Management By Standards

Baron E. DeKalb III

3M Company

P.O. Box 5517

Greenville, South Carolina

Webster's defines a standard as "...something established by authority, custom, or general consent as a model or example.., something set up or established by authority as a rule for the measure of quantity, weight, extent, value, or quality...". In addition, Webster's defines standard operating procedure as "...established or prescribed methods to be followed routinely for the performance of designated operations or in designated situations...".

Using these definitions, we as data processing managers and professionals have to establish "standards" by which we manage both the operational and developmental environments that we control. By the establishment and enforcement of an environment that is conducive to a set of standards, we provide both a stable and efficient work environment for the operation of a data processing department.

To help in the establishment of standards, the following questions must, at a minimum, be addressed:

Why bother the standards at all?

In what areas should standards be implemented?

What are the cost associated with the establishment of standards?

What makes standards effective?

What are the costs of not having effective standards?

Where do I start?

In this presentation I will try to help you answer the above questions, and present a base from which you can build to establish an effective set of standards for use in your data processing departments.

To build sound systems, a guideline or standard must be adhered to so that the system has a sound foundation on which to grow. The latest trend in finding a solid foundation for systems is the use of what is called an architecture. To provide this footing for the building of systems, we must use a building block

concept. By using this concept, the foundation that we use will determine the soundness of the systems built upon it. This includes the current system in development and all future systems.

Architecture is composed of five major components:

Applications

Data

Communications

Technology

Infrastructure

I have had the concept of architecture explained to me as being somewhat similar to standards. If we use this description, we are approaching the area of having our planning pay off in providing us with an architecture on which to build our future systems. By establishing standards in these areas we will provide the solid foundation required to build systems that will be easy to build and easy to maintain. As the cost of maintenance of systems increases, we must be ever aware that the systems we build will some day be modified and replaced. The business environment being so dynamic, we must provide ourselves with the tools to provide quick solutions for our organizations.

Why bother with standards at all?

As we progress through our chosen field a proven fact is that to really help in

this progression we need to effectively train the person that will replace us, this will provide the opportunity to accept additional responsibilities and duties. The best way that I know of to allow this to happen is to effectively layout the requirements of the operation and programming duties that we now have responsibility for. With these areas documented in the form of easy to use and understand standards, our ability to grow is greatly enhanced.

With the ever increasing reduction in the cost of hardware and the ever increasing rise in software and its maintenance, we must find ways and/or tools to help in the control of these costs. If the effective application of standards in these areas can be effective, then we can not afford not to use these techniques to help reduce cost and increase productivity.

In what areas should standards be implemented?

The major areas for the implementation of standards are:

Operations

Programs

Jobs

Documentation

In the area of operations, we need to look at establishing standards in the following areas:

Job Scheduling

Report Distribution

Tape Handling

Disaster Recovery

There are utility programs available to help automate and control some of these activities, but if there is a lack of understanding and established guidelines are not followed then even the most versatile program will not help.

In the area of job scheduling, I recommend a daily list of the jobs to be run listed in order. Keeping a daily activity log and making this list a part of it will provide the ability to do analysis of the productive jobs run on the system. Using this or a similar method the gradual slowing down of the system can be monitored on a daily, weekly or monthly basis so that changes can be noted and corrective action taken before the situation goes from bad to worse.

A part of the documentation of each stream file should be a list of the reports generated from each along with the distribution of these reports. Nothing is worse than filling in for the operator and not being able to distribute the reports as required. In addition, this distribution list should be monitored and updated every quarter. With the dynamics of business, the report may be replaced, or the people receiving the report could either change jobs or pass the responsibility on to others.

Tape handling is a subject that we can not afford to forget. In brief, the considerations in this area are; retention, labeling, tape verification,

rotation and storage.

Depending on your business, the retention of tapes can vary, but I try to follow these guidelines; retain weekly tapes for a month, monthly tapes for a quarter, quarterly tapes for a year, and yearly tapes indefinitely. The labeling of tapes should be such that the contents of the tape, the date the tape was created, the operator, tape format, machine the data is from and the retention period of the tape are all clearly defined on the label.

Tape verification and rotation go hand in hand. As the age and usage of the tape increases, its rate of error probability increases. By monitoring this, we should be able to reduce the likelihood of including a bad or marginal tape in any of our long term retention tapes. Tape storage will also effect the physical characteristics of the tape. Be sure that the temperature and humidity of the storage area is maintained as closely as possible to the actual operating environment.

The last point in this section is near and dear to the hearts of all programmers and data processing personnel, disaster recovery. As remote as the possibility of needing a disaster plan, not having one or having one and not having everyone familiar with it is only inviting chaos after the disaster. If not documented and understood by all parties involved, a data processing department without a disaster plan is a disaster waiting to happen.

I feel that the following list of information about programs will provide a basis to build a solid system with the added advantage of being able to do

reports in such a way as to facilitate easy changes as systems progress into the future.

Program Location

Source Code Location

Program Type

Files Accessed

Type of File Access

Date Written

Author

Date Modified

System Documentation

User Documentation

Using this technique, if this information is kept in a database, you can run a report that list all the programs that access a certain data-set in a data base and have an idea of the magnitude of a proposed change. The next major area of standards implementation is programs. Whether you are in a third and/or fourth generation environment, having all of your programs and procedures following the same standards and convention will pay untold benefits in the unlikly event you might need to make a change to some code.

I mean standards in programming to the point of standard names for screens, data set items, working storage items, paragraph names, calculation fields, display fields, the list is near endless, but if a standard is established and followed then the writing of new programs or the maintenance of old programs

can be accomplished with ease and reliability.

Let's not stop with just the internals of programs in the topic of standards. In addition to those already listed let's include screen layout, error message handling, report layout and report headings. If standards are used in these areas, then the overall design and user acceptance of the system has got to be enhanced.

The documentation of jobs is fairly simple but can greatly aide in understanding by both people not familiar with the job and will help in the orientation of new personnel. I found a good basis for the standard for jobs to be that the jobs are broken down into steps required to preform the functions to either produce the report or update the necessary files. If the steps are separate, then each part of the job can be started over in the event the job does not complete.

Just think, by establishing and using standards in these areas the amount of programmer resources that can be saved. " Yes, but I have already started my development", you say. "If I stop and start over I loose 6 to 12 months of time." I know, I have been there myself. "In this case the incorporation of standards may be worse that not having any", you say.

After the process of establishing the requirements, technique and tools required to develop the standards in the operation of our departments, next comes the ever present management question; "What is all this going to cost?". My best answer to this question might be that not doing what is necessary may

cost you a promotion, or even worse your current job. With the cost of programmer time these days, a cost reduction even in the 5% to 15% range can pay back a lot of dividends over a short period of time. Taking into account only development work, there are large savings to be had but when talking about maintenance to existing programs, the savings could be even more.

The next question is one I ask myself often in situations where I do not know which way to turn; "Where do I start?". If you are just starting, start at the beginning, if you are in the middle, start in the middle, but if you are nearing the end start next time. Hopefully you have developed a technique to help develop standards in your shop, but if you have not, start now! Developing and using standards in the operations, development and maintenance areas of your shop will provide good code that is easy to read, quickly written, easily maintained and will help in the development of quick orientation of new people. I add this last comment because I am sure a few, just a few of you, might have a little turn over in your shop.

The material I have presented is not new, leading edge or earth shattering, but hopefully will bring to light the need of such standards in your department. The pay backs you can expect from your time spent in the development and implementation of these standards will provide you a solid foundation to support the rest of the development of your systems architecture.