
- determine how maintaining the currency and consistency of authority controlled headings will be managed after vendor process—by a centralized unit, by distributed authorizations, by a mix of both;
- establish a human network to support ongoing needs for training, communication, and decision –making among System X participants.

Implementing authority control and ensuring its continued effectiveness will be a complex process, but one that is necessary if System X is to provide users throughout Minnesota with clear, consistent access to the state's library resources.

11. Maintenance of 856 links: MnLink intends to check 856 links periodically. The checking of URL in the 856 tags could be accomplished through the use of third party software. Procedures for notifying libraries of problems with their links and for correcting problems must be developed.

12. PERL scripts for creating global changes in the database require knowledge of the Taos database and indexing structures as well as knowledge of PERL.

13. By the time the Taos cataloging module is released and implemented, OCLC will have stopped supporting Multi-drop line connections, so the requirement of a two serial port computer will no longer be required. However, an Internet connection for TCP/IP access to OCLC will be needed.

14. Purchase and use of DRANET for access to catalog copy would require working out export issues to other utilities, especially to OCLC.

Systems Operations

1. Technical staff operating MnLINK servers will need to work with DRA to determine which backup and forward recovery methods will best meet MnLINK needs. They will need to consider both system availability and data integrity.

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DRA Timelines for Delivery of Modules

Module	RFP Projected Delivery Dates November 5, 1997	Projected Delivery Dates in VET Report April 10, 1998	Notes as of February 20, 1999
OPAC	December, 1997? (assumed as part of cataloging and circulation)	Available Now	Demonstration database available 2/10/99 for review by System X Technical Group; UCLA has announced availability of the TAOS OPAC for the public during spring quarter, 1999
Acquisitions	June, 1998	December, 1998	on development schedule
Serials Control	June, 1998	December, 1998	serials check-in and claiming shown at ALA in January 1999
Cataloging	December, 1997	September, 1998	UCLA has announced availability for spring quarter, 1999
Interlibrary Loan	late 1998	1999	on development schedule
Reserves	December, 1997? (assumed as part of circulation)	September, 1998	on development schedule
Circulation	December, 1997	September, 1998	UCLA has announced availability by end of March, 1999
Media Booking	Not offered	Not offered	on development schedule
Bindery	June, 1998? (assumed as part of serials control)	December, 1998	on development schedule

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