THE PRACTITIONER & THE COMPUTER

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What's New

Automation of an Accounting Firm—A Case History

The function and purpose of accounting firms makes them ideal candidates for office automation. Their numeric orientation and need for precision and timeliness are natural for computer processing. This article presents the case history of an accounting firm which used these premises to motivate the implementation of a completely automated system. This article presents:

- The specific functions which were found cost-effective to automate.
- Measurement of efficiency changes resulting from automation
- The organizational issues which need to be considered for successful implementation of automated systems in an accounting environment.

The decision to automate an accounting firm can be approached in a simple, task-driven manner or in a more involved firmwide, goal-oriented approach. The task-oriented method requires only an identification of common tasks which are mechanical in nature—an individual willing and able to take responsibility for making hardware and software decisions, and the investment of the time and energy needed to learn the use of the computer and related software. The task-oriented approach can be achieved by an accountant dedicating 15 to 25 percent of his or her time to the computer project.

The firmwide goal-oriented approach involves a study of all the systems and tasks currently being used by the firm. Each must be listed, studied and documented. The controls built into each system must be evaluated, and new ones added or changes made as required. The full support of firm management in all firm functions such as tax, audit, data processing and management consulting is mandatory for a successful implementation. The potential benefits from this approach are clearly greater, but implementation time can be considerable and the cost will be greater than in the task-oriented approach. We took the firm-wide, goal-oriented approach.

A significant number of accounting firms have automated individual tasks. Few firms have tried to automate their entire firm. Reasons for not attempting complete automation include an insufficient understanding of current technology, lack of resources to define and implement automation, lack of strong management to back the automation effort, and fear of the unknown. Firms that can successfully implement an automated accounting office are rewarded with very high professional staff productivity improvement for their efforts.

Today the accounting firm of ZeBrack & Morgen has a twenty-four station local area network, six additional stand-alone personal computers and three portable computers. They also have a full time data processing/consulting staff of seven individuals. All of the firm's personal, corporate and partnership clients have automated workpapers and their tax returns and financial statements are prepared in-house on the firm's personal computers.

Current year client financial data for all clients who maintain their accounting records on computer is electronically captured from the clients' computer, be it micro, mini or mainframe. Once captured, the data is electronically input into a trial balance program. Accountants prepare adjusting entries without having to re-key original data. Finally, financial statements and tax returns are generated in-house, ready for signature.

A Little Firm History

ZeBrack & Morgen is a large local accounting firm based in Los Angeles. Their client base is located primarily in southern California. The firm's 55-person professional staff services a wide variety of industries, however the focus of the practice is on the real estate industry. Property management firms, syndicators, developers and builders account for almost 50 percent of the professional hours billed.

Z&M's introduction to automation was early for a firm of its size. In 1975 Z&M purchased a DEC PDP 8E minicomputer to automate their timekeeping and accounts receivable, some client write-up work, and 1065—K1 forms. To achieve these goals, the firm hired an outside programming firm to implement their design. This outside firm did not perform as expected so a programmer was hired full time to complete, maintain and enhance the different systems.

The development of these systems involved all the delays and frustrations one would expect with such a project. Scars from cost overruns and extended deadlines still remain to this day in the minds of firm partners who were involved in the initial undertaking. Inevitably, these experiences have had an effect on the decision-making involved in subsequent automation projects.

A significant improvement in efficiency and control resulted from the implementation of the time and billing system. The hardware was expensive to maintain, however, especially by today's standards. Hardware maintenance alone was $800 per month. The only truly negative result of this automation was the fact that the firm became tightly bound to the capabilities of a custom system. Thus, when the time came to consider changes, the built-in inflexibilities resulted in extending the life span of the DEC PDP 8E beyond the point when it was most cost effective.

Enter the Personal Computer

In early 1982, a few years after personal computers appeared on the market, the firm began experimenting with an Apple II. Several software packages were purchased and the hardware was enhanced with larger internal memory and a second floppy disk drive. After months of experimentation, the firm focused on Visicalc, the first spreadsheet program. Visicalc was used for client projections, and to a limited extent for client workpapers.

The firm had only one microcomputer and a few people who had an idea of how to use the machine and the software. The computer did not have a great impact on the firm's overall productivity or profitability but, the seed of office automation had been planted. The purchase of an IBM PC and Lotus 123 software along with the hiring of an input operator were soon to follow.

In 1983 the firm's managing partner attended the AICPA microcomputer conference in Chicago. The positive Visicalc experience coupled with the displays at the conference were overwhelming. After the managing partner returned from Chicago, it was decided to dive head first into integrating the new technologies with the practice. Purchase was made of fifteen IBM PC's and XT's, five printers, two 10 megabyte hard disks and several software packages.

Setting up a Personal Computer Group

The next step was to develop a plan for utilizing the new equipment. The inhouse capabilities for directing this effort were assessed and a decision was made to hire an individual with specific expertise in the implementation of microcomputers. An advertisement was placed in *The Los Angeles Times* which stated:

> PERSONAL COMPUTER GROUP MANAGER
>
> Major West L.A. CPA firm seeks articulate, outgoing person to head its new PC business applications group. Must have solid tech and communication skills. Strong working knowledge of spreadsheet, database management, word processing and graphics software. Duties include constant group presentations, direct training of corporate executives, marketing of firm's PC capabilities. Software, hardware & peripheral evaluation capabilities. A self-starter who reports directly to managing partner. Send resume.

Once hired, the Personal Computer Group manager began training the accounting staff in the use of Lotus 123 and worked with several partners on special projects. Several accountants showed a strong interest in computers and subsequently developed good computer skills. Others, however, felt that the computer would reduce their job to a clerical level and this attitude was reflected in their lack of effort to learn computer skills.

Initial Projects

One of the special projects tackled by the PC manager was to automate the preparation of financial statements and tax returns for a large real estate syndicate client. The firm had the responsibility for preparing 150 partnership tax returns for this client and much of the work was both redundant and clerical in nature. Available commercial audit/workpaper software was tested and a decision was ultimately made to use Lotus 123 for developing a worksheet that would:

- Set up a client trial balance.
- Post adjusting journal entries.

• Summarize designated account balances as required for the financial statement.

• Summarize designated account balances as required for tax return line items.

The Lotus model was completed and proved a tremendous professional time saver. Since its inception, this trial balance/financial statement/tax return model has gone through several major upgrades and in its current form produces complete partnership (1065) Federal and State tax returns on laser printed IRS forms and laser printed financial statements.

With the help of outside programmers, the firm decided to build its K1 system on microcomputers. The K1 system is a high revenue producer and a critical application for firm clients. Other automation projects created were client writeup/general ledger as well as time and billing. The storage requirements and demand for multiple input stations for these applications induced the firm to look into a relatively new PC technology, Local Area Networks (LAN).

Acquiring a Local Area Network

The proliferation of PC-based high quality software focused our interest on PC's and away from non-Microsoft Disk Operating System (MS DOS) machines. This was April/May 1984 and networking options were few. The Novell Star system was studied and ultimately selected because of its expandability, reliability, speed of operation and compatibility with existing MS/PC DOS applications.

The system was purchased: six work stations, 512K of internal network random access memory, 62 megabytes of disk storage, all at a cost of just under $20,000. This did not include the cost of the personal computers already owned. Next purchased was a 300-line per minute serial printer. At the time, this was the fastest printer which could be driven by the Novell network. The task of learning to use the capabilities of the system then began.

Our application development had been prioritized with the K1 system set as the highest priority. The K1 application program and data files for just under 10,000 investors consumed about 22 megabytes of the file server hard disk storage. The K1 system was completed and implemented using the database application development language, Dataflex.

We started experimenting with loading stand-alone programs onto the network hard disk. This would enable us to use the high speed printer and to have ready access to a wide variety of application software. We found that one of three possible results occurred when programs were loaded onto the Novell network:

1. Some programs would not run at all.
2. Some programs would wipe out data and other programs stored on the network hard disk.
3. The majority of the programs written for IBM and compatible computers ran flawlessly on the network.

Included in the list of application programs which were loaded onto the network hard disk were:

- Spreadsheets
- Database managers
- Word processors
- Macro processors
- Desktop managers
- Communications
- Time and billing
- Depreciation
- Tax projection
- Tax compliance
- Graphics
- Personal financial management
- Financial analysis
- General ledger
- Integrated programs

Some Rejections

Time and billing, accounts receivable and client writeup/general ledger had been considered next in line of implementation priority after the K1 system. We considered designing a time and billing system using the Dataflex language that had been used for the K1 system. For client writeup/general ledger, we investigated modifying standard off-the-shelf programs from Realworld Corporation.

The economic implications inherent in the design and implementation of these applications were given considerable thought. Partner time in design-

ing the system, programmer time for implementation, testing and documenting the system were viewed in the light of our experience with prior systems and realistic consideration of the availability of the individuals required. Modifying the Realworld application, although permitted under Realworld's licensing agreement, raised serious questions as to the advisability of modifying program code which had been through a long chain of development, modification and enhancement. The decision was made not to undertake these development projects.

Time and billing was one of the early programs loaded onto the Novell network. The program selected and used was by Orion Microsystems and was written in the language SMC Basic. This software had been recommended by another accounting firm of approximately our size who had used the system for years and were very satisfied with it. We reviewed the reports printed in the program brochure and decided to buy the system. Since the brochures were incomplete in their description of the capabilities of the software, the only way to truly know what the software could do was to bring the system up live with our data. This way we could see how the system handled day-to-day problems, data needs and data changes.

This program would not run on the Novell network so we purchased and installed a 30MB hard disk for a Compaq 286 we already owned. We loaded beginning balances and several months of back data into the Orion program to determine how good a fit the program was to our existing internal procedures and reporting requirements. The Orion system was then run in parallel with the existing system. It was then found that the software did not meet our requirements. This rejection was expensive, but not as expensive as depending on an inadequate system for our billing information.

Laser Printer and Partnership Tax Returns

Our interest returned to our in-house developed trial balance/financial statement model. How could we make it more complete and easier to use as well as improve the quality of the reports it produced? We decided to purchase a Hewlett Packard Laserjet Plus printer to experiment with the capabilities of a laser printer to produce high quality financial statements. Further, ities of a laser printer to produce high we wanted the capability of electronically exporting financial information from our model into either our own tax system or to that of a service bureau. After evaluating our needs we decided to tackle the Partnership (1065) forms in house.

Our approach was to generate the data for the tax form in Symphony and then merge the data with commercially available laser forms software. The program which merged the tax data with the laser printed tax form was obtained from Nelco, who also developed the laser form software. The final system which produced a trial balance, financial statement and partnership tax return worked very well. Our partnership return looks very sharp and we eliminated the possibility of producing a tax return inconsistent with the financial statement. Most importantly, we significantly reduced the professional man hours required to complete a partnership tax return.

Corporate Tax Returns

Success in the partnership area prompted us to try automating the production of corporate tax returns. In discussions with our tax department we met resistance. They showed us volumes of written material on corporate tax law and asked, "where are your resources for interpreting corporate tax law and incorporating this in a computer program?" The resistance was strong enough to discourage us from attempting to build the system. We thus began looking for an existing corporate tax system which would accept our trial balance information electronically.

Our first thought was a large tax service bureau such as Fastax or Computax. We telephoned both companies and met with resistance in allowing us to conduct an experiment of exporting balances coded for their tax system from our Symphony model to their processing system. We persisted, and finally were able to successfully complete our experiment at both service bureaus. The results were interesting:

- Both service bureaus were able to produce a complete and accurate tax return.
- Both required the purchase of

their proprietary bridging software.

• Both offered a 20 to 30 percent reduction in the costs of producing a tax return as compared to the standard method of their printing paper returns from input forms and sending them to us by courier.

We were not satisfied with the cost tradeoffs of the automated tax service bureau processing vs the standard manual input method. With the automated approach we had to assume the responsibility and costs of entering all the data into the computer, printing the tax return on our printer, collating the return, transmitting data to and from the service bureau and purchasing the necessary dedicated hardware and software. After adding up all our costs, we determined that the automated system using a service bureau would actually increase our processing costs.

Our analysis resulted in a decision to look for microcomputer tax return preparation software. Our search identified a product, Micro Corptax, which would accept electronically transferred data as input. We exported to the Micro Corptax program from our Symphony template the same data used for testing at the tax service bureaus. The returns produced, both the 1120 Federal and the California state, were complete and accurate.

In addition, the Micro Corptax program provided a user friendly interface in that the input forms appear on the PC monitor as actual tax return schedules. Required tax information which is not contained in the client's trial balance is entered directly by the tax professional onto the appropriate line of the appropriate schedule. Re-footing and carryforward of information from schedule to schedule is handled by the program. We purchased the Micro Corptax program and first used it for 1985 returns. A flowchart of this system appears in Exhibit 1.

Other Applications

Our next application area of interest was time and billing, which was still running on our DEC computer. We continued to look for software that would run on our network, be complete in the collection of data and flexible in reporting. We found a high-end time and billing package from Commercial Logic which was written in an application development language and had a powerful built-in database manager. The package, without modification, satisfied 90 percent of our requirements. Although the package was not designed as a multi-user system, it ran on our Novell network in single user mode. We made a relatively painless transition.

We have always taken pride in the appearance of our statements, projections and other printed documents and had used a Xerox 860 dedicated word processor. We were spoiled by the quality of the documents produced by the 860 and the firm was not interested in taking even a small step backward when it came to the appearance of printed documents. The purchase of the laser printer finally made the transition to computer-produced documents pos-

EXHIBIT 1

System for Preparation of Trial Balance—Corporate Tax Return—Financial Statement

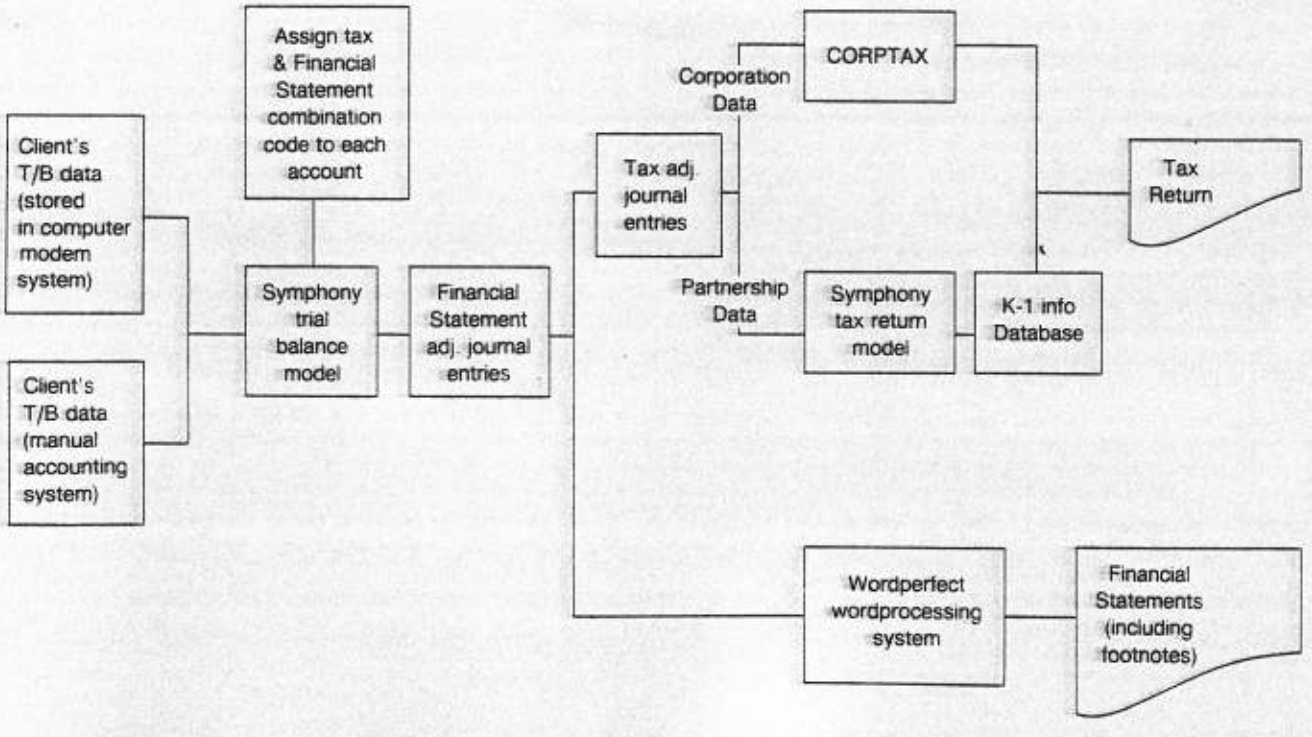

EXHIBIT 2

Schedule of Automation

1975
- Purchased DEC minicomputer
- Engaged consulting firm to program Time and Billing, Client GL System, and 1065 K-1 system

1981
- Purchased 2 Xerox 860 stand alone word processing units

1982
- Purchased first microcomputer-Apple II
- Purchased Visicalc

1983

January–June
- Purchased IBM XT with 10MB hard disk
- Purchased Lotus 123, Wordstar, PFS series

July–December
- Purchased 14 IBM PCs and XTs
- Hired Microcomputer manager
- Individual tax projection software installed
- Completed first version of Trial Balance/Financial statement Lotus 123 template

1984

January–June
- Purchased Novell "S" Network—62 MB disk storage, 500K memory, 6 workstations
- Purchased Dataflex—PC database application development language

July–December
- Engaged consulting firm to program 1065—K-1 system in Dataflex

1985

January–June
- Expanded Network number of workstations, disk storage to 200MB, and internal memory to 4MB
- Hired paraprofessionals to input data and operate programs and expanded consulting department professional staff
- Purchased Samna Word III word processing software for PC
- Expanded consulting department professional staff with manager level audit professional

July–December
- Purchased HP Laserjet + laser printer
- Purchased Microsoft Word word processing software for PC
- Transferred Lotus 123 Trial Balance/Financial Statement template to Symphony and added new capabilities

1986

January–June
- Expanded Network number of workstations
- Automated partnership tax returns
- Purchased 5 new PCs and upgraded all existing microcomputers with expanded memory and 80286 processors
- Adopted Wordperfect as firm standard for word processing
- Expanded Network number of workstations
- Purchased Corptax Corporate tax processing system and integrated with it Trial-Balance/Financial Statement model
- Purchased A-Plus tax—individual tax processing system
- Purchased second HP Laserjet + laser printer
- Purchased depreciation software

July–December
- Purchased second high speed line printer for network
- Purchased third and fourth HP Laserjet + laser printer
- Purchased 5 AT compatible microcomputers
- Retired Xerox 860s and DEC PDP 8E—all Financial Statement and other documents produced on HP laser

1987

January–June
- Purchased fourth HP Laserjet + laser printer
- Completed tax season where all types of tax returns (individual, corporate, and partnership) were produced in house on a microcomputer

sible. After thoroughly testing several word processing systems and their capabilities with the laser printer, we finally settled on Word Perfect.

Summary

As each system was being implemented, we carefully looked at its impact on our manpower requirements, the timing considerations in making the transition, equipment requirements and overall firm productivity. The complete

schedule of our automation steps appears in Exhibit 2. We have continuously tracked gross billings per professional staff member and found a significant improvement over the past few years. The introduction of automated systems is clearly responsible for much added profitability. Our current level is $130,000 in gross billing per professional.

We are constantly in search of ways to improve the product we produce for clients and in reducing the effort required to produce it. We have identified particular functions not available in current software and have communicated our wish list to appropriate software manufacturers.

[*Editor's Note:* Since this article was written, ZeBrack & Morgen has become the West Los Angeles office of Touche Ross and Company.]

Ronald E. Kaplan