1992

CPA firm technology planning guide

L. Gary Boomer

Donald W. Hunt

L. Steve Blundell

American Institute of Certified Public Accountants. Information Technology Division

INFORMATION TECHNOLOGY DIVISION

CPA Firm Technology Planning Guide

PRACTICE AID

AICPA
American Institute of Certified Public Accountants

Notice to Readers

This planning guide is the first in a series of in-depth practice aids that focus on the impact of technology on the CPA's job and his or her organization. These practice aids are issued by the AICPA Information Technology Division for the benefit of Information Technology Membership Section members. This practice aid does not establish standards or preferred practice; it represents the opinion of the authors and does not necessarily reflect the policies of the AICPA or the Information Technology Division.

Various members of the 1991–1992 AICPA Information Technology Executive Committee were involved in the preparation of this planning guide. The members of the committee are listed below.

Michael W. Harnish, *Chairman*
Kenneth D. Askelson
L. Gary Boomer
David J. Duray
Philip H. Friedlander
Lynford E. Graham, Jr.
Donald W. Hunt
Richard L. Jackson
James C. Kinard
Mark A. Plostock
Wilburn C. Robinson
Philip J. Scissors
Larry J. Wolfe
Robert C. Wynne

Richard D. Walker, *Director*
Information Technology Division

Nancy A. Cohen, *Technical Manager*
Information Technology Membership Section

INFORMATION TECHNOLOGY DIVISION

CPA Firm Technology Planning Guide

PRACTICE AID

AICPA
American Institute of Certified Public Accountants

1 2 3 4 5 6 7 8 9 0 IT 9 9 8 7 6 5 4 3 2

Library of Congress Cataloging-in-Publication Data

Boomer, L. Gary.
CPA firm technology planning guide / L. Gary Boomer, L. Steve Blundell, Donald W. Hunt.
p. cm.
ISBN 0–87051–125–4
1. Accounting — Data processing. 2. Technological innovations.
I. Blundell, L. Steve. II. Hunt, Donald W. III. Title.
HF5679.B598 1992
657' .0285—dc20 92-31723
CIP

Table of Contents

1. CPA Firms in the 1990s **1**

The CPA Industry Today 1
How Firms Operate Today 2
Trends in the Accounting Profession 4
Planning Automation for Growth and Change 6
How Does the Firm Pay for New Technology? 8

2. A Systematic Approach to System Design and Implementation **10**

Application Considerations 10
Time and Billing 12
Tax Return Preparation 13
Communication 13
New Technologies for Public Accounting 14
Image Processing 14
Optical Storage and Data Base Access 15
Electronic Data Interchange 15
Multimedia 16

3. Solutions **17**

The CPA Office of the 1990s 17
Stand-alone Personal Computer 19
Centralized Processing 20
Network Processing 20
Cooperative Processing 22
Sample Configurations 26

4. Developing and Analyzing Your Practice for the Right System Fit **28**

Developing the Plan 28
Monitoring the Plan 29
Firm Automation Questionnaire 30
Technology Planning Checklist 31
Three-Year Planning Questionnaire 36
Sample Plan 41

Chapter 1. CPA Firms in the 1990s

Technology is becoming increasingly important to the accounting profession. Every organization has information and that information is growing exponentially. The information may be prepared manually and stored in file cabinets or prepared on a computer and stored electronically.

The CPA Industry Today

In the past, partners (owners) were typically not involved with technology, at least not in a hands-on way. Generally, they purchased a system, hired a data processing manager, and were involved only to the extent of preparing and reviewing data input sheets for time and billing, tax returns, and other applications.

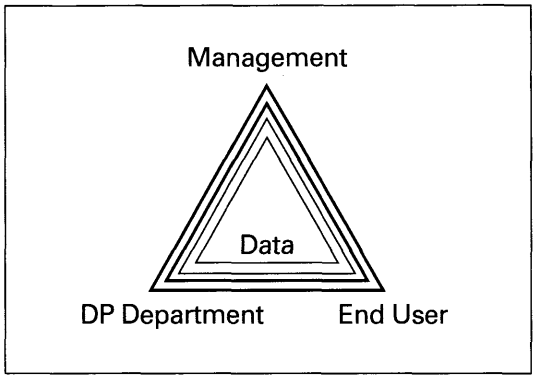

Exhibit 1.1

Prior to 1982, data processing (DP) departments controlled electronic processing and storage of data. In 1982, all that changed. The personal computer caused more people in the organization to become directly involved with technology. Personal computers have generally been used outside the traditional DP department environment, with little DP department control and procedures. Software updates, backups, and means to ensure the security and integrity of data often are inadequate in the personal computer environment. As the number of personal computers and users grow in the firm, the greater the demand for structure, training, and support.

During the past decade, end users have become partners in firms and partners have become end users. DP department personnel have worried about potential problems, but have not often been able to deal effectively with them.

In today's environment, all members of a firm need to access information on a timely basis in order to perform their jobs. It is inefficient to continue to rely on the traditional computer department for all information processing and reporting.

How Firms Operate Today

Conflicts have arisen within accounting firms as well as within clients' businesses. Responsibility and control over data is the central issue of the conflict. Organization charts and reporting responsibilities have had to be restructured. Knowledge and information provide a competitive advantage to those who possess them. Lack of knowledge is often threatening. Job security of personnel working in the DP department has been of concern to those employees. Their jobs are at least changing. In order to advance, the accounting firm must recognize these conflicts and deal with them in a responsible manner.

Has the total cost of automation increased or decreased over the past ten years? Most accountants will guess that the cost has decreased. When asked why they feel it has decreased, they respond that the cost of the hardware and software has decreased. This is true, but such a response ignores the increased cost of labor and training needed to implement the new technology.

Today's advanced systems involve everyone in the organization. More tasks are being automated. Thus, the cost of automating is directly affected by the number of people involved and the cost of training all employees. Many of the new computer users have little or no formal computer training.

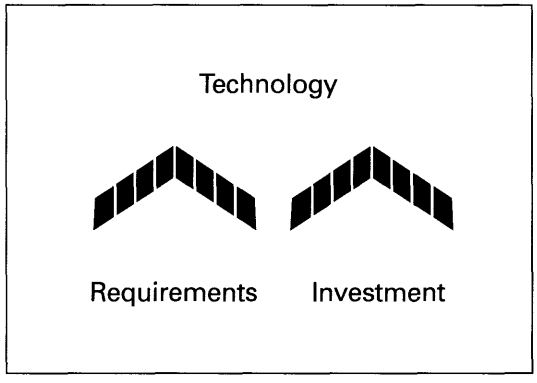

Exhibit 1.2

In the early 1980s, John Nesbitt, in his book *Megatrends,* predicted a cost of 10 percent of annual payroll to retrain the American workforce in the information society. The investment in training has not been made in most accounting firms. Firms are faced with decisions about how to train a diverse group of employees and partners with varied requirements, interests, and skill levels. The training issue is high on the list of priorities of the American Institute of Certified Public Accountants. The Board of Directors recently approved the formation of a separate membership section of the Institute to address technology issues facing the profession and its clients.

The total cost of technology continues to increase as firms wait to make a decision and get started.

There are at least four stages to automation in any organization. Most organizations have been through the cycle at least once and many are going through their second and third cycles. Decisions in the accounting industry were simpler in the 1970s and 1980s. Minicomputers (for example, the IBM Systems 34 and 36) were the first proven multi-user solutions that found high acceptance in the accounting profession. Systems during this first stage were most often justified on a cost-reduction basis.

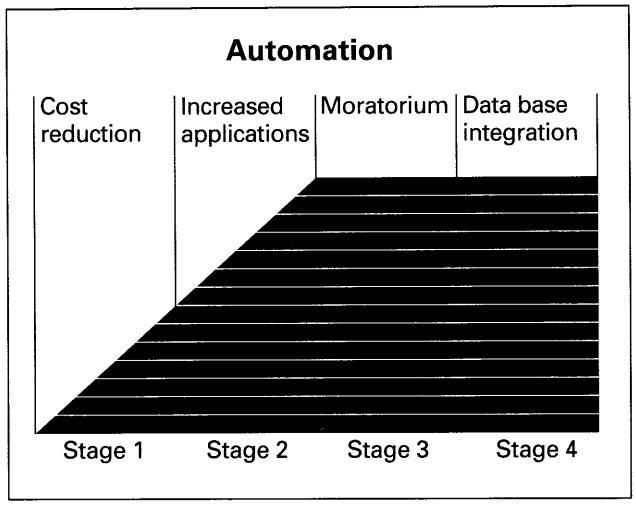

Exhibit 1.3

In the second stage, there were a limited number of quality software vendors providing solutions for the industry. Today, the market is more complex due to the increased number of hardware and software vendors in the marketplace. The ability to mix and match the increased number of application solutions from multiple vendors further complicates the decision-making process.

Prior to 1982, computer hardware was typically centrally located and the hardware life cycle was eight to ten years. Once the original investment was made, the ongoing maintenance and training costs were considered minimal. Likewise, only a few employees were involved in decision making, operation, and support of the system. Today, the technology life cycle is shorter, changes are constant, and the number of participants in the process has risen dramatically.

Therefore, the majority of firms either are in or are moving toward the third stage. They want all of their equipment to work together and they want the capability to share applications and data. Most firms currently maintain client information in at least three locations. These lists may be manual or in multiple computer applications.

Examples of some applications and lists include the following:

- Practice management — time and billing
- Tax return preparation
- Due date monitoring
- Scheduling
- Client mailing lists

Multiple lists and applications result in redundant data that is difficult to accurately maintain. Client information like name, address, contact name, and phone number is maintained in each of the above applications. A simple change of a client's address requires an entry in multiple locations. This often involves several people, computer systems, and software applications. There is no one source of client information. Worse yet, the information in the three locations is inconsistent and usually inaccurate.

In stage four, client information becomes integrated and is accessible from a variety of applications. Firms are rapidly becoming aware of the lack of integra-

tion and are looking for ways to eliminate redundant data. Data base managers are rapidly finding their way into many firms. This is true multi-user software that will work on stand-alone PCs and networks under DOS and OS/2. Larger firms may look to mid-range systems to accommodate larger data bases and/or multiple office locations.

Trends in the Accounting Profession

The accounting profession of the future will be changing as rapidly as the requirements of the business world are changing now. Following is a brief discussion of issues affecting the accounting profession now and in the future.

- Accounting firms will be under more rigorous quality control scrutiny. Standardized, automated engagement management, performance, and review will become essential.
- Local firms will be under competitive pressure, yet will have unique opportunities as national firms vie for market share and fee base expansion. Price competition dictates the pursuit of competitive marketing advantages available in specific environments.
- The trend toward specialization will accelerate. Accreditation by the AICPA will become more important to specialized areas of practice.
- The traditional approach to client service will evolve into a team concept. Team leaders will ask for specialist participation at appropriate times when providing services to a client.
- Local firms will have to find market niches to maintain profit margins. Innovative service offerings will yield the highest profit margins.
- Management consulting services (MCS) will continue to become a formal part of the local firm's practice. Less emphasis will be placed on informal advice. More emphasis will be placed on formal engagements and proper documentation of professional analyses, and recommendations will become mandatory. These types of services offer better margins than do traditional service areas, but also more risk to the practitioner. The result will be more full-time MCS practitioners with specialties to service clients.
- National firms will expand the scope of CPA practice into many new areas.
- CPA firm clients will adopt new technology at a faster pace, creating a need for more innovative audit approaches. This greater use of technology will produce more audit-through-computer techniques, which will be used by firms of all sizes.
- All CPAs will require a high level of computer literacy in order to properly service progressive client companies. Greater reliance will fall on communication. As client information systems become more sophisticated, PC literacy alone will not be sufficient for the CPA to understand and advise the client on advanced computer applications.
- Computer auditing and control reviews will become a greater business opportunity for local firms as concerns about computer security grow. Computer fraud is a major business concern. PC-based systems should have comprehensive security features. Most of today's networking software has sophisticated, multi-level security systems incorporated into the design.

- A greater emphasis on practice management software will emerge as firm profitability is threatened by fee pressure and rising costs. Trends or changes in business will have to be spotted faster. Employee productivity will have to be monitored more carefully. Specialists will require more intensive schedule monitoring to ensure profitable utilization. Profit center accounting will become more common.
- More firms will adopt performance (profit)-based compensation for partners and staff.
- CPA firms will have to have better management to survive.
- Local firms will have more opportunities to work for large corporations if they have unique capabilities and can relate well to the culture of large corporations and to the information system environment.
- The changing nature of the work force will create new challenges in staffing and training. For example, more part-time or seasonal employees are being employed than in the past. This is due to the busy season and a work force that wants more time off.

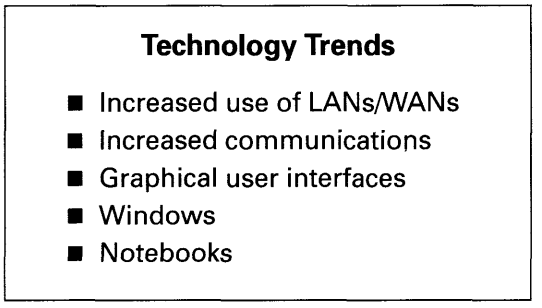

Exhibit 1.4

Recent trends in the accounting industry include increased use of local-area and wide-area networks (LANs and WANs), increased communications, and increased use of graphical user interfaces, windows, and notebooks. These trends are also present in industries other than accounting. Firms with five or more personal computers will probably network them within the next year. Firms with central host processing will probably add LANs. The requirement for a controlled environment of personal computers is apparent.

The cost of communications has decreased significantly over the past five years. Regulated phone-line costs are decreasing and a significant increase in the use of dial-up communications is taking place. The costs and complexity of communication software and hardware have decreased dramatically. More firms are using on-line services and communicating with a host system, especially in multiple-office environments. Even home computing and services such as Prodigy have helped to reduce the fear of communications.

Graphical user interfaces, such as Presentation Manager used in OS/2 and Microsoft Windows used in DOS, are being accepted by the profession as applications develop. Graphical user interfaces are important because of their consistency and ease of use. Users do not have to type commands at a prompt line.

Notebooks are rapidly gaining acceptance in the profession due to portability, increased power, greater storage capacity, and the ability to connect them to a local area network.

Technology Trends

- 386 and 486 will replace the 286
- Increased memory requirements
- Windows applications
- Need to manage change
- Executive information systems

Exhibit 1.5

Some firms are tempted by the price of 80286-based personal computers. The minimum configuration should be an 80386 with four megabytes of memory. The amount of hard disk memory required will depend upon whether the computer is attached to a network.

Existing systems will be upgraded to include LANS/WANS as part of cooperative processing. As the 8088s and 80286 machines grow older, they will be replaced with 80386 and higher machines.

Windows and OS/2 applications are being developed in the tax and research areas. True network applications will continually be added to the software available today. Networking will be a necessity within most firms.

In conclusion, profitable firms are managing and adjusting to a changing environment in which technology is a significant factor. Technology will continue to change at an increasing rate. Simply review the past ten years and evaluate the changes in the last two years as compared to the previous eight. The increased capacity of hard disks, the speed of the new processors, the low cost of laser printers, and the number of applications available are just a few examples.

Planning Automation for Growth and Change

Many firms are becoming aware of the need to plan. Some have issued moratoriums on further investments until a long-range technology plan is developed. Occasionally, the talent needed to implement such a plan exists within the firm. However, it is very difficult to develop, present, and defend a plan within your own firm. At most firms, it is very helpful to work with someone from the outside. An outside facilitator with both technology and practice management experience is a must. This approach ensures the development of a comprehensive plan in a limited amount of time.

Total System Investment

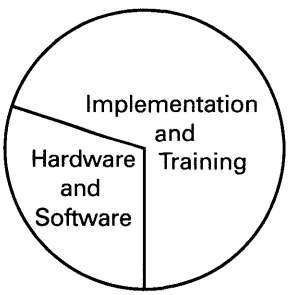

Exhibit 1.6

Today, the total system investment consists of approximately 35 percent hardware and software costs and 65 percent training and implementation costs. Still, most accountants assume that the hardware and software represent most of the total investment. One of the primary reasons for the increase in implementation and training costs is the fact that all employees (from clerks to partners) are directly involved with the system. Computing power is now in the hands of the professional rather than being isolated in a computer department. Furthermore, more applications are being automated. As an example, most firms currently prepare all types of income tax returns on the computer. A few years ago, it was common for only individual returns to be automated. Furthermore, processing is done interactively rather than in batch mode. The results are instantaneous to the professional.

The focus of the firm's plan should be on the requirements, the cost and timing of training, and implementation. Most firms and companies tend to focus on the cost of the hardware and software, totally ignoring training and implementation costs.

The accounting profession is rapidly changing from a labor-intensive industry to a capital-intensive industry. Therefore, firms must plan and manage their investments in technology. The partners in a firm must be committed and involved in the process. In the '70s and '80s, many partners were removed from the process. Success in the 1990s will require their leadership and management.

Partner involvement and commitment can be enhanced through —

- Education.
- Involvement in the planning process.
- Hands-on computer availability.
- Availability of up-to-date practice management information.

These will be discussed in more detail later.

It is impossible to hit a moving target when it comes to implementing automated information systems. Therefore, it is imperative that requirements be defined and prioritized up front.

Many firms are finding that the best way to accomplish this is to form a technology committee. The partners, professional staff, computer-related personnel, and administrative employees should all be represented. It may appear that this is a time-consuming method of accomplishing the firm's goals. Actually, it saves time because the process is better thought out and implemented with the support of the entire firm. Technology in today's environment requires the participation of everyone. An outside facilitator reduces the time required and eliminates much of the internal politics. Facilitators bring an understanding of the profession and knowledge of the software and available technology.

It is recommended that the technology committee meet regularly (at least monthly) and conduct an annual review to check progress, reconceptualize requirements and modify the plan. The outside member enhances this process by bringing to bear the experiences of other successful firms and installations.

An agenda should be prepared for each meeting. Minutes of the meeting should be maintained and distributed to appropriate owners and personnel. Some firms distribute the minutes firm-wide.

The investment in technology should be cost justifiable. Many firms have ignored the investment in personal computers and software. The investment has been charged to overhead expense. In business, overhead is not viewed as an investment. Therefore, the firm should develop a methodology for recovering costs and profiting from the investment.

The entire process must be managed. Someone must be in charge. The plan should be in writing and include tasks, assignments, and timetables. Leadership is very important. It requires vision.

The training process is ongoing. New employees enter the profession constantly. Firms are using tutorials, computer-based training, and self-study courses in addition to the traditional instructor and classroom training. A curriculum for technology training should be developed for the firm.

In the past, firms tended to react to immediate problems with single-application solutions rather than by addressing firm-wide automation needs. Such firms ended up with many point solutions due to the lack of comprehensive planning. Point solutions typically are not integrated with other applications and are generally more expensive in the long run. A good analogy is the purchase of an automobile versus the purchase and assembly of individual parts. It is significantly more expensive to purchase the individual parts. Even with proper planning, it is difficult to avoid all the pitfalls of compatibility and redundant data in today's technology environment. Software developers have failed to keep up with hardware capabilities because of large installed user bases that are resistant to change in the existing software. The spiraling cost of rewriting software to take advantage of each new generation of hardware has also been a major software industry problem.

Knowledge of the marketplace and planning will allow firms to succeed by eliminating many false starts and costly mistakes. The plan of action must be written. Verbal plans have little value. The requirements list in most firms demands at least a three-year plan. Personnel in accounting firms already feel overworked and are constantly concentrating on chargeable time. Internal resources must be evaluated and tasks assigned according to skills, training, and availability of time. Trying to accomplish too much too quickly can be devastating.

Accounting firms tend to procrastinate when it comes to solving their own problems. They are aggressive with clients, but tend to create paralysis through analysis in their own management decision-making process. Each goal in the plan must have a specific start and completion date and be assigned to a responsible partner or employee. The plan should be designed to ensure action and success. Creation of a positive, successful environment is mandatory. Over time, success and profitability change those doubting partners and employees into believers and proponents.

How Does the Firm Pay for New Technology?

Viewing technology as an investment rather than as overhead often reduces resistance. The development of a cost recovery system is important. Firms understand the importance of a return on investment with regard to labor, but many have ignored their investment in technology and viewed it simply as overhead.

There are many approaches to recovering the cost of the technology investment. Two of the more frequently used cost recovery methods are the instant cost recovery system (ICRS) and the modified instant recovery system (MICRS).

Most of these approaches entail passing the cost of technology to the firm's clients in the form of increased hourly billing rates. Some firms use the instant recovery system. This method divides the total cost of technology by the number of clients to arrive at a charge to be billed to each client. Other firms would not think of using such a methodology. The fact is that some firms do have the capability and have used this method in the past to pay for technology. FAX machines and copiers are often charged with a one-time charge through work in process (WIP).

The modified instant cost recovery system is a relatively new idea in the profession. MICRS simply divides the technology investment by the number of firm chargeable hours to determine a technology cost. Much like labor, firms use multipliers of three to five to arrive at a technology surcharge. The surcharge then is automatically calculated by the firm's time and billing system.

This approach provides leverage on the investment. The skeptics may say, "We are already billing our clients all we can." The fact remains that clients expect to pay for labor. The same should also hold for technology.

Technology is an investment and not a cost. Throughout the country, firms are annually spending between $2 and $10 per chargeable hour on technology. This equates to 4–6 percent of gross revenues. At the lower end of this range are firms that are making consistent expenditures each and every year. At the upper end of the range are firms that are trying to catch up, as well as those that have not invested in new technology in the past five years. A goal in most firms is to have a personal computer on every desk within the next two years.

The personal computer should be viewed as a window into the firm's information. The person using the computer does not care where the data is located or what system does the processing, as long as it is fast.

In conclusion, profitable firms are managing and adjusting to a changing environment in which technology is a significant factor. Technology will continue to advance at an increasing rate. Simply review the past ten years compared to the previous eight. The increased capacity of fixed disks, the speed of the new processors, low-cost laser printers, and the number of applications available are just a few examples.

Chapter 2. A Systematic Approach to System Design and Implementation

Firms throughout the country have already automated many applications. However, most firms are not satisfied with the availability of information, type of reports, timeliness of the information, and integration of the applications. Therefore, it is advisable to reevaluate the requirements of the firm.

Application Considerations

The list of applications and topics is very broadly based. It deals with firm planning, practice management issues, and personnel, in addition to technology. Therefore, it is mandatory that the planning process take place and involve the entire firm. The information, questionnaires, and checklists included in this planning guide will assist you in the process.

The top priorities at most firms are time and billing (practice management), and interactive tax return preparation. These have been top priorities for the past twenty years. In the 1990s, an integrated networking system has to be added.

The primary differences between today's requirements and those of the past decade are the demand for information accessibility and the necessity for integration and communication. Many firms are moving toward daily time sheets with on-screen billing. In the past, time sheets were generally posted weekly or biweekly and billings were done on a monthly basis. In better managed firms, billings can be prepared at any time based upon current information.

The following charts illustrate the primary areas of a firm and the applications and related concerns most firms are facing close up.

Area	Applications	Concerns
Practice Management	Time and billing	Daily timesheets
		Cash flow
		Improved chargeable percentage
	Scheduling	Improved chargeable percentage
		Projection of staffing requirements
	Accounts receivable	Improved cash flow
	Due date monitoring	Improved client services
	Client data base	Marketing
	Engagement management	Proposals, budgeting, and quality review
	Executive information systems	Instant monitoring of critical firm statistics

Exhibit 2.1

Area	Applications	Concerns
Tax	Tax preparation	Professional input
		Instant turnaround (processing)
		Laser printing
		Integration with accounting applications
		Integration with depreciation
		CD ROM for program updates
	Tax planning	Federal and state projections
	Tax research	CD ROM for library update/research

Exhibit 2.2

Area	Applications	Concerns
Client Accounting and Audit	Audit program generation	Custom audit/review programs
	Workpapers	Importing of client data
		Multiple basis of accounting
		Conversion of client data
		Integration with tax preparation
	Financial statements	Integration with workpapers
		Opinion/footnote capabilities
		User-defined statements
		Indirect statement of cash flows
		Direct statement of cash flows
		User-defined schedules
	Consolidations	Companies with different charts of accounts

Exhibit 2.3

Area	Applications	Concerns
Productivity	Electronic mail Phone messaging Amortization Future value	Terminal/PC on every desk
	Spreadsheet	Integration with the firm data base
	Desktop publishing	Client communications
	Imaging	Storage capacity
	Communications	Information and security

Exhibit 2.4

These applications and concerns are important to every firm. Connectivity and networking are going to play important roles in providing firms with integrated solutions. More important than the hardware and software are firm personnel and leadership. Many firms lack leaders with knowledge about current and future technology. The trend is to hire outside experts to assist in this area.

Time and Billing

More firms are moving toward the implementation of daily time records for time and billing. Most firms experience an increase in gross chargeable time of 15-20 percent when this change is made. This is due primarily to the improved recording of time and better monitoring under a daily system. Daily entry of time places demands on a time and billing system that differ from the old batch processing systems of the 1970s and 1980s.

Some of the newer required features and functions are —

- Professional input rather than input by data entry operators.
- Data base of clients, employees, rates, and jobs.
- Improved practice management and peer review reports.
- Calculation of such charges as clerical or technology surcharges.
- Real-time access to information.
- Billing on demand rather than once or twice a month.

Billing is still a difficult process in most firms. New hardware and software alone will not solve the problem. It requires organizational discipline. Time reports must be recorded accurately on a daily basis. Many firms, and especially partners, resist. Contact with other firms that have experienced improved profitability from daily timekeeping helps to overcome this resistance. Strong leadership is required to convert those who resist. Education and involvement in planning the new system reduce anxiety and fear. Improved employee productivity, lower write-offs, and reduced work in process and accounts receivable balances are results that everyone understands. The partners (that is, those with the highest billing rates) are generally the ones who protest the most but have the most to gain from implementing an improved time and billing system.

Billing upon delivery of a product or service improves the chances of collection and reduces the resistance to price. Details of specific services are more easily recalled if proper service codes and descriptions are entered on a daily

basis. An interactive billing system allows for billing on demand. Billing on a daily basis rather than once or twice a month will improve cash flow and reduce the demands on clerical personnel by spreading the process throughout the month. Inquiry allows for a quick review of all charges and budget comparisons.

Tax Return Preparation

The greatest change in the area of tax return preparation is that most programs are being run on personal computers and information is being entered by both professional and data entry personnel.

Over the past three years, a large number of new software vendors have been offering quality tax return processing software. Publications like *Computers in Accounting* annually review the more popular income tax processing programs. Most firms have experienced a significant decrease in costs and increased productivity due to the reduced software costs and instant turnaround time. With few exceptions, batch processing and service bureaus are a thing of the past. A complete analysis as to the number and type of returns prepared should be made in conjunction with the planning process.

Importing of information from general ledger and check-writing programs (personal and business) is reducing the time spent accumulating information, entering adjusting entries, and preparing the return. Today, many individuals keep personal information in a home computer. That information can be imported or transferred to a tax organizer relatively easily. In fact, some firms are giving or selling the required software to clients as a service. This allows clients to easily accumulate information, and it gives the accountant more assurance as to the accuracy and completeness of the information. Business returns can be directly linked to virtually any general ledger program. Once these links are established, adjustments are made and the income tax return is automatically calculated and ready for professional review. In most packages, depreciation calculations are performed internally or links are provided to external depreciation calculations.

Changes in the way firms prepare tax returns often come slowly due to resistance and fear of failure. The best way to overcome resistance is through education and by allowing everyone to participate in the planning process. Hands-on experience builds confidence. Careful evaluation of new methodologies and products that can reduce time and increase the quality of output will pay big dividends to the firm.

Communication

Effective communication has always been the hallmark of a successful accounting firm. Both inside and outside the firm, effective communication plays a vital role in the delivery of a quality product and establishment of long-term relationships with employees and clients. In the future, delivery of quality products in a timely fashion must be the norm, not the exception, and you must plan today to take advantage of current and emerging technologies. New technologies will assist you in meeting the requirements involved in providing timely client services.

In the future, communications within a firm will take on a new look. Gone will be the pink telephone slips and the notes left on desks in the hope they will be read. Electronic mail is here today and will continue to be a key element of communication in the CPA firm. Electronic messages will be left on the electronic desktops of all members of the firm. Meetings will be electronically scheduled and facilities reserved. Appointments will be taken on the computer and communicated to appropriate staff via electronic messaging. All of this can be accomplished without ever leaving your application software.

The future will bring increases in electronic communications for management. Executives of all types will look to the computer system for all communications. More work will be done out of the office, with computers and inexpensive modems providing an electronic connection to the system back at the home office. Computers with built-in FAX/modems will allow you to compose documents and send them directly to your office via FAX.

Electronic bulletin boards will allow you to deposit and receive communications from your firm and your clients. Clients are implementing computer systems at a rapid pace and will have the capability to dial up their CPA firm and leave messages or get the news of the day. This method of communication will enhance not only the timely delivery of documents to clients but also the marketing of firm services.

On a wider scale, electronic data bases will be easy and inexpensive to access. Information about industries, economics, accounting, and tax law will be available even to the smallest of practices. The use of electronic data interchange (EDI) will increase as your clients electronically process billings and payments. This will present challenges to auditors in their review of client internal controls. The future is bright and communication is the key to launching your practice into the 1990s and beyond.

New Technologies for Public Accounting

Advances in technology are certain to affect all the functions performed by CPAs, from basic bookkeeping through management consulting services. Exactly how these advances will change the work of CPAs, however, is not certain. New technologies will continue to evolve, and their uses will depend on the creativity of individual CPAs.

Some general changes seem predictable, given the nature of the profession. CPAs have traditionally been in a paper-intensive business. They don't produce a product; instead, they gather, process, store, and transmit information — the sorts of operations most affected by new technologies.

As we move closer to the ideal of a paperless office, CPAs should find that gathering, processing, storing, and transmitting data grow progressively easier and faster. This promises to make their traditional functions more efficient and to open up new areas of business, especially in consulting. As CPAs master new ways of handling data, both words and numbers, they will increasingly be in demand as management consultants.

Increasing automation also means continually rising training costs, because employees will need more advanced computer skills.

Image Processing

Storing and filing information is one of the major challenges of accounting and auditing. The traditional horror story of the tax accountant begins when a new client arrives with grocery bags containing an odd assortment of receipts, check stubs, and other papers that need to be sorted and analyzed.

With image processing, all types of documents can be scanned directly into a word processor or data base program instead of being keyed in. Scanning can accommodate handwritten and graphic, as well as typed, printed, and computer-generated materials. Theoretically at least, this gives CPAs and their clients the ability to bypass paper filing and put all documents into indexed computer storage. This dramatically reduces the floor space needed to file and store documents, and it also makes accessing information much easier. Not only

should this facilitate the CPA's own business, but it should open up new vistas for consulting, since image processing will simplify and expedite the operations of many clients.

Unlike storage media like microfilm, which only miniaturizes the static file cabinet, electronic storage provides a vital reservoir of records that can be sent anywhere at the touch of a button for print out or display on a terminal. Scanning, indexing, and routing of such records in the mailroom eliminate the problem of lost or misplaced files and save labor and replication costs throughout a company. The image processing industry is expected to grow from $400 million currently to $11 to $15 billion in accumulated sales over the next five years.

Optical Storage and Data Base Access

CD-ROM is an alternative to the more familiar fixed disks and diskettes that store and retrieve information magnetically. Optical disks store information in such a way that it can be read by a laser beam. The hardware that reads the disk is almost identical to the CD players that read music from compact disks.

The major advantage of the optical disk is its storage capacity, which is many multiples of that of ordinary diskettes or fixed magnetic-storage disks. In combination with scanners, the optical disk can greatly increase a firm's ability to store data. Not only do the disks hold a vast quantity of information, they are also portable. Unlike most magnetic fixed disks, an optical disk can be removed from its disk player and carried about (they are well protected from injury), mailed cheaply, or stored in a safe place.

In the initial stages of optical disk technology, the major drawbacks have been lack of speedy access and the inability to erase and replace information once it has been stored. In fact, the disks are often called CD-ROM disks, ROM standing for read-only memory. A disk that can only be read, not changed, obviously has limited usefulness for backup storage of ongoing projects.

Electronic Data Interchange

EDI, a cousin to electronic mail, is the process of transmitting formal documents directly from one computer to another, thus eliminating the need to print and mail a document. Formal documents might include financial statements of various types, tax returns, and bank reconciliations. CPAs should find EDI a boon in their own work, as well as a powerful strategy for solving the business problems of their clients.

Advantages of EDI include the following:

- Reduced paperwork and related costs
- Reduced lead time to process orders
- Improved cash flow
- Reduced inventory levels and carrying costs
- Elimination of errors in rekeying of data
- Strategic competitive advantage
- Improvement in client service

Multimedia

As the name suggests, multimedia combines a variety of media — full-motion video, digitized video images, audio soundtracks, music and voice, animated computer graphics, high-resolution text — all working together to create a multisensory environment enabling users to participate in the information. The entire communicatio n function becomes highly interactive, with users choosing their own paths through a multimedia program. Multimedia interactively gives people a more natural, more spontaneous way of working with computers and understanding information.

Where does multimedia fit in the CPA firm of the 1990s? Training. CPE Education. Client presentations. Reference materials. The emphasis is on increased productivity through a more flexible and visual tool, thereby decreasing training time, enhancing learning, and improving retention.

For example, a leading interactive video training publisher has developed a multimedia program to teach the fundamentals and many of the advanced features of Lotus 1-2-3. Full-motion video and on-screen voice depict an instructor walking users through example spreadsheets and calculations. The program also asks users to complete activities on their system, and switches back and forth between on-screen instruction and live Lotus programs. Frequent testing ensures that users grasp key points and that wrong answers are followed by remediation and a new explanation of that point.

Chapter 3. Solutions

The solutions available to the profession today are often confusing. There are many ways to accomplish the same objectives. The best alternative depends upon the facts of each situation and, most important, upon the firm's experience, computer expertise, and attitude. The profession is familiar with centralized (shared logic) processing. Decentralized processing (networks) is rapidly becoming the solution of choice at many firms. However, one application still exists that may require central processing. That application is time and billing. The amount of time and billing information that is to be entered and retained for a significant period of time will probably dictate the need for either a centralized or a cooperative processing system (the latter splits the workload between two or more computers).

The CPA Office of the 1990s

CPA firm solutions must address all areas of the practice. Most solutions do not need to be totally integrated, but they do need to be able to easily coexist in the same operating environment. Time and billing is the main management application that needs integration and multi-user capabilities. Time and billing affects everyone in the firm, from the managing partner to the receptionist.

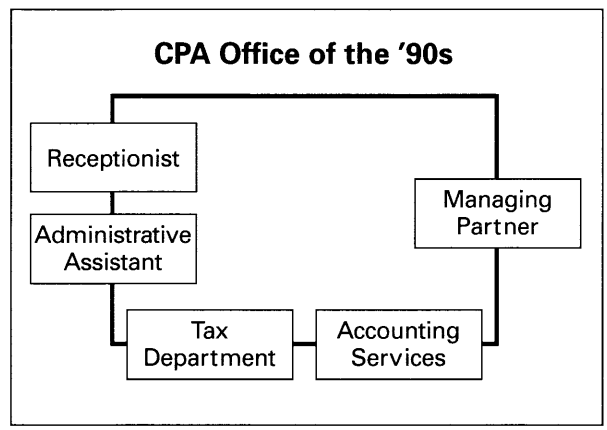

Exhibit 3.1

One of the main considerations in the decision-making process is the operating system platform that will be most effective in integrating existing hardware and software and providing for future growth. It goes without saying that DOS should be one of those operating systems. There are a variety of other multi-user, multitasking alternatives that can be considered when addressing standard CPA firm applications. The firm making the decision should possess a basic knowledge of the characteristics and capabilities of each of the popular operating systems.

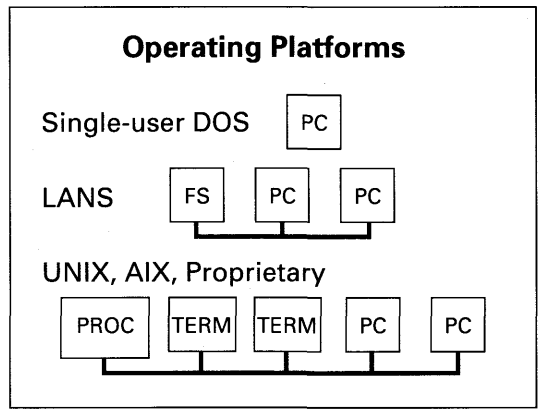

Exhibit 3.2

The basic operating systems will be briefly discussed in the section that follows.

The single-user DOS environment has been the operating system of choice for productivity software like spreadsheets and word processors for almost all CPA firms. They have used DOS to run their productivity software applications and have generally mastered its facilities. Most CPA firms do not yet realize some of the current limitations of DOS. Firms that continue to standardize on individual DOS-based personal computers are investing in a limited strategy.

LAN operating systems running under or emulating DOS provide multi-user capabilities. Large-file processing and heavy network traffic can degrade performance on many LANs to the point where they become ineffective operating platforms. It will become increasingly difficult for a CPA firm to rely solely on DOS-based LANs for all of its computing needs. As client/server applications and other advanced computing methodologies are developed for the CPA environment, they are sure to require more advanced operating systems for efficient operation.

Multitasking operating systems will be the choice for PC-based local area network environments. The lack of application software and the perception of high cost and complexity have kept not only CPA firms but other industries as well from rapidly moving to UNIX or OS/2 as their main operating system. Currently, multitasking operating systems are being repositioned by the marketplace as LAN server operating systems. LANs based on multitasking operating systems typically enable users to have a mix of DOS and OS/2 workstations and applications. This protects, to a large degree, their existing hardware and software investment while at the same time providing for future growth and technical advancement.

UNIX, which presently exists in many versions, has been around for over twenty years. Good CPA application software exists. UNIX offers an opportunity for a cost-effective, multi-user, multitasking system. The CPA's insistence on having PCs as workstations does, however, minimize the cost-effectiveness of a UNIX-based system that would normally use low-cost, nonprogrammable terminals or workstations. UNIX machines allow excellent PC attachability. They can transfer files and share data and printers; the multi-user system may be more cost-effective when you consider training, system management, installability, backup/recovery, and security.

OS/400-based multi-user/multitasking systems are candidates for multi-office firms, firms with heavy client write-up processing, and large single-office firms. The requirements for many timekeepers, constant access to the system and

large-file processing, make the OS/400-based system a viable alternative. IBM's past success installing midrange systems in CPA firms provides a large group of potential customers that will upgrade to OS/400-based systems. In addition, current midrange users have made a significant investment in software that can be run on OS/400 platforms with little or no modification. OS/400 provides PC support to allow CPAs to use existing PC applications along with OS/400-based applications, as well as new technologies such as image, telephony, and facsimile.

Stand-alone Personal Computer

The personal computer will probably play a significant role in all four alternatives. Most firms already have several personal computers. However, a significant number of them may be old with slow processors. Today's personal computer is faster, more powerful, and offers a wide range of application software for the accounting profession.

Most accountants are familiar with the DOS operating system utilized by the personal computer. DOS is a single-user operating system that currently imposes limitations with regard to multitasking and multi-users. During the past year, OS/2 and Microsoft Windows have increased the function and capability of the personal computer.

The primary strengths of the stand-alone personal computer in an accounting office are low hardware cost and the availability of application software (industry specific and general business applications).

The weaknesses of stand-alone personal computers become apparent in growing offices or in larger and multi-office firms. Data is a vital firm-wide asset and not the property of a single individual. Therefore, the most common weakness is the difficulty of sharing data, application software, and printers. Multiple stand-alone personal computers also increase internal support and control problems. These factors are generally the primary reasons that firms consider the other three alternatives during the planning process.

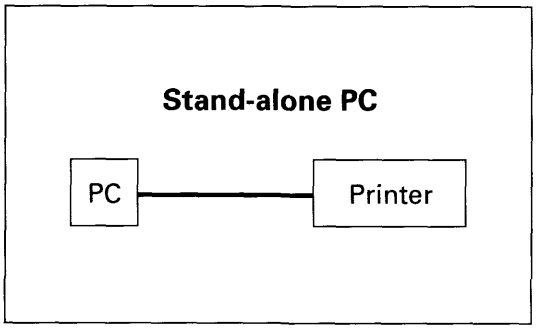

Exhibit 3.3

Centralized Processing

Central processing systems have been used by the accounting profession for over twenty years. In the past, most of the industry-specific software was available on central processing systems. Today, application software is available for all of the alternatives. Practice management (time and billing) is the primary application that will justify a central processing system. Midrange systems, such as the AS/400 and RS/6000, are central processing systems. Requirements, past experience, and availability of software will dictate which system is preferable. Many of the network advantages apply equally to central processing and cooperative processing as well. The primary consideration is the availability of quality software at prices comparable with other alternatives. The strengths of a central processing system are the sophistication of the operating system, security, reliability, remote communications, and the ability to process large amounts of data. Its multi-user, multitasking capabilities are far superior to those of today's network systems.

The strengths of centralized processing systems include —

- Central data storage.
- Security.
- Backup/recovery.
- System management.
- PC integration.

Application software has been developed and tested over many years and provides a stable platform for processing. Unlike personal computer DOS-based software, for which no specific programming standards exist, software is written to the operating system.

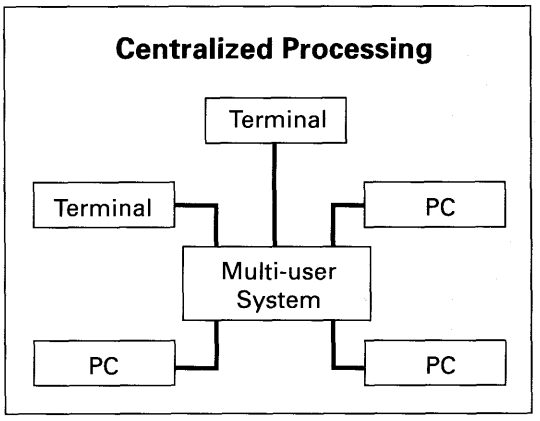

Exhibit 3.4

Network Processing

Local area networks (LANs) are decentralized processing systems. The file server is simply a communication device that stores files, delivers them when requested, and manages the network resources.

The following are the components of a network:

1. File server
   — Printer
   — Communications
   — Data base
   — Applications

2. Network software
3. Network interface card
4. Cabling
5. Nodes (personal computer attached to the network)
6. Application software

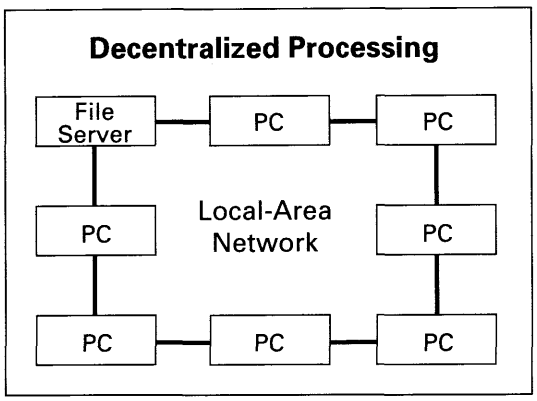

Exhibit 3.5

Licensing agreements and the fact that single-user software may or may not work on the network should be considered by the accountant. Some software has been developed for the network environment and has multi-user capability.

Networks are attractive to the accounting industry because they offer —

- Ease of integrating the existing inventory of personal computers.
- Full compatibility with existing DOS-based application software.
- Centralized updating of software on individual personal computers.
- Graphical user interfaces.
- Firm-wide consistency of software versions.
- Ease of sharing of peripheral devices.
- Sharing of data between multiple applications.
- Electronic mail and internal communications.

The accounting industry looks to networks as the solution because of its large investment in PCs. However, there are situations that require more than a LAN. Many firms need both a local area network and a multi-user system. This is especially true in large, multiple-office firms. The multi-user system acts as the host or file server.

Understanding the difference between how a file is sorted on a local area network and on a multi-user system is important when it comes to time and billing. Time and billing is the one application that has large files and requires significant sorts. The concept of data base file servers may be confusing, but it will have an impact upon the profession's data processing requirements. Additionally, some of the newer high tech applications (such as imaging and multimedia) will require large data base systems.

Cooperative Processing

Cooperative processing is the combination of a local area network and centralized processing technologies in a single system to offer the most efficient processing platform for each application. Cooperative processing is not understood by many accountants. However, once they become familiar with it, they often think it is the ultimate solution. This is the case in larger firms. The cooperative processing system offers the personal productivity tools of the local area network and the data processing capabilities of a shared-logic machine.

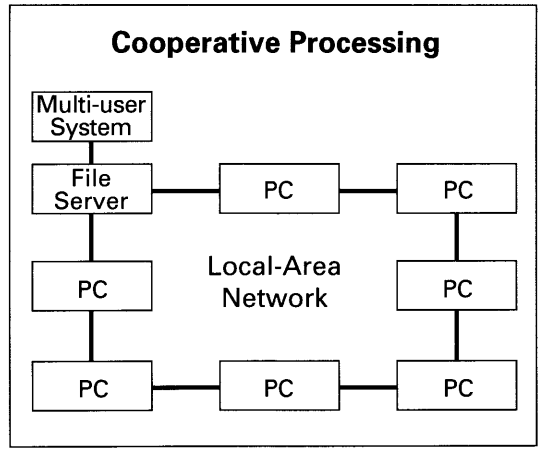

Exhibit 3.6

Several midrange systems, such as the IBM AS/400 and RS/6000 systems, have the required network adapters to allow them to act as either the file server or a gateway. The fact that a personal computer can be a node on the network or a terminal on the multi-user machine is a benefit. The end user has access to applications running in the appropriate environment. For firms that have multiple offices or clients with on-line processing requirements, the communications capabilities of multi-user machines are additional reasons to incorporate a multi-user system.

Some of the benefits of a cooperative processing solution include the following:

- Reduction in overall network traffic results in improved response time.
- Less costly workstations can be used as information delivery vehicles.
- Workstations have expanded capabilities as a result of the link between midrange and mainframe computers and the local workstation.

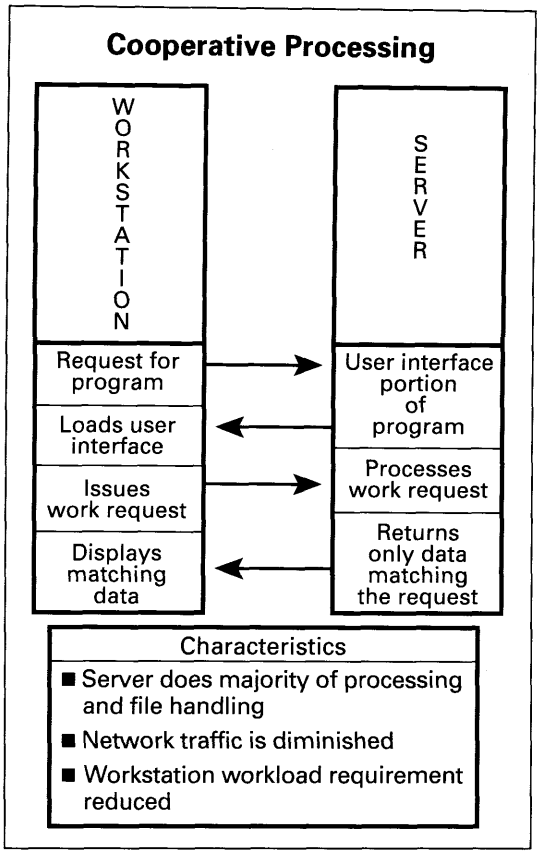

Exhibit 3.7

If centralized control and processing is not a consideration, the smallest firms will elect to remain with single-user PCs and larger firms will connect their PCs to local area networks, multi-user systems, and/or combinations of the above. Each platform alternative offers various strengths and weaknesses.

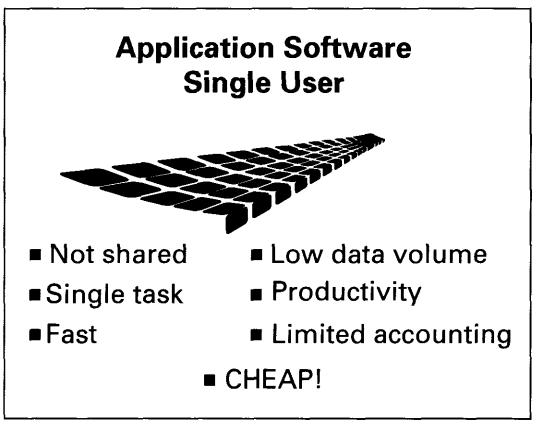

Exhibit 3.8

In most firms, time and billing is the one application that has large files and requires various sorts.

Firms selecting or defaulting to single-user DOS systems are not concerned with application integration or implementing a firm-wide solution. This may

yield short-term cost savings, but it can add to future costs and limit the firm's growth capacity.

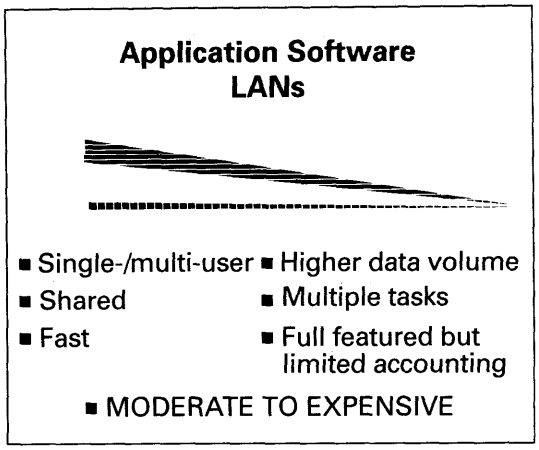

Exhibit 3.9

Firms with a need to share information and other computer resources will select DOS and OS/2-based LANs. Their decision will depend on cost and growth issues.

Firms that desire to implement a firm-wide solution utilizing advanced applications software and high-performance communication and connectivity should consider OS/2.

Firms willing to limit their LAN capability to file and device sharing in order to save money will choose DOS-oriented LANs. Current technologies may limit future growth and throughput capacity in a DOS network.

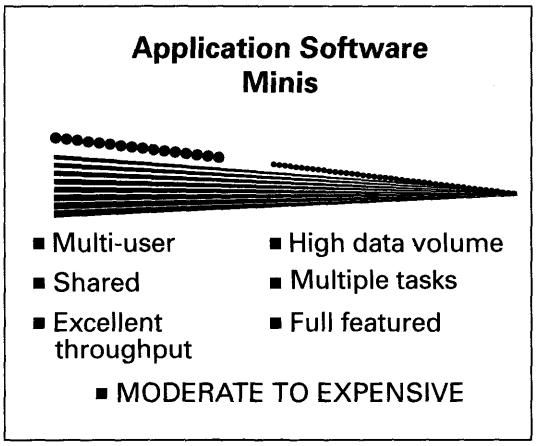

Exhibit 3.10

Large single-office firms and multi-office firms requiring many timekeepers and full integration of time and billing may be better served with multitasking operating systems such as OS/400, AIX, or a UNIX-based computer system. Large processing volumes and complex integration require the features and functions available on these operating systems. Application software that meets these requirements currently exists in the industry.

Every firm has individual requirements and a unique personality that must be considered when you recommend a firm-wide solution. No one system fits all. You must be prepared to analyze, evaluate, and justify the recommendations that you make.

The accounting profession has a wide range of alternatives to choose from when selecting a system. These alternative solutions are —

1. A stand-alone personal computer.
2. Centralized processing.
3. Network processing.
4. Cooperative processing.

	Number of Employees	Number of Offices	Number of Clients	Possible Solutions
Firm A	5	1	250	Stand-alone PC Network
Firm B	20	1	800	Network Multi-user System
Firm C	50	2	2,000	Network Multi-user System
Firm D	200	3	6,000	Network Multi-user System

Exhibit 3.11

With a wide range of alternative solutions and diverse firm requirements, it is impossible to specify an exact fit or solution without proper analysis. In an attempt to direct the firm toward potential solutions, we have developed the matrix in Exhibit 3.11.

First, let's review the facts that pertain to all four firms:

1. DOS-based applications running on PCs
2. Tax, write-up, and practice management applications

With today's quality control requirements, some firms do not prepare audited financial statements. Firm A will typically select stand-alone PCs. Many of these small firms will consider networks because of their ability to share information and peripherals. Many DOS applications are being updated to run on networks.

Firms B,C, and D have generally designated someone to be in charge of the DP or computer department. Many of these firms have used multi-user systems in the past (for example, System/34 or System/36). The software applications currently in use, new requirements, and firm leadership will often be the primary criteria for deciding upon the primary system.

Firms C and D have unique requirements because of their multiple offices. Additionally, the number of employees and clients indicates that both firms will have high volumes of time and billing transactions.

Client processing requirements are a factor that must be considered at all firms. One or two clients may dictate the need for a multiprocessing system as well as a network.

All of these solutions can be expanded, but the PC environment is limited.

Sample Configurations

Firm A

The small firm can accomplish its goals and meet its requirements with a variety of stand-alone personal computers. As the firm grows and requirements increase, the components may be incorporated into a local area network. The number of clients and data files need to be considered. However, the following primary areas and corresponding hardware typically are adequate for firms of five employees or less.

- Administration — 386 or 486 system
- Tax — 386 or 486 system
- Write-up — 386 or 486 system
- Audit — 386 portable or notebook

Firm standards need to be developed for hardware acquisitions. Some of the more common types of standard equipment are —

- A 386 or 486 system with 4 MB of RAM.
- Laser printers.
- Color VGA displays.
- Surge suppressors.
- 3.5-inch high-density diskette drives.

Firm B

The solution for Firm B centers around a local area network. The LAN may incorporate a wide variety of hardware and software components. The primary hardware components are:

- File server
  - — Dedicated
  - — 386 or 486 system
  - — 600Mb–1.2Gb SCSI fixed disk
  - — 3.5-inch diskette drive
  - — Monochrome display
  - — 16-bit network interface card
  - — Uninterruptable power supply (15–30 minutes)
  - — Tape backup
  - — Network software
- Network nodes
  - — 286, 386SX, 386, or 486 system
  - — 8- or 16-bit network interface cards
  - — VGA color displays
- Cabling
  - — Token ring or Ethernet

Firm C

The Firm C solution combines components from the LAN used in Firm B with a multi-user system. A multi-user system such as the AS/400 or the RS/6000 can operate as a file server. However, a more common configuration is to connect such a system to an existing LAN.

The multiple offices in Firm C may also require the establishment of a wide-area network (WAN). The additional hardware components are:

- Multi-user system
  - — Midrange system with multitasking operating system
  - — 600 Mb to 2Gb drive
  - — Digital audio tape (DAT) backup
  - — Uninterrupted power supply
- Modems
  - — 9600 baud rate or better
- Gateway
  - — Connection of the LAN to the multi-user system

Firm D

The solution for Firm D is similar to Firm C's; however, multiple midrange computers may be used in a wide-area network. LANs will probably be attached to the multi-user systems.

The volume of transactions and multiple locations of a firm this size dictate the use of several file servers and a wide-area network. The file servers may be large personal computers or multi-user machines. Dedicated telephone lines are typically used in this environment.

Chapter 4. Developing and Analyzing Your Practice for the Right System Fit

The automation of an accounting firm has broad implications. Many firms automate with very little planning or consideration of the entire firm's requirements. These are point solutions and are often very expensive. The following questionnaires and checklists will provide a mechanism for gathering information, analyzing requirements, and forcing decisions.

Developing the Plan

The planning process is time consuming but well worth the effort. Diverse interests and many applications must be considered. Often the firm lacks knowledge about what software applications are available. Many firms spend months in the process of searching for the required software. Furthermore, because of changing requirements and personnel and advances in technology, planning and managing the plan never ends. Implementing a technology committee with responsibility for the process is important. However, there must be involvement of personnel from all areas of the firm. The size of the firm and its leadership will determine if everyone needs to be involved.

The amount of time spent in the planning process can be reduced significantly by working closely with a qualified outside facilitator. With an outside resource, it generally takes two to five days to develop a quality written plan and budget. This process includes the following steps:

- Firm management completes questionnaires and checklists.
- Planning sessions are scheduled with partners and outside facilitator.
- Partners agree on objectives and outline individual as well as firm requirements. Attention is directed toward return on investment and how to leverage the cost of technology much like the cost of labor in a firm.
- Outside facilitator provides information and education about available alternatives and what peers are doing.
- Meetings are held with staff, administrative, and clerical personnel informing them of the objectives, procedures, and alternatives, and of what other firms are doing. The facilitator obtains input about requirements.
- Staff, administrative, and clerical personnel meet to review firm objectives and procedures. They also have the opportunity to outline individual as well as firm requirements.
- The requirements and alternatives are evaluated and a summary report for the partners or technology committee is prepared by the facilitator and appropriate firm personnel.
- A three-year plan and appropriate budget is developed by the facilitator and appropriate firm personnel.
- Partners adopt the plan and budget, with modifications if necessary.
- The managing partner communicates the plan to the entire firm.
- The technology committee monitors, assigns tasks, and takes responsibility for implementation of the plan.

- The plan is reviewed at least annually for accountability and is revised in light of changing firm requirements and technology.

An outside facilitator will greatly improve the chances of success. Many firms lack the technical skills to develop such a plan on their own. Other firms have the skills, but focus on client problems and chargeable time rather than internal planning. It is impossible for most partners to stay current on technology while keeping up with client needs. Staff members are generally reserved about making suggestions to management but open to someone from outside the firm. Your firm may benefit from using a facilitator in the same way that your clients benefit from using tax, accounting, and client services.

The greatest benefit of this process is that everyone wins, individuals and the firm. The solution is an integrated firm solution and not several disjointed applications. Experience shows that firms get a much better solution for less money if they follow this approach.

Monitoring the Plan

Most firms select a technology committee to monitor the plan. Thus, more people are involved and aware of what is going on. It is recommended that the committee include representatives from —

- Management (the partners).
- Administration (a firm administrator).
- Staff (a CPA).
- Computer Consulting/Department (if the firm has one).

The committee should work closely with vendors and the outside facilitator. Regular planning and discussion should take place.

The responsibilities of the technology committee are to —

- Implement the plan by assigning tasks and due dates.
- Meet on a regular basis with a formal agenda. Minutes should be maintained. Reports should be sent to the managing partner or executive committee.
- Continue to evaluate firm requirements.
- Stay informed about new technology and its application to the accounting firm.
- Modify the plan on an annual basis through the use of a retreat.
- Coordinate ongoing training and CPE. Training especially designed to assist the CPA firm in implementing windows and other advanced technologies is critical to success.

The entire process is not complicated. It simply requires time, organization, and discipline. Accounting firms often lack these requirements when it comes to their internal affairs and technology. Therefore, it is essential to establish an environment for success. The firms that achieve this are typically leaders in both profitability and technology. Without a plan, it is difficult to know what is expected of individuals to attain firm goals.

Firm Automation Questionnaire

The purpose of this questionnaire is to give you an indication of your firm's technology status. If you answer "yes" to eight or more of the ten questions, your firm is probably in an excellent position. Most firms respond with less than four positive answers.

The firm automation questionnaire should be used to quickly establish your firm's technological health. Affirmative answers to seven out of the ten questions generally indicate a progressive and healthy firm. Less than five affirmative answers generally indicate that the firm needs to take immediate action to implement today's technology.

Firm Automation Questionnaire

Firm Name: _____

Circle the questions to which your answer is yes.
Count the number of yes answers.

1. Does your firm have a written three-year technology plan?
2. Does your firm budget annually for hardware, software, and training?
3. Does your firm have an outside facilitator for technology planning?
4. Has your firm set priorities and defined phases for implementation?
5. Does your firm have a personal computer for every person?
6. Has your firm implemented a local area network and do you have an adequately trained network supervisor?
7. Has your firm developed a methodology for billing technology costs?
8. If so, does everyone understand the procedures?
9. Are your partners and staff technology literate?
10. Do you have a partner providing technology leadership?

Technology Planning Checklist

The objectives are listed in the first section of the checklist on page 32. The procedures involve six important areas:

1. Administration
2. Requirements definition
3. Financial
4. Determination of phases
5. Training
6. Updates

This checklist is normally completed by the managing partner or the executive committee.

Technology Planning Checklist

Firm Name: _____

Objectives:

A. To develop a comprehensive long-range technology plan that will protect the firm's investment in personnel, data, hardware, and software

B. To ensure efficiency and maximize firm profitability

C. To position the firm so as to enable it to meet internal and client demands for services

D. To develop personnel with the necessary skills required of the accounting profession

	Yes	*No*	*N/A*
I. Administration			
A. Who is responsible for planning within the firm?			
1. Managing partner?	___	___	___
2. Executive committee?	___	___	___
3. All partners?	___	___	___
4. Other? Please list.			
_____			
_____			
_____			
_____			
B. Does the firm have a comprehensive long-range plan?	___	___	___
C. What is the firm's projected annual growth rate?	_____		
D. Are job descriptions, defined responsibilities, and pay incentives available?	___	___	___
II. Requirements Definition			
A. List the major problems with the firm's current system.			
_____			
_____			
_____			
_____			
B. Are the following applications required?			
1. Practice management			
a. Multiple offices	___	___	___
b. Daily recording of time	___	___	___
c. Interfaced to accounts receivable	___	___	___
d. On-line inquiry	___	___	___

	Yes	*No*	*N/A*
2. Financial reporting			
a. General ledger	___	___	___
b. Accounts receivable	___	___	___
c. Accounts payable	___	___	___
d. Payroll			
(1) After the fact	___	___	___
(2) Check writing	___	___	___
(3) Job costing	___	___	___
(4) On-line processing	___	___	___
e. Inventory	___	___	___
f. Order entry	___	___	___
3. Tax return preparation			
a. 1040	___	___	___
b. 1041	___	___	___
c. 1065	___	___	___
d. 1120	___	___	___
e. 1120S	___	___	___
f. 990	___	___	___
4. Tax Planning	___	___	___
5. Audit workpapers	___	___	___
6. Engagement management	___	___	___
7. Due date monitoring	___	___	___
8. Financial planning	___	___	___
9. Spreadsheet	___	___	___
10. Desktop publishing	___	___	___
11. Amortization	___	___	___
12. Electronic mail/messaging	___	___	___
13. Data base management	___	___	___
14. Remote processing			
a. Other offices	___	___	___
b. Other firms	___	___	___
c. Clients	___	___	___
15. Other/List			

_____

_____

_____

_____

(Continued)

Technology Planning Checklist *(Continued)*

	Yes	No	N/A
III. Financial			
A. Does the firm have a technology budget?	___	___	___
B. Are there line items for hardware, software, personnel, and training?	___	___	___
C. Has the firm adopted a cost recovery method?			
1. Instant cost recovery system	___	___	___
2. Modified instant cost recovery system	___	___	___
3. Other/Describe			

_____

_____

_____

_____

D. Does the firm want to profit from the investment in hardware, software, and training of personnel?	___	___	___

E. What are the firm's most profitable services?

_____

_____

_____

_____

IV. Determination of Phases

A. Have priorities been established? List.

_____

_____

_____

_____

B. Have objectives been clearly defined?	___	___	___
C. Are objectives clearly understood by the entire firm?	___	___	___
D. Have realistic timetables been adopted and agreed upon by responsible parties?	___	___	___

V. Training

A. Who is responsible for training?

_____

_____

_____

_____

	Yes	*No*	*N/A*
B. Is there adequate budget for the required training?	___	___	___
C. Does the firm have the required training facilities?	___	___	___
D. Does the firm have adequate personnel and materials to conduct efficient in-house training?	___	___	___
E. Has the firm developed a continuing education curriculum?	___	___	___
F. Are multiple training programs scheduled at convenient times?	___	___	___
G. Is there an incentive program for completion of training programs?	___	___	___
H. Does the firm have written procedures manuals on utilization of computers?	___	___	___
VI. Updates			
A. Does the firm management annually review and update the plan?	___	___	___
B. Does the firm belong to an association or user's group?	___	___	___
VII. Disaster Planning and Recovery			
A. Do you have an identified plan to back up and recover critical data files?	___	___	___
B. Have you determined the frequency of data file backup?	___	___	___
C. Have you identified a recovery facility or host site in the event of a building site evacuation, prolonged power failure, or interruption of data communications?	___	___	___
D. Have you identified which critical application must be running first in the event of a recovery?	___	___	___

Three-Year Planning Questionnaire

Planning for growth (or for contraction) as you plan for technology is a must. Many firms have long-range business plans, but few incorporate technology into those plans. The two plans should be coordinated. Examine the firm's plan for additional partners, staff, and physical locations.

Most firms have a significant inventory of hardware and software. Obtain an accurate inventory with costs allocated. The costs are important, but estimates are sufficient if the actual costs are not readily available. The costs will be used later to calculate the technology cost and surcharge that was discussed in chapter 1. The firm's estimated annual growth is a key factor in planning.

Keep in mind that your firm may not be able to identify all of its hardware and software requirements for the next three years, simply because of the lack of awareness of how recently introduced technology applies to the accounting profession. Two excellent examples are imaging and CD ROM. Both of these products have been used in the banking and insurance industries. As their costs are reduced, they will be utilized in the accounting profession. In the near future, document imaging will be used extensively to store and retrieve all documents used in a CPA firm. This will include audit and tax workpapers, client correspondence, external source documents, tax returns, and a variety of other critical business documents now kept in filing cabinets. CD ROM technology will assist the CPA in performing accounting and tax research and will aid software developers in the distribution of application software.

The information gathered in this process is useful to firm management and to the outside resource with which you have chosen to work. It serves as reference material and substantiates decisions regarding priorities and estimated return on investment.

Three-Year Planning Questionnaire

Firm Name: _____

The following questions are related to your firm's current and projected organization structure. As with any projection, it is your best estimate of where your firm will be in three years. Typically, firms underestimate growth. This information is very important to the overall planning of a system for your firm.

The goal is to utilize existing hardware and software where possible in designing the system.

	Current	*Additions Next Year*	*Est. No. In 3 Years*
Partners			
CPAs (nonpartners)			
Paraprofessionals			
Clerical/secretarial			
Data processing			
Total Personnel			
Number of offices			

List locations:

_____

_____

_____

_____

Inventory of Existing Hardware

Computers:

Vendor	*Model*	*Memory*	*Storage*	*Year Acquired*	*Monthly Maintenance*
					$
					$
					$
					$
					$
					$
					$
					$
					$
					$
					$
					$
					$
					$
					$
					$

(Continued)

Three-Year Planning Questionnaire *(Continued)*

Printers:

Vendor	*Model*	*CPS/LPM*	*Parallel/ Serial*	*Year Acquired*	*Monthly Maintenance*
					$
					$
					$
					$
					$
					$
					$
					$
					$

Are you using any service bureaus? If yes, please complete the following:

Service Bureau	*Application*	*Annual Cost*
		$
		$

Inventory of Existing Software

Vendor	*Application*	*Operating System*	*Number of Licenses*	*Annual Maintenance*
				$
				$
				$
				$
				$
				$
				$
				$

Current Annual Processing Costs:

Annual computer lease or depreciation expense	$
Annual hardware maintenance	$
Annual software maintenance	$
Service bureau expense	$
Total	$

Requirements

Hardware	*Yes*	*No*
Multi-user system		
Local area network		
Communications		
Fast matrix printer		
Number of users/terminals		
Number of external users		
Number of communication lines		

Software

	Immediate Requirement	*Within Two Years*	*Not Applicable*
Financial reporting			
After the fact payroll			
Bank reconciliation			
Accounts payable			
Accounts receivable			
Practice mgmt./time and billing			
Due date monitoring			
Payroll processing			
Inventory			
Purchase order			
Job costing			
Depreciation			
1040 preparation			
1040 planning			
1041 preparation			
1065 preparation			
1120 preparation			
1120S preparation			
990 preparation			
Word processing			
Spreadsheet			
Data base			
Automated work papers			
Random number generator			
Real estate analysis			
Mailing list			
Amortization			
Remote processing for clients			
Remote processing for other firms			
Desktop publishing			
Tax library			
_____			
_____			
_____			

Important Statistics

Number of financial reporting clients:	
On-line	_____
Monthly	_____
Quarterly	_____
Annual	_____
Average on-line monthly fee	$_____
Average monthly processing fee	$_____
Average quarterly processing fee	$_____
Average annual processing fee	$_____
Number of time keepers	_____
Number of clients	_____

(Continued)

Three-Year Planning Questionnaire *(Continued)*

Number of billings prepared monthly _____
Number of statements mailed monthly _____
Average balance in WIP (work in process) $_____
Average balance in A/R $_____

Monthly (M), weekly (W), or daily (D) timesheets

Number of 1040s prepared _____
Average processing charge $_____
Number of 1041s prepared _____
Average processing charge $_____
Number of 1065s prepared _____
Average processing charge $_____
Number of 1120s prepared _____
Number of 1120Ss prepared _____
Average processing charge 1120 and 1120S $_____
Number of 990s prepared _____
Average processing charge $_____
Number of payrolls processed _____
Total number of employees _____

Current revenues from processing:

- Financial reporting $_____
- Tax return processing $_____
- Payroll return processing $_____
- On-line processing $_____
- Other $_____
- **Total** $_____

Annual Growth

Past three years _____%

Projected next three years _____%

Projected Revenue

Current $_____

Potential increase within one year $_____

Total $_____

Estimated Growth Factor _____%

Revenue Year 2 $_____

Revenue Year 3 $_____

Personnel/Outside Resources

Name of partner in charge of computer dept. _____

Name of technical person (trained system supervisor) _____

Name of trainer (trains other staff members) _____

Name of marketing person (sells processing and computer related services) _____

Name of outside training company _____

Sample Plan

Jones and Company, CPAs
Three-Year Technology Plan

The objectives of the technology planning process are as follows:

1. Develop a written three-year technology plan.
2. Create an environment for success within the firm.
3. Obtain partner, professional staff, and administrative input and commitment to the firm plan.
4. Dream (force participants out of their comfort zone).
5. Protect the firm's existing investment in technology.
6. Develop a cost recovery method.
7. Create a strategic marketing advantage in the local market.
8. Prioritize requirements and focus on the return on investment.

The three-year plan is broken into the following periods/phases:

1. Today – December 31, 1992
2. April 16 – December 31, 1993
3. April 16 – December 31, 1994

The following items were discussed during meetings with the partners, staff, administrative personnel, and managers:

- PC on every desk
- LAN
- Electronic Mail
- Time and billing
- Amortization
- Daily time keeping
- Engagement management
- Change orders
- Cafeteria plans
- Statement of cash flows
- Windows/mice
- Communications
- Client data base
- Due date monitoring
- Bar coding of files
- Scheduling
- Pension/profit sharing accounting
- Network security
- Disaster planning
- Scanner
- Laser printers
- Network utilities
- Training
- Computer-based training
- Self-study
- Accountant's Trial Balance (ATB) and AICPA products
- Business tax software
- Interactive Data Extraction and Analysis (IDEA)
- Forms
- Audit Programs
- Voice mail
- Cabling
- Hardware maintenance
- Subscriptions
- Technology committee
- Electronic Index to Technical Pronouncements (EITP)
- Portable computers
- Desktop publishing
- Imaging
- Spreadsheets
- Network software
- Network mail/lists
- Accounts payable
- Payroll — direct deposit
- Interactive tax
- CD ROM
- Tax research

The priorities appear to be:

- A LAN with a PC on every desk
- Training
- Interactive/integrated tax system
- Practice management — daily time keeping
- Interactive/integrated financial reporting system
- Firm data base/Electronic mail and messaging

Common issues and priorities were expressed by everyone in the firm. The aggressive and enthusiastic attitude of staff and partners with regard to the technology plan is important. *Everyone* in the firm will be involved.

Action and implementation should commence as soon as the partners approve the plan and personnel are assigned to the technology committee. Assignments should be made and follow-up is essential. The technology committee is critical to the success of the plan. This committee should meet at least monthly with an agenda and should maintain minutes. The minutes should be distributed to the partner group and anyone else the firm deems appropriate. (Some firms distribute the minutes to everyone in the firm.) It is important to remember that many tasks must be assigned to personnel outside the technology committee in order to properly leverage the firm's resources.

It is impossible to hit a moving target. Therefore, Jones Company has established a specific timetable and has assigned responsibilities. The following items will be planned, budgeted, and implemented by the designated dates.

Sample Plan
Year 1

Task	Assigned To	Completion Date
Approve plan/budget Communicate plan to staff Implement technology surcharge Have clerical personnel record time Review clerical requirements	Partners	ASAP
Assign technology committee Representatives from partners, staff, administrative, tax, accounting and auditing, and clerical	Managing partner	08/15/92
Select a network supervisor	Personnel	09/15/92
Request proposals Network cabling Hardware Software	Network administrator	09/01/92
Select/Implement Interactive tax program Depreciation program	Subcommittee	09/30/92
Install CD ROM	Vendor/Network supplier	10/31/92
Training	Vendor	12/31/92
Select/Implement Word processing training	Subcommittee Firm administrator Staff accountant	09/30/92
Network adm. school	Network adm./Assistants	09/30/92
Cable offices	Vendor	09/30/92
Acquire hardware Network components	Technology committee	09/30/92
Install network File server Software Network interface cards Attach printers Develop user profiles Update software on portable computers	Vendor/Network adm.	09/30/92
Network user training (1 hour)	Supervisor/Assistants	10/05/92

(Continued)

Sample Plan
Year 1 (Continued)

Task	Assigned To	Completion Date
Acquire/Install RHM	Supervisor/Assistants	10/15/92
Messaging, mail, and access to PM information		
User training (1 hour)		10/15/92
Advanced training (1 hour)		10/31/92
WordPerfect Training		
CBT — Intro. (4–8 hours)	Operators	
Instructor — Advanced	Outside instructor	11/30/92
Staff (2 hours) make CBT available		
Implement new T&B system	Subcommittee	11/30/92
Daily time sheets		
Staff training		
Billing committee		
Implement windows/mice (if appropriate)		12/31/92
Training		
Prepare a loose-leaf user's manual	??	Continuous

Year 2

Task	Assigned To	Completion Date
Update technology plan	Technology committee	05/15/93
Retreat format		
Review accomplishments		
Evaluate requirements		
Establish priorities		
Partner approval	Partners	05/31/93
Acquire/Update personal computers	Technology committee	06/30/93
Implement network communications	Network adm./Assistants	07/31/93
Dial in from the field		
Review spreadsheet requirements		06/30/93
Training if required		
Implement interactive financial reporting	Subcommittee	09/30/93
Training		
Hardware/Software maintenance		12/31/93

Year 3

Task	Assigned To	Completion Date
Update technology plan Retreat format Review accomplishments Evaluate requirements Establish priorities	Technology committee	05/15/94
Partner approval	Partners	05/15/94
Acquire/Update personal computers	Network administrator	06/30/94
Explore feasibility of imaging Implement		06/30/94 12/31/94
Review file server Requirements/Update	Technology committee Network administrator	09/30/94
Explore bar coding Implement		06/30/94 12/31/94
Review phone system/Voice mail		10/31/94
Continue training		12/31/94
Update hardware		12/31/94

Each year, the plan will be reviewed and modified to meet the firm's requirements and advancements in hardware and software. The technology committee will conduct an annual retreat in order to plan for the coming year. This is the process of reconceptualization. What business is Jones and Company in? What are the requirements for the firm and its clients? This process is best accomplished with the use of an outside facilitator with technology and accounting firm management skills.

The following budget is for illustrative purposes. Actual prices will vary based upon price changes, quantity discounts, and included vendor services.

Jones and Company
Technology Budget

	#	Price	1992	1993	1994	Summary
AS-400 with Mize Houser software (Practice Mgmt.)			$45,000	$5,000	$5,000	
File server — downtown office						
486/33 MHz EISA, 12 MB RAM with 1.2 GB HD			$18,000		$2,500	
SCSI Novell Netware approved drive						
4 MB Intelligent Caching Controller						
2/8 GB DAT backup						
3½" drive, monochrome monitor						
Novell Netware 386 — 100 User License						
390 Watt UPS/12 minute						
Remote office file server			$13,000			
Same as above except 660 MB HD						
20 User Netware 386						
8MB RAM						
Network interface cards						
16-bit Ethernet	60	$175	$10,500	$1,750	$1,750	80
Ethernet adapters for notebook computers	15	$300	$4,500	$1,500	$1,500	25
Network supervisor training/Update			$2,000	$1,500	$1,500	
Network nodes — Desktop 386/33 MHz	35	$1,800	$63,000	$36,000	$18,000	65
4MB, SVGA color monitor .28 pitch with MiniCenters or surge suppressors						
Non-interlaced color VGA monitor						
Mini-tower case/200w power supply						
Network nodes — Notebooks 386/33		$2,000	$0	$20,000	$20,000	20
4MB, VGA gas plasma, 60-100 MB						
VGA monitors for desktop use	10	$350	$3,500	$3,500	$3,500	30
Surge suppressors						
Laser printers — HP-SI (17 ppm)	2	$3,500	$7,000		$7,000	4
HP-Series III (8 ppm)	2	$1,500	$3,000	$3,000		4
Cabling — downtown office	70	$175	$12,250			
remote office	30	$200	$6,000			
Hardware and network setup			$5,000			
Communications						
Network			$15,000			
Remote				$2,000		
Hardware maintenance			$5,000	$10,000	$10,000	
Software maintenance			$5,000	$10,000	$10,000	
Imaging					$20,000	
Bar coding					$10,000	
Phone system/Voice mail					$30,000	
CD ROM — both offices	2	$700	$1,400			
Network utilities			$1,000	$1,000	$1,000	
AICPA software			$5,000	$3,600	$3,600	
Computer-based training (ATI)			$500	$500	$500	
WordPerfect (network version)			$5,000			
Payroll/Accounts payable/GL			$2,500			
Spreadsheet software				$5,000		

	#	Price	1992	1993	1994	Summary
Consulting (outside facilitator)			$10,000	$8,000	$8,000	
Tax software (preparation & research)			$20,000	$20,000	$20,000	
R H M — Futurus Software (E-mail, scheduling, etc.)			$7,500			
Windows and mice	40	$100		$4,000	$4,000	80
CPE — Instructor-based			$10,000	$10,000	$10,000	
Miscellaneous software			$5,000	$5,000	$5,000	
Subscriptions			$500	$500	$500	
TOTAL HARDWARE, SOFTWARE, & OTHER			$286,150	$151,850	$193,350	$631,350
Contingency 15%			$42,923	$22,778	$29,003	$94,703
			$329,073	$174,628	$222,353	$726,053
PROJECTED CHARGEABLE HOURS— 10% Growth			95,000	104,500	114,950	104,817
TECHNOLOGY COST			$3.46	$1.67	$1.93	$2.36
MULTIPLIER			3	3	3	
TECHNOLOGY SURCHARGE			$10.39	$5.01	$5.80	$7.07

The above configurations and prices, while taken from an actual firm's plan, will vary depending upon your firm's requirements.

About the Authors

L. Gary Boomer, CPA, is a partner with the firm of Varney, Mills, Rogers, Burnett and Associates in Manhattan, Kansas. Mr. Boomer is a consultant to many CPA firms throughout the country and speaks frequently on practice management and computer consulting topics. He has chaired the AICPA's Computer Conference Committee and has served on the board of directors of ACUTE (Accountants' Computer User Technical Exchange), a national computer user group with over 400 company members. He is currently a member of the AICPA Information Technology Executive Committee and the AICPA Microcomputer Conference planning committee.

Don Hunt, CPA, CISA, is a nationally recognized consultant, author, and trainer in the areas of data processing and software development. Mr. Hunt presently serves on the Information Technology Executive Committee of the AICPA. This committee coordinates all technology-oriented activities for the 305,000 members of the AICPA. Mr. Hunt is currently the vice president of ACUTE. Formerly the chairman of the Personal Computer Advisory Committee of the Georgia Society of CPAs, he was also a member of the Industry and Consulting Practices Subcommittee of the AICPA.

L. Steve Blundell, CPA, is a partner in the firm of Pignato, Underwood, Blundell, CPAs, in Delray Beach, Florida. His primary responsibilities include auditing and computer services. He has developed and taught numerous courses on the use of microcomputers in CPA firms. Mr. Blundell is often a featured speaker at national accounting and computer seminars and is recognized as one of the country's leading authorities on microcomputer applications for accountants. He is the president of Direct Link Software, Inc., a company that produces business tax return preparation software that directly links to AICPA's ATB (Accountant's Trial Balance) software package.