The Future of Financial Systems on the HP3000

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Introduction

One of the most common applications on the HP3000 is that of Financial Systems. Large and small businesses - using all models from the small Series 40 to networked Series 70s - as well as local, state, and federal governmental entities, are using more types of software than ever before to keep track of the ins and outs of cash flow today. Systems covering such specific areas as Stock Market forecasting, Property Value Assessments, Loan Management, and (yes, sadly) Computer Cost Containment programs are in as much demand today as more basic packages such as General Ledger, Accounts Payable, Accounts Receivable, and Fixed Assets Systems.

I. Using the Past to Look at the Future - The Beginning

In any context, you must first look into the past in order to reasonably predict the future. Financial Systems have been around almost as long as computers themselves. After all, computers were created to do high speed mathematics, and accounting involves a lot of mathematical formulas. When businesses were installing their first mainframe systems in the 1950s and 1960s, accounting groups and engineering departments were side by side with their software and computer time requests (in a lot of shops, this continues today). Of the first financial packages, many were strictly devoted to doing elementary tasks, such as totaling and elementary figure comparisons. These systems were very cumbersome to use: typically, all amounts had to be entered onto punch cards, with turnaround times sometimes running into hours. Punch cards were hard to use as well; errors usually were not picked up until after the programs were run, causing the need for additional costly CPU time. Most financial departments could not obtain their own computer systems, forcing them to share computer access with other (and in the eyes of the company, more profitable) departments.

For these reasons, many organizations in the 1960s had accounting groups using paper, pencil, and adding machines as their principle tools. Because of this and the above reasons, many financial departments are still reluctant to use computers as their main tool and do not fully trust computers in helping them

solve their accounting problems. In addition, the relationships between many Accounting and Data Processing departments have been (and still are) strained because of those past events. However, events in this area are slowly evolving to the point where these two units are combining to produce some outstanding products.

Spreadsheets and Personal Computers - the 1970s

In the 1970s, the industry saw a great growth in accounting software, mainly due to the growth of more inexpensive, smaller, personal computers. Now, smaller businesses and smaller accounting departments could start to use computers, and even the larger departments could buy their own computers, no longer having to share CPU time with other company units. Many of the first packages developed for these new PCs were financially related. When the establishment of Lotus 123 and other spreadsheets in the computer world occurred, the acceptance of computers in the world of accounting was assured. But what about mainframe computing? Not many companies were willing to invest in large financial systems because of the horrible track record of the genre in the 1960s and early 1970s. Computer manufacturers were being forced to design new hardware to address the specific needs resulting from this problem; that is one of reasons why the HP3000 series came into being.

The HP3000 was (and still is) advertised as a business computer. Many of the features on the HP3000 were designed specifically for financial systems: V/3000 for easier data entry; KSAM (and later IMAGE) for easier record keeping; and the MPE operating system for more English-oriented commands. Other companies later followed with their own "business" machines (even if IBM stands for International Business Machines, they were not exactly on the forefront in this area), but Hewlett Packard's 3000 started the trend.

Financial software evolved in the 1970s as well. Spreadsheets were the program of choice by many accountants by the late 1970s. No longer were those dreaded punch cards or even creating data files necessary. All that needed to be done was to enter the figures directly into the computer, they appeared directly on the screen and almost immediately complicated operations would be performed and an answer given. More and more, paper records were disappearing and computer records were taking their places. Financial systems technology was finally catching up to its scientific brethren.

There were many problems still to be conquered, however. Personal Computers were not the answer for many larger entities, since their record capacities were limited (Remember, in the 1970s fixed disks in PCs were virtually nonexistent). Companies did not want important information existing in boxes of floppy disks that could be easily misplaced. On the other hand, mainframe computers were expensive, and even if such machines as the HP3000 were affordable, new logistical problems would have to be solved. Where do we keep this new, large machine? Where should the terminals be located? Which part(s) of the machine should we secure? How many new people are we going to have to hire to keep the computer in operation and how do we afford that? What about training? Also, who's going to decide what software to purchase? The questions and expenses were so numerous that many larger entities simply stayed with pencil and paper until solutions and money were found.

The DP vs Accounting Wars - the 1980s

Eventually, the solutions and money were found. Many corporations started whole new departments to deal with these problems. Typical names were Financial Systems, Corporate Information Systems, Data Processing, Computer Facilities, and many others. However, they all had one primary function - help the other financial departments with their computer needs. In some cases, I've seen entire computer departments start up on a single day. When these departments started up, many were not subordinate to other financial departments. This was a mistake. These two departments would often run into opposing ideas as to what was the best for their computer system. The DP shop would want a system that was the most compatible with the hardware and software currently running, while the accounting department would want software that had the most features and was the most compatible to its operations. Ninety percent of the organizations I have seen are set up in this fashion. The proper way to establish this relationship is to have both departments work for a single person (hopefully with a background in both computers and accounting). In this way, if the two departments cannot agree on a single approach, this person can make the final decision. This will prevent arguments between the two camps.

Another concern that is coming to the forefront in the 1980's is the problem of computer compatibility. More and more, executives in various organizations have personal computers on top of their desks. However, many companies do not make much of an effort to interconnect their personal computers and their mainframes to share the

mainframe's vast financial information. Many of these executives have told me that they do not know why they have spent millions on financial systems when the only output available from the system is on a printout. More people have problems sharing information with mainframe X in their plant, while their other plant has a mainframe Y. They feel bounded by the high technology they bought.

Fortunately, a great amount of hardware and software is being developed and is becoming available today. More about this in the following sections.

What the Future Holds: the 1990s and Beyond

In the coming decades, the emphasis will be on improving the hardware, operating systems and utilities of mainframe computers. Already Hewlett-Packard has made substantial modifications to their database utility system (TurboImage) their operating system (MPE XL) and their hardware (the new HP 9XX Series). Other computer manufacturers have made similar developments, which demonstrates how these makers are desperately trying to keep pace with the growing demands for system capabilities. With the development of more sophisticated software, more sophisticated hardware will be needed to run it. The new Reduced Instruction Set Code (RISC) was developed to allow the Central Processing Unit to run at a higher rate than ever before. With larger amounts of data being stored than ever before, the HP database system, IMAGE, had to be totally reconstructed to hold a larger amount of data elements, data sets, and relationships. Also, with more and more different types of people using a computer than ever before, operating system commands have evolved from "computerese" to the English-like commands of today. In coming years, operating system commands will become voice activated, with individuals who have never used a computer before becoming competent users. For those still using keyboards, command interpreters will become more user-friendly, being able to interpret almost any legitimate sentence.

Now, what about Financial Systems? Recently, Financial Systems have evolved considerably. All financial information can now be entered onto electronic forms painted onto computer terminal screens. In the future, information will be able to be entered through regular, company documents by being read in through a special scanning device. In almost all applications, data processors enter information by typing in what they see written on a sheet in front of them. Why duplicate the information gathering process? Laser scanners would be able to read data from a

regular sheet of paper, and store it in the proper place in the financial database. Data entry would become as easy and fast as using a photocopying machine.

Another area for potential growth in financial systems is in data transfer technology. Right now, many good data transfer products are available to communicate information from an HP3000 to any IBM compatible or Apple MacIntosh personal computer. Now, those executives with PCs on their desk can receive up-to-date information into their computers and manipulate it with software with which they are familiar. In addition, personal computer users can do their data entry on their machines, and upload it to their mainframe after they are sure their information is correct. This will help cut down on the use of the mainframe, because many times programs have to be rerun when problems are found in the data. The idea is to eventually use the mainframe simply as a central information gathering point where the CPU's greater speed can be used to great advantage in processing large amounts of information.

Financial systems will be able to take advantage of this new area immediately. Inventory could be taken at local sites, then entered into a personal computer file (such as a spreadsheet), edited for correctness, and finally sent electronically to the mainframe computer. Newly developed cash registers can report sales figures directly from its data center and into the mainframe's database. Satellite offices can send all types of financial information to its company's headquarters for instant analysis. The possibilities are endless!

There are other types of data transfers which can be beneficial in the future. Mainframe to mainframe transfers, where the machines are of different architectures, will become cheaper and more efficient than ever. This will save money in that companies will be able to use their existing hardware while being able to purchase newer machines and keep their flexibility. Companies are increasingly reluctant to keep upgrading their hardware, sometimes even being forced to convert data and programs. Computer manufacturers are now sensitive to this, and most hardware upgrades in the future will no longer require conversions because of planning ahead when building their mainframe systems.

In coming years, the structure of the Financial Systems themselves will change. More and more software vendors are designing their Financial System products to be more complete packages. Instead of purchasing separate packages for General Ledger, Accounts Payable, Accounts Receivable,

etc., vendors are providing systems that encompass virtually every conceivable financial need. This takes away the worry of having financial systems that cannot use a common informational source, since all modules will automatically be compatible. The computer operator's time needed for financial system maintenance will decrease, since there are no interconnections necessary between financial systems.

Other financial system areas will improve also. More and more sophisticated report writers are being provided with financial systems. Report Writers are programs that allow users to specify the format, content, and level of summary of various financial information. Report writers are available today, and are becoming more available in other financial software. In the future, virtually all reporting will be user-designed, with other options for report routing, copies, and frequency of reporting.

In the coming years, financial systems will be designed so that software designed by different vendors can still share information. Many accomplish this by providing a format for a standard interface file. In other words, users can format their data into specific structure, and the software will automatically be able to read it into the data file structure and utilize it. This will save the Information System department time in that it will not have to design customized systems and not complicate the data sharing process.

Planning for the Future - How to Purchase a Financial System

Now that the future of financial systems has been discussed, the discussion will now turn to how to choose a proper financial system. The first place to start, however, is not with the software, but with the hardware, since this item is not something likely to be changed. After all, nobody will dare throw out a massive IBM system simply because there exists a fantastic HP financial system. Firstly, look at the available extra disk space you currently have available. If disk space is no problem, you will be able to support a larger software package, and, just as importantly, can hold the source code so it is possible to adjust the system to your specific needs. If disk space is a problem, it might be necessary to buy smaller programs, or even purchase personal computer software and use the mainframe to integrate the data to one location. Also, keep in mind the additional burden the CPU will take. If a system already has over 100 users, complicated, on-line systems (systems that do all their

processing at the time data is entered) will bring the system to a screeching halt.

After this evaluation, now is the time to evaluate different financial systems. Most reputable financial software vendors will be happy to provide demonstration copies of the software. If there is room, put many financial systems on your computer at one time. This will provide the capability to simultaneously try similar features without having to remember which software package performed which test. Most importantly, test as many systems as possible! Many companies simply look at the first couple of systems that are compatible with their hardware and budget, and then just select the one that looks best. Vendors will be happy to wait for a while for a decision to be made (if not, the system is probably not worth purchasing).

Next, decide which financial systems are needed. First, write down all the accounting areas the company uses in its day to day business. Typical areas are: General Ledger; Accounts Payable; Accounts Receivable; Fixed Assets; Inventory, and Financial Reporting. There are many other specific areas that also might apply. Next, estimate the amount of man-hours spent in each area and the amount of records generated in each area. Divide the man-hours into the number of records. The system with the lowest ratio of man-hours / records is probably the area which could benefit the most from a computer financial system. The cost of the financial system is also a consideration. Some areas, such as Inventory and Fixed Assets, are much less expensive since the calculations it performs are more straight forward.

Another approach that larger companies sometimes use is to have their programmers create financial software packages. There are many pitfalls to this approach, but it can be done successfully. The first requirement is to form a good team of both data processing and accounting professionals. It is essential that this team be able to work together and that this team report to <u>one and only one</u> upper level manager. After the team is formed, the group should construct an initial design of the particular system. Next, the system should be prototyped on the system. Prototyping is defined by creating a rough, mini-system that simulates the basic structure of both the programming and the database. After the prototyping is completed, the entire group should critique and change the system to better fit the initial design. The eventual users of system should also be allowed to experiment with the prototype and critique it; the more the better. This process should be repeated until the prototype is

complete. When finished, the prototype should then be enhanced by adding other parts of the system. Again, the cycle of critiquing and modifying should be used, and repeated until the system is completed. It is important to involve the end users of the system throughout the process to insure the greatest use of the package. Although this process may sound expensive and time-consuming, it is the only way in insure a workable, desirable system that will not be scrapped in a few years.

Since many companies already have existing financial systems, another area of interest is deciding if or when to stop using the current system and obtain a more sophisticated one. Many of the signs can be easily seen. Numerous complaints from the system's users will be heard. The overall computer response time will slow down. Deadlines for reports will not be met. Data errors might occasionally occur. However, there are a lot of other indications of a weak financial system (these questions can also be used to help you select a new system as well):

1. How adequate is the system documentation? Numerous times, infrequent problems will occur, yet when the documentation is used to determine the problem, the manuals prove useless to help.

2. Is there a vendor contact to help you with your problems? Again, if a major problem occurred, having no vendor support could prove disastrous.

3. Does the vendor provide any additional services after the sale, such as the design of additional reports or training. Full service-type vendors tend to be more expensive, but are well worth it in the long run.

4. Does the vendor produce new releases of the financial system that can be obtained at little or no cost. There is little sense in obtaining software that could easily made obsolete, especially in these days of often-changing tax and business laws.

5. Does the system take advantage all available technology that is associated with the computer. It makes little sense to keep an old system that only runs slow because it does not use the latest, timesaving utilities.

Conclusion

The future of Financial Systems is a very complex and ever-changing one. From the punch cards of the 1960s, to the networked, English-responsive computers of tomorrow, financial systems will continue to grow and improve. It is most important to keep up with changes by obtaining a system, whether created in-house or purchased, that can be expanded and modified to keep pace. Given the voluminous amount of systems available, it is not impossible to secure the proper system.

Building your own system is not impossible, either, if the time and effort is made to prototype it, as well as obtaining the input of as many end users as possible. Do not try an add on approach to building a financial system, complete the entire system first, and test it fully before putting it into production.

Do not be afraid to evaluate the current system. If the minor problems are found out first off, larger problems can be avoided in the future. Using the guidelines discussed, an accurate assessment of any system can be made.

Lastly, always remember to find a financial software vendor that is knowledgeable, established, and that will be available after the installation for training and additional modifications and will become necessary later on. Financial systems are always evolving; make sure that the system selected can evolve also.