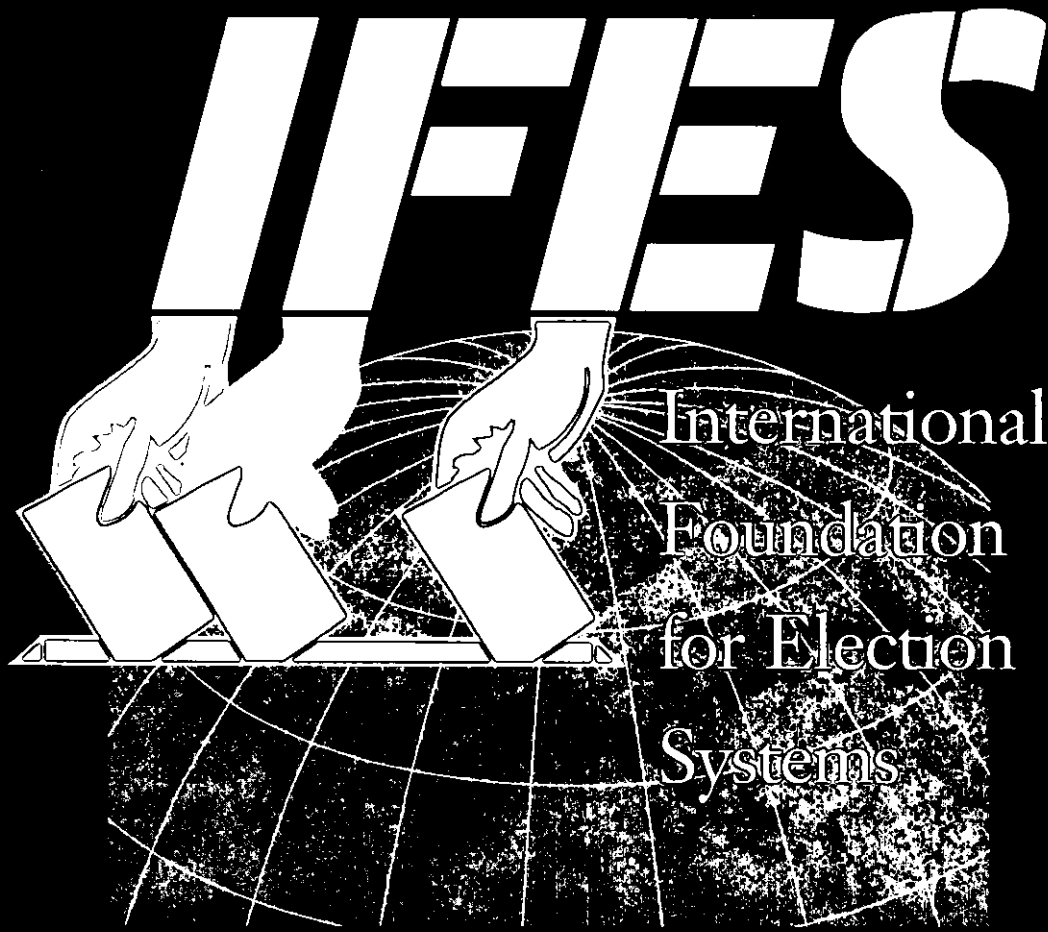


Date Printed: 11/03/2008

JTS Box Number: IFES_9
Tab Number: 25
Document Title: Philippines: House of Representatives
Modernization: A Technical Assessment
Document Date: 1997
Document Country: Philippines
IFES ID: R01807



* 3 9 E 1 0 C 9 0 - 2 3 A B - 4 9 6 1 - A 8 8 7 - A 0 F F 7 4 C A 6 9 4 4 *



IFES

International
Foundation
for Election
Systems

**PHILIPPINES
HOUSE OF REPRESENTATIVES
MODERNIZATION:**

A TECHNICAL ASSESSMENT

by

**Sanjeev K. Sethi
and
James Smith**

October 1997

This Mission and report were made possible through a Delivery Order with the United States Agency for International Development (USAID). The opinions expressed in this report are solely those of the International Foundation for Election Systems (IFES). This material is in the public domain and may be reproduced without permission, citation is appreciated.

TABLE OF CONTENTS

	<u>PAGE</u>
I. INTRODUCTION	1
II. CURRENT IT RESOURCES AND APPLICATIONS	3
III. INFORMATION TECHNOLOGY CAPABILITY STUDY	7
IV. ISSUES NEEDING FURTHER ATTENTION	8
V. SUMMARY OF FINDINGS	10
VI. INTER- VERSUS INTRA-NET SYSTEMS	15
VII. CONCLUSIONS	19
 APPENDIX A: EDP STUDY	
 APPENDIX B: SECRETARIAT ORGANIZATIONAL CHART	
 APPENDIX C: MEETING MINUTES AND INDEX	
 APPENDIX D: CONTACT INDEX	
 APPENDIX E: ESTIMATED TIME SCHEDULES	
 APPENDIX F: EDP MEMORANDUM	
 APPENDIX G: COMMITTEE AFFAIRS DEPARTMENT HOUSE OF REPRESENTATIVES	

I. INTRODUCTION

At the request of the Philippine House of Representatives (HOR) through the United States Agency for International Development (USAID), the International Foundation for Election Systems (IFES) assembled a four member team to assess the technical needs of the HOR for its modernization project. The four members of the team included: James Smith, an IFES consultant, Sanjeev K. Sethi, Systems Administrator-IFES/W, Francisco Fabric, a local Information technology (IT) Consultant, and Bong Agudo-IFES/Manila. The project was facilitated by the IFES/Manila staff and its Project Director Gwenn Hofmann.

The overall objectives of the team were to analyze information technology needs of the Philippines House of Representatives, analyze the existing resources available to the House, and provide recommendations for updating the computerized capability such that the new system will be scalable in the future.

To quote the Delivery Order's scope of work requested by USAID, IFES was asked:

To provide technical assistance to the House of Representatives to:

- a) **Validate the preliminary assessment completed by the Office of the House Secretary-General on the need for modernization of their computerized systems;**
- b) **Determine whether current available computer systems are sufficient to meet current and future needs;**
- c) **Recommend alternative solutions to their problems regarding their present computer system, if any; and;**
- d) **Develop a procurement plan, if necessary, for a new computer systems to include development of technical specifications, initiating requests for proposal, evaluation system, and the development of the contract document.**

The Electronic Data Processing Division (EDP) of the House carried out an initial study in 1995 (Appendix A) on the proposed computerization plans and programs for the House. In the study, EDP found that the computer facilities for the House were not adequate to efficiently support the needs of its various offices. The study also pointed out that the majority of the computing hardware and software in use was outdated and needed replacement. Based on its findings, EDP recommended an implementation plan to update the computing resources, emphasizing three main objectives. These objectives were: Local Area Networking of the House; connecting the House to the Internet; and computerization of the Session Hall.

Based on the initial House study, IFES determined that the specific components of the computer assessment project for the Philippine HOR should include:

1. Validating the in-house IT capacity study completed in 1996;
2. Assessing the IT for administrative application and legislative process;
3. Determining IT priorities;
4. Determining the current IT future use, and making recommendations for hardware/software and systems which can be both phased-in over time and expanded;
5. Assessing and recommending solutions regarding installation of LAN/WAN or Intra/Internet;
6. Providing information on cost and cost benefits for various options;
7. Assessing human resource and training needs for implementation and maintenance;
8. Assessing and recommending methods to computerize the Session Hall; and
9. Preparing IT hardware and software specifications for competitive procurement and evaluation criteria, and assessing vendors training program.

1995 Goals and Objectives

The 1995 Study listed the following four goals and objectives for the House Computerization Program:

1. Fully derive the benefits of computerization in all aspects of operations - from the legislative processes to administrative procedures;
2. Interconnect all computers and ease the burden of data gathering through the centralization of databases;
3. Facilitate easier and faster dissemination of information through electronic communication and file/document transfer/retrieval within the House and with organizations outside; and
4. Minimize paperwork and report generation to gradually achieve a "paperless" legislative process.

To achieve these goals and objectives, the study outlined the five major areas of development to be accomplished in two phases. The five areas include:

1. Upgrading/replacing personal computers;
2. Local Area Networking of personal computers;

3. Access to the Internet;
4. Installation of a Local Area Network at the Session Hall; and
5. Installation of an automated attendance and voting system

The first three areas were to be developed in a first phase, the second two in a second phase.

1995 Report Methodology

Each developmental area was carefully evaluated to see if:

1. Each individual area is necessary to achieve the goals and objectives as listed;
2. All five areas together would suffice to achieve all the goals and objectives;
3. The recommendations made in the study were technically feasible;
4. The recommended course of implementation was practical; and
5. The set of recommendations offered the best possible solution to achieve the goals and objectives.

Further recommendations were made where it was felt that additional areas needed to be developed for more effective and efficient utilization of resources.

II. CURRENT IT RESOURCES AND APPLICATIONS

The Philippine HOR has an Electronic Data Processing (EDP) division with a staff of 13 people headed by Ms. Angie M. Garcia (see Appendix B). In addition, there is a small EDP division in the offices of Congressional Library. At present, the following hardware/software capabilities are in place at the Philippine HOR:

1. *DEC VAX 6310* mainframe computer system;
2. *DEC Alpha 3000* mini-computer system;
3. Three (3) low-end PC Servers running *Novell Netware* operating system; and
4. Approximately 450 standalone personal computers;

DEC VAX 6310 mainframe computer system

DEC VAX 6310 system has the following configuration:

- 4 Hard Disks of 1.2 GB each ;
- 64 MB of RAM;
- Open reel tape drive;
- 2GB optical disk drive; and
- 2LPT printers with 2000 lines per minute capacity.

The computer is running under the VMS operating system version 5.3.

The existing mainframe computer was installed in August 1991. The primary intended purpose of this machine was to automate some of the legislative procedures of the House. Specifically, it was intended to inter-connect offices of the members of the House, committees, and Secretariat, and to provide online information about bills, laws, committee proceedings, rulings of the chair, and better communications among the members and staff. Part of the infrastructure was installed to support this purpose. At the same time, cables and terminals were installed.

However, the functionality of the system was greatly curtailed due to budgetary constraints at the time, and the system was never upgraded in the years that followed. The net effect left a system which was not adequate to properly support its intended functions. The system is still in the same configuration as it was when initiated in 1991. While it may have been the best choice at the time, the technology on the system is now outdated and extremely slow compared to a low end PC server of present time. This results in significant inefficiencies and decreased productivity as is pointed out later in this assessment.

Another problem with the existing system is that it cannot provide efficient connectivity to all the offices at the House, as planned. At present, only a percentage of the offices are connected to the system. Those offices which are connected have limited access to the applications on the system. For example, a number of offices can only access the system on an inquiry basis. If offices require printed reports, each one must be generated by the EDP once a request and authorization has been granted by the Bills and Indexing Division. With printers located at the EDP, requesting parties must go to the EDP to collect requested reports.

Upon acquiring the existing DEC computer, the following legislative applications were developed in-house by the EDP:

- Bills Information System (BIS);
- Philippines Laws Information System (PLIS); and

- Rulings Of The Chair Information System (ROTCIS).

The team learned that the BIS stores summary information on bills and their status as they pass through first, second, and third readings. It also stores committee information on the bills. The primary responsibility of updating the BIS lies with the Bills and Indexing Division. The Committee Affairs Bureau is responsible for updating the committee information.

Bills Information System (BIS)

After extensive meetings and interviews with end users (Appendix C), the team learned that the main shortcoming of the BIS is that it does not have the full text of bills, and only contains the summary information such as bill number, title, author, date filed, abstract, etc. It also does not have full information on the status of the Bill as it passes through various readings. Specifically, members need to know what is the stage of a bill within committee, hearing schedule, history, etc. This information is not stored in the BIS.

Philippines Laws Information System (PLIS)

PLIS contains full text of all Republic Act documents dating from 1937. This information is first converted from hard copy archives to electronic form using a scanner. Optical Character Recognition (OCR) is then performed on the scanned images to convert them into text. Once the text files have been audited for mistakes, they are made a part of the PLIS, and made available online for reference.

There are two principal problems with the existing PLIS. First, the information contained is not current. Only laws dating from 1937 to 1995 have been processed into PLIS. EDP is continually working to scan the rest of the information to bring the databases up to date. However, this is a slow process, and it is also limited by storage space on the computer. As is pointed out later under the section of "Summary of Findings," another factor complicating this problem is that one of the four hard drives in the system has become corrupted, and is not functioning properly.

A second problem is a notable lack of awareness among various offices about PLIS. Several of the offices do not know anything about this application and what information it contains, or even that it exists.

Rulings Of The Chair Information System (ROTCIS)

ROTCIS contains rulings of the Speaker. This application, however, is not currently available online, but EDP intends to bring it online in the near future. The team believes that by bringing ROTCIS online, the limited capabilities of the existing system and infrastructure will render it nearly inaccessible. As a result, it may be just another application sitting on the system.

BIS seems to be the only application accessed by various offices. This slows the system if more than a few people are retrieving the data simultaneously. In a simulation performed by the EDP, where twenty or more people are accessing the DEC mini-computer at the same time, the performance of the system drops significantly.

DEC Alpha 3000 mini-computer system

The Alpha 3000 system has the following configuration:

- 128 MB RAM;
- 4 Hard Disks of 1 GB each; and
- Digital Tape Drive.

The operating system on the Alpha system is open VMS version 1.5.

At present, the only role of the Alpha system is to serve as the data backup storage system for the VAX system. This is a serious under-utilization of the system, and this resource can be put to better use as mentioned later in this report in the recommendation section.

Novell Netware Servers

There are three low-end PC servers running under *Novell Netware 4.1* operating system. They are each supporting a network of users for the Library, EDP Department, and Property.

Personal Computers

Additionally, there are some 450 standalone personal computers in the House. About 250 of these are Pentium computers; the remaining are 486-based machines. The primary application running on the personal computers is word-processing. However, word-processing software packages are not standardized. The variance in these software packages may range from different versions of the same software "suite" to different brand name "suites" altogether.

In addition to the applications mentioned above, there are several PC-based database applications specific to certain divisions. These applications are distributed among several offices at the House. These applications have been developed using *FoxBase* - a DOS-based database programming language. The payroll accounting system application was also developed using *FoxBase*. Since these applications are distributed on several standalone personal computers which are not connected through any network, there is significant redundancy of effort to compile all the information in one place. A fully-networked system will greatly assist in streamlining the processing of this information.

III. INFORMATION TECHNOLOGY (IT) CAPABILITY STUDY

As mentioned earlier, the EDP division of the House undertook a study in 1995-96 to modernize the HOR. The three main objectives as outlined in the study included: Local Area Networking of the entire HOR, computerization of the Session Hall, and connecting the HOR to the Internet. It must be pointed out that in this report the EDP did a very thorough job of compiling the necessary information on requirements and costs for the hardware. Various options were explored in the study to achieve the objectives. The study also mentioned the benefits which can be achieved from the proposed modernization. These include:

1. Increased productivity by reducing some of the redundancy of efforts among offices;
2. Enhanced communications among the staff, members, and the outside world through electronic mail and electronic transfer of data;
3. Better access to national/international resources for research through Internet;
4. Advanced planning capabilities through calendar and schedule-management programs; and
5. Increased transparency in government functions by making some of the information available online to the general public through Internet

As mentioned in Section 1, the 1995 Study was IFES' initial starting point. The 1995 Study had highlighted five (5) major areas of development necessary to achieve key goals and objectives. Each of the five were deemed as critical and essential in achieving their modernization goals. The main emphasis of the original study was based on developing a Local Area Network (LAN) for the entire House of Representatives and providing Internet access over that network.

However, the Information Technology field has evolved significantly since the 1995 Study was conducted. The more recent concept, and presence of Intranet, which was then in its infancy, has reached maturity. Intranet provides a common Graphical User Interface (GUI) to the applications across the network. This increases the ease of access to information for all users. Intranets are also well suited for dynamically accessing the information in back-end database applications. The IFES team's recommended solution revolves around this concept and the use of Intranets.

Solutions recommended in this report are also well suited for long-term needs of the House because scalability was one of the main considerations. Rewriting existing applications so that they are Web-enabled (capable of utilizing the World Wide Web) will not only make them more useful, but will also ease their development in the future. As the needs at the House grow, solutions recommended in this report will allow the House to add resources to the setup.

Unfortunately, much of the information (and data) contained in the 1995 Study has become outdated. The global computer environment has changed significantly since the original study was undertaken. While the goals stipulated in the EDP Study may still apply, the means to achieve those goals may not be the best as recommended at present. Even the EDP at the House has revised its specifications for several of the components mentioned in the study since its completion in early 1996.

IV. ISSUES NEEDING FURTHER ATTENTION

Software Revision

There are, however, several important factors that did not receive appropriate attention in the 1995 Study. The most important of these factors is revision of software. Current legislative applications were developed for the DEC mini-computer and are inadequate to satisfy the needs of the members, their staff, and the Secretariat offices. Other PC-based applications also, which were developed quite some time ago, must be revised. A significant effort will be needed to revise these applications. Not only does the data from existing applications need to be transformed to suit new application needs, but new data must be input to make applications more useful.

Based on several meetings with staff from various offices in the operations branch of the Secretariat, the IFES team learned the needs and expectations of the staff. In addition to daily meetings with the Electronic Data Processing division (EDP), the IFES team met with representatives of several divisions of the operations branch of the House (Appendix D for more detailed listing of interviewees). This list includes the Speaker of the House, and representatives from his office. Other people interviewed includes representatives from:

1. Committee Affairs Bureau
2. Congressional Library
3. Plenary Affairs Bureau
 - Bills and Indexing Division;
 - Journals Division;
 - Publications and Editorial Division; and
 - Transcription Division.
4. Research and Reference
 - Bill Drafting;
 - Legislative Counseling; and
 - Research.
5. Rules Committee

6. Director of the Presidential Management Staff

All interviewees were asked the functions and responsibilities of their respective divisions. They were also asked how computers, access to Internet, and the Intranet/LAN could assist them to better perform their scope of work. All interviewees were encouraged to comment on the existing services provided by the EDP and to state if their specific needs were being met by the existing setup. At the end of each meeting, each interviewee was asked to comment on the services they would like to receive to help them get their jobs done in a more efficient and effective manner.

Interview Results

The ideal system would provide up-to-date information on:

1. Index of bills;
2. Status of bills through various committees and hearings;
3. Full text of the bills;
4. Keyword search on the full text of the bill;
5. Ability to incorporate the text of the bills into word-processed applications;
6. Detailed searchable listing of bills' references in the Journal;
7. Complete database of Philippine laws;
8. Ability to search the laws of Philippines for the history of the law;
9. Online access to Transcripts and summary of the House proceedings;
10. Research the resources available on Internet;
11. Electronic communication with people, both within the organization and outside;
12. Electronic sharing of mail and data; and
13. Calendaring and scheduling.

Many of these expectations are not being fulfilled due to the fact that existing software was not designed to handle all the requests. Most, however, can be attributed to inadequacies of hardware (both networked system and standalone personal computers).

Training

Another key factor that deserves greater attention than it received in the initial '95-'96 House Study is training. While the EDP staff needs to be trained to design and develop the new systems, the Congressional offices staff and the Secretariat and committee offices staff must also be trained to use these systems. In addition, as the new system gains more usage, the demands on the EDP staff to support the applications and the users will grow significantly. EDP staff may need to be expanded to cope with the increased demand.

Standardization

One other point that needs to be mentioned is the standardization of various application suites on the personal computers across the board. This will not only ease the training of users, but it will also decrease the number of problems involved in supporting all those different applications and their

different versions.

Security

With the introduction of Internet and its resources into the organization, there is an increased need for security for the data in various databases on the new system. Once the information is put online, there is a danger of some unwanted elements gaining access to the data, and potentially, even changing the contents of the data. In addition, there is a significant possibility of virus-infected programs finding their way onto the local network. The effects of these programs may range from minor annoyances to complete data loss. A properly planned strategy for security needs to be in place before implementing the proposed plan. This strategy should include erecting firewalls around the network to safeguard access to the data from outside sources, and an anti-virus strategy to protect against possible infections of the data.

Procurement Planning and Proposal Assistance

As was requested in the Delivery Order, IFES spoke at length with its House contacts and the Speaker regarding proper planning and development of contractual capability assistance. After considerable discussion, IFES was told that the development of a procurement plan, assistance in the design of requests for proposal (RFPs), creation of an evaluation system, and the development of contract documents would not be necessary at this point in time. In fact, it was the general feeling of those with whom IFES spoke that an attempt might be undertaken to sole-source potential procurements eliminating the need for the development of a multi-sourced RFP process. Despite this consideration, IFES continues to offer its assistance, as requested and necessary, to the HOR so that proper assistance and guidance might be lent in the months ahead.

V. SUMMARY OF FINDINGS

A. Existing Resources

It is clear that the existing resources at the House are not adequate enough to support the current needs of the users.

1. The DEC VAX system is too old and too slow to be useful in its current configuration. In our attempts to pinpoint the problems with the system, the IFES team contacted the representatives from DEC several times. One meeting was held with sales representatives from DEC, Philippines. A follow-up visit by two DEC technicians was scheduled and they spent several hours working with the system. Several exchanges took place between the members of IFES team and representatives from DEC via electronic mail. Despite these efforts, DEC was not able to provide any specific answers. The only problem that could be pointed out was the fact that one of the four hard drives was not functioning properly. As a result, the storage capacity of the system is reduced by 25% to 6 GB. This would still not fully explain the degradation of performance on the machine.

Even if the problems with the existing machine are pinpointed, it would involve significant amount of resources to resolve the problem and bring the system to its full potential. Several components will need to be upgraded/replaced to bring the system's performance to its highest possible level. The performance would still be far below what can be expected of a newer Alpha system or a comparably configured system. DEC has since discontinued producing VAX systems. The newer Alpha systems from DEC have better features built into the system, e.g., expansion, scalability, faster architecture, expanded disk space, multi-media capabilities, etc.

2. The other system that the HOR currently has in place is the DEC 3000 Alpha system - a first generation Alpha system. While it is well configured, it is not supported by Windows NT. With a newer BIOS¹ that can be downloaded from the Internet, the machine, can be used as a legitimate database server. More research needs to be done to find out what other purposes for which such a machine can be used. Unfortunately, it is not serving any significant role at the HOR at present - now only used to back up data from the VAX server.
3. There are approximately 450 standalone personal computers in various offices at the HOR. Despite the fact that 250 of these have been brought up to the new specifications as set by the EDP, there are an additional 200 computers which require upgrading. New specification, as set by the EDP, ask for each computer to be fitted with at least a Pentium 100 processor.
4. Cabling that was installed for each dumb terminal² to access the VAX server was not adequate to support the objectives of LAN/Intranet. About 200 offices were equipped with cabling in the initial implementation of the current system. As mentioned in the initial '95-'96 House Study, only a few users can access the resources on the system simultaneously.

The layout of the cabling, while functional, is not very aesthetic and the cable is exposed at several locations. The existing cable will not be able to support the Ethernet architecture of the local area network as proposed. This will need to be replaced by "Category 5" cable for the local area network, and fiber cable for the House's campus backbone.³ This is discussed further in this Assessment under "Recommendations for Intranet."

¹ Basic Input/Output System.

² Dumb terminals only allow passive processing and access to the central database at the EDP.

³ This denotes the House of Representative's physical area in Manila.

B. Current Applications

1. BIS is the main legislative application currently running at the House. While it serves a very useful purpose, it does not have complete information about bills in process. To make it more useful, full text of all bills must be included in the application. The application should be online and accessible to each House office. This will allow the users to download text from the application online and import it into their word-processing applications. This will also allow users to perform keyword searches on the whole text and access the documents that satisfy search criteria. At present, the user interface of all the current applications is text based. This should be changed so that applications have a graphical user interface.⁴

PLIS and ROTCIS are the other two legislative applications on the server. PLIS contains the full text of all Republic Acts from 1937-1995. The information in PLIS must be updated to present. Many staffers at the House are not aware that this application even exists, therefore regularly scheduled training sessions should be arranged by the EDP to make users aware of the available resources and their proper use.

2. Because of inadequacies of the applications and communication/computer resources, there is a significant amount of data and effort redundancy in the various divisions responsible for maintaining the records about the bills and laws. Several divisions maintain their own databases and indexes for bills. For example, the Bills and Indexing Division is primarily responsible to update BIS. It is therefore understandable for it to have its own database and index to the bills. At the same time, the Journals Division and the Publications and Editorial Division each have their own database and index, because their responsibilities include cross-referencing bills for publications. Similarly, the Congressional Library maintains its own bill database.

Ideally, all databases on laws, bills, transcripts, and summaries should be located in one central location on the computer. This should be made available to each division over the network on an as-needed basis. Each division would then add its own information to the database. Revised data would then be available to all parties online and in real time.

Another related area where there is significant redundancy of effort is in keeping the physical text of bills. The Bills & Indexing and Publications & Editorial Divisions type and maintain their own copies of the text, yet they lack electronic access to bill text. Besides duplication of effort, this adds a risk of mis-typed errors in both copies of a bill. The new application would allow all divisions to share data online without having to retype the data.

⁴ One example is desktop *Windows*. A graphical user interface makes it much easier for the user to navigate through the application because they do not have to remember the commands and controls to get the desired results.

Payroll application is a third example that should to be networked. At present, personnel data is captured by each office and placed on floppy disks, and then imported into a financial application. If the application is networked, this exchange of data could occur across the network, and could improve safety and security of such sensitive data. This networking would increase the efficiency in processing the information, while ensuring the accuracy of the data.

There are several other areas that could benefit from a properly planned networked infrastructure including:

1. Enable electronic sharing of data among the offices, thereby increasing the productivity of the staff significantly;
2. Allow centralized administration of the data and applications and would enable the administrator to simultaneously upgrade the applications on networked machines remotely and/or in an unattended session; and
3. Help manage the licensing and copyright issues of various applications on the network; and
4. Reduce costs by networking copies of the software. Instead of buying licenses for each user, the House would only need to license as many number of application instances as the expected number of concurrent users.

C. Internet Access

At present, EDP has a dial-up connection to a local Internet Service Provider (over a phone line using a modem). This connection is on a trial basis and allows them the access to WWW and e-mail. While other Internet services are available through this connection, they are rarely used. In addition, the EDP informed the IFES team that some Congressional offices had independent (non-networked) Internet access. EDP did not know exactly which offices, or how many offices had this connection. Some of the Congressional offices also had their own home pages on the WWW, but again, the EDP did not have full information.

1. There are several Internet Service Providers (ISPs) present and operating in Manila that have the capacity to provide Internet access to the House. Internet access can be achieved through one of the following possible tactics:

Dial-up Phone line	----->	generally used in residential settings
Dedicated Phone Line	----->	offices with low levels of traffic
Dedicated Leased Data Line	----->	offices with heavy traffic

Cost to Service Benefit Analysis

IFES spoke with representatives of four local telecommunication companies which provide Internet Services. These four companies include: a) *Philippine Long Distance Telecommunications* (PLDT); b) *Eastern Telecoms*; c) *BayanTel*; and 4) *Globe*. Primary cost estimates were derived from these discussions.

a. *Dial-up Access - Least Benefit for House*

Dial-up access is best suited for residential settings where the connection to the ISP becomes alive on demand. When the user wants to close the Internet access session, the connection is broken. Connection charges apply for the time the user is connected to the ISP. While the user is connected to ISP, the phone line is generally unavailable for normal operations. This approach could be applied in the Philippines HOR if the offices each had an individual account with an ISP. The shortcoming with this approach is that it will result in a significant amount of telephone downtime.

b. *Dedicated Phone Lines - Increased Cost*

This second approach requires installing a phone line for each office dedicated to the sole purpose of Internet access. This is a variation of the previous approach which allows the original phone line to remain available for normal purposes. However, the downside is the cost associated with installing and maintaining an additional phone line for each office. This approach, incidentally, could be used to share Internet access in a small office where the primary Internet activity is electronic mail exchange, and a rare web access. In this scenario, one dedicated phone line can be used by the whole office to get limited Internet access.

c. *Dedicated Leased Data Line - Cost Effective*

The third approach is the best suited to the needs of Philippine HOR. Once the LAN is in place, multiple machines on the network can share a dedicated leased data line to access Internet resources simultaneously over the LAN. The leased line comes in from the ISP into a router at the organization, which is then connected to the local area network. This provides all the designated users on the local network access to the Internet. An additional advantage of this setup is that it can be administered/controlled from a central location reducing the administrative overhead costs. This is the most cost effective approach to provide Internet access in small to mid-size organizations.

2. Various bandwidth combinations are available in metropolitan Manila area from several ISPs. The minimum bandwidth for a leased line access available in Manila is 64Kbps. The HOR, however, will need a bigger bandwidth. Two or more leased lines can be combined

using an inverse multiplexor to provide a broader bandwidth. If the budget allows for expansion in the future, an E1 line is available in Manila area through PLDT. EDP will need to work with the local ISP, such as PLDT, to set up such a system.

VI. INTER- VERSUS INTRA- NET SYSTEMS

The IFES-recommended approach for the House Modernization Project revolves around the concept of an Intranet. An Intranet is a private network of computers that may or may not be located at the same site. It is private because only authorized people have access to its resources. The level of access can be managed from a central location and it can range from the most restrictive access for a certain section of people to a completely non-restrictive access for another group of users.

The main feature of an Intranet that distinguishes it from a Local Area Network is that the applications have a network browser as the user interface. Once configured properly, this allows users to access resources locally, as well as from remote sites via dial-up connection, or over the Internet through other SLIP/PPP connection.

A. INTERNET ACCESS

The EDP division has recommended that the House purchase access to the Internet for the member, plenary, and research offices. In addition, the Speaker indicated that he would like Internet access to be part of the legacy he leaves behind when he leaves office in June. During conversations with many of the House employees, it became clear that Internet access would assist them in their research and communications, particularly through the World Wide Web and electronic mail.

The team of IFES specialists thoroughly agreed that Internet access should be a top priority for the House. In addition to enabling the staff access to the global network of computers with its vast resources of information and provide a means for rapid Internet communication, it will also accomplish two other goals important for the House:

1. By connecting the entire campus to the Internet, the House offices will at last be networked with each other, one of the needs emphasized by the House employees throughout the numerous interviews. Depending upon what means is employed to distribute access, this network could take on various forms. IFES recommends that the House create a campus-wide network that would facilitate this (see details below in the Network Infrastructure section).
2. By establishing connections to the Internet from all of the offices and installing an e-mail system, users will gain valuable, transportable computer skills that will be useful for other applications (see Intranet section below) access.

Physical Connection from ISP to the House

IFES recommends that the House lease a dedicated, high-speed connection from a local, Internet service provider (ISP). The cost of this would, of course, vary according to the size and speed of the connection. In this way, the House EDP would serve as an ISP for the rest of the House offices and would likely reap large economies of scale.

Web Site for the House and the Speaker

IFES recommends that the House create an Internet technology group within EDP whose focus is installing and maintaining Internet technology and working with the House's many offices, and at the appropriate time, set up informational web sites for individual members. This group would be responsible for maintaining e-mail (see Electronic Mail below), web servers, and studying the latest web technology to assist members as they seek to use the web to communicate with the public.

It is important to start small, but move quickly. The Speaker said that he wanted to see something underway by November 1997. Preparing a web site would be one of the easiest and most visible ways to deliver a product by this target date. This could even be done prior to establishing a House Internet connection by simply having the web site hosted elsewhere by an ISP. Once a connection is established and a server installed at the House, the web site could be transferred to the House's own system invisible to the web community.

The step-by-step work plan⁵ could play out as follows:

1. EDP staff is trained on basic HTML programming;
2. Professional assistance is brought on board to create a basic web page for the Speaker;
3. Determine an Internet domain for the House and establish a web address (this could be something like <http://www.house.gov.ph>);
4. Establish a relationship with an ISP to host the official web site on a temporary basis;
5. Point the official URL (web address) to the commercial web server;
6. Test the web site;
7. Publicly announce the web site;
8. Install a web server at the House;
9. Test the new web server;
10. Establish a high-speed connection between ISP and the House; and
11. Move web site to the official web server.

⁵ Please refer to Appendix E for a graphical time schedule.

Electronic Mail

IFES recommends that the House install and maintain its own e-mail system. This should be a standards-based system. This system should be done in several stages with only a small group using the system at first, with a significant of time and effort invested in stress-testing and fault tolerance. It is likely that the House would need more than one server for this installation.

B. USE OF AN INTRANET

Network Infrastructure

One of the largest hurdles in bringing the House online is installing the physical infrastructure of the network – the backbone, cabling, bridges, routers, and hubs. There are at least two primary phases to this installation:

1. IFES recommends that the House install a campus-wide⁶ backbone that could provide high-speed access to each House office. Depending on cost, the House may decide that not every section of the campus be wired at once – though there are contractual advantages to this simultaneous installation.
2. IFES recommends that the House install a wiring infrastructure in each office to be connected to the network. This could take the form of Level 5, 10BaseT cabling with RJ45 outlets. Since the Speaker has indicated he would like the Session Hall to be part of the network, cable outlets should be installed in that location. Based on a cursory tour of the facility, this installation would likely involve raising the floor of the Hall, running cables in the newly created space, and installing jacks into the floor. Since the furniture in the Session Hall was designed to be moved out of the way for special ceremonies, jacks would need to be flush with the floor. Any computers used in the Hall, likely laptops, would sit on the desks in the Session Hall and would plug into the jacks to receive network signals.

Printing Facilities

IFES recommends that the House install distributed networked printing facilities at main locations in the buildings. The costs for laser printers have decreased significantly over the past few years. Distributed printing facilities will allow printers to be installed at several key locations around the campus. Users can then print their documents from the Internet as well as the Intranet and from their applications locally and not have the need to request EDP for print-outs.

Web-Enable the Current Databases

The second largest hurdle to delivering a useful and streamlined system to the House is web-enabling

⁶ Describes a system that reaches all offices and buildings housing the HOR and its staff.

the current database applications maintained by EDP. At present, databases are nearly useless for two reasons:

1. The system allows practical access to only a few users at one time; and
2. The BIS, the core of the legislative database system, does not have full-text capabilities.

IFES believes that the solution to the first problem is to abandon the current interface, which is a proprietary interface and relies upon dedicated hardware and networking infrastructure. The solution to the second solution is simply to add features to the current database. IFES recommends that the House ask several vendors to submit solutions and bids due to the fact that this solution would prove complex for a contractor without equivalent experience. The House's own technology staff must be involved in the installation. The technology itself is not very difficult to learn and the House IT staff would then be well positioned to build on what the outside vendor has accomplished after the project is completed.

This could be done in the following phases:

1. Install the current database on a new database server that would be web capable (if this can be done without redesigning the entire database);
2. Create a web browser-based interface that would allow anyone with a web browser and proper authorization to access the database applications – from any web browser on the Internet; and
3. Conduct a thorough workflow analysis of the House and build an entirely new database application (or set of applications) which would address the specific needs addressed by the staff.

IFES recommends doing this in three steps for the following reasons:

1. By web-enabling the current database, the House will experience benefits early in this process. This will allow more users immediate access to existing databases and will demonstrate visible progress on the project;
2. By accessing more users on the existing database - before redesigning the database - the House will have the opportunity to generate comments and recommendations from users and positively impact the workflow analysis; and
3. The final component to this process, and perhaps the easiest to implement, though

rather expensive, is upgrading current personal computers.

The most important features which personal computers must possess is an ability to:

- a. Run a web browser (this includes connecting to the House network);
- b. Print; and
- c. Meet additional software standards that the House adopts.

The first two objectives may not be very difficult to meet. The last one, though, could be rather difficult and might require replacing many, if not most, of the existing, non-Pentium machines. This would be true if the House adopted robust standards for a word processor and e-mail client.

VII. CONCLUSIONS

The IFES team met with the Speaker of the House, Jose de Venecia, Jr., who has shown his support for this modernization project by pledging an initial 40 million Philippine pesos to finance it. During the meeting, the Speaker added another 40 million Philippine pesos to his original pledge for a total of 80 million Philippine pesos.

Subsequently, the House EDP Department agreed to implement the first IFES recommendation to train ten employees on basic and advanced HTML. Progress is also being made to approve the budgets for the first phase of computerization (Appendix F) which covers LAN and Internet access.

There is no doubt that the House will begin the modernization project with the implementation of Internet access. The execution of this phase of the project will be a significant milestone for the Government of the Philippines, in that the House of Representatives will be the first legislative office in the Philippines to provide public access over the Internet.

The IFES team enjoyed its working relationship with the HOR and appreciates the dedication of the staff and members to openness and transparency in government. The HOR has the ability to establish a high standard of excellence in openness in government and to assure access to the citizens of the country. IFES wishes the HOR luck in its endeavors and looks forward to working with the HOR in the future.

APPENDIX A

EDP Study

**AN INITIAL STUDY ON THE PROPOSED
COMPUTERIZATION PLANS AND PROGRAMS FOR
THE HOUSE OF REPRESENTATIVES**

Introduction

**Cost Summary of Updated Proposals on the
Computerization Plans and Programs of the House of Representatives**

**ANNEX A - Connecting the House of Representatives to the Internet
(together with Upgrading of PCs and
Local Area Networking of House Offices)
(Options and Cost Estimates)**

**ANNEX B - Installation of Laser Printers in Support of Internet Access for
the House of Representatives**

ANNEX C - Computerization of the Session Hall

ANNEX D - Cost Justifying Laser Printing

**ANNEX E - Activities, Duration, Manpower Involvement and
Estimated Time/Schedules for
Phase I: Installation of a LAN and Internet Access among House Offices
and
Phase II: Computerization of the Session Hall**

INTRODUCTION

A. Information Technology in Government

Information Technology (IT) in government is one of the strategic components of the National Information Technology Plan which contains the objectives, strategies, programs and projects pertinent to the development of IT use in the government.

For government to better respond to the requirements of service to the people, there is a need to significantly improve its information systems. With increased complexity, increased volume of data and the need for timely and accurate information, IT furthers the gains that can be made in having a good information system.

In government, the objectives of utilizing IT are the following:

1. To improve delivery of government services to the people

Information technology is a tool which helps to increase output per manhour thereby contributing to the overall effectiveness and efficiency of getting things done.

2. To increase the government's capability for coordinating, planning, policy formulation and implementation of its development programs and projects

Government still possesses an inadequate system of collecting facts, organizing them and producing information that can be used in making and implementing decisions. Such information play a vital role in both planning and implementing all aspects of public sector programs. Its primary product being organized information, information systems derive much benefit from utilizing IT in its processes. Information is more readily available, more inclusive and accurate and can be presented in various forms that are useful to the decision-maker or administration.

3. To promote transparency in government transactions

With an organized government information system in place, information available in government must be made available to those who directly use them as well as to, where possible, the general public. This supports the promotion of transparency in government transactions. Information systems also provide a means to better evaluate th responsibilities and accountabilities of public officials and employees.

B. Information Technology in the House of Representatives

Being the legislative arm of our government, the above-mentioned objectives must be incorporated in our mission to continuously improve the law-making process and its support functions - through a constantly evolving information technology. There is a never-ending need to adapt to a changing environment. Therefore, our computing resources must have the flexibility to support both changes in the political, economic and social environment and the changes in technology.

This need to identify and apply the appropriate computing and communications options has been and still is the guiding principle in the formulation, implementation and continuous evolution of the House Computerization Program.

1. Information Systems for Administrative Applications

Since Congress was convened in 1987, it has been reaping the benefits of computerization particularly in the area of administrative systems. From the first offspring of the House Computerization Program, the Payroll System, various micro-based information systems have already been developed for the various administrative applications.

Presently, the computerized systems at the Personnel Division provide up-to-date personnel information to the various interested parties and automate the preparation of payroll of the various salaried employees. Approximately 4000 payroll records are processed twice a month.

The micro-based systems at the Accounting Division help monitor transactions like cash advances, unpaid obligations to various suppliers and PLDT billings. Computerized systems also facilitate the preparation of schedule of various accounts like cash, payables, trust and inventory accounts for financial and management reporting purposes.

The General Services Division also has information systems that monitor the status of checks issued to suppliers and other creditors, and facilitate the preparation of reports of checks issued, one of its major outputs. For these reports, various data are extracted from the systems of the Personnel Division and Accounting Division.

Currently, these and other administrative information systems run independently on several PC486s, PC386s and PCXTs that are distributed among the Secretariat offices. These systems run using programs coded in Foxbase, a

database software that runs under a DOS environment. In most cases, shared information such as voucher data, accounting entries and payroll data are obtained through special file extraction routines that act as interface programs to get the needed information from the source unit.

Since these systems do not run under a local area network (LAN) environment, problems of data redundancy and control still exist inspite of these interface programs. Although these interface programs significantly helped in the sharing and transfer of data, a LAN environment is still the essential solution in bringing about more effective and efficient data processing and information flow among these inter-related systems.

2. Information Systems for Legislative Processes

On the other hand, information systems to automate the legislative procedures of the House required more than what microcomputers can deliver. Thus, in 1991, the DEC VAX 6310 computer system was installed. This minicomputer enabled the development and implementation of the Bills Information System (BIS), a database system used for the easy storage and retrieval of information regarding legislative measures filed by the House Members.

The BIS was developed using Basis-Plus, a text-retrieval software running in the VAX-6310. It is primarily a file maintenance and inquiry system, with facilities to display, add, modify or delete information inside the database. The primary users of the BIS is the Indexing and Monitoring Section of the Bills and Index Division (BID) which is directly responsible for the maintenance and integrity of the bills database. The BIS would in turn provide the section with:

- on-line access to monitoring data on each measure in the database;
- up-to-date information on the status of each measure;
- multi-user access to the system (for data entry and inquiries);
- multiple query formats to access the database in answering various types of queries;
- on-line database update and inquiry;
- ample storage for the measures filed, not only for this Congress but for future Congresses as well; and
- a feature to generate reports.

Shown below is the Main Menu of the BIS.

BID	BILLS INFORMATION SYSTEM	01/01/94
MAIN MENU (9th Congress)		
1. Basic Information		
2. First Reading Information		
3. Committee Information		
4. Second Reading Information		
5. Third Reading Information		
6. Republic Act Information		
	7. Shift to another Congress	A. INQUIRIES MENU
	8. Exit to the FQM prompt	B. CARDS PRINTING MENU
	9. QUIT	C. BIS REPORTS MENU
		D. CIS REPORTS MENU
		E. COMMITTEE MEMBERSHIP
ENTER CHOICE (1-9):		

Primarily intended to benefit from this system is the Operations branch of the Secretariat composed of users from the Reference and Research Bureau, Plenary Affairs Bureau, Committee Affairs Bureau and the Congressional Library. Presently, there are a little more than 200 terminal cables laid out in the entire House of Representatives. These other offices who have physical connections to the system via data cables can access the BIS but only on an inquiry capacity. Currently, the EDP Division provides printing services on measures stored in the database, with the appropriate requests coming from the Bills and Index Division.

Aside from the BIS, this mid-range computer also runs the Philippine Laws Information System (PLIS) and Rulings of the Chair Information System (ROTCIS) among others. It also intends to facilitate committee scheduling and mail/document exchange electronically. These are computerized systems aimed not only to support the legislative process by providing quick access to information on bills/resolutions, laws, rulings and others, but also to eliminate documentation and legwork.

However, to fully derive the benefits of these information systems and to fully implement computerization plans, all House Members, Committees and Secretariat offices should be connected in a network. Unfortunately, due to budget constraints at the time of acquisition, the capacity/configuration of the VAX 6310 was trimmed down and therefore, cannot connect all these offices. The intention was to upgrade the system using the budget of succeeding years following its acquisition. Due to other priorities in the House budget, this has not yet materialized. To activate and connect more users with the existing set-up would seriously degrade the response time and performance of the system. A simulation conducted with twenty (20) simultaneous users has proven this to be true.

To solve this problem, the House computer systems would have to be upgraded to service the needs of all these offices/users. House offices shall then be connected through a local area network that will enable centralized access of information systems and the Internet and greatly improve communications.

C. Goals and Objectives

With a mission to continuously improve legislation and its supporting functions, the House Computerization Program, through the EDP Division, has the following goals and objectives:

1. Fully derive the benefits of computerization in all aspects of operations - from the legislative processes to administrative procedures.
2. Interconnect all computers and ease the burden of data gathering through the centralization of databases.
3. Facilitate easier and faster dissemination of information through electronic communication and file/document transfer/retrieval within the House and with organizations outside.
4. Minimize paperwork and report generation to gradually achieve a "paperless" legislative process.

D. Strategic Plans and Programs

To meet the aforementioned goals and objectives and to address the present concerns regarding the House Computerization Program, there is a need to upgrade the computer resources of the House of Representatives. With the increasing demand to access the BIS, which at present is not accessible by all offices, the obsolescence of most PCs assigned to offices, the clamor for INTERNET access and simply to benefit from the advancements in technology, this study is being conducted to determine the optimum allocation of financial resources in meeting these various needs.

In this regard, this proposal addresses the following five (5) major areas of developments which have to be addressed in the House Computerization Program:

PHASE I: Installation of a Local Area Network (LAN) and Internet Access among House Offices

A. Upgrading/Replacement of Personal Computers

This refers to the replacement of remaining PC XT's in the House. These are considered obsolete. Repairs on these units are difficult and almost impossible due to the unavailability of spare parts. This is the most basic need and is a prerequisite to all succeeding areas of computerization.

B. Local Area Networking of PCs

This refers to the connection of all PCs to enable sharing of files and resources and information systems. This is a prerequisite to the multi-user access of the Internet and computerization of the session hall.

C. Access to the INTERNET

This refers to the subscription to the INTERNET, a global network of information, linking millions of users around the world. This would help to expedite research and communication.

PHASE II: Computerization of the Session Hall

A. Installation of a Local Area Network at the Session Hall

Each House Member, the Speaker and operators at the Session Hall shall be equipped with a computer to enable access of information systems and to make available on-line bills/resolutions/measures discussed 'live' while in session.

B. Installation of an Automated Attendance and Voting System

This involves the setting up of video walls / projectors at the session hall and numeric keypads for each congressman for more accurate and faster attendance monitoring and voting.

**COST SUMMARY OF UPDATED PROPOSALS ON THE
COMPUTERIZATION PLANS & PROGRAMS OF THE HOUSE OF
REPRESENTATIVES**

**Installation of a Local Area Network (LAN), Internet Access and Laser Printers
Among House Offices**

Based on the attached updated version of a study previously conducted by the EDP Division recommending the installation of LAN among House offices, a multi-user leased line access to the Internet by House offices (Annex A) and the addendum on the installation of laser printers (Annex B), the costs involved would be as follows:

Start-up Costs	P 650,000
Upgrading of PCs for replacement Laser Printers (differential)	P 5,069,000
Local Area Networking	P 6,180,000
Total Initial Cost	<u>P19,878,657</u>
Annual Internet Subscription (50,000 x 12 months)	P 600,000
Annual Leased Line Bill (100,000 x 12 months)	P <u>1,200,000</u>
Total Annual Cost	P 1,800,000
Annual Supply Cost (Toner) for Laser Printers	P 2,376,000

Computerization of the Session Hall

As shown in the attached study on the computerization of the session hall to achieve a 'paperless' session (Annex C), associated costs would approximately total **P29,070,000**.

ANNEX A



Republic of the Philippines
House of Representatives
Quezon City, Metro Manila

CONNECTING THE HOUSE OF REPRESENTATIVES TO THE INTERNET

(Options and Cost Estimates)

Introduction
Ways of Connecting House Offices to the Internet
Upgrading of PCs (House Members' and Secretariat Offices)
Local Area Networking of House Members' and Secretariat Offices
Summary and Recommendations

Introduction

The Internet is an international computer network. The core of the network consists of computers permanently linked through high-speed connections. To join the Internet, all you have to do is connect your computer to any of these computers. Once you are connected, your computer can talk to every other computer on the Internet whether they are in the Philippines or on the other side of the world.

With Internet, a personal computer (PC) user need not leave his desk to be able to access most of the world's information. You may want to browse the journals of the US Congress or view certain US historical documents or check out US President Bill Clinton's schedule. Practically all areas of interest can be found on the Internet. You can even have discussions with someone in England or France or anywhere in the world.

You can also send electronic mails. Within a few seconds, letters are transmitted to the computer of a person half-way around the world without incurring long distance telephone toll charges.

The easiest way to access the Internet is by subscribing to an Internet Service Provider (ISP) which charges a start-up/installation fee, a monthly rate for a basic no. of hours usage and an hourly or per minute charge for the time in excess thereof.

The basic requirements are:

- an IBM PC compatible or Macintosh computer
- a dial-up modem (at least 14.4 kbps)
- a telephone line
- an account with an ISP

The Internet revolution is sweeping the globe, and the Philippines as well, with such switness that companies and even individuals are desperately trying to understand what is occurring, what it all means, where it is going, and how to maximize this new opportunity. Countless organizations are exploring how they can best use the Internet. Even a law-making institution such as ours cannot escape this revolution. Legislative research, dissemination of public information, communication and public relations are just some of the tasks made easier through the Internet.

Ways of Connecting House Offices to the Internet

OPTION I: INDIVIDUAL ACCOUNTS

Subscribing to individual accounts would mean that each office will have a separate account with an ISP. This would mean faster access to the Internet as compared to Option II (Multi-user/Leased Line). This option is advisable if only a few offices shall be connected to the Internet and/or if access speed is a critical factor. Furthermore, the cost estimates provided for this option assumes a cumulative monthly average of 50 hrs. access per office. Excess hours of usage will entail additional charges

With this kind of set-up, two (2) alternatives are further available:

A. W/ separate telephone line for the Internet

As can be seen from the cost table, this is the most expensive among the three (3) choices. This will also prove to give the fastest access to information in the Internet. Aside from each office having a separate account with the ISP, each office shall also have a separate telephone line dedicated to Internet access. This would mean that surfing the Internet need not be interrupted by telephone calls that have to be made. This choice involves an additional telephone line installation of P3,000 and a monthly telephone bill of P640 for each office which would like this set-up.

B. Using existing private telephone line

An office's private telephone line can already be used for the purpose of connecting to the Internet. No additional installation fees and monthly bills need to be paid. However, if this telephone is needed to make and/or receive calls, the line will have to be disconnected from the Internet set-up, disabling access to the Internet. This might turn out to be quite bothersome depending on the availability of other telephones in a particular office and the extent to which the Internet shall be used.

OPTION II: Dedicated Leased Lines (Multi-user account)

For organization-wide connection to the Internet, using leased lines is the least costly alternative. Though compared to Options IA and IB leased line connections would mean slower access, this option covers unlimited no. of hours of access for a fixed monthly charge.

To speed up access and minimize waiting time, using two (2) leased lines is recommended. This explains why the telephone line installation and monthly telephone bill was multiplied by a factor of two (2).

COST ITEM	OPTION I: INDIVIDUAL ACCOUNTS		OPTION II: LEASED LINE
	<i>IA: w/ separate tel for Internet</i>	<i>IB: using existing private tel. line</i>	<i>(multi- user/unlimited access)</i>
Internet account initial (ave.) cost	2,000	2,000	50,000
Modem / Router	6,000	6,000	500,000
Telephone line installation	3,000		(50,000 x 2 lines) 100,000
Total Start-up Cost	11,000	8,000	650,000
x 240 offices	x 240	x 240	
Overall Start-up Cost (excl. PC)*	2,640,000	1,920,000	**650,000
Monthly Internet average rate	2,000	2,000	50,000
Monthly tel. bill	640		(50,000 x 2 lines) 100,000
Total Monthly Cost	2,640	2,000	150,000
x 12 months	x 12	x12	x12
Total Annual Cost	31,680	24,000	1,800,000
x 240 offices	x240	x240	
Overall Annual Cost	7,603,200	5,760,000	1,800,000

Table 1: Cost Table for Internet Access

* This assumes that all offices have the necessary hardware requirements (at least a 386 class PC). Some offices in the House will still have to be upgraded to meet this requirement. This would entail additional costs. (Please refer to section on *Upgrading of PCs - House Members and Secretariat Offices* which discusses the additional Personal Computer requirements of the House of Representatives.)

** This initial cost does not yet include the networking of House Members' offices and Secretariat offices. The installation of a local area network (LAN), which is a requirement for Option II (Leased Line), is a vital component of the House Computerization plans and programs. A LAN would enable all offices to access the automated House information systems (e.g. Bills Information System, Philippine Laws Information Systems) and facilitate more efficient administrative and legislative procedures (e.g. committee scheduling, electronic mailing). (Please refer to *Local Area Networking of All Offices* for additional costs.)

Upgrading of PCs (House Members and Secretariat Offices)

At present, there is a need to upgrade the microcomputers distributed among the various offices in the House of Representatives. Most of these computers were acquired from 1987-1990 and are therefore considered obsolete according to present standards. Thus, frequent breakdowns occur and repairs are almost impossible with the unavailability of spare parts. Gradual replacement has been done by upgrading acquisition to 386 PCs. At present, replacements have been upgraded to 486 PCs.

At this point, however, there are still numerous microcomputers all over the House that have to be replaced. This figure includes both House Members and Secretariat offices. Some of these units have already been requested for replacement since late 1995 and are still up for public bidding.

Benefits

- Replacement of remaining obsolete computers will improve the operations of an office through decreased breakdowns and downtime.
- Upgraded computers are faster and will run newer and more software programs and thus, maximize the benefits derived from computerization.
- Additional computers will increase output of offices and meet increasing workload and demand.
- Upgraded computers will facilitate easier connection to the envisioned local area network and access to the INTERNET.

Cost Estimates

The following estimates exclude additional PC requests of offices. Assuming that around one hundred sixty-six (166) House Members' offices already have at least a 386 PC (including those with pending requests up for bid as of July 1996), there are fifty-one (51) offices, out of 217, left to be upgraded. With this, and approximating the number of Secretariat offices needing upgrading of PCs and connection to the Internet at twenty (20), additional costs roughly amounting to P5,069,000 (Table 2) shall have to be initially incurred to connect 240 offices to the Internet.

UPGRADING OF PCs	QUANTITY	UNIT PRICE	TOTAL COST
HOUSE MEMBERS' OFFICES			
DESKTOP COMPUTERS	51	35,000	1,785,000
PRINTERS	51	20,000	1,020,000
AUTOMATIC VOLTAGE REGULATOR	51	5,000	255,000
TOTAL			3,060,000
SECRETARIAT OFFICES			
DESKTOP COMPUTERS	20	35,000	700,000
PRINTERS	20	20,000	400,000
UPS	20	5,000	100,000
TOTAL			1,200,000
UPGRADING OF REMAINING 386 PCs			
hard disk (add'l. 1 GB)	40	6,000	240,000
RAM (add'l. 8 MB)	40	1,600	64,000
color monitor	55	7,000	385,000
Windows '95 user license	40	3,000	120,000
TOTAL			809,000
OVERALL TOTAL			5,069,000

Table 2: Costs for the Upgrading of PCs

Technical Specifications (Recommended and Used in Estimation of Cost)

Desktop Computers (PENTIUM-100) with UVGA color monitor (.28 mm non-interlaced)

Printers - 24-pin dot matrix (EPSON LQ-1170) (?) *only not something better*

Uninterruptible Power Supply (UPS - 220) 450 v.a.

Local Area Networking (LAN) of All Offices

To achieve an effective and efficient management information system, a network connecting the different computer resources should be established. With all PCs connected via a local area network (LAN) to a centralized file server, sharing of computer files and resources could be achieved. Also, an electronic mail system could be used to facilitate faster and easier interchange of messages from office to office. Furthermore, a bulletin board system could be utilized where applications such as committee meetings schedules can be facilitated more efficiently. To achieve a fully automated system eliminating data redundancy and legwork involved in diskette-swapping and message handling, networking all the information systems is most ideal

The primary objective in networking the offices of House Members is to enable all Members to access the information systems running in the DEC VAX 6310 computer system such as the BIS (Bills information System). At present, not all Members and key Secretariat offices have access to the BIS. In order to connect all these offices to the system, the House computer system has to be upgraded and cables must be installed from each office to the EDP Division which houses the computer system. Also, a network operating system has to be purchased. The costs involved are shown in the table below.

Networking of House Members' Offices	QUANTITY	UNIT	PRICE	TOTAL COST
HARDWARE				
System Upgrade	1	piece	2,500,000	2,500,000
Disk Array Subsystem	1	piece	200,000	200,000
Recordable CD Drive	1	piece	170,000	170,000
Optical Jukebox SCSI	1	piece	950,000	950,000
TOTAL HARDWARE COSTS				3,820,000
SOFTWARE				
Network Operating System (Windows NT and additional user license for Novell 4.1)			1,000,000	1,000,000
Database Mgt. System			5,000,000	5,000,000
TOTAL SOFTWARE COSTS				6,000,000
CABLING				
RG8 (backbone) thick coaxial cable	600	meters	180	108,000
Stackable hub (intelligent) 24 ports	44	pieces	57,000	2,508,000
UTP cable (category 5)	67,800	meters	40	2,712,000
RJ-45 UTP plug	1356	pieces	30	40,680
16-bit Ethernet card min of 10 mhz	561	pieces	3,400	1,907,400
thick coaxial transceiver	44	pieces	6,600	290,400
thick coaxial n-jack terminator	4	pieces	500	2,000
thick coaxial n-plug connector	4	pieces	500	2,000
CABLING COSTS				7,570,480
(plus 15% labor cost)				113,557
TOTAL CABLING COSTS				8,706,052
SUBTOTAL				
(HARDWARE+SOFTWARE+CABLING)				18,526,052
(plus 7% training)				1,352,605
TOTAL COSTS				19,878,657

Table 3: LAN Cost Estimates

Benefits

- This allows immediate access to vital legislative information for legislative research.
- Through electronic mail, House Members and Secretariat offices may "talk" to each other thereby decreasing paperwork and legwork.
- Committee meetings/ hearings schedules may be arranged and coordinated more efficiently.
- A LAN would facilitate more cost-effective access to the INTERNET.
- A LAN would facilitate easier connection to outside organizations/agencies.
- Centralization of databases provides for more efficient data gathering, faster information processing, elimination of data redundancy thus, saving on data storage space.
- Since data is centralized and may be shared, document processing can be improved and expedited.

Technical Specifications Recommended and Used in Estimation of Costs

System Upgrade (DEC Priors HX 5100MP/4 to be clustered with existing VAX 6310)

Disk Array Subsystem (RAID Array 230)

Recordable CD Drive

Optical Jukebox (CD Express Library)

SCSI Express software

Summary and Recommendations

COST ITEM	OPTION I: INDIVIDUAL ACCOUNTS		OPTION II: LEASED LINE
	IA: w/ separate tel. for Internet	IB: using existing private tel. line	(multi- user/unlimited access)
Start-up Cost (excl. PC upgrade)	2,640,000	1,920,000	650,000
Upgrading of PCs	5,069,000	5,069,000	5,069,000
Local Area Networking (LAN)			19,878,657
Overall Initial Cost	6,900,000	6,180,000	25,597,657
Overall Annual Cost	7,603,200	5,760,000	1,800,000

Table 5: Summary of Costs Involved for Internet Access of all Offices (±240)

As seen from the above table, Option II (Leased Line) requires the highest initial cost outlay but the lowest annual cost thereafter. This huge initial cash requirement is due to the installation of a local area network among all offices which is a prerequisite not only in the use of a leased line for Internet access, but also for other existing computerization needs of the House. Thus, this amount would cover not only Internet connection but also the other computerization programs of the House. This factor, plus its having the lowest annual cost (as compared to Option I choices) makes Option II the most cost-effective alternative in the long-run if all House offices are to be connected.

COST ITEM	INDIVIDUAL ACCOUNT	
	<i>W/ separate tel. for Internet</i>	<i>Using existing private tel. line</i>
Internet account initial (ave.) cost	2,000	2,000
Modem	6,000	6,000
Telephone line installation	3,000	
Total Start-up Cost (excl. PC)	11,000	8,000
PC set (w/ printer & UPS)	75,000	75,000
Total Start-up Cost (w/ PC)	86,000	83,000
Monthly Internet average rate	2,000	2,000
Monthly tel. bill	640	
Total Monthly Cost	2,640	2,000
x 12 months	x 12	x12
Total Annual Cost	31,680	24,000

Table 6: Summary of Costs Involved for Internet Access of Individual Offices

On the other hand, in the probability that not all offices will be connected to the Internet, certain offices, like the Office of the Speaker, may request for connection. Similar to Option I (Individual Accounts) presented earlier, there are two (2) available choices: that of using a separate telephone line and that of using the existing telephone line. The advantages of each alternative are similar to the earlier discussion of Option I. As can be seen in Table 6, using the existing telephone line would be cheaper although use of the Internet will have to be stopped when the telephone is used for making and/or receiving calls.

Prepared by:

ANGELINE A. MORALES
Chief, EDP Division

ANNEX B
Installation of Laser Printers in Support of Internet Access for the
House of Representatives
(An Addendum to the Original Proposal on the House of Representatives'
Access to the Internet)

With the scenario that all House Members and key Secretariat offices are to be connected through a local area network with access to the Internet, an additional requirement that would enhance the productivity of these offices is the installation of a laser printer in each office. Unlike the dot matrix printer, which is the current standard printer of House offices, the laser printer enables faster, clearer and more visually appealing output especially where graphics/pictures are included. This makes it ideal for the printing of documents the House Members may want to publish. (Also refer to attached study of Xerox on 'Cost Justifying Laser Printing in a Line Printer Environment for more advantages of laser printing technology - Annex D.)

The inclusion of laser printers in the main proposal (Annex A) would increase costs as follows:

189 offices x P 30,000	= P 5,670,000
51 offices x P 10,000*	= <u>P 510,000</u>
TOTAL	P 6,180,000**

In addition, assuming an average of three (3) toner cartridges per year for each office, the use of laser printers would incur an approximate annual cost as follows:

3 cartridges x 240 offices x P 3,300/cartridge = P 2,376,000

* Price difference between a laser printer (P30,000) and a dot matrix printer (P20,000), originally proposed in the section on Upgrading of PCs of attached proposal (Annex A).

** This amount could even be less since some offices already have laser printers.

ANNEX C

Computerization of the Session Hall

This system has the ultimate aim of providing a computer for each congressman at the session hall. With the objective of arriving at a paperless legislative system, documents such as the journal, record, transcripts and OB/CBs shall be made available to each congressman for on-line access. Hardcopies of such documents can easily be printed on an on-need basis.

Applications such as a computerized voting facility and attendance monitoring shall also be developed. Presently, the attendance of the House Members are taken every session as an integral part of the Daily Order of Business. The attendance is then reflected at the Journal of the House which will be available and submitted for approval of the body on the next session. This system of roll call takes more than three (3) minutes and is subject to error. After the roll call, the Journal of the previous session is presented for approval. More often than not, questions arise on the veracity of the attendance report.

The present voting system functions in much the same way as the roll call system with a manual count of votes (Yes, No and Abstain). The only difference is that a Member sometimes explains his/her vote causing the voting to drag on for hours.

One major defect of the present system is its lack of immediate feedback mechanism. The Members get to know their attendance not on the same day but on the next session. Similarly, votes are checked once they are already printed on the Journal of the House. Correcting these errors wastes so much time and resources. Besides, the systems are too slow. There is a need to speed up the roll call and the votation so that the legislators can spend more time on more important matters.

Thus, aside from achieving a paperless system, this proposed LAN will provide for more effective and efficient legislative procedures through a more accurate and more timely input, processing and dissemination of information.

Benefits

- Since each Member shall have his/her own terminal, documents such as the journal, record, transcripts and OB/CB shall be available on-line.
- Hardcopies may be printed on an on-need basis.
- The development of a computerized attendance monitoring system and voting system shall speed-up the roll call and the votation and provide immediate and precise feedback mechanism during session.
- Through his/her terminal, a Member can immediately access information on the following:

- bills, resolutions and laws
- rulings of the chair
- committee meetings/hearings schedules
- committee spot reports
- reference materials from the Library

Cost Estimates

LAN of the Session Hall	QUANTITY	UNIT	PRICE	TOTAL COST
File Server and Software	1	set	1,000,000	1,000,000
Cabling and Civil Works			3,000,000	3,000,000
Desktop Computers (or terminals)	235	sets	35,000	8,225,000
Laser Printers	4	set	35,000	140,000
Change In Session Facilities				4,000,000
Training Costs	235	users	3,000	705,000
TOTAL				17,070,000

Automated Attendance & Voting System	QUANTITY	UNIT	PRICE	TOTAL COST
Video Walls	2	sets	2,000,000	4,000,000
Related Hardware				4,000,000
Software				2,000,000
Civil Works				2,000,000
TOTAL				12,000,000

Technical Specifications

Desktop Computer (PENTIUM-100) w/ at least 14" UVGA color monitor (.28mm non-interlaced)

- 64-Bit Intel PENTIUM-100 Microprocessor
- Chip Upgradeable to higher PENTIUM processors
- Plug-and-Play capability preferred
- Energy Protection Agency Compliant
- 8 MB RAM on-board memory, expandable to 128 MB (w/ at least 4 sockets for a 72-pin SIMM)
- Built-in PCI bus graphic processor with 1 MB Video RAM expandable to 2MB
Resolution up to 1280 x 1024 with 256 colors or better
- 256 KB cache memory
- at least four (4) bus slots with 2 PCI
- IDE hard disk interface controller (embedded) supports up to two 3.5" hard disk or more
- on-board two RS-232C serial I/F, parallel port and PS/2 Mouse Port, One PS/2 Keyboard port
- 850 MB Hard Disk (or higher)
- 1.44 MB 3 1/2 " Floppy Disk Drives
- 100 watts power supply or better (110V/220V switchable)

- IBM PS/2 compatible 101 keyboard
- Microsoft Mouse PS/2 compatible
- two-year warrant on parts and service
- bundled with DOS 6.2, WINDOWS 3.11 or WINDOWS 95 and VGA utilities with documentations

** No available cost estimates if terminals are to be used.

Cost Justifying Laser Printing in a Line Printer Environment

A XEROX WHITE PAPER ON MIDDORANGE PRINTING



"We are at a moment in time between paper and electronics in which the document is a shape changer."

— Paul Saffo, Institute for the Future

Information literally drives business. It is rightly regarded as the most valuable of strategic corporate assets, and a great deal of time and money go into choosing state-of-the-art computing hardware and software to process information. That same sense of importance needs to be applied to document production. Why? Typically, 90 percent of information technology investment is in data — the data center and its extensions. But 90 percent of the information is in the form of documents. They are the underpinning for business processes.

Furthermore, the costs associated with documents add up to as much as one-tenth of overall corporate revenues, according to a recent Gartner Group study. Yet the majority of companies have given relatively little attention to the impact made by

what is often thought of as merely "computer printout."

It may require a shift of perspective to realize that your document production system is a business tool — one that can be used to reengineer your company's internal processes to meet business needs, while also creating a strong positive impact with your customers. More often than not, the opportunity for making this impact is lost because most printing today is performed on a technology that prevents companies from using it as a business tool to either save money or increase revenues.

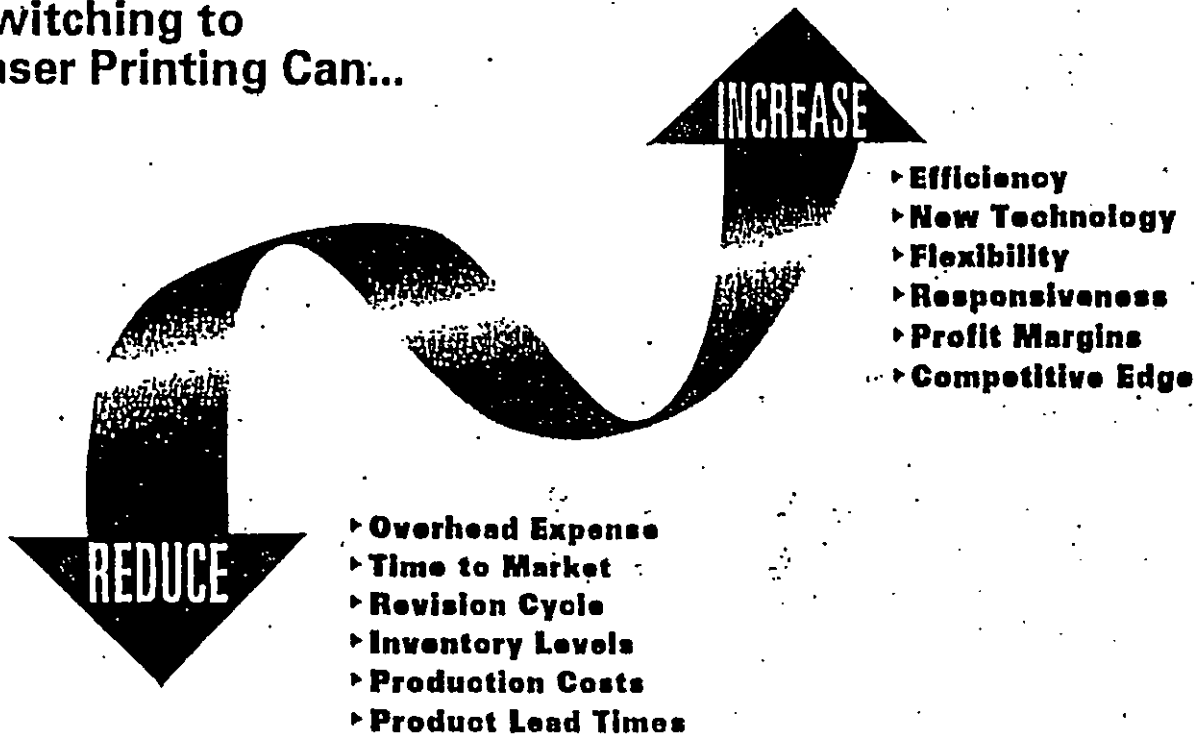
The recent trend toward downsizing computing platforms — moving hardware and applications out of the data center and closer to the user — has had considerable success in boosting productivity. Printing needs to be thought of in the same way. Reengineering the printing process — moving from impact to laser printing — provides the capability to design and produce more effective business documents and, in most cases, can yield cost savings as well as greater productivity. But providing information closer to the end user is not enough. Flexible printing capabilities must also be provided so that productivity benefits are fully achieved.

How effective is your current printing technology in helping you use your

still used in the majority of midrange installations – and shows how these processes can be reengineered to take advantage of the financial opportunities afforded by laser printing.

In addition, the wide range of expenses associated with traditional printing are identified to facilitate the financial analysis that is required to plan a migration from impact to laser printing. But cost justification is just the first step. Streamlined processes, less waste and new value will follow as a result.

Switching to Laser Printing Can...



Traditional Impact Printing — and Beyond

Developed in the early 1950s, impact printers have been the standard for computer output for so long that they have literally shaped the structure of computer operations and users' quality expectations. Particularly in midrange computing, they remain today the dominant printing technology, comprising more than 60 percent of the computer printers in IBM and Digital midrange installations worldwide.

Those whose concept of printing remains within the traditional paradigm may be overlooking significant opportunities, since they are using a technology that is mechanical in nature and thus inherently less flexible than software-based electronic printing. And whereas impact printers only print, laser printing systems can perform a whole gamut of services — from production and storage of electronic forms, to barcoding, printing highlight and full color and MICR, to sophisticated finishing tasks like sorting and stapling, to the assembly of finished documents.

Furthermore, line printers actually cost more than their users generally realize, since this technology involves a wide range of expenses that are often overlooked when calculating costs. These expenses include:

Labor. Impact printing involves a number of labor-intensive steps, which are eliminated by laser printing. First, fanfold paper must be loaded and aligned and, where forms are involved, registration must be carefully checked. When printing is completed, the paper must be burst and decollated, requiring special equipment. And if different print logos are desired, print chains must be changed.

Paper. The 11 x 14½ in. page format typically used by line printers is more expensive than comparably sized cut-sheet bond. Even more importantly, impact printer technology can not take advantage of the paper savings afforded by duplex (two-sided) and four-up (two reduced pages on each side) printing.

Postage. The larger format of line printer output and the ability to print on only one side means more weight and consequently more postage in mailing. In addition, line printer users miss the opportunity for substantial postage savings that could be obtained by presorting and incorporating Post Net barcodes into statements, mailers and other external correspondence.

Preprinted Forms. The high cost of creating, printing and storing

and forms represents a major expense which can be eliminated when

Furthermore, the cost of storing forms can be very high; with laser printing, you typically need to store only a one- to three-month's supply of plain, white bond paper – as compared to up to a year's supply of multiple preprinted forms.

Finally, someone has to manage the fanfold forms inventory, including ordering, inventory maintenance, handling, and floor space – all of which can add up to as much as 10 percent of the value of the forms themselves.

Wastage. Studies have shown that from five to 20 percent of the total value fanfold paper or forms is typically wasted in loading and start-up operations, as well as when end-of-box paper remnants are thrown away. In addition, due to the changing nature of forms, impact printer users throw away thousands of dollars worth of preprinted forms when revisions are needed.

Downstream Copying. In many cases, the output from line printers must be taken to a copy center, reduced and duplicated for distribution. Cut-sheet laser printers can produce any number of multiple sets of originals (not copies) on paper sizes ranging from 5 1/2 x 8 1/2 in. (A5) up to 11 x 17 in. (A3).

Critical Print Windows. Because of the stop-and-start nature of line printers and their inability to print on more than one side – as well as the need to manually change paper and forms and perform bursting and decollating operations – it is often difficult to meet the needed critical print windows associated with mission-critical applications.

Reengineering Your Processes

The cumbersome and costly processes associated with impact printing – a legacy of the technology of the '50s – can be a major hindrance to those who wish to keep pace with the business trends of the '90s. In particular, the current trends toward downsizing, open systems, networks and client/server architectures is requiring midrange computer owners to fundamentally rethink how they manage and support their information systems.

Such rethinking, often called “process reengineering,” requires stepping out of one's present way of seeing things – not just doing the same things better, but doing things differently. As managers rethink and redesign their overall information systems functions, their whole concept of documents and document production also needs to be re-examined and reengineered.

For example, producing and moving information electronically, rather than manually, results in huge productivity gains. It dramatically increases the clock speed of any organization through major process simplification. A successfully reengineered process means fewer steps, less time to complete, and the right information delivered to the right person at the right time.

A prime example of the reengineering of a process involving documents is the preparation and use of forms. Many critical work processes are driven by forms, and much of the external communication that goes on with customers and vendors is through forms. Typically preprinted on offset presses in large

Ree

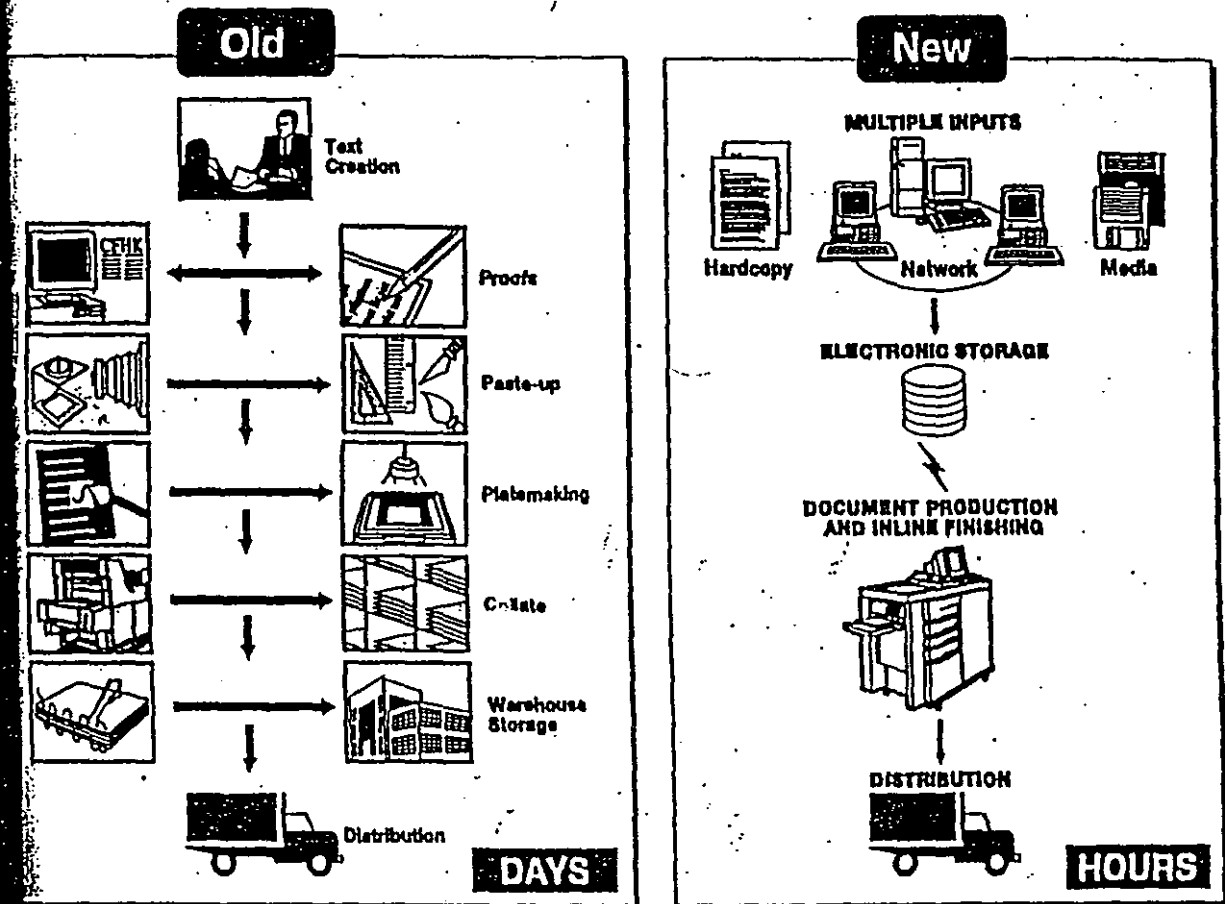
Type

Line
Head

Net

F

Engineering a Document Production Process

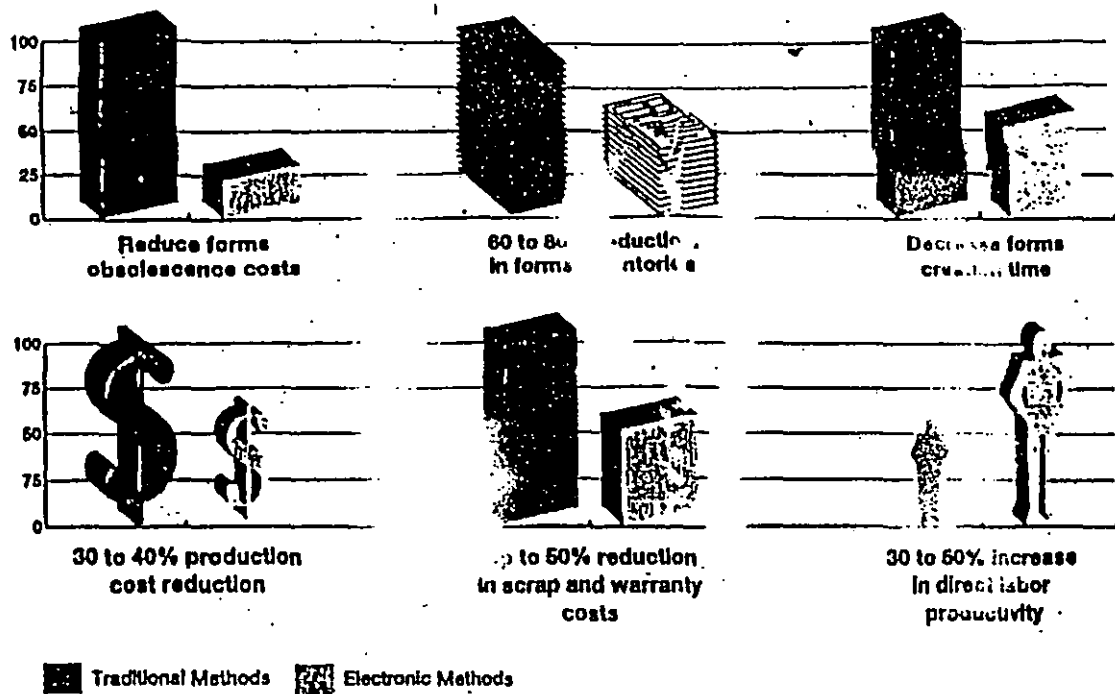


quantities to achieve economies of scale, forms represent a significant cost to most businesses. Studies show that some \$2 billion worth of obsolete forms have to be destroyed every year, and that 15 percent of warehoused forms are never used at all. Yet many companies fail to see forms production as an important business process because much of the real cost of their forms is hidden in high storage and obsolescence costs.

Applying the Just-In-Time Concept to Forms Printing

Today's manufacturers no longer purchase component material far in advance of production, just to make sure they "have it on hand." They can't risk having material become obsolete or damaged in storage. Instead, they are striving to achieve zero inventory levels by applying Just-In-Time (JIT) purchasing and manufacturing techniques.

JIT Forms Production



JIT electronic forms for use with laser printers are easy to create and use, and they have a number of distinct advantages. Users can create them on their PCs or workstations using popular desktop software – or existing hardcopy originals can be scanned, digitized, and brought up-to-date. This gives users more control over revisions and updates. And networked users can work collaboratively to share forms across functional areas and between groups of users.

Electronic forms are easily customized or personalized. Divisions, warehouses, or shipping locations can access libraries of standard corporate forms (such as invoices, purchase orders or shipping forms) and then add information that is unique to their customers and vendors. Unlike preprinted forms, the electronic form you print is always as up-to-date as today's revision. There is no waiting for lengthy revision and print cycles, and no waiting for the form to be delivered from the warehouse.

The concept of storing forms and other documents electronically and printing them "just in time," at the point of need, has great potential for streamlining work processes. A manufacturing shop floor environment is a good example. When printers and terminals are placed on shop floors where job steps are completed, users can update a database and generate a hard copy on the spot – the result of merging the electronic form and the data entered.

The Power of Laser Printing

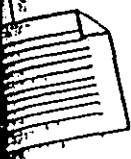
Introduced in the 1970s, laser printing has brought major cost savings to the document production process. It has also ushered in a whole new world of freedom and flexibility in computer printing. Laser printers combine computer, laser, and xerographic technologies to print text and graphics, as well as forms, in practically unrestricted paper size, type of paper and orientation directly from digital information.

Impact printing imposes many constraints on the user because it is a mechanically based technology. The nature of electronic printing technology – with the image created by a laser under computer and software control and printed on plain, cut-sheet paper – leads to a number of significant features and benefits in speed, cost, print quality and versatility:

Meeting Critical Print Windows. As mentioned earlier, a key feature of laser printing is the ability to print a form and the variable data that goes into the form all in a single operation. This capability not only cuts costs but allows users to meet printing deadlines that would be difficult or impossible using preprinted forms.

For example, a Canadian food distributor was having a major problem getting price information to its customers quickly enough. The firm was using line printers and a quarter-million preprinted forms monthly to produce an order guide which its customers needed for ordering products. To assure that the food prices were competitive, the prices had to be determined at the last possible moment; then the guide had to be printed and rushed to customers within an 8-day window. The impact printers were a bottleneck in the process and often made it difficult to meet this deadline. After switching to laser printing, the company reported no problem getting the guides out on time. And as an added bonus, they project a savings of \$50,000 per year by eliminating the cost of preprinted forms for that application alone.

Paper Savings. In most installations, the cost of forms and paper represents the largest single expense associated with printing. Whether or not forms are used, the replacement of fanfold with cut-sheet paper can produce significant savings. Besides reducing the cost of paper by switching to plain paper, laser printers can offer further paper savings through duplex (front and back) and quadruplex (two reduced pages on each side) printing.

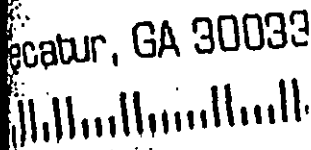


after changing to a laser system. The savings were achieved largely through printing all of its reports in quadruplex. And some 200 company-wide users now have the flexibility to create reports on their own PCs, send the job to an AS/400, and manage the printing job - with choice of simplex, duplex, quadruplex, landscape or portrait orientation plus any desired font.



Barcodes. Because of the unparalleled accuracy, speed and economy it facilitates, barcoding is an increasingly essential tool in the business environment. Barcoded invoices, order forms and shelf labels enable consistently correct pricing, ordering, inventory-maintenance and post-processing. And whether captured by fixed scanners or moveable wands, barcoded information can accurately be input in a split second. The benefits of barcoding are so universally recognized that it is today required for businesses serving the U.S. Department of Defense and many other government organizations.

The consistent high resolution (300 and 600 dots per inch) of today's laser printers can significantly reduce barcode scan errors, in comparison with impact-printed barcoding technology which can suffer from print quality degradation. For example, one manufacturer reduced customer scan errors from 30 percent to virtually zero percent after a laser printer was installed. And with print speeds up to 135 pages per minute, laser printing has enabled one facility to produce up to 50,000 sheets of barcoded labels per day.



Postage Savings. With laser printing, the savings in mailing costs can be very significant. Cut sheet paper is smaller (8 1/2 x 11 in. vs. 11 x 14 1/2 in.) and therefore lighter than fanfold, and using cut sheet in duplex or quadruplex saves even more weight. And bar coding mail for pre-sorting currently produces immediate U.S. mail discounts of nearly 20 percent, depending on quantity and class - an application that saved one laser printer user more than \$750,000 a year. While impact printers users can produce pre-sorted mail, adding the bar code requires a separate step. Laser printers can print text, forms and graphics and barcode mail simultaneously. In addition, a variety of automated finishing solutions - including automatic folding and inserting - are available with laser printers for special mailing needs.

As an example of the innovative use of barcodes in mail processing, a major department store chain in the U.S. Midwest turned to barcoding to minimize "float." The system is designed to assure that more money is deposited in the company's accounts faster by processing larger credit card payments first. Laser printers print one of two barcodes on each bill that is sent out - one barcode for bills with higher balances, and a different code for those with lower balances. Incoming payments are then sorted automatically by barcode to permit the larger checks to be deposited first, thereby increasing cash flow.



Eliminating Bottlenecks in Printer Operations. Laser printers are designed to operate nonstop, with two to four input trays to assure that there are no interruptions for reloading paper. Labor-intensive operations associated with impact printing – loading, unloading, aligning forms, bursting and decollating – are eliminated.

A bank in Virginia recently learned the value of laser printing's speed and simplicity. Using a 1200-lpm line printer with its AS/400 system, the bank was experiencing a bottleneck every time it had to send out month-end statements – which had to be processed and printed concurrently with the usual daily overnight check processing. All print job formatting had to be completed on the AS/400, then transmitted to the printer page by page. If processing needed to be stopped for any reason, it would also back up the statement printing process. Installation of a 35-ppm laser printer cut statement printing time in half, and also saved more than \$1,000 per month in paper and printer-related consumables – which the bank projects will offset the total cost of the equipment in less than three years.

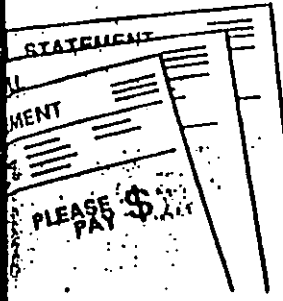


Point-of-Need Printing. Changing from a "print then distribute" mode to "distribute then print" can yield dramatic benefits. Providing smaller printers at the point of need – making information available where required – is often more cost-effective than printing from a central location. And reengineering the process used to print – going from impact to laser technology – can also yield cost savings and greater productivity.

A case in point is one of the largest U.S. law firms, whose headquarters occupy 14 floors of a Manhattan office building. When a centralized printing system failed to meet the document needs of its 700 attorneys, the firm brought in more than 100 desktop laser printers to support a distributed processing environment. This system puts "on demand" print capability within reach of each attorney's desk.

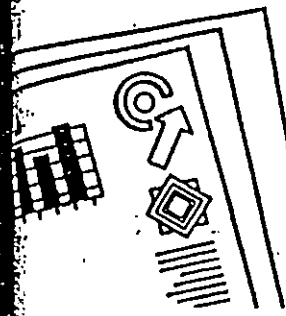
360

Magnetic Ink Character Recognition (MICR) Printing. A variety of desktop laser printers are available for printing the special MICR characters used on checks and other negotiable documents. Typical of businesses using this capability is a credit company that handles financing for a major automobile manufacturer. The firm has installed desktop MICR printers in its 51 branch offices around the United States, enabling branch personnel to create laser-printed checks immediately as needed. Previously, checks were either written by hand or produced centrally and mailed out to the branches. Using blank security



Printing in Color. Laser printers are also available for printing in both highlight color and full color. Highlight color laser printers print black and one color – typically red, blue, or green. The black and second color are both printed in a single pass through the machine, at speeds as high as 90 ppm. Placement of the highlight color is data-driven under computer control, allowing every page printed to be customized as desired.

Typical uses of highlight color include printing an “amount due” figure in red in order to increase payment turnaround, or highlighting a company’s customer service telephone number. An Ohio-based bank recently installed highlight color laser printers as part of a major document redesign effort. The bank sends out 133 different kinds of documents to its customers, and it has successfully reengineered more than half of the documents with highlight color to provide a consistent look. Along with the other advantages of its document reengineering effort, the bank reports it is saving approximately \$100,000 a year through the elimination of preprinted forms alone.



Use of Graphics. The capability for integrating text and graphics in documents is a key feature of laser printing – a part of the greater freedom that differentiates this technology from impact printing. And the potential of laser printing for document enhancement has barely been tapped. Lasting and influential impressions are created within the mind by a well-engineered document, and graphical representation can make your information more quickly and easily understood.

By including charts and graphs – which can be data-driven and personalized for each recipient – as part of your billings and other mailings to customers, you can build greater customer satisfaction. Many utility companies are already doing this, using laser-printed graphics in their utility bills to give customers a quick overview of their current usage of gas and electricity as compared to the previous period. Such graphics can be especially powerful when combined with color to illustrate what the customer is currently paying.

Checklist For Decision-Makers

The following questions will help you make an informed decision as you plan your migration from impact to laser printing technology:

- Paper and Forms:** How much paper am I using? How much am I spending for fanfold paper? For preprinted forms? How much paper and forms am I wasting, either in loading/unloading operations, partial box throw-aways, or obsolete forms that must be thrown out?

- Storage:** How much is the storage of forms, paper, and reports costing my company? How much could this be reduced by eliminating preprinted forms and using 8 1/2 x 11 in. cut-sheet paper?

- Mailing:** How much is my company spending on postage? How much could this be reduced merely through the reduced weight of cut-sheet paper and duplex or quadruplex (four-up) printing? How much more could I save by taking advantage of postal discounts available for pre-sorted mail using postal barcodes? Am I currently adding the barcode in a separate step?

- Labor:** In what areas is my present system requiring labor which laser printing could eliminate? How about the design, development and management of forms? Printer operations (loading, unloading, aligning forms, etc.)? Bursting and decollating? Downstream reproduction and distribution of reports?

- New Applications:** Am I addressing the printing requirements of my entire company, or merely doing those applications traditionally required of the computer center? Can I print complex, composed documents with graphics, such as booklets, policies, price guides, and personnel manuals? What about MICR check printing? Am I prepared to take advantage of new client/server applications?

- Document Reengineering and Redesign:** Are there opportunities for reengineering mission-critical documents? Are there opportunities which I can't begin to address because of the limitations of impact printing? Can I incorporate logos and signatures into my documents? Have I looked into enhancing my company's documents with highlight color or full color laser

Meeting the Future

How ready are you to meet the future?

The trend in information systems (IS) is clearly toward open systems, networks and client/server architectures. As a result, IS is forced to support a variety of physical connections, as well as multiple communications protocols, page description languages and application platforms. Impact printing technology inherited from the '50s cannot begin to cope with the connectivity and application needs of these new computing environments. How do you meet the challenge?

- ▶ Anyone seeking to make the transition is wise to work with an open network architecture and with a laser printer vendor who has solutions that meet the range of business needs and no vested interest in specific computer platforms.
- ▶ Develop a print strategy that is aligned with key business strategies. Is your company looking to increase revenues and decrease costs to improve the bottom line? Consider the following: Identify what documents should be printed, what documents should be viewed, what applications should be reengineered for cost reduction, what applications should be reengineered to increase revenues. Using color to impel action has been shown to increase payment on invoices by as much as 20 percent.
- ▶ Ensure that the printer vendors you consider are able to deliver utilities which guarantee that your migration from line to laser printing is not cumbersome and dependent on technical resources.
- ▶ Just as the locus of the application is moving, printing resources and capabilities must also move. Your laser printer vendor must be able to meet your paper handling, document services and support application requirements, from the simple to the complex.

Meeting the future head-on, you have the opportunity today to use the power and flexibility of laser printing to help your entire company be more productive, reduce costs, and make a better impact with customers. In view of today's computing trends, you really have no choice but to adopt laser printing. The only question is: How soon?

ANNEX E

**Activities, Duration, Manpower Involvement
and
Estimated Time/Schedules**

for

**Installation of a LAN and Internet Access among House Offices
and
Computerization of the Session Hall**

**Activities, Duration and Manpower Involvement
(Installation of a LAN and Internet Access among House Offices)**

A. LAN Connections

This would involve the setting-up of cables connecting the various offices to the file server(s). Changes in locations and additional physical facilities will have to be considered in designing these connections. This would also include training all users on the use of local area networks.

Activity	Duration	Manpower
Design of Networks	1 month	suppliers EDP Division Eng'g. Division user offices
Acquisition of Related Hardware and Software	2-3 months (from bidding to contract signing)	Ctte. on Accts. Property Division EDP Division Legal Affairs Office
Installation of Network	2 months	contractor Eng'g. Division user offices
Network Training	1-2 months	contractor user offices

B. Internet Access

This involves the subscription with an Internet Service Provider through which the Internet shall be accessed. Related activities would include leasing telephone lines and training on the use of the Internet.

Activity	Duration	Manpower
Subscription to an ISP	1-2 mos. (from bidding/negotiations to contract signing)	Ctte. on Accts. Property Division EDP Division
Acquisition of Router(s)	2-3 mos. (from bidding to contract signing)	Ctte. on Accts. Property Division EDP Division
Lease & Installation of 2 main lines	1 month	Ctte. on Accounts Property Division Eng'g. Division EDP Division

Internet Installation	2 months	contractor user offices
Internet Training	2 months	contractor user offices/House Members

C. Design and Development of PC-based BIS and Other Legislative Systems

With the installation of a PC-based network, it would be best to convert the present Bills Information System (BIS) to a PC-based system. Also, other legislative information systems shall be developed to maximize the use of the House-wide LAN. This is also seen as a preparation for the establishment of a LAN at the session hall for the achievement of a 'paperless' session in the future.

Activity	Duration	Manpower
EDP staff technical training	1 month	contractor EDP Division
Database conversion	1-2 mos.	EDP Division Bills and Index Division Legislative Archives other users
Dev't. of Legislative information systems (Interviews, Design, Programming & Testing)	7 mos.	EDP Division Operations Branch offices
User training	5 mos.	EDP Division Bureaus concerned
Parallel Testing / Implementation	5 mos.	EDP Division Bureaus concerned

Estimated Time/Schedules

Installation of a LAN and Internet Access among House Offices

Thru Bidding

LAN Connections

	month 1	month 2	month 3	month 4	month 5	month 6	month 7
Design of Network							
Acquisition							
Installation							
Training							
TOTAL:	7 months						

Internet Access

	month 1	month 2	month 3	month 4	month 5	month 6	month 7
ISP Subscription							
Acquisition of Routers							
Lease/Instal. of tel. lines							
Internet Installation							
Training							
TOTAL:	7 months						

Design and Development of Legislative Information Systems

	mo. 5	mo. 6	mo. 7	mo. 8	mo. 9	mo. 10	mo. 11	mo. 12	mo. 13	mo. 14	mo. 15
Technical training											
Database conversion											
Legislative info systems											
User training											
Testing/Implementation											
TOTAL:	11 months										

Thru Negotiated Purchase

LAN Connections

	month 1	month 2	month 3	month 4	month 5	month 6	month 7			
Design of Network	■									
Acquisition	■	■								
Installation			■	■						
Training				■	■					
TOTAL:								5 months		

Internet Access

	month 1	month 2	month 3	month 4	month 5	month 6	month 7			
ISP Subscription		■								
Acquisition of Routers	■	■								
Lease/Instal. of tel. lines			■							
Internet Installation				■						
Training					■	■				
TOTAL:								6 months		

Design and Development of Legislative Information Systems

	mo. 3	mo. 4	mo. 5	mo. 6	mo. 7	mo. 8	mo. 9	mo. 10	mo. 11	mo. 12	mo. 13
Technical training	■										
Database conversion	■	■									
Legislative info systems		■	■	■	■	■	■	■			
User training							■	■	■	■	
Testing/Implementation							■	■	■	■	
TOTAL:											11 months

Activities, Duration and Manpower Involvement (Computerization of the Session Hall)

A. Installation of an Automated Attendance and Voting System

This involves the use of a network with a central computer connected to smaller machines (microprocessor controlled keypads and displays) w/ specialized functions to enable input of attendance or non-attendance for the Automated Attendance System, and input of Yea, Nay or Abstain for the Automated Voting System. Video walls will have to be installed to indicate whether the House Member is present, absent, or on official mission thru pinlights opposite their names and a summary of the attendance. During votation, these walls will also display the results.

Activity	Duration	Manpower
Testing/Evaluation of System	1 month	Plenary Affairs Bureau EDP Division
Acquisition of system and Video Walls	2-3 mos. (from bidding to contract signing)	Ctte. on Accts. Property Division EDP Division
Installation of system at session hall	1-2 months	contractor Eng'g. Division EDP Division
Training of House Members and involved Secretariat	1 month	contractor House Members concerned Secretariat

B. Installation of a LAN at the Session Hall

This entails the setting-up of a computer for each House Member, for the Speaker, operators and certain Secretariat officials at the session hall. This also involves the installation of a pool of laser printers at the session hall for printing requests during sessions. This local area network will enable House Members to access all information systems and the Internet during sessions. Certain aspects of plenary proceedings shall also be available online 'live' while in session.

Activity	Duration	Manpower
Training of House Members	2-3 mos.	contracted trainor EDP Division Personnel Division Plenary Affairs Bureau
Design of Network	1 month	Engineering Division EDP Division
Acquisition of computers and network	2-3 mos.	Ctte. on Accts. Property Division EDP Division
Renovation of desks at session hall (or manufacturing of new desks)	2-3 mos.	Engineering Division
Installation of LAN	2 months	contractor Engineering Division EDP Division

Estimated Time/Schedules

Computerization of the Session Hall

Thru Bidding

Installation of an Automated Attendance and Voting System

	month 1	month 2	month 3	month 4	month 5	month 6	month 7
Testing/Evaluation							
Acquisition							
Installation							
Training							

TOTAL:

6 months

Installation of a LAN at the Session Hall

	month 1	month 2	month 3	month 4	month 5	month 6	month 7
Training of Congressmen							
Design of Network							
Acquisition							
Desks Renovation							
Installation of LAN							

TOTAL:

6 months

Thru Negotiated Purchase

Installation of an Automated Attendance and Voting System

	month 1	month 2	month 3	month 4	month 5	month 6	month 7
Testing/Evaluation							
Acquisition							
Installation							
Training							

TOTAL:

3 months

Installation of a LAN at the Session Hall

	month 1	month 2	month 3	month 4	month 5	month 6	month 7
Training of Congressmen							
Design of Network							
Acquisition							
Desks Renovation							
Installation of LAN							

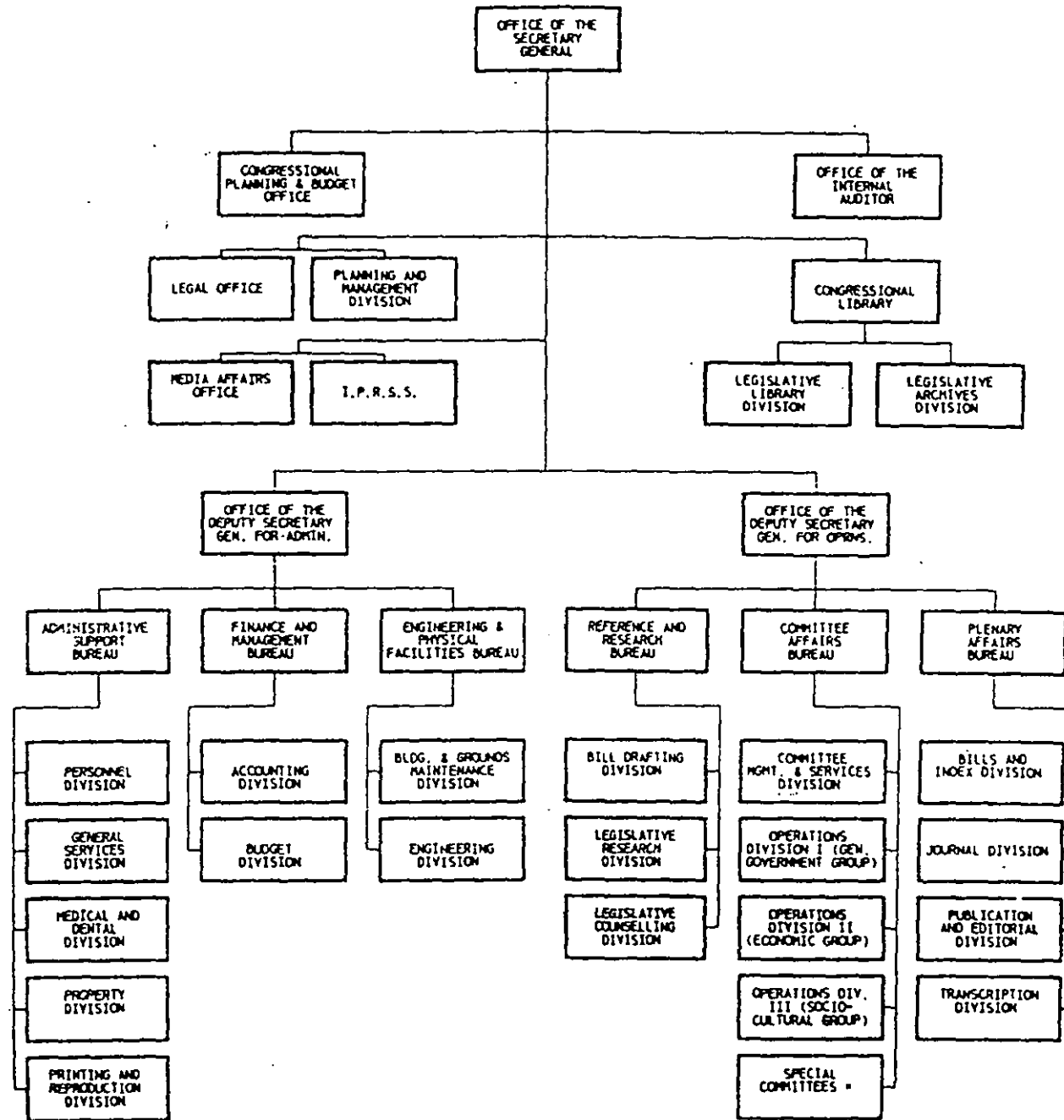
TOTAL:

4 months

APPENDIX B

Secretariat Organizational Chart

ORGANIZATIONAL CHART OF THE SECRETARIAT



* Include Committee on Accounts, Committee on Personnel, Committee on Rules and Administration, and Committee on Public Information.

APPENDIX C

Meeting Minutes and Index

Minutes of Meetings

Tuesday, September 16

Plenary Affairs Bureau, Atty. Cesar Strait Pareja, Director

The Bill Information System (BIS) is almost useless for several reasons, according to Pareja. These reasons are:

It is off-line most of the time.

When it is on line, it is slow,

Hard to use,

And lacks full text of bills.

Bills and Indexing, Vic Caoile, division chief

Mr. Caoile described the tasks of his office, which include inputting bill numbers, titles and authors into the BIS and publishing bill histories. He did not describe any major problems with the system, but indicated that the system would be more useful if it assisted him in tracking and publishing the House calendar.

Transcription, Demetria C. Zamora, division chief

Ms. Zamora described a largely manual process of transcribing the proceedings on the House floor and delivering information to several of the other offices. Some of the problems she described included her office's inability to get useful information from the BIS. Instead of using the system, her office simply calls Bills and Indexing to get information about bills before they come up.

Her office also provides information to the following offices:

Hard copy of transcript to Archives,

Hard copy and floppy disk of transcript to Publications and Editorial,

Hard copy of transcript to Journals,

Hard copy of amendments to Bills and Indexing,

The top things she would like the computer system to do, in addition to being able to transfer files over a network, would be allow her to monitor bill status and provide her an index of bills, Ms. Zamora said.

In addition, Transcription keeps a manual index of privileged speeches that is not computerized.

Journals, Isabel Vergara, assistant chief

Ms. Vergara spoke to us because the chief of the division was not in the office. She described the primary task of her office to be akin to that of a newspaper because, as opposed to the Transcription division, which provides a verbatim record of the House proceedings, the Journals division produces a summary of the House proceedings. As such, however, the transcripts are their primary sources for their summaries.

Unfortunately, Ms. Vergara said, she can not access the transcript on a LAN. If that were possible, they would no longer need to rely upon the hard copies delivered to them by Transcription.

Journals also maintains a Fox Base database of bills, citing when and where they are referenced in the Journal. This database is backlogged to 1993, though, since they do not have the staff power to keep it up to date, she said.

Publications and Editorial, Priscila P. Del Rosario, division chief

Ms. Del Rosario described how Publications and Editorial division produces the Record, the publication of the verbatim transcription of the House proceedings. Her office uses the floppy disks provided by Transcription, and edits it for grammar and spelling.

She cited several problems in this process:

Her office must retype the full text of the bills into the Record upon second reading because they do not have access to a computerized version of the bills. This takes up to 30 percent of her staff's time, she said. (Her staff has 22 people).

Her office has old, outdated computers that make it difficult for her staff to use them effectively.

Index of Meetings

Tuesday, September 16

Plenary Affairs Bureau

Bills and Indexing, Vic Caoile, division chief
Transcription, Demetria C. Zamora, division chief
Journals, Isabel Vergara, assistant chief
Publications and Editorial, Priscila P. Del Rosario, division chief

Wednesday, September 17

Reference and Research

Bill Drafting – Atty. Mila Abrenio, chief
Research – Atty. Rosario Buendia, chief
Legislative Counseling – Atty. Monica Monte Mayor, chief

Congressional Library

Maria Fe S. Abeleda-Robles, Director
Delia P. Gelvezon, legislative staff chief

Thursday, September 18

Committee Affairs Bureau

Legal Committee Clusters:
Rogelio Evangelista, committee secretary

Rules Committee

Ricordo Coronado, committee secretary
Zelda Villalon, legislative staff

APPENDIX D

Contact Index

Index of Contacts

Name	Title	Office
Monette Vellanueva-Baria	Business Development Specialist	Digital
Keith N. Paje	Engineer	Digital – Multivendor Customer Services
Rayman Glenn Despojo	Software Specialist	Digital – Systems Business Unit
Jose de Venecia, Jr.	Speaker	HOR
Rogelio Evangelista (CAB), Legal cluster	Committee Secretary	HOR – Committee Affairs Bureau
Maria Fe S. Abeleda-Robles	Director	HOR – Congressional Library
Delia P. Gelvezon	Legislative Staff Chief	HOR – Congressional Library
Angeline M. Garcia	Division Chief	HOR – EDP
Ma. (Matette) Theresa B. Pindoy	Appointments Secretary	HOR – Office of the Speaker
Vic Caoile	Division Chief	HOR – PAB, Bills and Indexing
Isabel Vergara	Assistant Chief	HOR – PAB, Journals
Priscila P. Del Rosario		HOR – PAB, Publications and Editorial
Demetria C. Zamora	Division Chief	HOR – PAB, Transcription
Heidi Pasquale		HOR – Plenary Affairs Bureau (PAB)
Atty. Cesar Strait Pareja	Director	HOR – Plenary Affairs Bureau (PAB)
Atty. Mila Abrenio	Division Chief	HOR – R&R, Bill Drafting
Atty. Monica Monte Mayor	Division Chief	HOR – R&R, Legislative Counseling
Atty. Rosario Buendia	Division Chief	HOR – R&R, Research
Ricordo Coronado	Committee Secretary	HOR – Rules Committee
Zelda Villalon	Legislative Staff	HOR – Rules Committee
Danilo L. Encinas	Presidential Staff Director	Presidential Management Staff

APPENDIX E

Estimated Time Schedules

Estimated Time Schedules

Set up of Local Area Network

	month 1	month 2	month 3	month 4	month 5	month 6
Design of Network						
Bidding/Procurement						
Installation of Backbone						
LAN wiring						
Network OS Installation						
Application Software & E-mail Installation						
Connection of Offices to LAN						
Staff Training						

Internet Access

	month 1	month 2	month 3	month 4	month 5	month 6
Bidding/Negotiation with ISP						
Lease/Procurement of Routers						
Internet Installation						
User Training						

Web Enabling of Database Apps

	month 1	month 2	month 3	month 4	month 5	month 6	month 7	month 8	month 9	month 10	month 11	month 12	month 13
Workflow/Need Analysis													
Bidding/Negotiation for HW/SW													
Technical Training													
Procurement													
Install Web Server and DB Server													
Development of New Apps													
Conversion of Existing Apps													
User Training													
Testing/Implementation													

Web Site for House and Speaker

	month 1	month 2	month 3	month 4	month 5	month 6	month 7
Technical Training							
Web Page Development							
Host the Site at ISP							
Move the Site to Own Web Server							

APPENDIX F

EDP Memorandum

TO : Mr. Bong Agudo
International Foundation for Election Systems

FROM: Angelina M. Garcia
Chief, EDP Division
House of Representatives

DATE : November 25, 1997

RE : STATUS OF HOUSE COMPUTERIZATION PROJECT

We have just received a copy of the IFES Report on the computerization of the House of Representatives. It is quite a comprehensive and accurate report especially considering the limited time the IFES delegates had to conduct a study of our organization. All your efforts are greatly appreciated. The recommendations made shall prove to be useful in our plans to enhance information technology applications in the House.

As a matter of fact, we have already followed the initial advice of Mr. James Smith and Mr. Sanjeev Sethi to have several personnel trained on basic HTML. Ten (10) employees from different offices have already finished the courses on basic and advanced HTML. They also comprise the task force, which I personally head, designated by the Secretary General to design and develop the website for the House of Representatives and the Speaker.

The Speaker has also verbally approved the budget for the first phase of computerization which covers the installation of a local area network among all Members' offices and key Secretariat offices. This shall provide the infrastructure for the House Intranet and the multi-user access to the Internet. Since the approved budget for the first phase could only cover the LAN and Internet access, migrating the BIS and the other information systems running in the VAX 6310 might have to be deferred to the next phase. A project proposal for all the necessary activities for the first phase has already been submitted to the Secretary General for approval of the Honorable Speaker. We are currently awaiting his final approval of the project.

Please also extend our heartfelt thanks to Ms. Gwen Hofmann, Mr. Smith and Mr. Sethi. We shall be keeping you updated on whatever developments there are here at the House of Representatives regarding our computerization programs.

APPENDIX G

*Committee Affairs Department
House of Representatives*

COMMITTEE AFFAIRS DEPARTMENT
House of Representatives

OFFICE OF THE DEPUTY SECRETARY GENERAL FOR COMMITTEE AFFAIRS

ATTY. ARLENE C. DADA-ARNALDO
Deputy Secretary General for Committee Affairs

MS. VIOLETA T. VELOSO
Assistant Director for Committee Affairs

COMMITTEES

CHAIRPERSON

SECRETARIAT OFFICERS /
COMMITTEE SECRETARY

1 ACCOUNTS	JOSE T. RAMIREZ	CAROLINA CUSTODIO
2 APPROPRIATIONS	ROLANDO R. ANDAYA	JULIETA APOSTOL (LSC)
3 RULES	RODOLFO B. ALBANO	RICARDO CORONADO
4 WAYS AND MEANS	EXEQUIEL B. JAVIER	MAURICIO PULHUI

Special Committee

1 BICOL REGIONAL DEVELOPMENT	ROLANDO R. ANDAYA
------------------------------	-------------------

Cluster I

GENERAL GOVERNMENT CLUSTER

Ms. HONORATA F. APOLONIO
Legislative Staff Chief

Standing Committees

1 FOREIGN AFFAIRS	JAIME C. LOPEZ	ESTEBAN DALIGEN (OIC)
2 GOVERNMENT ENTERPRISES AND PRIVATIZATION	WILFRIDO L. ENVERCIA	CORA EARJA-RIGOR
3 GOVERNMENT REORGANIZATION	LICURGO P. TIRADOR	ROSANNA SENGA
4 LOCAL GOVERNMENT	CIRIACO R. ALFELOR	EDUARDO BINAQHANI (Acting)
5 MUSLIM AFFAIRS	NUR G. JAAFAR	WILFREDO CAINGLET
6 NATIONAL DEFENSE	JOSE V. YAP	ROGER RIGOR
7 PUBLIC ORDER AND SECURITY	ROILO GOLEZ	MELITA SALVADOR
8 PUBLIC INFORMATION	ROMEO G. GUANZON	MAY ARANETA
9 VETERANS AFFAIRS	MARIANO LL. BADELLES SR.	BERNADETTE DELA CUESTA

Special Committees

1 EFFECTIVE LAW ENFORCEMENT	RODOLFO T. TUAZON	ROSARIO SAHIJUAN (Acting)
2 PEACE PROCESS AND INTEGRATION	EDUARDO R. ERMITA	IMELDA APOSTOL (Acting)
3 MINDANAO AFFAIRS	ABDULMALIK MAMINTAL ADICHO	LINA MORTEGA
4 POVERTY ALLEVIATION	RALPH G. RECTO	DEBBIE ANNE GARCIA
5 EXPORT PROMOTION	LUWALHATI R. ANTONINO	ROSANNA SENGA
6 COOPERATIVES DEVELOPMENT	CRISOLOGO A. ABINES	MA. ELVIRA URSAL

Cluster II
ECONOMIC CLUSTER
Mr. JOSE MIGUEL G. ARNALDO
Legislative Staff Chief

Standing Committees

1 AGRARIAN REFORM	BENJAMIN V. BAUTISTA	JOSE MELOAREJO
2 AGRICULTURE AND FOOD	SANTIAGO P. RESPICIO	ROSA GUZMAN
3 BANKS AND FINANCIAL INTERMEDIARIES	VICTORICO L. CHAVES	RAMON FEDERIZON
4 ECOLOGY	MA. SOCORRO O. ACCOSTA	ROSELITA PALOMA
5 ECONOMIC AFFAIRS	FELICITO O. PAYUMO	JANNALENNNA SHENO
6 ENERGY	DANTE O. TINOA	EFREN CORTEZ (Acting)
7 NATURAL RESOURCES	ORLANDO B. FUA	MARLON VALENCIA (Acting)
8 PUBLIC WORKS AND HIGHWAYS	VICTOR FRANCISCO C. ORTEGA	EMINA ROLLAN
9 RURAL DEVELOPMENT	MARGARITO B. TEVES	RAUL TERSO
10 SCIENCE AND TECHNOLOGY	RAMON S. BACATSING JR.	MARITESS A. FAGUINURAN
11 TRADE AND INDUSTRY	ALBERTO J. LOPEZ	VALENTINO PALANCA
12 TRANSPORTATION AND COMMUNICATIONS	JEROME V. PARAS	HENEDINA ANNE POLO

Special Committees

1 REFORESTATION	BELMA CABILAO	J. CARMELO AGONCILLO (Acting)
2 GENERATION OF A MILLION SMALL ENTERPRISES	MANUEL E. VILLAR	LINA JONES (Acting)
3 SAVINGS MOBILIZATION	CATALINO V. FIGUEROA	EVA LUNA (Acting)
4 FOOD SECURITY	JOSE S. COJUANGCO JR.	REMEDIOS PIROUNDO (Acting)
5 EMPLOYMENT GENERATION	MANUEL A. ROXAS III	
6 FISHERIES INDUSTRY	JOSE T. VILLAROSA	CELIA MILAGROS MICIANO (Acting)

Cluster III
SOCIO-CULTURAL CLUSTER
Ms. LORELEI M. HERNANDEZ
Legislative Staff Chief

Standing Committees

1 EDUCATION AND CULTURE	JOSE CARLOS V. LACSON	ADORACION MONSANTO (Acting)
2 GAMES AND AMUSEMENT	VICTOR S. DOMINGUEZ	BENJAMIN TAGAYUNA
3 HEALTH	MARIO S. TY	MAFEO VIBAL
4 HOUSING AND URBAN DEVELOPMENT	GREGORIO A. ANDOLANA	MA. RUSELA ABIS
5 LABOR AND EMPLOYMENT	ALBERTO S. VELOSO	JOVEN MARCELANO (Acting)
6 NATIONAL CULTURAL COMMUNITIES	JEREMIAS Z. ZAPATA	REBECCA NADINE DICHOSO
7 POPULATION AND FAMILY RELATIONS	ANGEL M. CARLOTO	CATHERINE AGAVIN
8 SOCIAL SERVICES	FLORANTE L. AQUINO	MA. VICTORIA MANRIQUE
9 TOURISM	CHARITO B. PLAZA	MARILOU FERNANDEO
10 WOMEN	LUZ CLETA R. EAKUHIAWA	JESUSIMA LUMBERA
11 YOUTH AND SPORT DEVELOPMENT	RAMON D. DURANO III	PERCIE MANAGUELOD

Special Committees

1 OVERSEAS CONTRACT WORKERS	ROMEO D.C. CANDAMO	CREETES ORANTE (Acting)
2 NATIONAL DISASTER	ANTONIO M. DIAZ	NELIA CRISTOBAL
3 NORTHWEST LUZON GROWTH QUADRANGLE	SIMEON M. VALDEZ	LETICIA ABEJO
4 TWENTY DEPRESSED PROVINCES	FLORENCIO B. ABAD	CELESTE DE CASTRO

Cluster IV

LEGAL CLUSTER

ATTY. LORNA J. FERNANDEZ

Legislative Staff Chief

Standing Committees

1 CIVIL SERVICE AND PROFESSIONAL REGULATIONS	AMADO S. BAGATSIÑO	GRACE DEL CASTILLO
2 CIVIL, POLITICAL AND HUMAN RIGHTS	BONIFACIO H. GILGEO	RUFINO MANALIGOD (Acting)
3 CONSTITUTIONAL AMENDMENTS	PEDRO P. ROMUALDO	ALAN SARDALLA
4 ETHICS	EMIGDIO A. BONDOC	ROGELIO EVANGELISTA
5 GOOD GOVERNMENT	JUNIE E. CUA	ISAGANI NICOLAS (Acting)
6 JUSTICE	SERGIO ANTONIO F. APOSTOL	GLORIA ALDEGUER
7 LEGISLATIVE FRANCHISES	JOSE MA. R. ZUBIRI JR.	FRANCISCO RODRIGUEZ
8 PEOPLE'S PARTICIPATION	LALLY LAUREL-TRINIDAD	CATHERINE MACAPAGAL
9 REVISION OF LAWS	BALTAZAR A. SATOR	DAVID COSALAN (Acting)
10 SUFFRAGE AND ELECTORAL REFORMS	EMIGDIO S. TANJUATCO JR.	LORNA FERNANDEZ (LSC)

Special Committees

1 AD HOC COMMITTEE ON CASECNAN ON MULTI PURPOSE IRRIGATION AND POWER PROJECT	JUNIE E. CUA	JENNIFER RAMOS (OIC) MA. LOURDES MENDOZA (Acting)
2 LEGAL EDUCATION AND COMMUNITY AFFAIRS	ISIDRO C. ZARRAGA	BEATRIZ SANGA (Acting)
3 EAST ASEAN GROWTH AREA	MANUEL M. GARCIA	CAROL SABIO (Acting)
4 BASES CONVERSION	CARMELO F. LAZATHI	DIANA MANALIGOD (Acting)
5 MT. PINATUBO / JCOC	HERMINIO S. AQUINO	



International Foundation for Election Systems
1101 15th Street, N.W.
Third Floor
Washington, D.C. 20005
TEL (202) 828-8507 FAX (202) 452-0804