ABSTRACT
Applications that are the most important to any organization are those that are used heavily. The application use can be by a few very influential people, or by the masses on a regular basis. The applications need to be robust but also address the specific areas intended.

Developers of these applications need tools available to them to make them more productive. They need tools for fast prototyping as well as tools that give them total control over every aspect of production applications. These tools need to be ones that the applications developer will not outgrow as the sophistication of the applications grow.

This paper highlights a case study of the Depository Trust Company, a national clearinghouse for the securities industry, which developed an EIS to automate and control a management by objective (MBO) program. Since senior management must approve and monitor many objectives set by each department in the entire organization, the EIS enables users to quickly access information on a wide variety of corporate objectives. Depository Trust Company was one of the initial test sites for SAS/EIS® software and SAS/ENGLISH® software and has used those and other components of the SAS® System to develop a complete EIS pilot application. This paper will discuss their application as well as how and why they reached some of their decisions during the development process.

This paper will also discuss an application used by the Software Sales representatives at SAS Institute Inc. and how it has been enhanced over time to meet the growing challenges and changes in the information the sales representatives need to do their jobs effectively and efficiently.

INTRODUCTION
Any organization must take a few things into consideration before tackling any sort of end-user application. Four specific areas to consider are:

1. the application itself - What is the application intended to do or provide for the organization?
2. the users of the application - What type of interface needs to be available to make sure the application is not intimidating, is "user-friendly," and is actually used?
3. the data necessary for the application - Where does the data reside that the user of the application will be viewing, editing, or analyzing?
4. the operating environment for the application - Will it be a host-based application, reside on workstations only, or an application where a client/server environment is most efficient for the organization?

Once these questions have been answered, or at least thought through, then the process of choosing the tools to develop the application to meet the four criteria just outlined begins. Designing the application and then selecting tools is preferable to selecting tools and then designing the application to fit the tools available.
for any one account at any one time. The application was developed without using SAS/SHARE software but when it was determined that the data had to be shared, the application was put on a shared server with very few modifications to the code.

The Users

There are really four levels of users of the AMS in the Sales and Marketing Division, and then there are some other departments that also use information from the AMS.

1. The account managers are the heaviest users of the AMS. They spend their entire day in the AMS accessing and entering various types of information about accounts with whom they're working. The account managers have very diverse needs. Some of them work with a few accounts on a detailed and intense level, while others work more in a high-volume environment with lots of accounts on a more surface level.

2. The analysts that use the AMS are the marketing representatives. They do not enter information in the AMS, but use it to analyze information that the account managers have entered to track product, application, and operating environment interests so that the information can be fed back to Research and Development.

3. The support staff that uses the AMS are the administrative and sales assistants that access the information to check quotes that the account managers have made, as well as check phone numbers and addresses when necessary for some of their follow-up work. The administrative assistants also have FSLETTER catalogs where copies of the letters the account managers mail to their accounts are kept.

4. The regional managers of the Sales and Marketing Division use the AMS to run some 'canned' reports about the activity in their regions such as the forecast for the month and/or quarter, by account manager and/or territory, and by product and/or operating environment. The managers also do ad hoc reporting on their data by whatever means they're most comfortable with (either SAS/ASSIST® software or using the SAS language and procedures).

Other users of the AMS are the Media and Exhibits Department. They enter leads from advertising into an application that feeds the lead and the operating environment involved. AU of the data validation that the data had to be shared, the application was put on a shared server environment should involve very few, if any, changes.

DEPOSITORY TRUST COMPANY

The Depository Trust Company (DTC) of New York has been using SAS software since 1982 for applications ranging from capacity planning to decision support to help them solve problems and meet their business goals and objectives. In 1991, DTC began a company-wide implementation of MBO, affecting over 300 management employees responsible for setting, maintaining, and monitoring almost 600 goals and objectives. The original program, relying on a paper-based system, proved unmanageable and ineffective. In 1992, a prototype executive information system (EIS) which automates the goal setting, approving, and reviewing process was developed. The top executives of DTC reviewed the prototype and were impressed with the increased accessibility to information which enabled them to highlight interdependencies and eliminate duplication of effort. It is expected that the system will improve DTC's program of rewarding managers for successfully completing their objectives.

The Application

The goal of the Executive Information System (EIS) at DTC is to automate the process of entering, approving, tracking, and evaluating the goals for the managers involved in the MBO program. The Decision Support and EIS group at DTC chose SAS software for their EIS because of the flexibility in developing the application as well as the many other SAS applications they also had in place. DTC was an early test site for Release 6.08 of the SAS System so that the Institute has incorporated in SAS/EIS software and SAS/AF software made a big difference in the actual time DTC has spent on developing the EIS. The new FRAME entry in SAS/AF software incorporates many of the concepts and tools of object-oriented programming. It allows applications developers to create graphical user interfaces using an object-oriented approach. The fact that FRAME entries can contain extended tables has given DTC much more flexibility in the development environment. DTC has also used SAS/EIS software both to build an EIS that takes advantage of new functionality specific to that product, such as variance reports and critical success factors objects and hotspotting techniques, as well as to incorporate other SAS product applications into their EIS, such as SAS/OR® Gantt charts and SAS/ENGLISH queries.

The Decision Support and EIS group has based their entire application on theory found in management theory books so that DTC would truly be managed by objectives.

The Users

There are really 2 levels of users of the EIS.

1. The managers enter their goals and objectives in the EIS for approval and evaluation.

2. The goals are monitored by the vice-presidents and above...
who rely on administrative assistants to retrieve information from the EIS since the vice-presidents do not generally have workstations on their desks. Directors and the president of DTC also use the EIS the same way.

The Data

The goals are entered into the EIS by the managers responsible for the functional areas involved. Currently all of the information resides in a DB2® database. Since the environment could be different in the various departments involved in MBO, each department is given a customized menu for the EIS. The application simply uses views of the DB2 data so different views are given to different departments.

The Operating Environment

Currently the EIS resides on an IBM mainframe running under MVS/TSO and involves goals for 1992. The application will be distributed under OS/2® when the 1993 goal process begins in August of 1993, with the goals actually being set in fourth quarter.

COMPARISON

The two applications outlined above are vastly different in the information they track and the level of users of the applications. The operating environments of both are similar. Both applications are used heavily at their respective organizations and are critical to the success of each due to the day-to-day nature of the applications. Managing accounts and managing goals are huge endeavors for both organizations. Both SAS Institute Inc. and DTC agree that the 'thought process' and design phase for each application took much longer than the actual development of the application. Because so much thought was put into the design, both organizations have produced flexible applications that meet their needs today, are not limited by restrictions, and were definitely built with maintenance and modifications in mind to support future changes with ease.

Although both of these applications currently reside on mainframes, both the Institute and DTC have plans to turn these into client/server applications where the mainframe will still serve as the data server, but the applications will run on workstations, either under OS/2 or UNIX.

CONCLUSION

The SAS System for Information Delivery definitely has the tools available so that the application itself can be at the forefront of the design phase and the tools will support whatever type of application is needed. Fitting an application to the tools available is not necessary.

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Note

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