APPLICATIONS SOFTWARE AND ELECTRONIC PUBLISHING SERVICES

IN CANADIAN FEDERAL GOVERNMENT CULTURAL SETTINGS

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Margo Howe
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INTRODUCTION/BACKGROUND

The purpose of this report is to provide an overview of the use of applications software and electronic publishing services within federal government cultural settings.

Over past decades the use of computer technology has increased in business, industry and government. This increase has accelerated with the introduction of powerful and inexpensive microcomputers. In fact, the Canadian computer software and services industry is growing twice as fast as the GNP and will have an estimated $3 billion in revenues in 1987 (Program Evaluation Directorate, Department of Communications, A Review of the Canadian and International Database, Software and Enhanced Service Industries, September 1986). The greatest future growth is expected to be in applications software (programs designed for specific user tasks as opposed to systems software which controls the computer's functions). It is estimated that the federal government spent $30 million on software in 1985, 8.6% of which was for microcomputer software (Canada, Supply and Services, Office Automation Services and Information Systems, Requirements Forecast Fiscal Year 1986-1987, 1986).

Electronic publishing is a relatively new application of computer technology, merging the traditional publishing process of collecting, reproducing and distributing information with new technologies in telecommunications, microcomputers and computer hardware and software. It encompasses a wide variety of activities including on-line and CD-ROM databases, desktop publishing and regional printing.

Currently, desktop publishing is a hot "buzzword" in the media. Desktop publishing is the in-house production of documents with microcomputers, laser printers and specialized page creation software which integrates text and graphics and provides control of a document's appearance and layout. A complete system costs between $6,000 and $20,000. Desktop publishing sales are expected to be $182 million in 1987, rising to $560 million by 1991 (Evans Research Corporation, An Overview of the Canadian Software Industry 1983-85, 1985).

The Department of Communications' interest in applications software and electronic publishing services stems from two sources. First, the department has a mandate for the development and application of new and innovative technologies

and second, the department is involved in policy initiatives concerned with the communications aspects of Canadian cultural industries and organizations.

This project was one of several initiated by the Strategic Policy Planning Division in 1987 to gather information about the needs of users of applications software and electronic publishing services, complementing previous studies on the problems of the industries. The other studies examined cultural organizations' demand for applications software and electronic publishing services, software for special needs groups, and the demand for applications software in federal government training settings. Recognizing that government procurement indirectly supports software development and can effectively supplement direct support such as grants and venture capital, of specific concern to this study are potential markets within federal government cultural settings. This information and similar information from the other studies conducted by the Department of Communications will be used in policy development.

Cultural departments and agencies have been selected for this survey because several studies have indicated that cultural organizations have information management requirements which are quite different from those of other organizations. A competing hypothesis is that their needs for and use of software is substantially similar to those of other government departments. On one hand, these organizations may have the same budgeting and personnel management requirements as businesses and other government departments. On the other hand, custodial institutions such as libraries and museums must maintain detailed collection information on their holdings, which may need to be accessible to a number of organizations and the general public; producing organizations (such as the National Film Board or the Canadian Broadcasting Corporation) have unique creative needs in addition to the problems of how to catalogue and access their products. Neither decision-makers within government nor software developers and consultants outside it appear to have adequate information about software and electronic publishing needs of the organizations who are the producers of culture or the organizations who are the custodians of culture. This study attempts to provide a profile of those needs and to answer the questions about relative uniqueness, as outlined above. Since many of the cultural organizations surveyed fall within the communications/culture portfolio, it is anticipated that the results may be of particular interest to the Department of Communications.

OBJECTIVE AND SCOPE OF STUDY

The objective of the study was to identify the levels and types of use of applications software and electronic publishing services in cultural settings in federal government departments and agencies with cultural responsibilities, including specific applications, estimated expenditures, and problems and benefits experienced.

METHODOLOGY

The responsibility for the procurement of software is spread throughout the federal government and details of the types of software purchased are not recorded. Similarly, the use of publishing services occurs throughout the federal government and is not centrally documented.

A Literature Search provided the context for the study, helping to identify potential software applications and users (government departments, key informants), compile definitions and descriptions of the terms "electronic publishing" and "cultural", and to guide the development of the survey. Concurrently meetings with officials of the Strategic Policy Planning Division within the Department of Communications also helped define the scope of the study.

The literature search revealed that, although several departments and areas within the Department of Communications were considering similar studies, there was no comprehensive documentation on usage levels in any of the areas under investigation.

From the literature search and discussion with DOC officials a list of pertinent items of information required to describe user's concerns and demands was developed and shaped into the survey instrument. The questionnaire was administered through a telephone survey which examined the use of applications software and electronic publishing services in federal government cultural departments and agencies including: The Department of Communications, the National Library, the four National Museums, the Canadian Radio-Television and Telecommunications Commission, the Canadian Broadcasting Corporation, Canada Council, the Department of Supply and Services (publishing), Environment (heritage activities in Parks Canada), Indian and Northern Affairs (Inuit and Indian culture) Telefilm Canada, Secretary of State, Statistics Canada (cultural statistics), the National Film Board, the National Library and the National Archives. The study excluded departmental libraries.

RESULTS

Software Development:

Respondents were questioned about where they generally attained their applications and EPS software. Responses tended to favour off-the-shelf (or pre-packaged, commercially available) software acquisitions, and are listed here in their order of popularity:

a) off-the-shelf purchases (23.1%)

b) combination of off-the-shelf purchases and consultant-developed products (19.2%)

c) combination of off-the-shelf purchases and in-house development (11.5%)

d) combination of off-the-shelf purchases, in-house development, and consultant-developed products (11.5%)

Few respondents reported that their software was principally developed by a consultant (7.7%), by a consultant and in-house (7.7%), or in-house (4.3%).

APPLICATIONS SOFTWARE

Of the 26 participants interviewed in this census, 22 (85%) stated that their departments are currently using, or are planning to use (within 2-3 years) management and/or creative and/or instructional applications software. The four respondents whose departments are not using or planning the use of such software stated that the use of applications software is not being studied by their departments.

Areas of Use:

Those who used applications software were questioned about their use in four broad areas - general management, specialized management, creative applications, and training/instructional uses.

The most popular area for the use of applications software is general management. Within this category, software for accounting/financial management is used by 77% of all respondents, and a further 9% are planning such applications. The second most popular of the general management applications is inventory management, with 55% using software for this purpose, and 18% planning such use.

In the area of specialized management, two-thirds of all respondents use software for subscription or mailing list

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management. Collections management (55%) is also a popular application. The use of software for scheduling (of events/exhibits/staff) is widespread (46%) and will likely increase (14% are planning such use).

Of the 5 creative applications investigated in this census, only computer-aided design (of sets, exhibits or animation) is a popular application (32%).

The use of software for training is quite popular. The majority of departments use applications software to teach computer skills (64%) or to deliver tutorials (64%).

The teaching of administrative/clerical skills (41%) and the use of software for testing (41%) are practiced by about two-fifths of the queried departments.

Perceived Benefits:

Respondents were asked to describe in their own words the benefits they were experiencing, or hoped to experience, from the use of applications software for management, creative and instructional applications. They provided a wide variety of interesting answers which have been (subjectively) compiled here for the sake of brevity.

The perceived benefits of applications software in the area of general management tend to cluster around monetary savings (person/year reductions, fewer support staff required, better control over financial resources), time savings (timely information retrieved, easier access to information) and efficiency (planning efficiency, ease of communications (via electronic mail) with other branches, automation of routine clerical tasks, inventory management).

The benefits of creative applications included improved attractiveness (attractiveness of memos, documents, exhibits, look of professionalism), cost effectiveness, general convenience (better information given to public, increased speed of production), as well as more artistic benefits (increased creativity in the new medium, ease of editing).

The benefits of instructional applications centred around convenience (customized speed of training, more enjoyable), ease of use, efficiency (cost efficiency, reduced training time), and the general advantage of allowing trainees to become more computer literate.

Perceived Problems:

Although respondents described numerous advantages associated with the use of applications software, they also report some significant problems.

The availability of financial resources plagued most respondents (86% report "some" or "major" problems). Half of all respondents also reported "major" problems with the cost of hardware (55%) and software development (50%).

When questioned about three specific technical problems associated with software use, respondents most frequently reported having "none", nevertheless, one third (36%) found "some" problem with the ability to integrate software packages and to download information or programs from mainframe to microcomputers.

Around one-half also reported having no problems in the area of supply. About one quarter had "some" problems in each of the three areas queried: the need to customize software (32%; 23% "major" problems), the lack of vendor support (27%), and suppliers' lack of knowledge about their department's needs (27%; 18% "major" problems).

Surprisingly, majorities reported having "no" problems with such institutional issues as accidental loss of data (73% "no" problem) and unauthorized access to data (86%).

The "human" problems of difficulty with the use of programs and insufficient training in the use of programs presented "some" problems for a majority of those interviewed (55% and 55% respectively), but resistance to the use of computers was no problem for almost two-thirds (64%).

ELECTRONIC PUBLISHING SERVICES

Twenty three of twenty six respondents (89%) in this census stated that their departments currently use or are planning to use (within 2-3 years) electronic publishing services (EPS). Of the three respondents' departments not using or planning to use EPS, none were studying its use.

Areas of Use:

Three applications of EPS were investigated: remote or regional printing, desk-top publishing (DTP), and database publishing (DBP). The use of EPS for remote or regional printing is quite popular - currently being used for this

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purpose by 48% of all respondents. A saturation level may have been reached however, since only 8% are either planning this type of application (4%) or are studying such a use (4%).

DTP, a much-discussed concept in the popular media, did not emerge as a popular application of EPS. Fewer than one fifth of all respondents currently use DTP for any of the five publishing activities investigated. However, the numbers of respondent departments planning such uses are considerable: production of newsletters (26%), manuals (30%), reports or studies (26%), forms (9%), promotional materials (30%).

The trend in DBP is quite contrary to that in DTP - certain database applications are currently popular, but the numbers of respondents planning such applications for the future, or studying the possibilities are typically very low. This suggests a leveling-off of demand for many (but not all) applications of DBP

On-line use of mainframe computers for publishing of bibliographies (70%) and directories/catalogs (65%) is most popular, followed by production of full text (39%) and images (22%). While the generation of integrated text, graphics and audio is not currently popular (9%), almost one fifth of all respondents (22%) are studying such applications.

Microcomputer applications of DBP differ somewhat from mainframe applications. The production of directories or catalogs (52%) is the most popular usage, followed by production of full texts (44%), bibliographies (39%) and images (17.4%). Overall, DBP applications on microcomputers are less popular than those on mainframe computers.

Perceived Benefits:

When asked to describe the benefits they were experiencing or hoped to experience from the use of EPS, respondents provided a number of interesting responses which have been (subjectively) compiled here for the sake of brevity. The perceived benefits included better data distribution (easy dissemination of information, better public service), product attractiveness (better appearance of documents, better layout), and general efficiency (ease and speed of data storage, retrieval and editing).

Perceived Problems:

The most significant problems associated with the use of electronic publishing services revolve around monetary issues. The majority of respondents report "some" (30%) or "major"

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(35%) problems with the cost of conversion, and even greater numbers report "some" (44%) or "major" (39%) problems with their lack of financial resources. Whereas hardware and storage costs present fewer problems, the cost of software development presents "some" (30%) or "major" (30%) problems for considerable numbers.

Technical problems appear to be less significant - "some" trouble with the incompatibility of hardware and software was, however, reported (44%). Half (52%) of respondents found EPS difficult to use.

Few institutional problems were reported, but over half (57%) of all respondents have "some" or "major" problems with the lack of perceived need by decision makers.

EXPENDITURES

Average departmental expenditures for software, hardware, database services, and publishing services are presented in table form:

Average (mean and median) Expenditures for 1986/1987 and for the Fiscal Years 1987/1988 and 1988/1989

	1986/1987 ($000)		Fiscal Years 87/88 and 88/89 ($000)
Software	106.6	(20.0)**	325.2 (25.0)
Hardware	164.8	(72.5)	220.4(100.0)
Database Services	200.6	(00.5)	253.8 (00.0)
Publishing Services	114.2	(58.5)	274.0(100.0)

** bracketed values are medians

Two caveats regarding these data are necessary. First, respondents were told that "rough estimates" would provide adequate responses, therefore the accuracy of these numbers should not be overestimated. Second, the existence of an "outlier", which is one respondent whose figures were dramatically higher than the others, has increased the averages considerably. For this reason median values are included in the above table; a median is the value above and below which one half of all observations fall i.e., the middle value. Medians are less dramatically effected by outliers than are means (which are arithmetic averages).

Despite these cautions, it is significant that expected expenditures are, in some cases, dramatically higher than current ones. A growing demand for software products is apparent.

Factors Influencing Initial Use of EPS and Applications Software:

The influences affecting decisions to invest in electronic publishing services and in applications software were also investigated.

The major influences, that is, those influences selected by the largest numbers of respondents as having a "major" influence, are: the availability of financial resources (58%), decisions by senior management (50%), user demand (50%), and the relative cost of publishing alternatives (50%). Factors identified as having "some" influence are: the experiences of colleagues (65%) and personal experiences with computers (62%).

Majorities of respondents found that journal reviews (54%) and vendor offers (62%) had no influence on the initial decisions to use EPS and applications software.

Conclusions

Although the sample size of this study is small, several patterns of use and types of benefits in use of software in cultural settings do emerge. The first part of the conclusions will focus on these. Secondly, comparison of the problems encountered and factors important in the introduction of software and areas of further investigation for both managers and software producers can be identified.

The use of software in federal government cultural settings is still concentrated in managerial functions. Accounting and financial management are the highest use patterns identified in the general management area. Specialized management uses of software are grouped around mailing list and collections management functions. However, we see little use of software for creative applications. Computer aided design of sets and exhibits are the most popular application with 32% of respondents indicating use. Teaching of computer skills and administrative and clerical skills are the most popular training applications. Software is also used for testing and the delivery of tutorials. We do not see widespread adoption of software outside these managerial and training applications.

Benefits from the use of applications software in administrative functions mentioned most often are mainly related to savings in cost and time, and the more efficient use of human and financial resources. In training applications

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cost efficiency and reduced training time are also mentioned.

In the creative and training applications we also see mention of the increase in the quality of service delivery through the use of software. Rather than the same type of work just being done more cost-effectively, the attractiveness of documents increases, information is given to the public more easily, and the editing and creative possibilities in the new medium are increased. Similarly, in training applications it is felt that computer training can be more enjoyable, easy to use, and the trainees also experience the added benefit of becoming more computer literate.

Remote or regional printing emerged as the most popular use of electronic publishing services, while desk-top publishing was used by fewer than one-fifth of respondents. There is, however, potential for growth in several applications of desk-top publishing, especially in the production of manuals and promotional materials. The on-line use of mainframe computers is heaviest in the publishing of bibliographies and catalogues. The advantages of these services in terms of better data distribution and public service have been recognized.

Problems in the introduction and use of software are grouped around cost factors in many instances. The availability of financial resources, the cost of hardware and the cost of software development are the potential problems identified most often. These economic problems were experienced on a much broader basis than those associated with technical factors, the supply of appropriate software, institutional problems or human factors.

Monetary issues are the main problems in desk-top publishing as well, with the lack of financial resources, the cost of conversion, and the cost of software development presenting the largest problems. EPS was also found to be difficult to use by one-half of respondents.

Consideration of the benefits, problems and factors influencing initial introduction of software would suggest that managers need to focus more closely on the need for introducing software in these organizations. Just as the lack of financial resources was seen to be a major problem, the availability of financial resources was a major factor influencing software introduction. Cost savings and improved production qualities are benefits recognized in the use of applications software and desk-top publishing. Similarly, the relative cost of publishing alternatives are seen as important factors in the initial use of electronic publishing services. The decisions of senior managers were seen as both a major factor influencing introduction of these applications and as an institutional problem (in the lack of perceived need by decision-makers).

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These factors taken together suggest a need for greater information distribution among senior management on the cost savings and improved production quality available through these applications, so that decisions might be made to free up necessary resources.

The benefits derived from the use of applications and electronic publishing software have facilitated better service to the Canadian public. Government programmes and policies to encourage software use will both assist these agencies in carrying out their functions, and may serve to provide an initial market for the development of Canadian software products.

This study would appear to suggest that the use of applications software and electronic publishing services within federal government cultural settings is currently not substantially different from their use outside it. The heavy emphasis on managerial applications suggests that standard information processing tasks will remain the principal focus of applications used in federal cultural organizations, at least in the near future. Heavy collections management usage is also expected to continue, as well as a trend toward greater use of desk-top publishing for routine documents. The intriguing question of creative software use in producing organizations remains unanswered and suggests either that:

> a) the scope of inquiry and list of informants of this study were too narrow to pick up the full array of creative applications; or

> b) the "state of the art" with regard to creative software is not sufficiently advanced to have an impact at the federal level.

While federal government decision-makers will no doubt find the profile of "mainstream" applications useful, more work is needed to determine the scope and potential of the creative use of software within federal cultural settings.

GLOSSARY OF TERMS

SYSTEM VS. APPLICATIONS SOFTWARE:

System software is software essential to the basic operation of a computer system. Applications software is software that operates in conjunction with the system software to automate a particular function for example, accounting, payroll, or training.

TRAINING MANAGEMENT APPLICATIONS:

Software in the form of applications packages designed to perform functions specific to the management of training activities including programs designed to measure student progress, keep student records, and recommend supplementary learning materials.

COMPUTER ASSISTED LEARNING (CAL):

Computer-based materials designed to teach or train an individual including microcomputer-based instruction, interactive videodisc and other media from which the computer-controlled element is central. CAL can provide general knowledge and perspective or teach a specific skill related to a particular job, product, procedure or working environment.

ELECTRONIC PUBLISHING SERVICES:

The use of computers and/or telecommunications to facilitate the production (capture, manipulation, storage, retrieval, composition, display, printing, etc.) and dissemination of textual, graphic, audio and/or video information including conventional publishing products, desktop publishing and database services (centralized or on-line systems and independent or standalone systems). It may make use of videodiscs, magnetic tapes, optical discs, or floppies.

DESKTOP PUBLISHING:

The in-house production of documents with a microcomputer, laser printer and specialized page creation software (What You See Is What You Get). The types of documents which might be printed include newsletters, policy manuals, short reports, forms and directories.

USING APPLICATIONS SOFTWARE/ELECTRONIC PUBLISHING SERVICES:

The systems are currently in place and operational.

PLANNING USE....

Resources have been allocated to an activity which is not yet operational.

STUDYING USE....

A feasibility study or needs assessment is in process.

BIBLIOGRAPHY

Avedon, E.M., Stewart, T.O., Goodman, D.S., Eichmierer, W.E. and
Fijalkowski, B.C., _Microcomputer Database Management Systems_,
Application to Cultural and Heritage Information Tasks. Institute
for Computer Research, University of Waterloo, Waterloo, Ontario,
March 1986.

Canada, Department of Communications, _Annual Report 1985-86_,
Ottawa, 1986.

Canada, Department of Communications, Economic Development
Branch, _A Study of Selected Areas in Electronic Publishing_.
Prepared by International Data Corporation Ltd., Toronto, 1987.

Canada, Department of Communications, Department of Program
Evaluation, _A Review of Canadian and International Database,_
Software and Enhanced Services (VANs) Industries. September 23,
1986.

Canada, National Museums of Canada, _Annual Report 1985-1986_,
Ottawa, 1986.

Canada, Public Archives, _Annual Report 1985-1986_, Ottawa, 1986.

Canada, Supply and Services, Office Automation, Services and
Information Systems, _Requirements Forecast Fiscal Year 1986-_
_1987_, Ottawa, 1986.

Canada, Telefilm Canada, _Annual Report 1985-1986_, Ottawa, 1986.

Canada, Treasury Board of Canada, Communications Division, _Review_
of Information on Technology and Systems in the Government of
Canada 1984, Ottawa, 1985.

Canada, Treasury Board of Canada Secretariat, Personnel Policy
Branch, _Report on Staff Training in the Public Service 1984-1985_,
Ottawa, 1985.

Canadian Broadcasting Corporation, _Annual Report 1985-1986_.

DMR Group Inc., _A Study of the Software Industry In Canada_,
September 1986.

Evans Research Corporation, _An Overview of the Canadian Software_
Industry 1983-1985.

Globe and Mail, October 12, 1981, _Computer-Aided Learning Becomes_
a $5 Billion Market.

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Grusec, Ted, "Office Automation in Government Offices," Productivity and Other Myths, Optimum, 1985, Vol 16(2) p. 20.

Gurstein, Michael, Stein, Alfred and Grandy, Tom, A Management Strategy for Optical Data Disc Technology in the Federal Government of Canada, Socioscope Inc., Ottawa, March 1985.

Institute for Graphic Communications, Opportunities in Electronic Publishing, June 1984.

Jeannotte, M. Sharon, Department of Communications, Social Policy Directorate, Technology in Culture and the Arts: A Policy Information Paper, August 1986.

Kearsley, Greg P., Hillesdon, Michael J. and Seidel, Robert J., "Microcomputer-based training in business and industry: present status and future prospects," Educational Technology Systems, Vol. 10(2), 1981-82, pp 101-108.

McNeil, Russell, "Telecommunications," Canadian Research, December 1986, pp 39-44.

McPhail, T. and Hamilton   , Communication in the 80's, (Proceedings of a conference held at the University of Calgary, April 29 - May 1, 1987) The University of Calgary, Graduate Programme in Communications Studies.

National Research Council of Canada, Associate Committee on Instructional Technology, Towards a National Policy for Computer-Aided Learning Industry, May 1984.

National Arts Centre, Annual Report 1985-1986, Ottawa, 1986.

National Library of Canada, Annual Report 1985-1986, Ottawa, 1986.

National Film Board of Canada, Annual Report 1985-1986, Ottawa, 1986.

Plowright, Teresa, Computer Learning: The Policy Imbroglio, A Study of the Policy Environment for Computer Learning and Its Effects on Industry, A report submitted to the Institute for Research on Public Policy, Wescom Ltd., July 1983.

Tobin, Judith, Educational Videodisc in Canada, TV Ontario, Office of Development Research, Ontario Educational Communications Authority, January 1984.

Wilson, Joy, Educational Applications and Videotex/Telidon in Canada, New Technologies in Canadian Education, Paper 11, January 1984, TV Ontario Office of Development Research, 1984.

AGGREGATE TABLES

TABLE ONE*: SOFTWARE USE AND PLANS
(n=26)

	%YES	%NO
Use software...	84.6	15.4

* see Question 1

TABLE TWO*: STUDY USE
(n=26)

	%YES	%NO	%N/A
Study use......	-----	15.4	84.6

* see Question 2

TABLE THREE*: WHY NOT
(n =26)

No perceived need........	----
No financial resources...	----
Wait and see how technology develops..	----
A small sector within department...........	3.8%
Not applicable/ answered.	96.2%

* see Question 3

TABLE FOUR*: MANAGEMENT APPLICATIONS FOR SOFTWARE
(n=22)

	%use	%plan	%study	%no	%n/a	%miss
Accounting/financial management.............	77.3	9.1	4.5	4.5	4.5	----
Inventory management......	54.5	18.2	4.5	13.6	9.1	----
Payroll administration...	22.7	4.5	----	31.8	40.9	----
Graphics.................	36.4	4.5	9.1	36.4	13.6	----
Collections management...	54.5	4.5	----	9.1	31.8	----
Conservation.............	31.8	9.1	----	31.8	27.3	----
Scheduling...............	45.5	13.6	4.5	27.3	9.1	----
Subscription/mailing list	63.6	4.5	4.5	13.6	9.1	4.5
Fundraising..............	4.5	13.6	4.5	54.5	22.7	----
Computerized ticketing... (on-line)	4.5	4.5	----	18.2	72.7	----
Electronic box office.... (in-house)	4.5	4.5	----	18.2	72.7	----
Security.................	36.4	----	4.5	50.0	9.1	----
Other:						
Project tracking.........	13.6	----	----	----	86.4	----

* see Question 4

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VERBATIM RESPONSES: QUESTION FIVE

BENEFITS FROM THE USE OF MANAGEMENT APPLICATIONS SOFTWARE:

- Reduced cost information, reduced cost in services to clients, more information about programmes.

- Better scheduling of activities, easier and faster access to information, better inventory and resource control.

- Improves productivity and marketing ability, able to identify trends.

- Better control and use of fiscal resources, easier to respond to political questions, more timely information, permits better communication between other museums regarding general public enquiries, better overview of museum's workings instead of a segmented view.

- Hope to get our work done on time, need to automate because of staff cuts.

- Finally getting a handle on the collection, replacing a card system that was allowed to lapse, hope to get a handle on budget and inventory, relieve strain on the secretary when people do their own word processing.

- Reduction of support staff, can have more officers, turnaround time shortened, staff have more control, staff can do it themselves, ease of communications with electronic mail, staff morale higher, now feel part of the 20th century.

- Automate routine clerical tasks, had lost support staff and now can recover, timeliness and accuracy in responding to enquiries, keep track of budgets accurately, network within directorate.

- Accessibility, know location of each work in collection.

- Management of tickets horrendous before, don't need inventories of tickets, financial control, security, comparing tickets sold to revenue received.

- Time saving, accuracy, dependable.

- Relational database easily accessible.

- Accurate and timely financial reporting, better control, better capabilities for future planning.

- Better access to information, quick access, shared access with other staff members.

- Increased efficiency, reduced task redundancy, hope to be able to catch up on backlog of collection documentation.

- Faster, couldn't survive without artifact inventory, financial.

- Reduced person-years, free to do other tasks, don't have to ask for more, improved quality of service, timely and accurate information and more information for management.

- Benefits not quantifiable, not as much time and money, saved as anticipated but quality of work much better or even more time spent.

- Saves time, more efficient.

- More cost efficient, timeliness greatly enhanced, person-years reduced through attrition, laid people off.

- More information on time, better quality information, able to do management of our own money.

TABLE SIX*: CREATIVE APPLICATIONS FOR SOFTWARE
(n=22)

	%use	%plan	%study	%no	%n/a	%miss
Computer aided design....	31.8	----	4.5	31.8	31.8	----
Synthesized sound........	4.5	----	4.5	40.9	50.0	----
Dance notation...........	----	----	----	31.8	68.2	----
Computerized exhibits....	13.6	4.5	9.1	22.7	50.0	----
Film/music editing.......	13.6	4.5	----	36.4	45.5	----

* see Question 6

VERBATIM RESPONSES: QUESTION SEVEN

BENEFITS FROM CREATIVE APPLICATIONS SOFTWARE:

- None, but all our companies and clients have these applications.

- Museum's answer to Max Headroom, expect to be more relevant, more creative in new medium, can orchestrate a large show.

- Better turn-outs to training session than with typed memos.

- Control activities for four different programmes, keep files on disc.

- Wouldn't be able to do it without the computer, can't do these things manually, can push data further, make better use of researcher's time.

- Speed, variety.

- Research for film sector and actual production of films through computer assisted animation.

- Better information to visitors about daily events, coming events, could have advertising for books in bookstore, digital, easier to maintain, person-year reductions, layouts of paintings through CAD are satisfactory and save time.

- Enhance presentation of exhibits.

- Important to designers, saves time, especially for structural design.

- Each case too recent to decide benefits.

- More professional looking product, better and cheaper to produce.

TABLE EIGHT*: INSTRUCTIONAL USES FOR SOFTWARE
(n=22)

	%use	%plan	%study	%no	%n/a	%miss
Public information						
Interactive exhibits..	4.5	13.6	----	59.1	22.7	----
Information............	13.6	13.6	----	45.5	22.7	4.5
Orientation...........	9.1	4.5	----	63.6	22.2	----
Management/professional						
development...........	22.7	4.5	----	59.1	13.6	----
Technical/vocational						
training..............	18.2	----	9.1	59.1	13.6	----
Management/business						
skills................	9.1	----	9.1	68.2	13.6	----
Administrative/clerical						
skills................	40.9	----	4.5	50.0	4.5	----
Computer skills...........	63.6	9.1	4.5	22.7	----	----
Simulations..............	31.8	4.5	4.5	45.5	13.6	----
Drills...................	31.8	----	4.5	45.5	13.6	4.5
Tutorials................	63.6	4.5	4.5	13.6	13.6	----
Testing..................	40.9	----	4.5	36.4	13.6	4.5

* see question 8

BENEFITS THROUGH THE USE OF INSTRUCTIONAL APPLICATIONS SOFTWARE:

- Reduced training time, learning time, no instruction cost, more convenient learning environment.

- Just started, too soon to tell.

- Better employee computer literacy, better understanding of how computers can help them in their work, more able to describe a system for something they need, serve public better, faster, more innovative, help staff do work with more information presented in better form, correct spelling.

- 80 people computer literate over two years, can teach yourself on computer.

- Greater facility on machines.

- Personal preference, too much pressure with an instructor.

- Learning to use product, making staff more comfortable with technology.

- Speeding up work, improving quality of material.

- Limited, unstructured, slow process but limited funding.

- Much easier to implement systems, closer look at and better relationship with end user.

- Everybody begins to understand how to use microcomputers.

- Users learn at their own pace, reduced overhead for trainees, less requirement for centralized training facilities.

- Increased computer awareness, computer literate, increased productivity.

- Not systematic yet, benefits will pay off in 2 years or so.

- Reduced costs, computer skills, cheaper to teach in-house than send people out to a course.

- Hard to tell, never surveyed, results good, not very good or excellent, people do as much as they think.

- Enhanced employee output, increase generalized knowledge, gives greater access to everyone, workloads easier for key staff, timeliness enhanced, morale boosted for technical training, productivity increased.

- Better qualified personnel, better efficiency, can train at their own speed.

TABLE TEN*: PROBLEMS AND BARRIERS
(n=22)

DEGREE OF PROBLEM:

	%no problem	%some problem	%major problem	%not sure	%not answered
ECONOMIC:					
Hardware cost.............	18.2	27.3	54.2	----	----
Software development cost...................	18.2	31.8	50.0	----	----
Off-the-shelf software cost..................	50.0	27.3	13.6	----	9.1
Availability of financial resources.............	13.6	22.7	63.6	----	----
TECHNICAL					
Incompatibility between hardware and software.	68.2	22.7	4.5	----	4.5
Inability to integrate software packages.....	50.0	36.4	9.1	4.5	----
Inability to download information/programs..	50.0	36.4	13.6	----	----
SUPPLY					
Need to customize software..............	45.5	31.8	22.7	----	----
Suppliers not knowledgable about needs of department............	54.5	27.3	18.2	----	----
Lack of vendor support...	59.1	27.3	13.6	----	----
INSTITUTIONAL					
Accidental loss of data..	72.7	22.7	----	4.5	----
Unauthorized access to data...............	86.4	9.1	----	4.5	----
HUMAN					
Programs difficult to use................	45.5	54.5	----	----	----
Insufficient training in use of programs....	22.7	50.0	27.3	----	----
Resistance to use of computers.............	63.6	36.4	----	----	----

* see Question 10

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TABLE ELEVEN*: ELECTRONIC PUBLISHING SERVICES
(n=26)

	%YES	%NO	%N/A	%DONT KNOW
Use or plan use of EPS...	88.5	11.5	----	----

* see Question 11

TABLE TWELVE*: STUDYING USE OF ELECTRONIC PUBLISHING SERVICES
(n=26)

	%YES	%NO	%N/A	%DONT KNOW
If no, are you studying its use?..............	----	7.7	88.5	3.8

* see Question 12

TABLE THIRTEEN: WHY NOT CONSIDERING ELECTRONIC PUBLISHING SERVICES?
(n=26)

	NO PERCEIVED NEED(%)	NO FINANCIAL RESOURCES(%)	IN PROCESS OF REORGANIZING (%)	N/A (%)
Why not.................	3.8	3.8	3.8	88.5

* see Question 13

TABLE FOURTEEN: NOT APPLICABLE

TABLE FIFTEEN*: ELECTRONIC PUBLISHING APPLICATIONS
(n=23)

	%use	%plan	%study	%no	%n/a	%miss d/k
Remote or regional printing...............	47.8	4.3	4.3	21.7	21.7	----
DESKTOP PUBLISHING						
Newsletters...........	13.0	26.1	17.4	30.4	8.7	4.3
Manuals...............	8.7	30.4	13.0	39.1	8.7	----
Reports, studies......	21.7	26.1	21.7	21.7	8.7	----
Forms, requests for proposals.............	17.4	8.7	17.4	43.5	8.7	4.3
Promotional material..	17.4	30.4	17.4	26.1	8.7	----
DATABASE PUBLISHING **ONLINE STORAGE/SEARCH OF:**						
Directories/catalogues	65.2	8.7	----	17.4	8.7	----
Bibliographic.........	69.6	----	4.3	13.0	8.7	4.3
Full text.............	39.1	4.3	4.3	34.8	13.0	4.3
Images................	21.7	4.3	17.4	43.5	8.7	4.3
Integrated text, graphics and audio....	8.7	----	21.7	56.5	8.7	4.3
STAND-ALONE						
Directories/catalogues	52.2	4.3	4.3	34.8	----	4.3
Bibliographic information...........	39.1	4.3	4.3	30.4	----	21.7
Full text.............	43.5	----	8.7	34.8	4.3	8.7
Images................	17.4	----	17.4	56.5	----	8.7
Integrated text, graphics and audio....	----	----	13.0	82.6	----	4.3
DEMAND PRINTING..........	82.6	4.3	4.3	4.3	4.3	----
Directories/catalogues...	73.9	4.3	8.7	8.7	4.3	----
Reports/studies..........	60.9	8.7	4.3	17.4	4.3	4.3
Bibliographic information	69.6	4.3	4.3	17.4	4.3	----

* see Question 15

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TABLE SIXTEEN*: PROBLEMS INTRODUCING ELECTRONIC PUBLISHING SERVICES
(n=23)

DEGREE OF PROBLEM

	%none	%some problem	%major problem	%not sure	%n/a d/k. missing
ECONOMIC					
Cost of conversion.......	26.1	30.4	34.8	8.7	----
Storage cost.............	78.3	4.3	13.0	4.3	----
Hardware cost............	56.5	13.0	30.4	----	----
Software development cost	30.4	30.4	30.4	4.3	4.3
Lack of financial resources.............	17.4	43.5	39.1	----	----
TECHNICAL					
Incompatibility of hardware and software.	43.5	43.5	4.3	4.3	4.3
Incompatibility in database structure....	43.5	34.8	17.4	----	4.3
Poor quality of existing databases.............	39.1	30.4	21.7	----	8.7
Limited availability of useful databases......	52.2	30.4	13.0	----	4.3
INSTITUTIONAL					
Accidental loss of data..	73.9	21.7	----	4.3	----
Unauthorized access......	78.3	4.3	8.7	8.7	----
Lack of perceived need by decision-makers....	43.5	26.1	30.4	----	----
HUMAN					
Difficult to use.........	43.5	52.2	4.3	----	----
Insufficient training in how to use programs...	47.8	30.4	21.7	----	----
Resistance to the use of computers...........	60.9	34.8	4.3	----	----

* see Question 16

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QUESTION SEVENTEEN: VERBATIM RESPONSES

BENEFITS IN ELECTRONIC PUBLISHING SERVICES USE:

- Cost, time, improved effect of selling, image presented is greatly improved by packages.

- Better profile and prominence, if it looks good it sells.

- A faster better process, able to generate and disseminate more information, have access to more databases.

- Better decision-making, better marketing, market segmentation and composition of products and clients.

- Better presentation of documentation, lower costs for low volume production, faster production, anticipate memo-wars, my memo better looking than yours.

- Standardization of data in the discipline as a whole, quicker access to data.

- Cut costs, productions out in time.

- Hope to see a reduced cost of publishing, faster turnaround, quicker response to need, better designed to fit needs, small number of copies at reasonable cost.

- Better capability to manage programmes, more accessibility to data, convergence into the location of data related to program delivery.

- Reduction of production costs, better looking product.

- Speed of access, more storage capacity.

- Speed accuracy, quality, more available data, less space required for storage.

- Incredible benefits, time , paperwork.

- Increase (improve) image, data processing, company more professional, quicker access to information.

- Cost-effective catalogues, timeliness.

- Reduced costs and time to produce, better access and information in final product.

- Easy dissemination of information.

- Increase distribution to client or customer museums, increase quality of in-house produced documents, lower typesetting costs by telecommunications to publishing house.

- Able to make deadlines, editing beautiful, layout faster, easier for people to be creative, saves person-years.

- Information available to more people, reduced time for preparation, saves staff time in editing and outputs, easier and faster to produce hard copy.

- Very good for the public service, lightened load for advisors, researchers can do it themselves, difficulty in that it creates more work for staff as a lot more things are being found, circulation increased.

- Can produce a job more cheaply, output quicker, more streamlined, more accessible.

- Better access to information, hopefully less costly.

TABLE EIGHTEEN*: EXPENDITURES

Average (mean and median) Expenditures for 1986/1987
and for the Fiscal Years 1987/1988 and 1988/1989

	1986/1987 ($000)		Fiscal Years 87/88 and 88/89 ($000)
Software	106.6	(20.0)**	325.2(25.0)
Hardware	164.8	(72.5)	220.4(100.0)
Database Services	200.6	(00.5)	253.8 (00.0)
Publishing Services	114.2	(58.5)	274.0(100.0)

** bracketed values are medians

* see Question 18

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TABLE NINETEEN*: MAJOR FACTORS WHICH INFLUENCED INITIAL INVOLVEMENT WITH
ELECTRONIC PUBLISHING SERVICES AND APPLICATIONS SOFTWARE
(n=26)

	%no infl	%some infl	%major infl	%not sure	%n/a missing
Decision by senior management.............	15.4	34.6	50.0	----	----
Journal reviews..........	53.8	38.5	3.8	----	3.8
Colleagues' experience...	23.1	65.4	11.5	----	----
Personal experience with computers.............	7.7	61.5	30.8	----	----
Available financial resources...............	11.5	26.9	57.7	3.8	----
Assistance provided by supplier...............	38.5	26.9	30.8	3.8	----
Relative cost of publishing alternatives..	26.9	19.2	50.0	3.8	----
Vendor offer.............	61.5	19.2	15.4	3.8	----
User demand..............	15.4	30.8	50.0	3.8	----

* see Question 19

TABLE TWENTY: DEVELOPMENT OF APPLICATIONS SOFTWARE
(n= 26)

(1) Developed in-house..   3.8%

(2) Developed by consultant 7.7%

(3) Purchased
    off-the-shelf.......... 23.1%

(4) (1)+(2)............... 7.7%

(5) (2)+(3)............... 19.2% ·

(6) (1)+(3)............... 11.5%

(7) (1)+(2)+(3)........... 11.5% ·

(8) Not answered.......... 15.4%

* see Question 20

TABLE TWENTY-ONE(*): SOFTWARE AND ELECTRONIC PUBLISHING SERVICES ADEQUATE?
(n=26)

	%YES	%NO	%NOT SURE/DK
Software and Electronic Publishing Services Adequate to meet your needs?................	65.4	30.8	3.8

(*) see Question 21

QUESTION TWENTY-TWO: VERBATIM RESPONSES

WHY ARE SOFTWARE AND ELECTRONIC PUBLISHING SERVICES NOT ADEQUATE?

- Need more equipment, more, more, more, need optical discs but no way to afford it ($70,000).

- We've only started.

- Need to increase year to year, more detail, more sophistication.

- Need more equipment, more everything, need better graphics.

- Just identified need for more software, expanding system, software adequate for what it is doing but need to expand.

- Most software doesn't handle multilingual characters or other alphabets.

- Need more integrated software products not specific to hardware.

- A lot of constraints getting full text access, digital disc/ optical scanning equipment much closer to the ideal.

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APPENDIX:

SURVEY INSTRUMENT

APPLICATIONS SOFTWARE AND
ELECTRONIC PUBLISHING SERVICES QUESTIONNAIRE

Hello, my name is Kate Clunie and I'm conducting a study for the Department of Communications on applications software and electronic publishing services. I have some questions about your department's (museum's, agency's, sector's, centre's) current and projected use of computer software and electronic publishing services. Are you the person responsible for the planning ____, and/or use of software _____ in your _____(see above)

Yes ____
No ____

IF NO, do you know the name and telephone number of the person I should talk to?

_____

IF YES, We are interested in the use of software and electronic publishing services in the cultural setting. This information is being collected to give guidance to the Department of Communications for developing policies and programs in these computer-related areas. The questionnaire will take about 20' to answer. Is it convenient for you to do it now?

Yes ____
No ____

IF NO, when can I call you back? (Make an appointment) Could you please tell me your:

(Ask only that information missing, fill in known info)

NAME: _____
TELEPHONE: _____
DEPARTMENT: _____
BRANCH: _____
POSITION: _____
LENGTH OF TIME IN POSITION: _____

The questionnaire is in two sections: first, applications software that is, software designed to perform specific functions. The three functions we are interested in are management, creative, and instructional or training.

I'll define out terms:

MANAGEMENT software helps perform business functions such as payroll, accounting, and database management.

CREATIVE software helps in an artistic or creative process. And,

INSTRUCTIONAL/TRAINING software helps to teach or train and
individual, including interactive videodisc.

For this survey, the tern "Plan to use" means you have already
allocated funds for it but it isn't in place yet.

And "Studying using" means you are doing some kind of feasibility
study but have no funds allocated yet.

All Right?

Question 1 -- Page 3

                    NOTE TO INTERVIEWER:
                CIRCLE APPROPRIATE RESPONSE
                            OR
                WRITE ANSWER IN SPACE PROVIDED

IDENTIFYING USERS

The first section of the questionnaire is to identify the extent to which your department uses, or plans to use applications software.

Q-1 Does your department use, or plan to use in the next 2-3 years software in management and/or creative and/or instructional areas?

             1 Yes --------) TURN PAGE AND BEGIN
             2 No

Q-2 Are you studying using management, creative and/or instructional applications software?
             1 Yes -------) TURN PAGE AND BEGIN
             2 No --------) GO TO QUESTION 3

Q-3 If NO, why is you department not considering using software?

         1 No perceived need
         2 No financial resources
         3 Wait and see how the technology develops
         4 Other (specify)

         _____

GO TO ELECTRONIC PUBLISHING SERVICES PAGE 8

APPLICATIONS USED

I am going to list some management applications for software. Please tell me whether you are using, plan to use or are studying these of it it's not applicable.

(Note to interviewer, refer to previous page and glossary of terms for definition of use, planning and studying)

APPLICATION	STATUS OF USE				
Q-4 MANAGEMENT	USE	PLAN	STUDY	NO	N/A

GENERAL MANAGEMENT

Accounting/financial mgt.	USE	PLAN	STUDY	NO	N/A
Inventory mgt.	USE	PLAN	STUDY	NO	N/A
Payroll administration	USE	PLAN	STUDY	NO	N/A
Graphics	USE	PLAN	STUDY	NO	N/A
Other (specify)					
_____	USE	PLAN	STUDY	NO	N/A
_____	USE	PLAN	STUDY	NO	N/A
_____	USE	PLAN	STUDY	NO	N/A

SPECIALIZED MANAGEMENT

Collections mang't	USE	PLAN	STUDY	NO	N/A
Conservation	USE	PLAN	STUDY	NO	N/A
Scheduling (events/exhibits/staff)	USE	PLAN	STUDY	NO	N/A
Subscription/Mailing list mgt.	USE	PLAN	STUDY	NO	N/A
Fundraising	USE	PLAN	STUDY	NO	N/A
Computerized ticketing (on-line)	USE	PLAN	STUDY	NO	N/A
Electronic box office (in-house)	USE	PLAN	STUDY	NO	N/A
Security	USE	PLAN	STUDY	NO	N/A
Other					
_____	USE	PLAN	STUDY	NO	N/A
_____	USE	PLAN	STUDY	NO	N/A
_____	USE	PLAN	STUDY	NO	N/A

Q-5 BENEFITS

What benefits are you experiencing/hope to experience through the use of management applications software?

_____
_____
_____

I am going list some creative applications for software. Please tell
me whether you are using, plan to use or are studying using
these or it they're not applicable.

APPLICATION	STATUS OF USE				
Q-6 CREATIVE	USE	PLAN	STUDY	NO	N/A
Computer-aided design					
(sets, exhibits, animation)	USE	PLAN	STUDY	NO	N/A
Synthesized sound	USE	PLAN	STUDY	NO	N/A
Dance notation	USE	PLAN	STUDY	NO	N/A
Computerized exhibits	USE	PLAN	STUDY	NO	N/A
i.e. laser shows					
Film/Music editing	USE	PLAN	STUDY	NO	N/A
Other					
_____	USE	PLAN	STUDY	NO	N/A
_____	USE	PLAN	STUDY	NO	N/A
_____	USE	PLAN	STUDY	NO	N/A

Q-7 BENEFITS

What benefits are you experiencing/hope to experience through the use
of creative applications software?

_____
_____
_____

I am going to list some instructional uses for software. Please tell
me whether you are using, plan to use or are studying using these or
it they' not applicable.

APPLICATION	STATUS OF USE				
Q-8 TRAINING	USE	PLAN	STUDY	NO	N/A
Public Education					
Interactive exhibits	USE	PLAN	STUDY	NO	N/A
Information	USE	PLAN	STUDY	NO	.N/A
Orientation	USE	PLAN	STUDY	NO	N/A
Management/Professional					
Development	USE	PLAN	STUDY	NO	N/A
Technical/vocational training	USE	PLAN	STUDY	NO	N/A
Management/business skills	USE	PLAN	STUDY	NO	N/A
Administrative/clerical skills	USE	PLAN	STUDY	NO	N/A
Computer skills	USE	PLAN	STUDY	NO	N/A
Simulations	USE	PLAN	STUDY	NO	N/A
Drills	USE	PLAN	STUDY	NO	N/A
Tutorials	USE	PLAN	STUDY	NO	N/A
Testing	USE	PLAN	STUDY	NO	N/A

Q-9 BENEFITS

What benefits are you experiencing/hope to experience through the use
of instructional applications software?

_____

_____
_____

Q-10 PROBLEMS
I am going to list of some problems or barriers you may face in
introducing and taking the greatest advantage of the software we've
discussed. Please tell me whether the following present
no problem (1), some problem (2), or a major problem (3). If you are
not sure how much of a problem it presents please say so (4)

	DEGREE OF PROBLEM (Circle response)			
	None	Some	Major	Not sure
ECONOMIC				
Hardware cost	1	2	3	4
Software development cost	1	2	3	4
Off the shelf software costs	1	2	3	4
Availability of financial resources	1	2	3	4
TECHNICAL				
Incompatibility between hardware and software	1	2	3	4
Inability to integrate software packages	1	2	3	4
Inability to download information/programs from mainframe to micro computer	1	2	3	4
SUPPLY				
Need to customize software	1	2	3	4
Suppliers not knowlegable about needs of dep't	1	2	3	4
Lack of vendor support	1	2	3	4
INSTITUTIONAL				
Accidental loss of data	1	2	3	4
Unauthorized access to data	1	2	3	4
HUMAN				
Programs difficult to use	1	2	3	4
Insufficient training in use of program(s)	1	2	3	4
Resistance to the use of the computers	1	2	3	4

Have you experienced other problems?

_____
_____
_____
_____

ELECTRONIC PUBLISHING SERVICES

The second section is on Electronic Publishing Services. For this survey we define these as "the use of computers and/or telecommunications to produce and disseminate information including conventional publishing products, desktop publishing, and database services. (capture, manipulation, storage, retrieval, composition, display, printing) (textual, graphic, audio and/or video) (both on-line and standalone, and might use floppies, magnetic discs, optical discs, videodisc.)

If they ask:
Desk-top publishing is defined as the in-house production of documents with microcomputers, laser printers and specialized page creation software (What You See is What You Get). These systems, hardware and software generally cost between 6,000 and 20,000 dollars.

Q-11 Does your _____ presently use electronic publishing services or plan to use then within the next 2-3 years?

        1 Yes ------) TURN PAGE TO 9, QUESTION 15
        2 No

Q-12 IF NO, are you studying using electronic publishing services?

        1 Yes ------) TURN TO PAGE 9, QUESTION 15
        2 No -------) GO TO QUESTION 13

Q-13 IF NO TO BOTH 11 AND 12, why isn't your department considering using electronic publishing services? (CIRCLE the applicable responses)

        1 No perceived need
        2 No financial resources
        3 Had not been aware of the applications
        4 Technology not available
        5 Technology changing...wait and see
        6 Other (specify)

                _____
                _____

Q-14 Do you know of other areas of your department/agency which may be using or planning to use eps and computer software?
        1 Yes   if Yes, name? _____
        2 No

Thank you for participating in this study.

Q-15 APPLICATIONS

I am going to list some applications of electronic publishing. Please
tell me whether you use, plan to use, are studying using or have no
plans to use them or if they don't apply to you .

APPLICATION	STATUS OF USE				
	USE	PLAN	STUDY	NO	N/A
Remote or regional printing	USE	PLAN	STUDY	NO	N/A
Desk-top Publishing					
newsletters	USE	PLAN	STUDY	NO	N/A
manuals	USE	PLAN	STUDY	NO	N/A
reports, studies	USE	PLAN	STUDY	NO	N/A
forms, requests for proposal	USE	PLAN	STUDY	NO	N/A
promotional material	USE	PLAN	STUDY	NO	N/A
Database publishing					
On-line storage/search of:					
directories/catalogues	USE	PLAN	STUDY	NO	N/A
bibliographic	USE	PLAN	STUDY	NO	N/A
full text	USE	PLAN	STUDY	NO	N/A
images	USE	PLAN	STUDY	NO	N/A
integrated text, graphics	USE	PLAN	STUDY	NO	N/A
and audio					
Stand-alone (use with microcomputers)					
directories/catalogues	USE	PLAN	STUDY	NO	N/A
bibliographic info	USE	PLAN	STUDY	NO	N/A
full text	USE	PLAN	STUDY	NO	N/A
images	USE	PLAN	STUDY	NO	N/A
integrated text, graphics	USE	PLAN	STUDY	NO	N/A
and audio					
Demand printing	USE	PLAN	STUDY	NO	N/A
directories/catalogues	USE	PLAN	STUDY	NO	N/A
reports, studies	USE	PLAN	STUDY	NO	N/A
bibliographic information	USE	PLAN	STUDY	NO	N/A

Other

_____
_____
_____
_____

Q-16 PROBLEMS

I am going to list some problems you may face in introducing and
taking the greatest advantage of electronic publishing services.
Please tell me whether the following present no problem (1), some
problem (2) or a major problem (3). If you are not sure how much of a
problem it presents please say so (4).

| | DEGREE OF PROBLEM (Circle response) | | | Not |
	None	Some	Major	Sure
ECONOMIC				
Cost of conversion...........................1	2	3	4
Storage cost.................................1	2	3	4
Hardware cost................................1	2	3	4
Software development cost....................1	2	3	4
Lack of financial resources.................1	2	3	4
TECHNICAL				
Incompatibility of hardware and software....1	2	3	4
Incompatibility in database structure.......1	2	3	4
Poor quality of existing databases..........1	2	3	4
Limited availability of useful databases....1	2	3	4
INSTITUTIONAL				
Accidental loss of data......................1	2	3	4
Unauthorized access..........................1	2	3	4
Lack of perceived need by decision makers...1	2	3	4
HUMAN				
Difficult to use............................1	2	3	4
Insufficient training in				
how to use the program(s)...............1	2	3	4
Resistance to the use of computers..........1	2	3	4

Have you experienced other problems? If yes, please explain.

_____

_____

_____

Q-17 BENEFITS

What benefits do you get or hope to get through the use of electronic
publishing services?

_____

_____
_____

Do you know of anyone else in your department/agency who is using or
considering using electronic publishing services.

Yes, if so name? _____
No

Q-18 EXPENDITURES

The next few questions are about expenditures on both applications
software and electronic publishing services. ROUGH ESTIMATES ARE
SUFFICIENT. (Alternatively, could I call back for the information or
Could you send me the information?)

Approximately how much did your _____ spend or plan to spend
(in $,000, estimates are sufficient) in 1986/87 and this fiscal year
(1987/88) and next (1988/89).

	1986/87	This and the next fiscal year
Software overall		
Specialized Management	_____	_____
Generic Management	_____	_____
Creative	_____	_____
CAL	_____	_____
EPS	_____	_____
Hardware overall		
Mainframes	_____	_____
Minis	_____	_____
Micros	_____	_____
Database Services	_____	_____
Publishing Services		
(electronic and traditional)	_____	_____

Q-19 MAJOR FACTORS WHICH INFLUENCED INITIAL INVOLVEMENT WITH EPS AND
       APPLICATION SOFTWARE

This is a list of the factors which may have influenced your
_____ decision to begin using EPS and applications software.
Please tell me whether they were NO INFLUENCE (1), SOME INFLUENCE (2),
or a MAJOR INFLUENCE (3) in your department's decision to invest in
EPS and computer software. If you are not sure, please say so (4).

	INFLUENCE			
	None	Some	Major	Not sure
Decision by Senior Management	1	2	3	4
Journal reviews	1	2	3	4
Colleagues experience	1	2	3	4
Personal experience with computers	1	2	3	4
Available financial resources	1	2	3	4
Assistance provided by supplier	1	2	3	4
Relative cost of publishing alternatives	1	2	3	4
Vendor offer	1	2	3	4
User demand	1	2	3	4
Other (please specify)				
_____	1	2	3	4
_____	1	2	3	4
_____	1	2	3	4

Q-20 In general is your applications software:

       1 Developed in-house
       2 Developed by consultant or
       3 Purchased off-the-shelf

Q-21 Do your believe the current array of software products and
electronic publishing services are adequate to meet your
_____ needs?

       1 Yes
       2 No
       3 Not sure/Don't know

Q-22 IF NO, please explain

_____

_____

Q-23 Thank you for participating in this study. Could we contact you
       again later in the study if we require further information?
              1 Yes
              2 No