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Selection and Use of Telecommunications Consultants for Library Automation

Introduction

Data communications for library automation systems have emerged rapidly as a major consideration for library systems personnel, automation planners and library managers. The consequences of wrong choices in data communications are at least as serious as those for wrong choices regarding automation of library operations. Libraries installing automation systems, however, must make decisions in order to operate. It is an area where libraries should seek the best available help to assist them in clarifying options and reducing uncertainties. This article will describe the factors involved in selection and use of telecommunications consultants; particular focus will be given to Requests for Proposals (RFPs) and the characteristics of telecommunications for library automation which play a part in the selection and use of consultants. The Monroe County Library System (MCLS) in Rochester, New York is used as a primary example.

Telecommunications Needs for a Library System

In 1983 MCLS, a federated public library system of nineteen municipalities, contracted with Geac for installation and maintenance of an integrated library system. Circulation and database management are the first phase with planned future phases of acquisitions, media booking and an online catalog contingent on funding. Funding for the first phase is available in Monroe County's capital program and is sufficient for purchase of the computer equipment, software rights and data communications equipment necessary to serve thirty-five libraries. Operating costs of

equipment and software maintenance for the computer system will be shared among the member libraries based on usage of the system. MCLS will pay telephone line costs for connecting the participating libraries. Under this cost-sharing arrangement, MCLS had the obligation to cover both equipment and operating costs for data communications.

The problem for MCLS in 1983 was to design a data communications network that would provide the lowest possible operating and capital costs within funds available in separate capital and operating budgets. An additional factor was the requirement that Geac agree to any added equipment, including telecommunications equipment, because of its contractual guarantee of response time. In the initial stages importance was attached to having a single supplier (Geac) be responsible for computer and telecommunications equipment.

MCLS had received from both Geac and the telephone company (Rochester Telephone Company—an independent) proposed designs for telecommunications. Geac's design, while technically sound, was conservative in consideration of response time and system performance needs; Rochester Telephone's design carried a high operating cost. It became clear that the answer to MCLS's telecommunications needs was not at hand.

MCLS faced several problems that highlighted the need for help in telecommunications:

1. lack of staff expertise in data communications;
2. lack of time for staff to gain the necessary knowledge due to the conflicting priority of planning for system operations; and
3. an apprehension about a rapidly changing area.

Regarding this apprehension, it is relevant that MCLS was pursuing a turnkey approach independent of the county's data processing center. Installation of a turnkey system does not provide the reassurance that comes from ties to a parent institution's computer services. Despite the skills and interests of automation vendors in providing a successful installation, installation of a turnkey system often jeopardizes any bureaucratic umbilical between the library and the parent institution. There may be, in fact, additional red tape attached by the parent institution.

The needs cited above were immediate and appeared soluble with a straightforward solution. They were technical and economic in nature—not political or organizational. Their possible solutions did not appear to be more than a matter of assembling the right elements to get the proper financial and performance picture. MCLS had the opportunity to address these problems because unspent funds allocated for telecommunications were available and could be used to hire a consultant.

Analysis and Substantiation of Need

Libraries may not be so fortunate as MCLS and may need to liberate funds in more direct competition with other functions. The following steps should be included in analysis and substantiation of the necessity for consultant services:

1. Review carefully the alternatives to using a consultant, or at least spending money for one. Is someone available in the parent institution? Could a local university or business provide free or subsidized consultant help? (If the help is free, will the job receive adequate attention?) Can a staff member be assigned to learn the area? Has the automation vendor been consulted thoroughly and forcefully on the issue? Have the telephone company's sales consultants been used? Has the nature of the telecommunications need been analyzed carefully to be sure the potential payback is significant?
2. Check the parent institution's purchasing authority for the procedures and limitations on hiring a consultant.
3. Analyze the library's needs by discussing the situation with people in the area who work in telecommunications. Describe the problem and solicit advice or background information. Find out what to watch for.
4. Discuss the library's situation informally with several consultants to determine if they can meet the needs. Combine this information with that gathered from area telecommunications personnel to determine if a consultant would be doing what library staff could do. Would a consultant be paid only to borrow your watch and tell you the time?
5. Remember that effective use of a consultant is time consuming and requires responsibility on the part of the library to be sure a useful product is provided.

Requests for Proposals

The most common first formal step in engaging a consultant is preparation of the Request for Proposal. It may be required by government agencies to assure equal opportunity to all prospective consultants.

Required or not, preparation of an RFP is a useful process to force a focus on goals and a definition of needs. The RFP should establish the objectives of the project, specify the results of the project (what is the consultant required to produce?), and explain what is relevant to the consultant project (what does the consultant need to know about the library and the terms of the consulting project?). As a result of the RFP, a consultant should have a sufficiently clear idea of the library and its

problems to respond with a summary of how and at what cost the consultant would address the problem.

The RFP for library automation-telecommunications should also provide basic information for any consultant who may be very skilled in data communications but unfamiliar with library applications of data processing. "Geac" or "CLSI" may not provide enough information to some consultants, whereas "interactive transmissions operating on polled block-mode asynchronous terminals attached to an XYZ/23 mini-computer" will provide a common technical ground to all.

Because the RFP is a device to communicate *unique* needs and requirements, it should be prepared without borrowing from or piecing together other documents, including other RFPs. This practice, hazardous at best in the preparation of automated system RFPs, would be disastrous due to the variables in telecommunications needs. It is, on the other hand, very useful to seek out other RFPs for use in developing a focus on the library's needs and expectations from a consultant.

Another essential aspect of achieving clear communication of the library's needs in the RFP is direct, simple and clear writing.

Information in the RFP

The RFP should include the following information:

1. *A description of the local situation and problems to be addressed.* Include the computer equipment to be used, its technical specifications, the database size, transaction types and volume as well as any other background of technical or organizational information that gives a picture of the library's current status. Remember that a prospective consultant may not be familiar with library automation or with the library.
2. *A description of the expected product.* Whether the expected product is a report, cost study, review of options, an installed system, a negotiated contract, etc., the RFP should be very specific so that misunderstandings can be avoided. Topics to be addressed should be specifically stated, as should, if relevant, topics to be omitted.
3. *A requirement that the consultant describe the work method and steps to be used.* How will the consultant go about producing the required product? To whom will the consultant talk about what? Where will the consultant visit? What status reports will be delivered? The RFP should not prescribe a work method as a condition to be met, but should include relevant factors that would help the consultant establish a proposed work method.

4. *A requirement for information on what consultant staff will work on the project—their background, qualifications, level in the consultant organization and estimated time to be spent on the project.* This information should help prove that the consultant has the ability to do the work specified as well as provide the library with a basis for judging the level of skill applied and the accuracy of the quoted price.
5. *A description of the schedule of the work, showing various stages.* The consultant should be given the option to propose an alternative schedule. The library should attempt to be flexible and realistic about its expected time requirements because a two-month delay in the schedule might enable a good consultant to accept the job.
6. *Specify financial information requirements.* In how much detail is budget information to be provided? Is a single lump sum satisfactory or is a detailed breakdown by stage and activity of the project necessary? How are variations from budget to be handled? When are payments to be issued? Specify also the method the consultant may use to determine the total fee. There are at least ten methods of paying consultants.¹ These include:

- flat fees, which are used when there is little “open-ended” work in the project—the consultant is paid X amount of dollars for the work described. Consultants may include a cushion in flat fees;
- bracket fees, which state that a consultant will be paid an amount per hour or day, not to exceed a certain upper limit. This method is beneficial to the library in case the problem definition is unclear or the project requires flexibility for adjustments during its course; and
- per diem fees could be used when the library needs a consultant on a short-term basis.

Regardless of the fee determination basis, most government or public agencies would establish a contract which fixes the terms and limit of payment.

7. *Request information on the terms regarding access to the consultant outside the confines of the specified project.* Can the consultant be contacted for information on a related matter that is not a part of the consultant’s scope of services? Will there be charges for these contacts? How are extra topics inserted into the work? Coverage, perhaps informally, of this area will help protect the consultant from feeling pressured to give free advice and help the library understand the extent to which support is available from the consultant.
8. *Describe in some way the size of the job as viewed by the library.* Often this is done by stating the maximum budget for the project; the advantage is that the consultant has a target and a sense of scope, the disadvan-

tage is that the library will see fees clustered near one cost area. If the budget figure is not used, some statement may be necessary to indicate the library's expectation of the scope of the work.

9. *Require that the consultant describe other work that is similar and relevant to the project.* The consultant should be asked to describe why and how the experience on other jobs qualifies him or her to perform well in this job. As with evaluation of a job candidate, excessive generality or lack of relevance should be viewed with caution. It may also be helpful here to ask the consultant to list particular areas of knowledge, skill and experience.
10. *A description of whether subcontracting and joint ventures will be allowed and how they will be handled.* Who is the prime consultant and who is responsible for the quality of the work? This type of joint venture arrangement may be particularly effective in telecommunications for library automation systems because of the separate knowledge required.
11. *Specify the method and process by which proposals will be evaluated, including the criteria on which selection will be based.* Overspecification of criteria will, however, leave little room for the more subjective aspects of evaluation or could lead a consultant to frame the proposal around evaluation criteria instead of the project content. In addition, overspecification could lead to challenges by unsuccessful consultants. To digress: in my opinion, there should be an affirmative attempt to specify that selection will be based on content, not volume of proposals. Proposals should indicate an understanding of *this* problem, not other problems or generic problems. Proposals should clearly show a consultant's view and understanding of the issues involved and describe the treatment, consistent with this view, of the same or related issues in other projects. As a practical matter, a consultant may be reluctant to specify a view on an issue for fear of rejection. Also, major consultants get many RFPs and have had to set up standard responses—often produced by word processors—so that time can be spent on existing projects. If a response is considered voluminously irrelevant to the RFP but chosen anyway, protection must be obtained by establishing a very clear understanding of what problems and issues the consultant is to address.
12. *Define terms that may be ambiguous, not in common use, or that relate to political or administrative units.*
13. *Describe conditions applying to any contract or other document that will be developed between the library and the successful consultant.*
14. *Establish a procedure and schedule for submission of written questions.* When the questions are gathered, list, answer, and send them out to all who received the RFP. Do not name names. If telephone conversations

are held, be cautious about giving out any information that would benefit one consultant only.

The Importance of Flexibility

Specific issues to which MCLS requested attention were the evaluation of proposed networks and suggestion of alternatives, equipment and operating costs, response time at varying levels of activity, the cost comparison of purchase or lease, the availability of equipment and service, the guarantee of support or acceptance by Geac, and flexibility for growth in functions, volume and number of participants.

Flexibility should be stressed as a basic element of any telecommunications plan, and a consultant must understand this. Flexibility is required not only for the proposed growth of functions, participants and volume on the system but also for changes in data communications methods and changes in rate structures. Integrated library systems are installed in phases; the telecommunications structure must be planned to adapt to these phases. At the same time, technology and rates are changing in a field without uniform technical standards and with fierce economic competition. Any data communications plan for a library system must include contingent strategies for adjustment at predicted phases of library system development or telecommunications charges.

After all this material on RFPs, it should be noted that an RFP may not be needed to make a good selection of a consultant. Many consulting engagements have been successful without an RFP starting them off (and probably many engagements have been made less fruitful because of the limits established by RFPs). Required or not, however, the focus on goals and needs for consultant assistance provided by an RFP is the most important aspect. Also, it should be pointed out that the RFP content as described here could require an amount of time in preparation that either the need or potential number of bidding consultants does not warrant. Be sure that the effort spent on the RFP is equal to the degree of need and that enough consultants are interested in bidding to make elaborate evaluation mechanisms appropriate.

Three final suggestions on RFPs:

1. Seek help locally in preparing it, especially if RFPs are new to you. A faulty RFP can result in a poor consulting engagement.
2. Do not over-rely on a complex set of conditions and a rigid problem statement; leave open the opportunity for unique areas of investigation and unique solutions. This openness resulted in a consulting engagement that spawned OCLC.²

3. Do not expect a lot of responses that dazzle you on every aspect of the RFP. If one does, be suspicious. Library automation data communications is a new area for library experts, an unfamiliar area for data communications experts, and a tough one for both given the volatility and high stakes in both fields.

Library Automation & Telecommunications

Some of the areas in which libraries may need telecommunications consultant help for library automation installation are listed below:

- A basic orientation to telecommunications for library automation.
- Local installation problems; rates, routes, network structures and transmission methods, locally available products, voice and data integration.
- Selection of equipment and design of the most efficient network.
- Telecommunications system management: purchasing, maintenance, monitoring of performance, cost of projections, dealing with the telephone company.
- Review of available options for telecommunications: alternate technologies and their local status for both immediate and future installation.
- Financial planning for telecommunications covering the variables in both the library and data communications areas.
- Development of models based on variables affecting automation and telecommunications planning.
- Building and space planning, including wiring of buildings.
- Analysis of automation vendors or bibliographic utilities in relation to telecommunications factors.
- Adaptation of a library automation system's capability to meet local capabilities and needs, including equipment, software and interface factors.

Telecommunications as a Local Matter

Telecommunications for libraries is first and foremost a local matter. The library planning to select a telecommunications consultant seeks expertise in a rapidly changing technical and economic field that is affected by widely varying local conditions. Rates, technical capabilities and available technologies (including alternates such as microwave) all vary depending on the local geographic area, and the "local" area's complexity and uniqueness is compounded by the variability of telecommunications factors in the parent institution and library itself.

The University of California is grappling with this problem:

The long-haul part of the network, while expensive and complex, can be implemented without overwhelming technical difficulty....

The local networks of the system are another matter altogether. At present, we are engineering special-purpose, custom solutions for each terminal cluster.... We are trying to develop a series of building blocks to handle local distribution problems, but much of the technology is only now becoming available in the marketplace....

The capabilities we seem to need have much in common with tactical military data communications systems.³

Telecommunications Beyond the Local

While local variability predominates certain aspects of telecommunications planning and installation, national developments create an unstable base. Deregulation, technical advances, economic competition, voice and data integration, local area network developments and alternate technologies destabilize yet control local level activities.

At the same time, library automation is changing rapidly. There is an increase in the number and type of systems available, many of them microbased. Integrated systems are including micros for selected functions, and the separation of systems into regional components is being contemplated.⁴

In library automation there are three major technical forces at work. *Hardware* is separating functions, making it possible to distribute functions out to local sites. *Software* is restraining that distributive tendency, particularly if large databases are to be effectively managed and used. *Telecommunications* is adding a volatility to the opposing forces of hardware and software.

Because of the complex and volatile set of factors and interrelationships described above, the selection of a consultant is difficult. The knowledges and skills for local considerations are different from those for national considerations. The knowledges and skills for telecommunications applications are different from those for library applications. Because of the rapid growth of automation system installation and the recent rise of telecommunications solutions arrived at independent of vendors, consultants specializing in this area with the appropriate mix of skill and experience are rare.

A List of Telecommunications Consultants

How can a list of telecommunications consultants be compiled? There are eleven types of consultants or consultant firms⁵ ranging from the large

firm (e.g., Arthur D. Little) to individuals between jobs. In between are medium size firms of ten to fifty consultants, small groups of two to ten consultants (25 percent of all consultants work in this size company), individuals (about 50 percent are in this group), management firms (e.g., Peat, Marwick), professionals in particular fields, internal consultants within a company, university affiliated consultants, research firms and public agencies.

Consultant names for a particular project can be obtained by advertising in trade journals, contact with local people in the field ("word of mouth"), professional associations (e.g., ALA and LITA), directories such as Gale Research Co.'s *The Consultants and Consulting Organization's Directory* and *Telecommunication Systems & Services Directory*, state library agencies, regional library networks or consortia, and the yellow pages. Major national associations include: Association of Consulting Management Engineers (New York City); Data Processing Management Association (Park Ridge, Illinois); Independent Computer Consultants Association (St. Louis); and Institute of Management Consultants (New York City). Additional names can be gathered by a review of trade journals (including nonlibrary) for news reports of other consultant studies.

Probably the most important aspect in determining appropriate sources of consultant names is the type of problem you have. Do you want to address the local aspects of telecommunications (rates, routes, supplies, local planning etc.)? Do you want to address the technical issues of the connection of a library system to telecommunications? Do you want to do long-range planning for telecommunications? The sources and geographic area of search would vary by the need you identify; a local installation problem suggests local people with perhaps little or no library automation experience; a library system problem suggests library automation experience with perhaps less experience in telecommunications (library consultants and system vendors are, however, rapidly paying more attention to telecommunications issues); long-range planning suggests a guru type.

Selection of the Consultant

Selection of the consultant involves the following steps and factors:

1. Development of an orderly system for rating consultant proposals. It should be based on the needs that have been identified and indicate the relative importance of the various needs.
2. Application of this rating system to the consultants' proposals indicating relative strength between consultants. Focus here not only on consultants' qualifications but also on the understanding of need, the

- content and relevance of the response to the needs, and the degree to which an individual, perhaps unique, project is proposed.
3. Interviews with the consultants, especially to obtain understandings on both parts of the library's needs and consultants' ability to meet them. Be careful that you do not give a particular consultant any new information of substance that is not given to others.
 4. Interview with references about consultants' performance, particularly in areas of similar problems. The consultants' statements about their prior experience should be verified.
 5. Costs and proposed budget. You should know from your parent institution the degree to which lowest cost needs are to be balanced against quality of product. Also determine from the parent institution the degree to which negotiations on costs can be conducted with a single consultant; it may be possible for a consultant to reduce the scope of services or method of inquiry to bring a proposal within a budget. (Specifying the budget amount in the RFP would tend to eliminate opportunity for this because most fees specified would be close to but under budget.)
 6. Consider any informal constraints that may exist, such as the credibility, or lack of it, a local person would have vis à vis a person from outside the area. You may need to be prepared to deal with the application of informal constraints that may hinder the selection of the best person.
 7. Trust your hunches as to the degree of confidence and rapport you can establish with the consultant. Determine how the consultant's style would fit your needs: does the consultant have a hands-off, hands-on or hold-your-hand style? Which do you want? Which do you need?

Once a consultant is selected, the library may establish a contract with the consultant. This contract will specify the product, price, schedule, and clarify other administrative matters as well as include general terms and conditions for the work. Contracts should specify the areas of investigation that must not be omitted from the project and should include by reference the consultant's proposal.

More relevant to the affirmative productive aspect of any consulting project (as opposed to the protective value of a contract) is the "psychological contract," which is an understanding between the library and consultant staff of what the parties expect to gain.⁶

Management of the Consultant Project

Two articles by Michael Malinconico do a fine job of surveying the management of consulting projects, particularly the establishment of

project objectives and communication structures.⁷ Additional considerations include the following:

1. Provide the consultant with access to the necessary people, including those specified in the RFP. The consultant and the people he is to talk with should understand the degree of authority the consultant has and the extent, if any, he can act as the library's agent. Key points of information should be documented by the consultant and by the persons providing it.
2. The consultant should be fully briefed on the relevant areas regarding the project. This is particularly important in telecommunications for library automation because a combination of extensive knowledge and skill in both areas is unlikely. Also, focus should be placed here on any local consultants or political realities that would have an effect on the consultant's possible recommendations. (These areas may not appear as obvious in advance; routine reporting sessions may identify them.)
3. Be sure no assumptions are being made in areas where the consultant may be unfamiliar. Remember you may be working with a telecommunications expert or a library automation expert but not both.
4. Determine whether the consultant is a "paper person" or a "talk person." Good consultants may not deal extensively in writing and their reports may be quite brief. If you expect a great deal of information to be transmitted verbally, you may wish to plan some way of documenting it.
5. Establish regular progress reporting times to be sure the project is on course.

MCLS Consultant Selection and Report

MCLS, in selecting a consultant, purposely chose a local expert in telecommunications with major local telecommunications contacts. The primary need was to determine the most cost efficient network that was practical to install. Prompt and straightforward handling of the matter with Geac was also a priority: we wanted the issue to be solely telecommunications and not possible Geac modifications. (That issue may come later.)

The consultant's recommendation was to take advantage of the lack in the Rochester Telephone's rates of the use of timed message units. A conventional business line will be left connected 24 hours a day at the business line monthly rate. The cost advantage over leased lines is about \$45,000 per year. Telephone company sources estimate that this rate structure will be changed in 1987, at which time the network will be changed. The benefits, other than cost savings, are the temporary "holding action"

nature of the network and the ability to install lines at the same cost regardless of library location. For these benefits, MCLS can live with dual vendors (automation and telecommunications).

Benefits of a Consultant

A consultant can provide many benefits, including the following:

1. the provision of technical knowledge and experience to be applied to the making of decisions;
2. an "insurance policy" to reduce the risk of decisions;
3. a teacher to help the library learn about its needs and solutions;
4. a catalyst for self-learning;
5. a savings in time;
6. leverage with the telephone company, suppliers, automation vendors, the parent institution;
7. a source for the resolution of disputes regarding the telecommunications components of the system; and
8. for MCLS, a plan that is flexible and adaptable.

Final Recommendations

This article has covered some of the important factors in obtaining and working with a consultant in the area of telecommunications for library automation. Some factors have applied specifically to problems that are unique to this single area of consulting, while others are applicable to all sorts of consulting ventures. Five major recommendations for libraries surface:

1. Clarify and plan for the library's needs carefully with particular attention paid to the types of consultant experience required at different stages or levels of need.
2. Place a premium on flexibility.
3. Obtain telecommunications knowledge and skills inside the library.
4. Accept the notion of "planned clutter" in automation.⁸
5. Don't expect simple and easy answers from a consultant; responsibility for decisions and results rest with the library.

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