Leadership in Uncertain Times:

Federal Librarians Envision Use of Physical Space Through 2020

A Report of the
FLICC Special Project on Planning for Library Spaces

A Project of the
Libraries and Emerging Technologies Working Group

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Executive Summary

This paper is the product of three complementary activities: a survey of librarians with interest in the future of federal library spaces; a literature review on each of the areas the survey explores; and the collective experiences of the authors of the paper as individuals facing the same challenges as their colleagues across the U.S. federal government. The result is an extensive review of issues facing federal librarians as they plan for the provision of services and collections within their own agency or department. Some of the most striking results presented in this paper include:

- A majority of respondents are not directly responsible for planning for their future physical space requirements.
- While the use of physical space will change, most respondents project that the amount of space allotted to the library will remain the same for the foreseeable future.
- Most respondents do not feel that they will go virtual (with no physical collections) in the foreseeable future.
- Respondents are maintaining two expensive systems, physical and virtual library services, to meet the functional needs of librarians and information needs of users.
- Technology is changing the relationship the library has with its customers, but it is not diminishing the need for services provided by the library.

Taking all input into consideration, the overall sense of the committee is that government agencies and departments continue to need physical library services and collections. The paradigm shift toward digital libraries has been slower in government libraries, but it is definitely occurring. The value of the physical library—and its physical collections—may vary based on the dispersion of staff (via telework, etc.,) the availability of electronic resources in the subject areas of interest; user demand for virtual services, the commitment the organization makes to information technology and training, and the integration of resources into the work of the organization. However, federal libraries as physical spaces are not going away wholesale. The changes will take time, require considerable fiscal investment, and to be successful, will take the guidance and foresight of librarians and their managers to understand how to serve the mission of their organizations.

Introduction

The Federal Library and Information Center Committee (FLICC) at the United States Library of Congress offers a unique perspective on the future of library services within the U.S. government. As a service organization chartered to assist federal agencies in meeting their library service needs, FLICC has developed a suite of tools, communities, and capabilities for addressing federal agency requirements for information and library needs. In recent years, several federal agencies have made strategic decisions to downsize or eliminate some or all of their traditional library services. These choices have forced both FLICC and its member agencies to consider the future of library services--both their traditional models and the emerging models that agencies are adopting. FLICC has conducted forums on the future of libraries and established a number of initiatives to look at its own structure as well as the challenges facing federal agencies as they consider changing their service models.

The most public of these strategic realignments has been the case of the U.S. Environmental Protection Agency (EPA.) Facing tighter budgets and having a hybrid requirement for both policy and research activities, the EPA chose to eliminate $2.5 million from its funding for library services in 2005, causing the agency to close libraries in four of their regions and in the headquarters, and to migrate a substantial amount of print journal procurements to online agency-wide subscriptions. These changes were seen by the larger library community as a reduction in support for research activities by EPA staff and a curtailment of support for public access to government information. Whether or not those outcomes were the result of the realignment, the EPA moved forward and promoted the change as an effort to make their investment in libraries more efficient and more digital. EPA perceived the changes to be in keeping with the way their internal and public customers seek to use libraries, and government information specifically, today.

Since the decision in 2005, the EPA has responded to numerous inquiries from the U.S. Congress, participated in an evaluation by the Government Accountability Office, and established a Board of Advisors through the FLICC Executive Board and FLICC/FEDLINK programs at the Library of Congress. Under a Congressional earmark, EPA is also reestablishing libraries in the three affected regions and in their headquarters office in Washington, DC. These libraries are planned on a much different scale and according to the EPA's planning documents, will leverage the resources of EPA as an agency in serving both internal and public users of their information resources.

Based on the EPA's actions as a case study, FLICC chartered a small group of library managers from across the federal government in May 2008, to survey librarians with knowledge of federal libraries. The goal of the survey was to

inform the federal library community about the sense of our profession today regarding the shape of federal library physical spaces over the next 12 years and to gauge whether librarians were planning for significant change in the coming years. The survey was intended to inform FLICC and its broader community about the trends their colleagues in other agencies are experiencing today. Is the experience at EPA a common one, or does its history and future differ from other organizations?

U.S. federal agencies and departments are almost all unique in their current models for library services. Some organizations have a strong central library service with linked branches that work together to serve their organization. More commonly however, agencies and departments have left the establishment and funding of libraries to individual bureaus, locations, or organizations. Most government organizations have come together in some way to purchase online content (subscriptions, databases, services) and have had to work out service models that license these materials either at the site, organization, or enterprise level.

This migration to online content has also included a migration to online library services. Federal libraries, like their counterparts in the corporate arena and academe, are spending more time providing traditional library services to a growing population of virtual library visitors, whether they are internal or members of the public at large. As libraries migrate both collections and services online, online counterparts to traditional library functions have been developed as well. Reference, interlibrary loan, acquisitions, collection management and preservation all have corollary functions to support the online use of information and services within organizations. Many libraries today are either performing these functions in parallel with their physical library services or they are slowly making the transition to online-only or online-first approaches.

Authors of this paper, through surveys of internal users, increasingly find a dichotomy emerging where users want more access online but they still want the security of knowing that a physical library is maintained to support traditional approaches to research. Many libraries are already making the choice to purchase or lease some resources in online-only formats. With the recent announcement by the American Geophysical Union that it will no longer print its scientific journals as of 2010, the assurance of comprehensive physical collections will be essentially impossible in the earth and natural sciences. The model for federal libraries has changed inherently today. This paper was written to explore how librarians feel about the changes to date and what may be to come.

Methodology

This paper is the product of three complementary activities: (1) a survey of librarians with interest in the future of federal library spaces; (2) a literature review on each of the areas the survey explores; and (3) the collective experiences of the authors of the paper as individuals facing the same challenges as their colleagues across the U.S. federal government. Taken together, these three inputs have resulted in a paper that is meant to inform and advise FLICC and the management of federal libraries at large. The results of this survey should be viewed simply as the collective wisdom within the field today. The sample provided is self-selected and was not drawn from any known population of librarians within the federal government today.

Responses were solicited via e-mail from members of active listservs (see list below) known to include librarians currently in service in federal libraries. There were 205 responses to the survey with 78 percent (160) of that total fully completing the survey. The survey also accepted input from respondents that had no experience working in federal libraries (16 percent, or 32 respondents). This was determined by their responses to Question 1 (*Do you now, or have you ever, worked in a federal library?*). Respondents that answered "yes" were directed to Questions 2 through 4 which asked for the types of federal libraries with which they had been associated. Respondents that answered "no" were directed to Question 5 (*In what types of libraries have you worked?).* All respondents were asked Questions 5 through 28. The responses can be filtered by federal or non-federal respondents.

List of e-mail listservs and Web sites utilized to solicit respondents:

- Federal Info-Pro Blog (Lexis-Nexis)
- Fedlib-l (FLICC)
- Fedlink-l (FLICC)
- DGI-l (Special Libraries Association)
- Military Librarians (Special Libraries Association)
- Tranlib (Special Libraries Association)
- SLA DGI blog (Special Libraries Association)
- GovDoc-l (American Library Association)
- FAFLRT-l (American Libraries Association)

Wherever possible, respondents were offered a "don't know or not applicable" option as well as an option to select "other (please specify)." These options were analyzed by the authors to determine if the question was poorly worded, left out an option preferred by respondents, or reflected a bias on behalf of respondents, Respondents were also given an opportunity to provide information that was not solicited through the question as written.

For example, Question 4 (*In what type of federal libraries have you worked?*) provided a list of types of libraries defined by responsibility level. Thirty-nine percent of respondents (65 of 173) chose to answer “other (please specify.)” Many of the written responses included types like “*sci/tech*,” “*medical*,” and “*law*” libraries. Librarians of these specific subject collections should also have been able to categorize their type by responsibility level but chose not to do so. Valid “other types” included “*cooperatives*,” “*federal information centers*,” and “*government depositories*.” Such issues are addressed in each section of this paper and it is noted when they could be analyzed to reflect a stronger preference for one of the stated options.

Demographics

As noted in the Methodology section, this survey targeted librarians with experience working in federal libraries. Eighty-four percent of respondents (173 of 205) had worked in federal libraries at some point in their career. Of those with experience in a federal library, 46 percent (77 of 166) had experience as a manager/director. Twelve percent (20 of 166) responded with “other (please specify)’’ and of those, half (10 of 20) indicated they were in some way the sole manager/director. Responses fitting the “manager/director” category also included “*solo librarian*,” “*in charge of creating/maintaining a Virtual as well as a Physical library*,” “*Head Librarian*,” “*Chief Librarian*,” and “*Contractor retained to manage library.*” Correlating these responses to “Manager/Director” increases the number of manager/directors responding to the survey to 50 percent. Other selections with significant responses included reference librarians (13 percent, or 22 of 166), and department heads (11 percent, or 18 of 166). Seven respondents skipped the question about their roles in federal libraries.

Fifty percent of respondents with experience in federal libraries (83 of 167) had more than 15 years of experience working in federal libraries, with 25 percent having 5–15 years of experience and 26 percent having less than five years of experience. Six respondents skipped the question about their length of service in federal libraries. As an example in the Methodology section, Question 4 (*In what type of federal libraries have you worked?*) was confusing for respondents. Thirty-nine percent (65 of 168) chose to write in their response, citing different types of libraries, some of which correlated with the types offered and many chose to define their type by the subject matter of their collections. The authors discussed this issue at length and concluded that overall, federal libraries are not often clearly defined by their responsibility level and this issue may prove to be a challenge as future physical library planning is conducted. If libraries are not clearly defined by both responsibility level and subject scope, their librarians may choose to retain physical collections beyond their defined scope and structure. The lack of clarity could be one cause for overlap and duplication within agencies and departments and could be a barrier to sharing collections and services. As physical libraries change to address current realities, they must be able to define their scope (in both collections and responsibility) in a way that is clear to potential user populations. The responses to this question demonstrate that agencies and departments do not themselves have a clear handle on how they meet the current information and library service needs of both their internal and public users.

All respondents were asked to characterize the type of libraries in which they had worked. These types were more traditional in that they were defined by the type of institution served—public, academic, and special (including federal.) Eighty-four percent of respondents (141 of 164) stated that they had worked in special

libraries. Nine percent (15 of 164) chose the “other (please specify),” with some of those also duplicating the options listed. Twenty-five percent (41 respondents) chose to skip this question. As a class, Federal libraries suffer from being defined by many criteria. Libraries in federal government agencies and departments are often defined by whom they serve. Classes are distinguished by their scope (e.g. law, medical, scientific, policy); they are separated by their audiences (e.g., national libraries, department or agency libraries, internal support libraries, public support libraries and information centers), and they are further classified by the type of library they emulate (e.g., base libraries that act as public libraries to military staff and their families, medical libraries serving federal hospitals and doctor/patient populations, academic libraries serving federal educational activities from base schools to graduate university programs.)

These various “types” may lead to confusion of library decision-makers who are unsure what external models they should be looking for when planning their future physical space needs. For example, medical librarians do not traditionally consult historical literature. Some analysis suggests less than 25 percent of citations in current medical journals are more than 10 years old. Therefore, a federal medical facility may choose to store back issues remotely or even discard older collections in favor of borrowing older materials through the National Library of Medicine or other available sources. If, however, a federal medical facility views its collections as valuable to the community which it serves, it may choose to retain those materials in order to provide public access to them. Similarly, the department or agencies that maintain medical center libraries should determine the status of their individual medical center libraries as either independent entities or branches of a comprehensive system. These policy determinations are the foundation upon which departments can make sound strategic decisions in the future.

Question 6 (*How many individual customers does your library serve?*) sought to determine the size of the libraries from which respondents drew their experience. Thirty-eight percent (61 of 161) had experience in libraries with a customer base of between 100 and 1,000, and 34 percent (54 of 161) had experience in libraries with a customer base of between 1,000 and 5,000. The authors chose not to define “customer” but did consider options for definitions. Since federal libraries draw their customers from both internal and public populations, it may have been difficult for respondents to select an answer that represented the full scope of their potential customers while still reflecting the number of customers to whom they actually provide direct services. Most federal libraries are structured to provide a full range of support for internal research and/or policy staff while supporting public requests for information and providing library service to the public as an ancillary function.

National libraries often have explicit requirements to serve public users while most federal department and agency libraries do not have any language in law or policy that requires that they offer services to the public. However, as

demonstrated in the reaction of Congress to the EPA's approach to realignment, some level of support for public access to federal library collections is at least implied simply because federal departments or agencies acquire collections with tax dollars. In contrast, U.S. Department of Energy national laboratories have ceased support for public access in recent years, citing the nature of their collections, which are maintained by contractors in direct support of federal research activities and not for public use.

Question 7 (*Where are most of your library's current customers located?*) was intended to determine how many of the libraries in which respondents had experience were serving significant populations away from the physical library. Forty-three percent (70 of 163) primarily serve populations that are co-sited with the physical library while 31 percent (51 of 163) served populations that are dispersed across a wide geographic area. The authors see a significant dichotomy between potential approaches to the future of physical libraries. These differences are based on where the customers of the libraries are actually working.

With increased support for teleworking in the federal government (see Question 8 in the Planning section), the potential is great that the physical library would see fewer and fewer of its core customers visiting the library. These considerations should drive the provision of services like reading tables, access terminals, Internet connections, and physical collections. They should not, however, be used to determine the number of staff the department or agency allocates to meeting the demands of customers. With the dispersal of customers, libraries may see an increase in requests for document delivery, research support, and acquisition of electronic resources available to staff working remotely.

The volume of requests and the complexity of acquisition and maintenance of online services often require as many, if not more, staff than the formerly active physical library. Likewise, maintaining a physical library while serving a growing population of remote users requires that these activities are done for both populations. This can potentially require both more staff and staff with new skills than those required in traditional physical library functions. Demand for services and usage statistics should drive decision-making about the size, shape, and focus of staff within department and agency libraries whether they are traditional, online, or a hybrid of the two.

Planning

***Summary*:** The survey included a number of questions focused on the activity of planning for library services within federal agencies and departments. Overall, survey respondents felt that librarians have a proactive role in library planning, though final decisions are often made above the library's level. Respondents' advice for other librarians included being flexible and adaptable to change, actively marketing value-added services of libraries, and diligently pursuing continuing education opportunities to enable leveraging of new technologies in library services. A majority of respondents felt that staffing levels in the future would be stable and that new technologies would require the same or more space in the library, not less. The planning process must also take into account consortia or cooperative activities that could leverage the increasing costs of print and online services and other resource costs, and include consideration of continuity of operations in the event of disasters and other world events.

A key question in this regard was Question 27 (*What recommendations would you offer a librarian trying to plan for the future?*). The intent of this question was to see how colleagues are doing regarding their own planning and what suggestions they have for their fellow librarians. Within the 104 responses answers often overlapped, with the most popular being "*open*," "*adaptable*," and "*listen*." Networking and collaborating with colleagues to exchange best practices and ideas was also included. Respondents advised their colleagues to be proactive and to have a 3–5 year strategic library plan in place. They also suggested that library managers reevaluate the mission of the library and define its users and their needs; balance the needs and mandates of the library (e.g., repository, preservation) with the available budget and staff; and expand the role of librarians beyond the library and incorporate their services into the agency workflow.

A major emphasis was placed on marketing value-added services along with documenting the benefit of library usage to the organization. For example, the number of new patrons may be an important library usage statistic. By working with HR, the library can be part of the orientation process when new employees are hired. It is very important that an organization knows that its library is necessary and essential to the mission of the agency. Management support and buy-in is critical. It is important to identify the key decision-makers within the organization who support the library and to develop strong working relationships with these people. Some ideas from respondents were that librarians should (a) leave the library to reach these people in their offices; (b) participate in agency events such as health and diversity fairs; (c) have a library booth and advertise the tools (e.g., databases, training, ILL, etc.) the library has to offer them in their professional life; and (d) personalize the library by talking to patrons and making it a social/community resource.

Regarding physical space in the library, respondents felt that as technologies change, more space is needed because the library would attract more people, thus adding more computers and access. Libraries themselves can provide a quiet ambiance where patrons can work away from noisy cubicles. It was also expressed that one can never over-plan for technology. Library staff should keep up-to-date on new and advancing technologies in order to teach their patrons.

When addressing limited funding and increased costs due to rising cost of living, working with consortia to lower costs is important. There should be a good mix between traditional and electronic services. Online serial access versus multiple print copies can save thousands of dollars. Another useful tool is working across--and with--agency divisions to achieve a win/win situation. A static library budget does not mean that other divisions are facing the same constraints. Librarians should find out what other divisions' needs are and work with them to meet those needs through methods such as hosting services on the library Web site; buying content through FEDLINK or other consortium agreements; and allowing the divisions that need the content and services to pay for them. This demonstrates the critically relevant nature of library and information management skills and increases the awareness and visibility of library services.

Question 28 (*In the past couple of years what changes have occurred in your library that have impacted your responses?*) generated 117 unique, very personal answers, which all seemed to fall under five categories: "lack of funding"; "closing or downsizing of the library"; "reductions in staff"; "lack of support from management (above the library)"; and "movement toward more online digital resources which also involves training the users."

None of the answers were surprising as all are aware of what is happening in the library field. Therefore, the question is, "What can we each do in our own role and as a collaborative unit to find viable solutions?" The future of federal government agency libraries will be determined by the extent to which they amplify the mission of their agency at both a national and international level. This must be understood and proven to upper management from the agency director on down. The key is to be proactive and market the library and services **before** "the hatchet comes down" on budget, space allocation, and staffing. Question 27 addressed the needs for marketing and other advice to fellow librarians.

Table 1 summarizes responses to Question 11 (*In thinking about your library's future, what are your projections for library funding?*)

Table 1. **Respondents' Projection of Federal Library Funding Through 2020**

Funding will increase	16 percent
Funding will be stable	59 percent
Funding will decrease	18 percent
Other	7 percent

"Other" explanations included six "*don't know*" responses, two "*stable, but administration and the Iraq War will have an impact*" responses, one "*decrease due to mission being narrowed*" response, and one "*decrease due to fallout from an A76 (outsourcing) study*" response. Even though 59 percent (100 of 170) of respondents projected that library budgets would be stable over the next decade, the authors do not feel flat funding is actually a stable investment in libraries. One agency has had the same budget for six years, but that means the agency library's budget has not kept pace with inflation for materials and services. In general, even if budgets do creep up, they still lag behind inflation.

Question 12 (*In the future, what staffing level do you predict for the following roles?*) elicited some interesting and unexpected responses. The designated job roles listed included a variety of both traditional and nontraditional library staff titles. The choices were "more," "the same," "less," or "don't know or n/a." The majority of the 169 respondents felt that staffing would remain the same; 75 percent manager/director, 56 percent cataloger, and 56 percent reference librarian). The leading roles where respondents projected additional staffing included embedded librarian (17.7 percent), Internet librarian (22.5 percent) and systems librarian (18.9 percent). This follows the trend of increasing electronic and IT services.

One important issue is that information is changing. Electronic information is more like software than traditional paper publications. Keeping track of changes in online information (i.e., serials) and connecting URLs has become increasingly more time consuming. As the switch to electronic access increases, new professional roles are emerging: the Webmaster, Internet librarian and electronic resources manager. Webmasters are important gatekeepers and managers. Internet librarians are part librarian, part publisher, part designer, and part computing professional. Electronic resource managers play the important role of linking users to resources and maintaining an ever-changing list of access controls, permissions and protocols.

Other responses included several solo librarians who expect staffing to remain the same. One library will have fewer contractors. Another is moving and merging with a larger library, and is in the process of evaluating whether it is more convenient to upgrade today's library technician positions to librarians because of the changes in services and resources. These organizational changes are not new to the shifting landscape today. There have always been solo librarians and there have always been mergers, splits, and shifts between contract and federal workforces. The challenge today seems to be managing both the paradigm shift to electronic resources and the ongoing organizational change that federal libraries have always faced. Dealing with these two forces together is a new type of challenge for federal librarians.

Question 9 (*Are you involved in the planning process for the future of your library?*) was designed to determine exactly how influential librarians are in

decision-making about their library's future. Sixty-three percent (109 of 172) replied "yes," 22 percent (37 of 172) replied "no," and 15 percent (26 of 172) replied "other." The majority of the respondents felt that they could offer suggestions, recommendations or input. Their authority was limited to the policies and everyday management of their particular library, or to a branch of a larger agency or department library. In sum, librarians were not the final decision makers.

Question 15 (*Who in your agency is responsible for making decisions about space allocation*s?) ties in with the previous question. There were 151 answers, with 54 skipping the question. The most amazing finding was that 18 respondents were "unsure"! Quotes included "*It seems to depend on the day of the week*," and "*One of the mysteries of life*." Authors of this study were concerned that no one was taking ownership and that librarians did not have a voice in the planning process for their libraries. Federal librarians often appear to assume that they are powerless to influence and shape events, a fact reflected in these 18 libraries. There are, however, prominent and notable exceptions: both Los Alamos National Laboratory and the Naval Research Laboratory are helping to shape their futures.

On the other hand, 22 percent (33 of 151) of respondents noted that their divisions and chiefs or directors of the agency were responsible for making decisions about library space. Forty-one responses indicated "management and administration within the agency". "Facilities" accounted for 20 responses. "Library directors" accounted for 10 replies. "Logistics" and "space committees" filled in the rest. It was pointed out that many of the decision makers or committees did not even use the library or have a stake in its success or in its future. Knowing who decides is obviously the first step in influencing the decision.

In Question 14 (*Have issues about space been considered in your agency's COOP, Continuity of Operations Plan?,)* 36 percent (60 of 167) of respondents reported "yes," 16 percent (28 of 167) said "no," and 48 percent (79 of 167) responded with "don't know or n/a." The George W. Bush Administration put the COOP into effect for the first time directly following the September 11, 2001, attacks. Library colleagues indicate that federal government agencies each have their own COOP, and the library is considered a part of the larger agency. FEDLINK chartered a planning committee in 2008 for disaster planning in libraries. Products from this committee will be helpful indeed for all government libraries, or any library for that matter. Most academic libraries already have specific disaster plans in place. Some helpful Web sites include the following:

<http://matrix.msu.edu/~disaster/sampleplans.php>
<http://en.wikipedia.org/wiki/Continuity_of_Operation_Plan>
<http://www.nextgov/com/the_basics/tb_20080623_2687>

It should be noted that while federal libraries need disaster plans and should be prepared for any disaster that could affect their collections and services, disasters are not the only contingency the library should consider. Librarians should also think about and plan for the role the federal library would play in response to a tragedy affecting the nation. After September 11, 2001, many agencies found critical resources through their agency libraries and were able to respond to the tragedy quickly and effectively thanks in part to their library resources. The EPA opened its Regional Library near Ground Zero as a resource center for victims of the attack to access information about air quality and the health effects of exposure to particulates; the library also served as a resource center for applying for government assistance. Federal libraries must prepare for their own challenges and be a part of their organizations' preparations in case of an emergency both inside and outside their walls.

The issue of planning was summarized perfectly by Patricia Cruse on behalf of the Education Committee of the American Library Association's Government Documents Round Table (GODORT): "The question is, 'How can government information librarians best take advantage of the challenges in our profession?' First and foremost, there is a need to reaffirm our values and recognize that our goal of providing access to government information remains the same. How we most effectively achieve that goal requires that we:

- educate ourselves in the use of new technologies.
- recognize our changing patron base.
- develop new instruction programs to facilitate patron success in an online environment.
- take advantage of the skills and expertise of colleagues.
- shift our energies from providing access to the physical collection to an online collection.

In order for real change to take place, all government information librarians must be able to take advantage of new technologies. For this to be achieved, continuing education opportunities must be available to all."

This was presented by GODORT on March 15, 1999, and still holds true in 2008!

Physical Space

***Summary*:** Librarians were asked to project their library's physical space needs and space usage more than a decade into the future. Overall, respondents predicted that physical space would remain static or grow, but the missions and functions of libraries are expected to transition to accommodate growing collaborative, meeting, and community requirements. Many interdependent factors will influence the transition from traditional library to a more dynamic, collaborative workspace. Existing space would increasingly be repurposed. Collections would continue to be a critical component of libraries, but the traditional library providing databases and print materials on shelves will become a less common entity.

But there is no evidence that the end is near for the traditional library, with print collections and trained staff. Rather, 88 percent (140 of 169) of respondents expect their libraries to remain in existence for at least the next five to ten years. Only 3 percent (5 of 166) of librarians predicted that their libraries would close completely.

Square footage in federal buildings is relatively expensive, making it a front burner concern for many. The majority of respondents (56 percent, or 94 of 166) expect their physical space to remain static, but usually at the cost of collection loss—the need to squeeze growing or consolidated collections into a static space. Although the typical response has been to implement digital collections, few librarians expect full virtualization within the next ten years. Librarians expecting imminent expansion or downsizing were evenly divided--13 percent (22 of 166) in each case.

Space issues have been a prominent driver of change in libraries in the last ten years. When asked what changes have occurred in their physical libraries in the last ten years, 59 percent (91 of 153) report that gaining or losing space was a primary issue. Forty-five percent (69 of 153) of respondents lost space and 14 percent (22 of 153) gained space.

How do libraries expect to use their space in the future? On average, almost half of the 165 respondents to this question expect no change in the next ten years in the way they use or configure the following library spaces:

Table 2. **Respondents' Expectation Not to Change Configuration or Usage of Space**

Space	Number of respondents	Percent of respondents
Patron work space	76	46
Public access space	73	44
Shelving storage space	81	50

Sixty-one percent (101 of 165) of respondents report that staff work space will probably remain at current levels indicating that staffing levels are not expected to change significantly by 2020. Twenty-five percent (41 of 165) of respondents expect shelving space to decrease. However, 76 percent (125 of 165) of librarians expect the need for collaborative and meeting space to increase. These changes indicate a solid trend toward conversion of shelving space to meeting space.

Libraries have a reputation for being quiet places, conducive to thought or collaboration. Because of this reputation, and because of widespread use of cubicles as offices and an apparent premium on conference rooms throughout the federal government, libraries have become the meeting spaces of choice. Librarians are working to accommodate their customers. But as it becomes more critical to dedicate space to meetings or collaborative areas, complex and interdependent issues arise.

As the need for collaborative space increases, libraries are experiencing competition with other offices in their organizations for finite floor space. When asked about the top three issues facing federal libraries today, a total of 231 items were listed. Of those, 27 cited competition for floor space within the organization. An additional 37 cited the need for shelving space as a top concern and are already working to consolidate, weed, or otherwise fit collections into existing or diminishing shelf space. To accommodate the need, librarians are making value judgments on retention of print collections by decreasing the floor space occupied by shelving, installing compact shelving, reducing collection size, and introducing digital versions of publications. Creation or acquisition of digital collections has slowed the pace of growth for these physical collections. But digital collections are costly and librarians expect budgets and staffing to remain static over the next ten years. In a small number of cases (3 of 166 libraries) branches are being closed and their collections consolidated into the central library. These cases put a greater pressure on space.

Regardless of space constraints, librarians recognize the need to retain some physical collections—at least in the foreseeable future—due to the high cost of digitization, regulatory requirements, diminishing or flat budgets for acquisition of electronic content, intellectual property issues, and the need to retain technical or historical information in its original form.

As an increasing number of library-supplied digital resources become available at customer desktops, the assumption is that these will reduce traffic through the library's door. The lack of patrons physically in the library is often seen negatively by administrators outside the library, who use it as a reason to cut floor space and funding. The majority, 74 percent (123 of 166) of responses, do not support this hypothesis. These librarians expect the number of their physical customers to remain the same or to rise by 2020, which indicates a continued need for in-library collections, services, and collaboration space. Research supports this.

Scientists and business students tend to use online, full-text services while social scientists are the most reliant on print sources.

When electronic/digital content is available, the assumption is that customers will prefer that over print materials. Thirty-six percent (44 of 123 responses) of librarians predict that periodical displays will decline more than any other Reading Room fixture, indicating that they expect the use of electronic publications to increase. Federal libraries are beginning to incorporate Internet cafes, coffee bars, cultural centers, or other nontraditional facilities into their spaces. While intriguing, this survey collected only anecdotal data and there is no indication that these have an effect on attracting customers.

Information Technology in the Space Equation

The majority of survey responders--75 percent (91 of 120)--acknowledge the critical role that information technology (IT) plays in the future of federal librarianship. It is a positive approach to reducing the pressure on libraries' square footage. But while they embrace IT, librarians also raise a few recurring concerns.

The continued development of IT and expansion of collaborative spaces in libraries requires that IT infrastructure be continually improved. Of the 75 percent who describe the role of technology as highly important, 28 percent specifically mention the impact that budget, IT support, and infrastructure issues have on how they anticipate successful delivery of services.

Customers also need the ability to access services from locations outside of their workstations. This is a common concern for librarians who support medical staff who often use public workstations rather than return to their offices to seek information. Fifty percent of respondents (59 of 123) indicate that, as more digital content becomes available, more customer-access computers and accessibility workstations will be needed.

The need for search intermediaries continues. Skilled, knowledgeable librarians will continue to be a part of the information search-and-retrieval process. Librarians report a tendency among higher level managers to see virtual libraries as "self-service" facilities, but librarians are working to insure that information professionals remain on staff to organize, locate, process, and evaluate content.

There is a concern that lack of organizational IT support and, occasionally, draconian security requirements have a high negative impact on the ability of libraries to support their customers with the most current technologies and services. As one respondent stated, "*connections to medical resources are NOT a problem to 'national security' - our government needs to get over it!*"

There is another concern that federal librarians are falling behind the IT curve, which impacts their value to their customers. Librarians with poor IT skills or knowledge of innovative technologies cannot provide the best support to their customers. Lack of knowledge impacts not only the ability to support customers, but also the reputation of the library as a partner in the knowledge process.

Libraries that provide a large amount of online content or virtual services may make upper level agency managers see the traditional library as superfluous. At least 10 percent (12 of 120) of librarians express specific concern that online services are seen as a replacement for collections and staff. Any recommendations on space allocations must strongly emphasize the need for

information professionals to staff the library and they must address the need for both legacy/historical print collections and for continuing collection of new print materials.

Use of off-site storage is diminishing. When asked whether their libraries expect to use off-site storage by 2020, 51 percent (86 of 166) of respondents indicated that their libraries are not anticipating its use. Of the remaining 80 respondents, 21 percent (17 of 80) expect the amount of their off-site storage to increase while a smaller percentage (18 percent, or 14 of 80) are planning to share an off-site storage facility with other institutions. Storage is expected to grow in only 10 percent of libraries polled. The diminishing use of off-site storage, along with diminishing shelf space fosters an environment for digital collections.

Federal librarians have long worked in their organizations for recognition of the value of the physical library. In many cases that work has paid off. Through statistics presented here, librarians are showing support in their organizations for libraries, whose traditional mission has been to select and preserve knowledge, provide access and organization to information sources, and to create a cohesive community. This mission cannot be accomplished through reliance on open Web access as a substitute for professionally selected and managed library print collections, electronic resources, and services. Organizations are increasingly dependent on their libraries for not only the knowledge resources found there, but for the space in which to collaborate and put that knowledge to work.

Virtual Space

***Summary*:** In the future of federal library space, provision of virtual services in libraries does not dramatically impact the square footage need of physical space. Projected usage of virtual space in federal libraries encompasses the online delivery of traditional information products and services to users and the provision of workspace for both library employees and users throughout an organization. The majority of respondents felt that products and services will continue to be delivered physically, and new digital products and services will be added into the future. Rationale for this course of action includes preference and social need for physical space (for research, meeting, and collaboration purposes), the high cost for libraries and other information providers to digitize all print materials, new skill sets needed for library staff, and governing policies and regulations to which federal libraries must adhere. Two-thirds of respondents did not foresee transition of their libraries into completely digital operations; however, a majority did anticipate the use of the Internet, intranets, and collaborative workspaces to deliver virtual services. The established and growing movement in the provision virtual services in federal libraries is evidenced by the first non-librarian recipient of the Federal Librarian of the Year award and increasing numbers of embedded librarians. The future of federal library space will perhaps be most impacted by the success and widespread adoption of embedded librarian practices, which is a recurring theme in the survey, appearing in both the Planning section of the survey and in discussions of virtual space.

How will federal libraries deliver traditional library services and products in the future? Survey respondents overwhelmingly stated that services will be offered in print and online, with two exceptions. Products and services provided in both mediums include books (79 percent, or 130 of 164,) interlibrary loan (80 percent, or 130 of 162,) journals (77 percent, or 126 of 164,) bibliographic instruction (72 percent, or 116 of 162,) materials acquisition and processing (67 percent, or 108 of 163,) reference (91 percent, or 148 of 163,) and specialized training (76 percent, or 123 of 161.) The two exceptions are delivery of the library catalog, in which 74 percent of respondents (122 of 164) will provide online only, and materials preservation and conservation space, in which 36 percent of respondents (58 of 162) indicated that both physical and digital space would be used for materials preservation, a virtually equal amount (35 percent, or 56 of 162) responded “don’t know or n/a,” and slightly fewer (26 percent, or 43 of 162) responded “physical only.”

Several factors might explain the response to the latter question. First, preservation and conservation are highly specialized fields in libraries. Many federal libraries may have no dedicated personnel on staff and therefore are less familiar with these issues. Second, the use of the word “space” in the category “Preservation/collection protection space” may have had a physical connotation

for some survey respondents. Responses to this question indicate that federal librarians, in our role as active information managers and preservers, are striving to harness technology to provide virtual services that meet our users' changing needs and expectations and reliably execute the information curatorial responsibilities we hold for our organizations and the public.

How will libraries manage the competing priorities of providing online services preserving information? In an environment of consistently disruptive technological advances, balancing the dual objectives of preserving information and facilitating access to that information over time requires consideration of myriad factors identified by survey respondents: (a) social need to interact with human and information resources; (b) increasing importance of collaboration in our organizations; (c) budget and staff constraints; and (d) intellectual property and other policy issues.

First, interaction with humans and information resources will remain a need into the future. One respondent stated that "*there will always be a need to view hardcopy materials and speak directly with a librarian, even with a far more efficient online system than there is now . . . some people prefer print reading*." Federal libraries are embracing the concept of embedded librarians, who have "*desks alongside the customers that they support.*" More than simply providing links to library resources, Rick Luce of the Los Alamos National Laboratory (LANL) states that their project Libraries Without Walls (LWW) "must do much more than aggregate and provide access to digital scientific information . . LWW's job now is to wire people's brains together so that sharing, reasoning, and collaboration become part of everyday work." The embedded librarian "must progress from looking out at users, to someone who is surrounded by users, to someone who is a user."

Increasingly, examples of embedded librarian activity within federal libraries are emerging. FLICC's 2007 Librarian of the Year award was awarded to Thomas F. Lahr, deputy associate chief biologist for information at the U.S. Geological Survey (USGS), who "serves as a senior manager in the USGS Biological Informatics Program, has led the development of new ways to integrate and deliver information, and has initiated and maintained USGS public and private partnerships with a wide variety of organizations." Lahr is not a librarian by title, but his leadership in library and information management activities within USGS exemplifies the qualities we value most in federal libraries.

More notable examples include the National Institute of Standards and Technology Lab Liaisons program, which is often reported at conferences to overflow audiences and the Defense Technical Information Center Combat Librarians who are members of military teams conducting real-world exercises in the field. Beverley, Booth, and Bath conducted a case study of a health information needs review process. New roles suggested for librarians as an embedded part of the research team are project leader, project manager,

literature searcher, reference manager, document supplier, critical appraiser, data extractor, data synthesizer, report writer, and primary researcher. Owen and Feng's research on a different set of health information also suggests librarians become a part of research teams. Outside of traditional avenues, federal libraries are maintaining the human face of libraries while increasing virtual services.

Next, collaboration activities, facilitated through software and technologies such as Microsoft Office Sharepoint or the General Services Administration's Collaborative Work Environment software, are multiplying in the federal sector. Projects such as Intellipedia (collaborative effort to share, process, and present intelligence information), KM.gov (online community for the Federal Knowledge Management Working Group), the Federal Enterprise Architecture Data Reference Model project (cross-agency effort to develop protocol for exchange and harmonization of data across government agencies), and similar community of practice (COP) efforts bring federal personnel together across departments and organizations. These projects are the tip of the iceberg when the collaborative activities within federal departments and agencies are taken into account. One survey respondent suggested that his/her library would use Sharepoint for library marketing and information, and at least one of the authors' libraries is integrating library databases, and other information into Sharepoint COPs. Federal libraries have a growing opportunity to be even more innovative in the ways in which services can be delivered virtually in collaborative workspaces developed and operated outside of the library's purview.

Finally, in the transition from primarily physical to increasingly digital products and services, federal librarians must grapple with not only budget and staff constraints, but also intellectual property and other policy issues that govern the access-level and use of the information we collect and manage. Survey respondents contextualized the issue in several ways: "*Although we've been adding more online content over the last five years, I doubt that we'll have everything online. This lack of 'everything online' will be because of cost and copyright issues*"; "*Virtual activities and resources are clearly going to increase in importance. However, physical resources, such as chairs and books, will remain important, both as community workspace and symbols of the library's importance*;" and "*We're going in the direction of digital but, given budget and staffing constraints, it will be a somewhat slow process. Not all books are online*." The responses to how services will be delivered in the future indicate that, of those represented in the survey, all federal libraries are moving in the direction of digital. Cost, staff skills, and policy are each formidable hurdles to overcome.

The cost factor for federal libraries providing more virtual services includes that of digitization and acquisition of e-resources (i.e., electronic journals, indexes, and databases). The cost of digitizing resources and building digital libraries has been studied extensively. Digitization costs are stabilizing—the Library of Congress has recently become a regional scanning center for the Open Content Alliance and opened the use of the FedScan center to all federal libraries. Cost of

digitization of standard documents with FedScan is 10 cents per page. At least one of the authors' libraries has another scanning contract offering a similar price. For libraries digitizing documents in-house, best practices and standards are widely available, both at the federal level (<www.digitizationguidelines.gov>) and throughout the library and information science community.

On the other hand, costs of building and maintaining a digital library are less stable; globally, academic and research libraries are engaged in projects to develop accurate and appropriate costing models for digital preservation and curation. The rising costs of e-resources outpace the growth in library budgets. For one publisher, journal costs increased between 29 and 41 percent annually over 2004–2008. Federal library budgets have not.

The staff skills factor for federal libraries' provision of virtual services echoes the sentiments expressed in the Planning and Physical Space sections above. The policy factor includes copyright, public access, freedom of information, classified, organizational, and other legislative requirements as they relate to libraries and information management. The scope and impact of virtual services are informed and defined by these policies.

What mechanisms are federal libraries using to provide virtual services to their users? Survey respondents were asked to note on what platform(s) users will be able to access and use library products and services. The five options were "Internet Presence," the global, interconnected "network of networks"; "Intranet Presence," the "private version of the Internet" for an organization's employees only; "Extranet Presence," a private version of the Internet restricted to specified organizations and not available to the general public; "Collaborative Workspaces," examples detailed above; and "Everything Online," a completely digital library program.

The highest majority of respondents (86 percent, or 138 of 161) felt that their library's virtual services will be provided through an Intranet presence. Next, 72 percent (118 of 163) felt that the Internet would be used in the future for library virtual services. Forty-eight percent (76 of 157) and 31 percent (48 of 153) felt that library virtual services would be provided through Collaborative Workspaces and/or Extranet Presence, respectively. One-third of respondents (30 percent, or 46 of 153) selected "don't know or n/a" for "Extranet Presence," potentially indicating unfamiliarity with the term. Not surprisingly, 61 percent (92 of 150) indicated "no," not all library services will be delivered virtually in the future. The responses to this question are consistent with how respondents felt library services and products would be delivered (physically, digitally, or by both means) and physical space utilized for optimal use of technology.

Technology

***Summary*:** One of the objectives of the survey was to examine the technology presently available and what impact new technology had on federal libraries. This information was then supplemented by current information available about technology and libraries. Overall, in order to compete with the 24/7 information-on-demand service that the Web provides, libraries are starting to focus less attention on their physical space and collections and more on their virtual presence. Regrettably, most users are unaware of resources provided by libraries. When they do happen upon them, they often find library products and tools hard to navigate and less intuitive than search engines. Users prefer metasearching. They find navigating in and out of the library catalog and various databases frustrating. Google users have become accustomed to locating full text information instantly using natural language and have become less and less tolerant of any delay in obtaining information.

Question 24 asked, "*What role do you think technology plays in the 'physical future' of the federal library?*" Of the 122 respondents, the majority, 75 percent, thought that technology would have a large or important effect in the physical future of federal libraries. Most of the responses indicated that library workers believe that digital information should be used to complement physical items in a library. Technology is thought of positively by many as a way to reach users they previously could not. However, there seems to be a different view held by managers and users. As stated in the Planning and Physical Space sections previously, when more and more information becomes available electronically, library workers are concerned that the resulting impression being given to space planners and management is that libraries need less or no physical space as well as less staff. Librarians see their job skills evolving to include managing and organizing digital information, as well as preserving physical information.

Question 25 asked, "*How do new technologies affect your perception of the changing needs for physical library space?*" Of the 119 respondents, 50 percent believed that technology had little to no effect on physical space, 33 percent indicated that whether they liked it or not technology would lead to a reduction in space, and only 8 percent thought that technology would lead to an increase in space.

Those that predicted additional need for space in the future cited an increased demand for public-access computers and additional meeting spaces as the reason. On the other hand, many users believe that any information needed is available online and that the library is no longer a necessary tool to obtain what they want.

Users more frequently expect digital access to all information and they place less importance on physical materials, even though some information can only be found on paper. Both working professionals and students share this sentiment. Adrian Sannier, Chief Technology Officer at Arizona State University gave a speech at the Campus Technology 2008 conference entitled “A New American University for Next-Gen Learners” in which he said that libraries were merely giant buildings air-conditioning books and should be burned down. Librarians have a different perspective. They see their job skills evolving to include managing and organizing digital information, as well as preserving physical information.

Users more frequently expect digital access to all information. They place less importance on physical materials, even though some information can only be found on paper. A study commissioned by the British Library and The Joint Information Systems Committee (JISC) entitled *The Information Behavior of the Researcher of the Future* endeavored to find out what students expect as a result of technology in 5–10 years’ time. The study found that college students start searching for information using search engines—only 2 percent start with the library. Ninety-three percent of students are satisfied with the information they retrieve online.

Students in the JISC study believed that search engines fit their needs better than libraries. Search engines such as Google are available at any time, from anywhere and through many different devices, unlike library resources restricted by IP ranges and passwords that sometimes do not work with multiple platforms. The finding shows that users value ease of use and quick access to information more than they value the quality of information retrieved from a particular tool. In fact, these users have great difficulty evaluating the legitimacy of the information they are retrieving. For example, many people believe that Wikipedia is a factually reliable resource. The results of the JISC study are consistent with findings of the 2003 OCLC Environmental Scan which used a global sample of library users. The two studies’ findings reveal a call for librarians to act, either through making our high quality, high value information available where our users need it (i.e., in Google search results through the use of the Sitemaps protocol on our databases) or better education about and marketing of our products, or both.

Many library workers see the physical space in libraries being repurposed into more collaborative workspaces to meet the changing needs of users, many of whom take advantage of libraries for free access to technology. Unfortunately, libraries, and especially federal libraries, are facing year after year of flat or decreasing budgets and are unable to keep up with the escalating prices of e-resources and IT equipment and software upgrades. One problem singular to federal libraries is the issue of IT security. Any upgrades in the library face severe security scrutiny by the IT department. This creates a lag in the ability to provide state-of-the-art technologies. Protracted IT security approvals, while well-intentioned, often keep libraries a version behind in the newest software or

technology implementation. It might have been helpful to ask in the survey what Web 2.0 technologies libraries are using in order to better gauge how far behind current technologies federal libraries actually are.

Question 23 asked, "*What priority do the following technical issues receive in your organization?*" Forty-eight percent said improving connectivity was a high priority; 45 percent said that maintaining connections to library resources was a high priority; 42 percent said that implementing new technologies was a priority; and 46 percent indicated that upgrading computer equipment was a priority for their libraries. Questions that were ranked as a priority but not a high priority (i.e., connections to library resources and equipment upgrades), could be taken to mean that these actions are something that libraries want to do, but just do not have the capabilities to implement.

There are some existing library initiatives that are rethinking the user experience. The Columbia University Libraries has built a system that integrates archival collections with the online catalog <http://www.columbia.edu/cu/lweb//archival/>. Previously these two collections were separate and caused users to overlook one or the other. By bringing the two together, users are offered more complete results. North Carolina State University (NCSU) <http://www.lib.ncsu.edu /catalog/>uses the Endeca platform to overlay their SIRSI ILS. This gives the user a completely new library experience. NCSU's catalog resembles search engines like Abebooks.com where results are ranked by relevancy and suggestions for narrowing or expanding result sets, such as popularity, genre, era, language, region, etc., are given. These options are available at any point in the search; it also offers spelling corrections and "did you mean" recommendations and the ability to browse the entire collection.

Open source catalogs like LibLime's product Koha are offering opt-in RSS feeds from the catalog to allow users to keep up with new items added to the collection. Gutenberg E-books are automatically cataloged and linked to the site for full-text reading. A connection to Amazon.com gives the user access to "Read it now," "Search inside," descriptions, reviews, and ratings. Users can create their own book lists to share with other readers. Near East University, a Koha user, even offers a map showing the location of the material selected in the catalog by clicking on the call number from the results display.

Libraries are falling behind in their ability to adjust to the changing way people retrieve and use information. Librarians need to start thinking of ways to make their resources work with the technologies users expect to find by giving them more input into the direction of library product development. Library resources need to be reshaped to fit the way people find and process information rather than trying to force users to follow traditional library methods.

Conclusion

The future of space in federal libraries, according to a survey of federal librarians, literature review, and collective experience of the authors, is, in large-part, a continuation of trends currently evident in federal libraries. In an era of static or decreasing budgets, changing user expectations, and expanding products and services (both physical and online), federal libraries will

1) continue to repurpose their existing space to accommodate new needs, such as public workstations, collaboration areas, and meeting space, as increasing amounts of products and services are made available online.
2) routinely evaluate use of and justify need for library space to management (outside and above the library) in competition for space.
3) persist in the assertions that application of library and information management skills for virtual products and services require as many or more resources as those used in traditional physical library services.
4) seek out innovative ways to embed themselves to deliver and market library services, regardless of whether the position title is “librarian.”
5) judiciously implement emerging technologies to better facilitate access to and delivery of information to users.

In our quest to meet user expectations and fulfill our responsibilities as providers of information reflecting the missions of our organizations, federal librarians must be conscious of appearing out of touch with users needs in our arguments for maintaining physical resources and be mindful that, absent a reversal in the trend of flat and declining budgets, tough decisions between competing goods will be required of us.

ADDENDUM

Embedded Librarians

In recent years, embedded librarians (also known as informationists or liaison librarians) have become increasingly common place on research teams. Organizations, particularly those with medical and life sciences missions, are beginning to recognize these positions as important components of research or patient care. Increased use of digital resources allows librarians to reach out to their customers by moving away from the library and co-locating in their customers' offices and classrooms. Customers are seeing the cost and time-effectiveness of including an information professional in their projects.

The availability of content in digital form grows every day. Emphasis is continually being placed on delivery of information to the desktop. Telecommuting is gaining in popularity and distance education programs negate the need to always physically attend classes. Learning is available anywhere. As the volume of digital content grows, the need for persons to come to the library decreases. To fully support their customers, librarians must reach outside the physical boundaries of the library to become an integral part of their customers' research process.

As a maturing role for information professionals, embedded librarianship is expected to grow. When responding to the survey on future library space needs, 169 (82% of total respondents) answered the question on predictions of future staffing levels. Of those, 27 (16% of 169) expected the role of embedded librarian to grow in the next ten years and 30 (20% of 169) expected it to remain the same. Only 2% (3 of 169) felt that the number of embedded librarians would shrink in the next ten years.

At the same time, square footage previously dedicated to technical processing, shelving and card catalogs is diminishing in favor of seating for digital access and meeting and collaboration space. Respondents to the survey expect the space needs for physical collections to diminish, (only 19%, or 32 of 163 expect it to increase) but few expect collections or work areas to disappear entirely. Librarians know that not all information has or possibly ever will be digitized. Patrons will persist in their need for access to materials only available in paper. Life sciences and medical researchers are particularly aware of this. Not all medical knowledge has been digitized, and using only digital content would be ignoring many years of valuable data. The same is usually true for many other disciplines.

Embedded librarians expect to perform many of the duties normally expected of librarians, which means they should expect to continue working with print collections. Not all embedded librarians need to work in the customer's area. The librarian may support two or more diverse customers or have additional duties that include collection or curriculum development, training, sponsorship of

meetings or collaboration efforts, etc. These duties must often be performed in a neutral setting like a library rather than in the customer's office. Whether they work directly within customer spaces, or provide support remotely from a location distant from their customers, embedded librarians continue to need access to traditional library space, resources and a "home base" from which to operate.

Seventy-four percent (124 of 166) of librarians predicted that their physical space would remain the same or grow over the next ten years. Almost 91% (148 of 169) of librarians expect to be delivering products and services both virtually and physically in the next ten years, but they expect the balance of virtual and physical services will lean toward virtual. Of traditional library products, they expect that only books will be delivered more often in physical format than online. (Details in Survey Results, question 22.)

Survey results also indicate that 72% (120 of 166) of federal librarians expect the number of customers to remain the same or to grow. To accommodate this number, staffing to support both virtual and digital services is expected to grow, or to remain the same. In terms of space needs, two thirds of respondents stated that they expected the need for library services (not including the collection) to remain the same or increase. (Details in Survey Results, question 18.) These statistics indicate that space needs will exist in libraries regardless of the presence of embedded librarians, particularly in federal libraries where they are sometimes mandated to retain certain publications. Customers will continue to need the resources traditionally provided in library spaces in combination with and increasing need for virtual products and services as they become available.

Although an embedded librarian may occupy a desk in the customer's space, evidence clearly indicates that embedded librarians will still need access to physical resources. They will need space to perform resource sharing, document acquisition and training. Since it is reasonable to expect resources to be housed or based in a library, embedded librarians will continue to need adequate working space in the library to access them. These librarians may even generate additional demand for space through their increased use of non-digital materials.

All indications are that the growth trend of embedded librarians will not adversely affect current and future space allocation, nor will they diminish space needs in future Federal libraries. Regardless of their working location, these librarians still need access to the collections, resources and meeting/training spaces that libraries provide. Library managers should expect to earmark space for the embedded librarians on which their customers rely.

Telecommuting

The federal government has been in the forefront of initiating telecommuting in each of its agencies. A decentralized network of teleworkers can be an important part of a major-disaster response, such as the September 11th attack on New York City. Having a diverse work force lessons the fallout of an attack on one central headquarters building**.** Furthermore, telework cuts down on rush-hour traffic, air pollution, and vehicular accidents. It also creates an attractive work benefit for the skilled technical employee whose main occupational tool is a personal computer.

As early as 2000, the Office of Personnel Management instructed federal agencies to start removing barriers for telecommuting and work towards increasing participation in the program. Public Law 106-346 states that this applies to 100% of the eligible federal workforce.

In the *Federal Register* / Vol. 71, No. 52 / Friday, March 17, 2006 the General Service Administration (GSA) published *Federal Management Regulation; Guidelines for Alternative Workplace Arrangements*. These guidelines were based on Public Laws and stated that telework, or telecommuting, is defined as the act of performing some or all of an employee's work from and alternative location. This location could be the employee's home or a telework center in an effort to reduce or eliminate commuting time. In order to be considered telework, it must take place a minimum of one day a week on a consistent recurring schedule. Each agency is responsible for creating its own policy for participation. According to Public Law 107-217, twenty agencies are required to set aside $50,000 for telework. Public Law 104-52 allows agencies to appropriate funds to install equipment and pay charges associated with work from home for authorized employees.

In 2003, the Library of Congress started its telework pilot project. The telework agreement (AFSCME 2910) includes a statement that only official duties will be performed at the telework site. It includes an agreed upon work schedule. The employee is required to email his supervisor when beginning work. Any equipment used for telework that is not the property of the Library of Congress will not be maintained by the library. Injuries sustained in the offsite location must be immediately reported to the supervisor and the employee has to agree to let an authorized representative inspect the location. Operating costs, such as utilities and insurance, are the responsibility of the employee.

The GSA conducted a study entitled *Telework Technology Cost Study,* 2006. The study found that while many agencies have policies in place for limited telework, its growth has been surprisingly slow even though it has been found to be cost beneficial. Telecommuting has not been a priority in most Federal Agencies. In order to make it work, agencies will have to incorporate it into their

strategic planning. The study found that in the first year, telework can yield up to a 1500% return on investment.

Later in the *Federal Register* / Vol. 72, No. 41 / Friday, March 2, 2007, the GSA published *Information Technology and Telecommunications Guidelines for Federal Telework and Other Alternative Workplace Arrangement Programs.* This bulletin set guidelines for equipment and security for alternative locations.

In September of 2007, GSA conducted a telework challenge. The goal was to have 20% of its eligible federal workforce participating in the telework program by the end of the year. The goal for 2009 is 40%. The first goal was met and the current percentage of participating employees is 27%. They currently have 12,000 employees in various regions.

Telework is a strong incentive for retaining federal employees. The Partnership for Public Service estimates the loss of 530,000 federal employees over the next four years. The government has to think of ways to retain new workers. The Research and Innovative Technology Administration has performed several studies that report telecommuting actually increases productivity since less time is spent commuting. Telework also results in less use of sick and vacation time thus saving organizations approximately 63% per worker. In addition, it reduces overhead costs by saving on rent, furniture and facilities maintenance and allows organizations to hire from a larger and potentially cheaper talent pool. In Question 8 (Does your Agency plan to, or already have plans in place to encourage telework among its workforce?) 78 (46% of 171) respondents answered yes.

Telework is not for everyone and there are still some questions that need further investigation. One such question is: Does telework impair teamwork? If everyone is working in a different location, what happens when there is a group project? Is videoconferencing sufficient for performing these types of tasks? Performance goals and measures, timekeeping records, communication, and feedback mechanisms are the key to successful telework. In the absence of onsite management, this is the only way to gauge the accomplishments of employees. If quality suffers or quantity of work diminishes, telework should be reevaluated. Managers and staff need proper training in telework. Managing a remote employee can be entirely new for supervisors. Likewise, meeting expectations can be difficult for those who are used to daily interactions with a supervisor. The technology involved in telework can also create a learning curve for all those involved.

A successful telework employee is self-motivated, organized, focused and honest. The employee needs to stay connected with colleagues and other professionals as well as changing trends and developments in their field. If working from home, the employee needs an environment free from interruptions. The employee needs sufficient equipment, internet and intranet access and a

phone and fax line. Web conferencing might also be needed. Good computer skills are needed for basic trouble-shooting as well as access to support when basic skills are not enough.

Advances in communication technology have made telecommuting a viable option for many librarians. Electronic resources are the ones most often used to answer questions posed by telephone or online reference patrons. In the past, librarians were required to work on site, like any other profession, because the tools available to them could only be accessed onsite. With the increasing use of digital media and new security options librarians now have other options. Some positions in the library naturally lend themselves to telework, like cataloging and indexing, while other services like virtual reference are becoming more utilized. Some other tasks that can be performed online include processing invoices through an ILS, negotiating license agreements, collection development, maintaining e-journal and database collections using SerialsSolutions or a similar product, updating Web pages, developing budgets, and developing and updating blogs and wikis. Libraries can even set up self-checkout stations for physical materials. In Question 26 (What other issues are raised when you think about the future of your library's physical space?) the responses included, “more people telecommuting, which will push us towards a virtual presence only.”

Some traditional functions simply can not be performed through telework, such as shelving, answering in-person reference questions, and processing material. Some librarians also fear that a reduction in physical visibility onsite leads patrons to believe that library services are fully replaceable by self-performed online searching.

In order for libraries to thrive, they have to be attractive to both patrons and future employees. This means staying current with the technology available and offering the same work environment as other professions. The option to telecommute is becoming more and more popular and might be a reason a prospective employee chooses one position over another. If the federal government wants to stay competitive with the rest of the workforce it needs to implement and insure the success of telecommuting where ever available.

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