

Using the HP3000 for Decision Support Systems

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WHAT ARE DECISION SUPPORT SYSTEMS?

Decision Support Systems have been around us all for many years, but it only recently that we have been using the term. I believe that DSS appropriately describes the management oriented use of interactive databases, financial models, graphics and statistical analysis in meeting the day-to-day information needs of decision makers. The principal characteristics of a DSS are:

- It is in an interactive or on-line environment;
- It can be developed (at least the first phase) in less than a month.
- With minimal training, it can be maintained by the end-user.
- It does not post to a general ledger.
- It allows the user easily and quickly to change assumptions about the data and produce reports reflecting those changes.

I think that "Management Information System" was originally intended to describe what is now referred to as DSS. But the problem with MIS is that the term grew in usage and scope over the years to the point that it no longer really means anything. To wit, a manager of MIS is often responsible for all computer operations, programming, technical support, and most recently even for word processing! Thus the need for a term like DSS which is more restrictive and focused.

Typical DSS applications are:

- Customer, employee, or equipment tracking systems
- Cashflow projection systems
- Merger/acquisition models
- Budgeting models
- Detailed analyses of particular functional areas (e.g., A/P, A/R, Foreign Exchange)
- Dun and Bradstreet marketing databases
- And much more.

HOW DSS DIFFERS FROM TRADITIONAL DP AND WHY

The orientation of data processing has traditionally been toward operational control and audit trails, and this is as it should be. These controls imply the need for systems development projects with a great deal of planning and structure, as well as an emphasis on efficiency

of processing due to the volume of data that has to be handled. The tools and techniques used to meet the needs of transaction processing systems are dictated by the objectives of these systems.

But by their very nature tools like COBOL and techniques like batch processing are not adequate to meet the information needs of a mid-level or senior manager. Typically a manager needs information on an ad-hoc basis in order to help solve a problem (i.e., put out a fire) or to investigate an opportunity. For this kind of objective, higher level languages than COBOL are needed and the computing environment has to be interactive. Ideally you should be able to access an existing data file and select out and report on specified subsets of data. The emphasis here is on getting out only the relevant data; how it is presented is less important. You should also be able to create an ad-hoc system to address a specific question, knowing that the system will be thrown away after it has done its job. The whole cycle could be less than a week.

In summary, because the objectives and needs of managers are so different from those of operations staff, it follows that the types of programming languages and the computing environment chosen to meet their goals will also be different.

THE IMPORTANCE OF DSS USER SUPPORT

If and when an organization begins using Decision Support Systems, it will be necessary to develop a support program that can meet the on-going needs of the DSS user community. This program includes: training users, addressing day-to-day questions of users, providing access to the computer for new users, and more. Any part of this (or even all of it) can be achieved by using resources outside of your own organization.

User training classes should be no more than two days long. This is because few users have the time to break away from their regular activities for more than two days at a time, and also because, in my experience, if the software product cannot be taught in two days then it is not a user-oriented DSS product. At the end of the class users should be able to return to their offices and start producing simple reports, models or graphs. User training is often provided by the company selling

the software (e.g., HP or a software house). Sometimes classes are available locally which makes user training easier to fulfill. When local training is not available then the choices are sending a user to a training class at another location, bringing a trainer into the organization to train a group of users, or developing a training capability within your organization. A quick cost/benefit analysis will lead you in the right direction.

Since time is often a critical factor when a DSS system is used, a responsive user assistance program is most important. This can be provided either by the software vendor or from within an organization. The choice is most often dictated by the number of DSS users within an organization. Because DSS users are generally outside the DP area, the people providing DSS user assistance need somewhat different capabilities and backgrounds from what you might expect in a data processing support group. They include:

- An ability to avoid computer jargon and communicate effectively with those who know very little about computers.
- Some background in the business side of the organization. This can be either from work experience (in the case of someone who is interested in transferring into a systems department), or through education (for example, a programmer who has gotten an MBA degree).

User support also means insuring that new DSS users have access to the computing resources. This includes assistance in getting the right terminal for the intended application and when necessary working with the phone company or any data common-carrier in setting up a leased line or dial-up access.

WHY THE HP3000 IS GOOD FOR THE DSS-TYPE SYSTEMS

Stated simply, the HP3000 is an excellent choice for a Decision Support System. The computing environment and operating system of the HP3000 meet one of the fundamental requirements of any DSS — they are configured to make interactive computing straightforward and easy for a user.

Just as important, both HP and others offer good DSS-oriented software for the HP3000. In reviewing the available products, I will categorize them into four main groups: database management, financial modeling, graphics, and statistical analysis. As you know the IMAGE database management system provided by HP with all HP3000 computers is an excellent DBMS product. When IMAGE is coupled with a user-oriented report writer and screen generator like RAPID/3000 or the products of Quasar Systems (i.e., QUIZ and QUICK), a user can easily do the kind of ad-hoc reporting that is characteristic of any DSS.

Financial modeling software has been around for quite a while, though it has only recently gained a great deal of attention due to the success of VISICALC, a

popular personal computer software product. HP does not offer a financial modeling product at present but there are a growing number of software houses that do. Among the products I am aware of are Dollar Flow, the Interactive Financial Planning System (IFPS), and EPS-FCS. Most of the providers of this kind of software will have an information booth at this conference.

Almost all of the currently available graphics software comes from HP. Decision Support Graphics (DSG) is a very user-oriented package that makes it quite easy to get out meaningful graphs with minimal effort. PLOT/21 is another HP product but is really a set of program callable subroutines that allow complete control over a plotting device. PLOT/21 is essentially a programmer's tool. And then there is SMOCK, a graphics product which is generally adequate for many users and is available from the HP Users Group Contributed Library.

In the area of statistical analysis software, there are three widely used products for the HP3000. Statistical Package for the Social Sciences (SPSS) has been on the market for a long time but is batch oriented. A product called IDA was developed by the University of Chicago Graduate School of Business and stresses interactive usage, forecasting, and regression. Also available is the BMDP statistical package from UCLA which is batch oriented but good at multivariate techniques and analysis of variance.

FUTURE TRENDS IN DSS

Looking at the future, there are a number of developments that will have an impact on the DP and DSS user communities. Among them are:

- The increasing presence of personal computers;
- The sharing of data between various parts of an organization;
- The growth of electronic mail;
- The migration of DSS languages and techniques into the DP community

With this audience I am sure I do not have to discuss at length the recent growth of microcomputers — we have all seen it first-hand. However there are some subtler changes taking place that deserve to be mentioned. Microcomputers are rapidly accomplishing what so many of us have tried so hard to do for many years, and that is to demystify computers and programming. A single product — namely VISICALC — has unleashed the imaginations of uncounted managers and analysts. The challenge for us is to maintain their enthusiasm and at the same time ensure that their expectations are in line with what is possible.

Sharing data, as well as the responsibility for maintaining it, can provide significant savings to any organization. As you know, database management systems have done so much to eliminate redundant data among different files by using keys to facilitate sharing data. In the same way we are also seeing a growing need

for departments to share databases instead of each department expending the time and effort to maintain its own version of identical data. And the security features of DBMS and screen handlers make this sharing possible even when one department's data must be kept entirely within the department's control.

Electronic mail is usually associated more with "offices of the future" than with DSS, but in my experience the same computing environment that supports DSS should also be able to support electronic mail requirements. Until recently I worked for a large commercial bank that had an electronic mail product available on its interactive computer. This computer was accessible from all major offices throughout the world. On a daily basis I was in touch with five distant groups that I was managing. I can assure you that having electronic mail available made it possible for me to keep on top of what was happening in the field and address any issues as they surfaced. Also, many of the executives of the bank who traveled extensively found that electronic mail was the best and cheapest way for them to stay in contact with their offices and with others who needed to reach them.

Lastly, I think that in the long run there will be a number of tools and techniques that will migrate from the DSS environment to the DP environment. As they mature and grow, user-oriented report writers are already being used by both DP and DSS users who find them so successful in increasing productivity. Another

example is the building of a prototype system in the earliest stage of systems development. This concept is far from new, but it is my observation that it is more consistently used in developing DSS applications than in DP. Because the use of a prototype is fundamental in insuring that user and developer understand each other, I hope that this technique also will find its way into more and more DP projects.

CONCLUSION

The HP3000 provides an excellent computing environment for Decision Support Systems, when coupled with the proper user-oriented software. The discussion above has tried to bring together what DSS is, how it is being used, what software products are available, and some of the issues that can affect DSS users and providers. Other software products and other issues are surely out there. In order to provide a forum for them, a new Special Interest Group — SIGDSS — is being formed now and will meet for the first time at this conference. Look for the meeting time and place in your conference schedule. If you cannot attend but have an interest in the group please contact me for further information:

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