APPENDIX 23. PANEL ONE: FINAL REPORT ON A REFORMED NTIS BUSINESS MODEL FOR THE INTERNET AGE

This and the other three panel reports were submitted to the U.S. National Commission on Libraries and Information Science (NCLIS) as part of the assessment. However, the opinions are those of the panel members, not necessarily those of the Commission. Any panel recommendations that the Commission has accepted are reflected in the Commission's own recommendations in *A Comprehensive Assessment of Public Information Resources, Volume 1.*

REPORT OF STUDY PANEL NUMBER ONE: REFORMING THE NTIS BUSINESS MODEL FOR THE INFORMATION AGE

CONTENTS[25]

INTRODUCTION

The assignment of Panel One was to focus on the business model of NTIS and recommend a new business model for NTIS for the Internet age. The work done in the first phase of the NCLIS study of NTIS suggested that the current business model—full cost recovery—was a major contributor to the current fiscal instability of the organization. The Panel concluded that proposing a new business model for NTIS in itself would not be sufficient but that a broader look at NTIS, its mission, its relationship to other Government information organizations and its role in the Internet age was needed. This report sets forth the Panel's views and conclusions.

The Panel—consisting of eleven members, a diverse mix of representatives of industry, Federal and state government, consultants, and trade associations—conducted its work exclusively by e-mail exchanges with no face-to-face meetings. The Panel conducted e-mail correspondence over a two-month period from late July to late September 2000. The members of the Panel are listed in Appendix A.

[25] Available at http://www.nclis.gov/govt/assess/assess.appen23.pdf. This report was last revised on October 15, 2000.

The preliminary report from the first phase of the NCLIS NTIS study contains many of the same conclusions and recommendation reached by this Panel.[26] The Panel reviewed this preliminary work and sought to expand those conclusions with which the Panel was in agreement.

THE NTIS BUSINESS MODEL—WHAT WENT WRONG?

NTIS is a federal agency, not a hot Internet startup. Thus, when we speak of the NTIS business model we refer to the way in which NTIS obtains its funding (appropriations, sales income, or reimbursements from other agencies) not whether it obtains its revenue from banner ads, charging for links or auction services.

In the 1970's and earlier, NTIS and its predecessor organizations received a mix of funding from appropriations, sales income and reimbursements from other agencies. The basic business model, however, was sales based with report sales and subscription income generating the lion's share of revenue. Appropriations in the earlier years were used primarily for the costs associated with acquiring publications and for processing the publications into the NTIS collection—the costs of indexing abstracting, creating master microfiche and archiving master copies. Sales income was recovered from the purchasers of publications and subscription services, essentially for the incremental costs of providing these services, although in later years excess sales income was also used for input processing to offset declining appropriations. Reimbursements from other agencies were received to cover the costs of the services provided to these agencies.

Over the years there was an ongoing pressure to reduce appropriations and increase sales income and in good times—with many new publications coming in and with substantial sales—this was feasible. Increasing prices and new products combined with growing sales volume contributed to growing sales income. In fact, all appropriations for input processing were phased out by 1977 and sales income was used to pay all input costs from that point on.

In 1992, as part of the American Technology Preeminence Act (15 USC 3074b-1), Congress added the requirement that "operating costs…associated with the acquisition, processing, storage, bibliographic control, and archiving of information and documents shall be recovered primarily through the collection of fees." This had the effect of locking in the practice of shifting the costs for the central collection and initial processing of the NTIS publications for public availability from the general taxpayer to the purchaser of NTIS products and services. The Government was essentially abandoning responsibility for paying for the management and organization of its information, the very library-like functions that have always been taxpayer-financed. The report buyer—whose tax dollars had already paid for the agency research and the preparation of the research report itself and who was being charged the incremental cost of distribution of the report—was now also being asked to pay the costs of making the reports accessible to the public through a central repository.

This had the effect of making NTIS more entrepreneurial and aggressive in its business dealings to raise the operating funds lost in the appropriation. Competition with the Superintendent of Documents for popular titles increased with NTIS seeking to offer the publication-originating agency a more attractive arrangement to secure the publication for its list. Deals were struck with private vendors a development that had the Commerce Department Inspector General "…concerned that in order to replace lost sales, NTIS is seeking business opportunities on the perimeter of its statutory mission,

[26] US National Commission on Libraries and Information Science, *Preliminary Assessment of the Proposed Closure of the National Technical Information Service (NTIS): A Report to the President and the Congress*, Washington, DC: Government Printing Office, March 2000; http://www.nclis.gov/govt/ntis/presiden.pdf.

where it risks competing against private businesses." (Department of Commerce, Inspector General's Semiannual Report to the Congress of March 31 1999, page 14)

Concurrently, in the late 1980's and 1990's, because of the strong economy there was a shift from publicly funded research to private research and as a consequence the number of Government research reports provided to NTIS declined. At the same time, with the growth of the Internet, agencies began to make their research reports available on agency Web sites for free, competing with NTIS report sales. The combination of lower new report input (a 35% drop in items added to the collection from 1993 to 1998) and competing free sources for the information NTIS sold, resulted in declining sales (a 43% drop in publications sold from 1993 to 1998). This in turn led to the financial difficulties of NTIS. In August 1999, based on these financial difficulties and political considerations beyond NTIS' control—possibly relating to the Govsearch and World News Connection controversies,—the Department of Commerce recommended the closing of NTIS and the transfer of its archive to the Library of Congress.

It cannot be a surprise that the combination of events—lower report input, competition with free agency Web sites, loss of appropriated funds, aggressive entrepreneurial zeal with perhaps inappropriate business arrangements—led to financial and other difficulties for NTIS. However, it does not follow that the Government should therefore abandon the notion of a central source for Government technical information charged with making this information accessible to the Public.

If the Department of Commerce proposal to close NTIS is adopted, there is no need for a new NTIS business model for the Internet age. Therefore, before we explore a new business model we must first determine whether there is a need for an NTIS in the Internet age.

IS THERE A NEED FOR NTIS IN THE INTERNET AGE?

If the picture painted in the Department of Commerce Fact Sheet and Press Release (Department of Commerce August 12, 1999) is correct, all agencies will mount all of their publications and reports on their own Web sites, which are then kept there as long as the public has a need to access the information. Powerful search engines search the full text of all the reports across all agency sites to identify the specific information the public user requires. The identified full text of the publication is then available for free downloading from the agency Web site. Thus, the public has free access to all Government information all of the time and anything required can be located with ease and there is no need for a central NTIS, a central Superintendent of Documents or any central document locating service or information accessing tools. This picture, however, is not anywhere near accurate.

Unfortunately, not all of each agency's public information is available on the agency's Web site and perhaps much of it never will be. What is there today may not be there tomorrow. Not all of the information on the Web can be searched and found with the search engines. Can the United States afford to rely upon the simplistic and utopian picture painted by the Department of Commerce and close down its central information repositories?

Certainly, specific Commerce publications, as cited in the Commerce Fact Sheet in August of 1999 are available on the Commerce Web site. (The Commerce Fact Sheet cites two high profile policy studies as examples). But how long will they be maintained on the Department's Web site and how about the many less prominent Department studies not on the Web site? How about those studies paid for with taxpayer funds whose results do not support the Department's policy positions? Will they be featured on the Department's Web site? Will even the most sophisticated search engines locate them?

The two Commerce publications cited in the example above were published in late 1998 and 1999 and Commerce has them on their Web site for public access. How about older publications, say those pre-dating 1996 and the use of the Web for public access of Government documents? Most of these are not available in electronic form for Web mounting. Does Commerce intend to invest millions of dollars in converting these older documents to Web-ready form? Does Commerce expect other agencies to do so? At whose expense and with what funds? Note that 36% of NTIS' report titles sold in 1998 were over 10 years old. Agency based Web servers cannot meet this demand unless substantial investment in backfile conversion is made. Or should we simply assume that anything not in Web-ready form that was previously published is of no value to the public and no longer requires public access?

Agency Web sites are intended to provide agency information (and perhaps external information related to the agency mission) to the agency's constituency in support of the agency's mission. That may not be consistent with providing Government information to those members of the general public not specifically associated with the agency mission. For example, the Defense Department is responsible for providing access to its extensive collection of research reports to its internal scientists and engineers and its large contractor community. How much effort should DOD expend to insure that non-defense related users have adequate access to this information and how concerned should the Defense Appropriation Committees be with this? Will a Web site designed to meet the needs of the Defense community always meet the needs of a non-defense related university researcher or small businessman? Should it? The fundamental mission of providing access to Government information to avoid duplication of research effort and to promote economic growth—a mission that might at one time have been thought to be a part of the Department of Commerce—gets lost in the specific missions of the various agencies and their Web sites.

Having Defense (as well as other mission agencies) make its (their) technical information available to the general public as a near-free by-product of meeting its mission needs is worthwhile and should be encouraged. It is not, however, sufficient to fulfill the Government's responsibility to make Government information available to the public. There needs to be a clear focus on public information dissemination, which is not likely to be present (all the time) in the mission agencies. That is the role for NTIS.

There also needs to be a back-up mechanism, a safety net, to insure that what the mission agency does not disseminate or does not mount on its Web site, or takes down or does not properly process for public access is still accessible to the public. That is the role for NTIS. Clearly a central information service needs to take advantage of each mission agency's efforts to distribute the agency's information to minimize duplicative costs but it also must be prepared to step in and provide access when the mission agency does not. That is the role for NTIS.

As mentioned above, there is the rather significant matter of providing access to the tens of thousands of valuable reports and publications that are not in Web-ready form. These require either expensive conversion to Web-ready form or old-technology reproduction and represent at least one half of the total current NTIS demand. Clearly, there is a role here for NTIS.

In addition to mounting the full text of some of their reports on their Web sites and thereby providing some public access, the mission agencies may also provide some finding tools to identify reports sought by users. These tools might include some indexing, abstracting and cataloging of the reports and publications. Or they might not, as is the case with the two Commerce Department examples. The tools might include a search engine on the Web site to locate reports or the site might rely upon users accessing commercial Web search engines to locate reports on the site. The search engines will work for some reports but not for others. Where reports and publications are stored in PDF image form without a full text search capability neither the search engine on the site or the commercial search

engine will find the document. Where the agency chooses—for more efficient searching of its material—to store its reports and publications in a separate searchable database on its Web site, an external search engine will not be able to search the contents of the database and the reports will not be found.

Some of these shortcomings can and probably will be overcome in time. Once standards are set and adhered to some of these access problems will disappear. As the technology improves more of these problems will disappear. But today, with the current state of the Internet, standards and technology, public access to agency publications via agency Web sites is very much a hit or miss proposition. Once again, there is a need for a back-up mechanism, a safety net, to insure that the public has access to the mission agency reports and publications. That is the role for NTIS.

The Government Information Locator System (GILS) established under the Paperwork Reduction Act of 1995 might have been expected to solve some of these problems and perhaps to a very limited extent it has. However, GILS has not been widely implemented throughout the Government. The GILS record structure was publicized and agencies were required to use GILS but were permitted wide latitude in how GILS was to be applied. The result, to the extent that agencies participate, is a lack of consistency and predictability in search results. Similarly, the brand new FirstGov.gov Web site might solve some of these problems in time, but the initial implementation of the Web site suggests that much work remains to be done, particularly with respect to search precision, which is critical to the NTIS application. Even if GILS or FirstGov improve dramatically, some issues—such as detailed searching within a very large database, e.g. NTIS reports—will not be solved by these very large Government-wide systems. Thus, there will continue to be a role for NTIS.

As the result of the National Technical Information Act of 1988, NTIS has unique statutory authority for joint ventures with private sector information vendors (see 15 U.S.C. 3704b(a)(1)(A)). NTIS will typically use this authority to find a private sector partner who is willing to underwrite the cost of producing an information product that an agency can no longer produce either because it lacks the funds for printing or the staff resources to develop it. It will then share the resulting revenue with the partner and provide copies to the depository libraries. A good example is the Commerce Department's own "U.S. Industry and Trade Outlook," the successor to the "U.S. Industrial Outlook" which had been produced for more than thirty years but had been discontinued. It was reintroduced in 1998 with a new focus on trade pursuant to a partnership between NTIS and the McGraw Hill Companies and was reissued in 1999 and again in 2000.

In addition to joint ventures, NTIS makes its own Bibliographic Database available to vendors who add value to it, redistribute it, and pay NTIS a portion of the revenue they derive from it. Although this royalty may not be appropriate under the new business model to be suggested by this Panel, the role of NTIS in providing a central gateway to Government information for potential private sector vendors is a valuable role that would continue in the Internet age.

The relationship between NTIS and the Superintendent of Documents/Depository Libraries, discussed later in this paper, warrants mention here. There is clearly some conflict, overlap, and duplication between these organizations and there is a need to rationalize their roles. This problem, however, is beyond the scope of this Panel's effort. Nevertheless, the unique functions that NTIS performs for the scientific, technical and engineering information of the Government must be continued and thus there is an ongoing role for NTIS.

There appears to be—especially at this stage of Internet development—a clear need for an NTIS-like organization to provide overall management of the system that provides public access to agency

reports and publications. Sometimes this organization would directly provide public access to reports and publications, sometimes it would simply point to where the material is available on agency Web sites and it would insure that all content is available and accessible. It would also provide access to private vendors seeking to redistribute government information. Closing NTIS before such alternative systems are in place and operating would deprive the public of the access to Government information that was available in pre-Internet days.

SCOPE OF NTIS COLLECTION

NTIS' predecessor organizations began operations with a scope limited primarily to scientific, technical and engineering information, the so called STEI gray report literature. Over the years the scope of the NTIS collection expanded to include social science and business information to meet the needs of Government agencies for the distribution of their content.

These changes in scope were approved in a 1954 Controller General opinion later codified in the *Code of Federal Regulations* (15 CFR 1180). Scientific, Technical and Engineering Information (STEI) is defined as "information that bears on business and industry generally, such as economic information, market information and related information" that "can embrace matters beyond the restricted field of applied science and the mechanical arts" so long as it is "limited to information which has a direct relationship to business, industry or technology" (15 CFR 1180.2).

The Panel does not believe NTIS' scope should be restricted to science and technology narrowly defined. However, the scope should not include general public information that does not have a direct relationship with business, industry or technology.

NTIS OPERATIONS IN THE INTERNET AGE

The roles for NTIS in the Internet age—at least until such time as improvements in standards and technology solve some of the current problems—would be to provide:

1. Searchable access to the reports and publications published by the mission agencies, particularly to those users outside the agency's constituency,
2. Pointers to where the report may be obtained on an agency (or other) Web site,
3. Backup distribution of the report or publication content itself when it is no longer available from the originating agency or where the user requires a paper or microfiche copies and the agency only provides electronic access, and
4. Permanent Accessibility.

SEARCHABLE ACCESS

Providing searchable access to agency reports has been the basic business of NTIS and its predecessors since its inception over half a century ago. NTIS performs this function by cataloging, indexing and abstracting the reports of the smaller agencies and other sources who do not perform these tasks for their own audiences and creates the searchable NTIS database. For the larger agencies that do this work themselves (DOD, DOE, NASA, etc.), NTIS obtains their cataloging, indexing and abstracting information in machine readable form, reformats it, if necessary, and adds it to the searchable NTIS database. NTIS now augments this with similar data obtained by NTIS' web capture

of agency documents not forwarded to NTIS. The resulting NTIS database provides consistent searchable access to the NTIS collection across all of the participating agencies.

This database should be made available on an NTIS Web site for free public search, thus providing free (publicly funded) access to a searching capability of the information collected by NTIS. This same capability would provide depository libraries and their patrons with convenient, free searchable access to the NTIS database. Note that this is not access to the content of NTIS reports but only to the database of information about the reports.

POINTING TO DOCUMENTS ON THE WEB

Providing access to information about the document is only the first step. NTIS must also provide the user with a means of obtaining the documents identified. In the past, NTIS sold the documents from its warehouse or produced copy on demand when requested or distributed microfiche. In the future, in addition to these established methods of distribution, NTIS will also point the user to the document on the agency's Web site where the full text of the document is available for free. Whenever there is a Web version of the document available, NTIS (the NTIS database) would point the user to the agency's Web location where the document can be obtained. In some instances a document, not available on an agency's site, might be available on a depository library site under the Federal Depository Library Program Electronic Collection. NTIS would then point to the depository library site.

NTIS would develop and operate, in conjunction with the originating agencies, a **P**ersistent **U**niform **R**esource **L**ocator (PURL) system for all of the agency documents included in the NTIS database. This would provide a means of maintaining the pubic accessibility of documents on agency Web sites as the agencies move the documents from site to site and from location to location. The NTIS database would provide the PURL address of the document so that users of the database would always be able to access the complete text of the document available for free on the Web. NTIS would operate a PURL server that keeps track of actual document locations on the Web updated with new location information provided by the agencies or by NTIS' monitoring of existing links to documents in the database.

BACKUP DISTRIBUTION

The user would normally only come to NTIS and pay for a document when it is not available for free on a Web site or when the user desires paper or microfiche. Some users would no doubt find paper or microfiche preferable to Web access and would choose to pay NTIS for the copy, paying the full incremental cost of distribution even though free Web access is available.

In addition to pointing to documents on agency Web sites, an NTIS Web site would provide free access to the full text of selected NTIS documents in reasonable demand (recent important documents), which are not available on agency Web sites. To do this economically, NTIS will have to change the way in which it scans reports for the Web. NTIS currently scans documents in image-only format, which does not provide for searchable full text, limits the utility of the product offered on the Web and increases the costs of storage and electronic distribution. By moving to fully electronic documents with encoded text, NTIS can lower storage and bandwidth costs and improve product utility. This will however increase NTIS' scanning costs.

There will continue to be a substantial number of image-only scanned documents in the NTIS system for some time (representing at least the three-year backfile that has already been scanned). Over time we would expect more and more of the publications available from NTIS to be available in full electronic format, either forwarded to NTIS from other agencies or scanned in full electronic form (OCR) by NTIS itself.

All of these documents in Web-ready form, whether in image-only form or in full electronic form, would be made available to the public without charge from an NTIS Web site if they are not available on the originating agency's Web site or some other publicly accessible Web site, e.g. depository library site.

As a result of this approach—substantial free access to documents on agency and NTIS Web sites—NTIS document sales income will continue to decline dramatically as more and more content is made available on the Web without charge. This expected decline in sales income would have to be considered in the new business model. Specifically, the notion of free public access to NTIS reports on an NTIS Web site requires the appropriation of funds for the so called public good operations of NTIS (see following section on "A New Business Model for NTIS").

PERMANENT ACCESSIBILITY

Permanent Accessibility is a confusing term in the context of Government information. Permanent access to Federal Records is provided for under the Federal Records Act but agency publications and other important documents are not permanent Federal records (and hence not permanently accessible) unless individual agencies take action to make them so. Many agencies do not schedule all of their publications and important documents as permanent records.

Depository libraries provide a form of permanent access but NTIS reports are not generally distributed to depository libraries and to the extent that depository libraries acquire them outside of the Federal Depository Library Program, they are not required to maintain them permanently. Whatever the problems with permanent accessibility may have been in pre-Internet days—and there were many—they have been compounded with the extensive Government use of the Internet to disseminate information.

Government information to which the public should have access, particularly the results of research work that are likely to have long term value beyond the purpose of the original research, should be permanently accessible to the public. Public access should not end when the agency sponsoring the research decides—possibly for budgetary reasons—that the report will no longer be made available on the agency's Web site. For example, the research reports on energy conservation and alternative energy sources from the early '70's are suddenly very relevant again today. Are they still up on DOE and Transportation Web servers? NTIS should be the fallback source to make this information available when it is no longer available from the generating agency. In the Internet age, where agencies mount some of their information on their own servers and make it available to the public free of charge, NTIS processing should provide pointers to the information on the agency's Web site. When the information is removed from the original agency's Web site NTIS should provide access to the full text of the information on its own Web site or by some other means. In the case of older less frequently accessed information, when it is no longer economically feasible to maintain it on a free Web site, the public requester may have to purchase a print or microfiche copy of the report made by NTIS from an archive copy or from a backup –non-publicly accessible—paid Web site.

NTIS MISSION

The NTIS mission, which began (in the days when it was known as the Publications Board) with a focus on the cataloging, announcement and sale of copies of captured World War II technical documents, has changed and expanded over the years. There was some sense among the Panel members that in recent years the mission and scope had expanded in part to increase revenues to offset declining sales income and decreasing appropriations. The scope of NTIS information has expanded from scientific and technical reports to almost all manner of reports and publications of interest to business, industry and technology.

The NTIS mission in the Internet age should have four primary components:

- The collection and processing of Government scientific, technical, and engineering information so that it can be made accessible to the public including facilitating access to the information on Government Web sites,
- The sale of this information to the public in print, microfiche and electronic form,
- Related services to other Government agencies on a cost reimbursable basis,
- Value-added information services provided by NTIS itself or by NTIS in conjunction with private sector information vendors.

The first three points are consistent with the Operations Section above and relatively straightforward.

The last point, although also consistent with the Operation Section, is potentially the most controversial because it is here that the potential lies for conflict and competition with the private sector. Value-added services would seem to be appropriate when the service is directly related to the dissemination of information, or a natural outgrowth of, activities that NTIS would normally perform in furtherance of its own mission, such as disseminating an agency's database or delivering specific information products to an agency's customers. However, the focus of this Panel has not been on the NTIS—private sector interface. This is the charge of Panel Four and has not been pursued here beyond these few words and the Panel cautioning that this mission point is potentially troublesome even though joint ventures between NTIS and private vendors are explicitly authorized by law (15 USC 3704b(a)(1)(A).

A "NEW" BUSINESS MODEL FOR NTIS

The "new" business model for NTIS recommended by the Panel is a return to the earlier model with a mix of appropriated funds for input processing, sales income from report and publication and subscription sales and reimbursable funds for services provided to other agencies.

Some of the functions performed by NTIS benefit the people of the United States and Government agencies as a whole. These are the functions that make the results of Government funded research and other NTIS publications accessible to the public. They include the functions of processing information into the NTIS collection and maintaining a searchable archive of Government information for public access. These functions, which benefit the public at large and permit public access to Government information, are properly supported with public funds, i.e. appropriations.

When the DOD processes a research report of Defense funded research into its system and mounts it on its Web server for Defense community and public access all of the costs are taxpayer funded. The Department of Transportation recently received a $250,000 appropriation expressly for the purpose of

mounting Transportation Department reports on a Web server for public access.[27] Even the Department of Commerce, when it mounted its two policy reports mentioned in its "Fact Sheet" referred to in the earlier section of this paper, used taxpayer funds to pay for the preparation, processing, mounting and public availability of the reports. Why should providing public access to reports at DOD, Transportation and Commerce be a taxpayer-funded public good while providing the same access to the same reports via NTIS require user charges? At present, unlike GPO, LC, DOD, Transportation or Commerce, NTIS is required to fund these same "public good" operations from sales receipts and, surprise, prices are high and there is not enough money to fund the entire operation when sales turn down. The consequence of this approach to funding is the inevitable development of shortsighted recommendations to close down the money losing operation when the real problem is with the business model.

The Government has the responsibility to insure that the public has adequate access to the Government reports and publications collected by NTIS from originating agencies. This responsibility cannot be met by shifting it to mission agencies that do not have public information distribution or economic growth missions. Nor can it be met—and the funding saved—by transferring the responsibility to other central information repositories, which would require essentially the same level of funding to perform the same tasks. The Government's continuing responsibility to provide public access to Government information carries with it a responsibility to properly fund the dissemination operation.

That is not to say that specific users should not pay the incremental cost of specific access that is not normally provided and that incurs extraordinary costs. They should. But in today's Internet world, normally free access is likely to mean Web access, which can be provided by the Government at negligible incremental cost for each additional user.

The specific operations, which benefit the general public and should be funded with appropriated funds, are those of:

- Collection or acquisition of reports,
- The indexing, abstracting and cataloging of these reports,
- The further processing of reports into the NTIS collection by scanning, microfiching and archiving,
- The creation and maintenance of the NTIS database which provides searching and locating information for this report collection including the maintenance of a PURL system to maintain accessibility to reports on agency Web sites,
- The mounting and maintaining of the searchable NTIS database on a Web site for free public access,
- The mounting of the full text of the reports—to the extent they are not available on agency servers—on NTIS servers for free public access, and
- The maintenance of archive files to insure permanent, but not necessarily free, public access to material not otherwise available.

These functions would cost an estimated $5 million per year in ongoing operating costs and would permit NTIS to operate effectively independently of the vagaries of future report input or demand. There will also be some one-time startup costs to establish the new system. These costs are on the order of $1.7 million. NTIS estimates for performing these tasks are shown in Appendix B. Note that

[27] "DOT Gives Users Free Ride to Online Research", *Government Computer News*, April 3, 2000, page 13, and at http://www.gcn.com/vol19no7/news/1630-1.html.

periodic updating and replacement of IT hardware, possibly every five years, is not included in the recurring cost estimate in Appendix B.

Note also that if the functions of NTIS were transferred to the Library of Congress as proposed by the Department of Commerce or to the Superintendent of Documents essentially the same "public good" costs would be incurred and the same appropriation for these functions would be required.

The other functions of NTIS—the distribution of print or microfiche copies of reports or the distribution of subscription services—benefit only the specific individuals who make use of these NTIS services and incur specific, measurable, costs for each additional user. These services should be paid for directly by the user who benefits through a user charge that recovers the incremental cost of the product or service distributed. The work performed by NTIS for other agencies would be reimbursed on the basis of costs actually incurred.

Under the proposed system, NTIS document sales income could be expected to fall dramatically as more and more content is made available on the Web. However, since document sales income would only be used to pay the actual costs of document distribution and not the cost of processing documents or maintaining the PURL system, it should be relatively simple to manage the operation without the kinds of deficiency problems faced in the past. Without those financial pressures, the financial instability would disappear, much of the aggressive entrepreneurial zeal that led to aggressive competition with the GPO and possible questionable partnerships would be reduced. The result would be a stable NTIS cooperating with the publication-originating agencies and the other centralized information distribution centers to provide ongoing public access to Government information on the most economical basis.

DEPOSITORY LIBRARIES

The Federal Depository Library Program (FDLP) has long played an important role in providing public access to Government information. The system, based initially on low cost override printing by the Superintendent of Documents, later augmented by microfiche distribution and now moving rapidly to the Internet, provides broad public access at no cost to the public user. Most NTIS reports do not make it into the Depository Library System since they are not printed at the Government Printing Office (no opportunity for SOD to override the printing requisition) and there are no funds provided for depository copies of these materials. This has been a longstanding source of disagreement between SOD, NTIS and the report originating agencies. There is some limited purchasing of NTIS microfiche by a handful of depository libraries and a new pilot program between NTIS and GPO to provide some libraries with access to NTIS material on the Web in image form. However, generally the depository libraries do not have ready access to NTIS reports. The future availability of NTIS reports on the Web should solve this problem since depository libraries provide their users with Web access. Depository library access is one more reason for making sure that as many NTIS reports as possible are available without charge on the Web. Although there would be no explicit statutory authority requiring depository libraries to provide their patrons with Web access to the NTIS content, it seems reasonable to suppose that if it is available most will do so.

In the long run, the importance of depository libraries might be expected to decline. As more and more Government content becomes available on the Web and as the Web becomes more accessible to more people, the need to go to a central depository to access Government documents is likely to decline. This, however, is a long way off and Congress should not take the growth of the Web and the increasing amount of Government content available on the Web as a signal to cut appropriations to the

Depository Library Program. For years to come substantial numbers of important Government documents will not be available on the Web and many citizens will not have ready access to the Web.

REORGANIZATION OF GOVERNMENT INFORMATION ACTIVITIES

The Superintendent of Documents was established within the Government Printing Office at a time when all Government publishing was done in print form and the Congress did nearly all printing for the entire Government. Times have changed. As Executive Branch publishing and information dissemination has increased dramatically the issue of separation of powers has intensified with the Congress doing much printing and distribution to enable Executive Branch agencies to carry out their missions. The advent of information technology and the Internet/Web have further exacerbated this issue and made it virtually impossible and impractical to effectively manage Executive Branch information activities from a Legislative Branch office.

There has always been a tension between NTIS and SOD. In recent years this tension has gotten more intense as NTIS has sought to achieve or retain profitability in difficult financial circumstances. Both agencies have similar problems with congressional appropriations committees that seek to cut appropriations for their "public good" functions, mistakenly believing either that the costs can be recovered entirely from sales or that, with the Internet, there are no costs. Both agencies will have to streamline their operations for the Internet and make the case to Congress that their "public good" functions should be properly funded with appropriated funds.

Other issues between the two agencies include differences in bibliographic control and the fact that most NTIS documents do not make it into the depository libraries. As long as the two agencies exist as separate entities the elusive goal of "one stop shopping" for government information will continue to be that much harder to achieve.

Combining NTIS and SOD into a single organization is an appealing notion. It would provide the means to eliminate the tension and competition between the two organizations, make it easier to standardize cataloging and bibliographic processes, consolidate databases and searching tools, and begin a serious move to simpler, unified public access to Government information. There will also be significant opportunities for cost savings by elimination of duplication of effort. Particularly with both agencies moving rapidly toward Web based distribution of much of their information; the notion of a consolidation is attractive. However, the Panel did not have the time or resources to conduct a thorough study of the detailed pros and cons of a merger or of the many changes in organization, culture, standards and systems that would be required to make a merger successful.

The Panel is also not in agreement on formally proposing a merger of the two organizations. The disadvantages are seen as primarily political. Can such a merger be made to happen when either the Executive or the Legislative Branch would lose a major central information distribution component to the other? Strong arguments can be made for having the combined agency in the Executive Branch because of the increasing interaction with the Executive agencies, the decreasing involvement with print product, and the fact that information dissemination is inherently an executive rather than a legislative function. However, the likelihood of the Congress approving a shift of the Superintendent of Documents to the Executive Branch seems so remote that a number of Panel members do not even want to propose it. Unfortunately this seems to be a case of good government falling to expected turf battles and political expediency. "Our task is to make recommendations on the NTIS business model and not proposals to improve overall Government information operations that have no chance of acceptance".

Although the Panel could not agree on proposing a merger of NTIS and [the Superintendent of Documents (SOD), Government Printing Office (GPO)] it did discuss an even broader reorganization proposal that consolidates more of the existing Government information activities from various agencies. Such a consolidation involving not only NTIS and SOD but also related functions from [the National Archives and Records Administration (NARA), the Library of Congress (LC), the Office of Management and Budget (OMB) and the General Services Administration (GSA)] would be far more difficult politically then just a merger of NTIS and SOD. Several of the Panel members felt it should not be considered, not because it lacks merit but because of the colossal hurdles it would face to gain acceptance and concern that its proposal would detract from the other recommendations of the Panel. Again, the Panel did not have the time or resources to conduct a thorough study of the detailed pros and cons of such a merger of many organizations. However, NCLIS itself in its further review of this matter may want to pursue this further.

RECOMMENDATIONS

1. The proposal of the Department of Commerce to close NTIS and transfer its archive to the Library of Congress should be rejected.

2. NTIS performs a necessary function of providing ongoing public access to government information—even in the Internet age—and should continue to operate as an agency of the Department of Commerce.

3. The NTIS business model should include a mix of appropriated funds, sales income and reimbursements from other agencies for services provided.

4. NTIS should receive appropriated funds to cover its "public good" operations and should not be required to recover these costs from sales income. These "public good" operations include the functions that make NTIS reports accessible to the public.

5. The scope of the NTIS collection should continue to be guided by 15 CFR 1180 to include information that bears on business and industry.

6. NTIS should not charge royalties for products or services provided. Charges should be based solely on the incremental cost of providing the product or service.

7. NTIS should consider changing its method of scanning of report input from image-only scanning which has high storage and bandwidth requirements and limited utility on the Internet to full electronic scanning which permits full text searching across documents and has lower storage and bandwidth requirements.

8. NTIS should obtain full text electronic files of reports from other agencies whenever possible to avoid scanning costs.

9. NTIS should provide its users with access to reports made available by other agencies on the other agency's Web sites by pointing from the NTIS database to the appropriate location on the other agency's site.

10. NTIS should develop a Persistent Uniform Resources Locator (PURL) system and track NTIS reports available on other agency Web sites so that NTIS users can find reports on other agency sites when they are moved from site to site.

11. Reports not available for free on agency sites should be made available without charge on an NTIS Web site whenever it is economically feasible to do so. Older reports not in electronic form would not be made available in this manner and reports that require special high cost handling could also be excluded.

12. Permanent access to NTIS reports should be ensured by NTIS. The technology used to maintain accessibility of older less frequently used reports should be selected so as to minimize storage and handling costs. NTIS should be able to charge for access to these older reports based on the incremental costs of providing copies or access.

13. NTIS should continue to sell report copies in paper, microfiche and electronic media formats as long as the demand for the format justifies continuing its use. Charges should be based on the incremental cost of providing the copies.

14. The Department of Commerce should lift the hiring freeze currently on NTIS to permit the hiring of the information technology experts needed to implement these recommendations and provide NTIS the flexibility to reduce staff as necessary as, over time, the implementation of these recommendations results in lower staff requirements.

15. Consideration should be given by NCLIS and the Congress to the possibility of combining the Superintendent of Documents with NTIS—and possibly with other information activities of the Federal Government—to create a more effective central information service that reduces duplication of effort and simplifies public access to Government information. In addition, NTIS should be encouraged to explore new ways of joining with SOD in cooperative programs that will render public access to Government information less duplicative and more seamless.

PANEL 1, APPENDIX A: MEMBERS OF PANEL 1

Peter F. Urbach, Panel 1 Chairman, Retired Publishing Industry Executive, Former Deputy Director, NTIS

Kenneth Allen, Exec. VP & CEO National Newspaper Association, Chair, NTIS Advisory Panel, Former President, Information Industry Association, Formerly with OMB

Stephen Arnold, President, Arnold Information Technology, Former Member, NTIS Advisory Panel

Ernest G. Baldwin, Director, Library Programs Service, [Superintendent of Documents (SOD), Government Printing Office (GPO)]

Mel Day, Retired, Former Director NTIS, Former Deputy Director [National Library of Medicine (NLM)]

Mike Majcher, Retired, Former Manager, Technical Information Center, Xerox Corporation

Steve Needle, Assistant to the Director, NTIS

Kent Smith, Deputy Director, [National Library of Medicine (NLM)]

Tim Sprehe, Sprehe Information Management Associates

Kenneth Wiggin, State Librarian, Connecticut State Library

Jay Young, Retired, Former Director, Documents Sales Service and Former Director, Library Programs Service [Superintendent of Documents (SOD), Government Printing Office (GPO)]

PANEL 1, APPENDIX B: NTIS ESTIMATES FOR APPROPRIATED FUNDS FOR "PUBLIC GOOD" FUNCTIONS[28]

Organization and Preservation

($ in thousands)
FY 2002

	Estimated Costs
Acquisitions	$540
Input Processing	2,790
Scanning & Storage	970
Physical Archive	200
Total Organization and Preservation	$4,500

Mounting Full Text Reports on NTIS Web Site for Free Public Access

($ in thousands)

	Year 1 Costs	Recurring Costs	
Nearline Storage	$80	$50	
Servers	500		
Telecomm. Hardware	50		
Telecomm. Access	50	60	*
Programming	240		
Hardware & Software Maintenance	100	120	*
Support Labor	200	200	
Software	500		
Total	$1,720	$430	

Assumptions:

1. Nearline storage includes average growth of 1 Terabyte per year

[28] These amounts have not been reviewed or approved by the U.S. National Commission on Libraries and Information Science. The estimates were provided to the panel by NTIS.

This includes storage of: (1) all currently scanned documents, (2) all new documents scanned and (3) back file documents scanned as ordered.

2. Total equipment replacement every 4 or 5 years not included in recurring costs.
3. Equipment and Telecommunications. Startup costs are additions to current infrastructure
4. Programming calculated @ 4 FTE for 6 months (average $120k per year)
5. Maintenance calculated @ 2 FTE for 1 year (average $96k per year)

* Increases 20% each year with increasing file size and increasing usage