Focal points for DSS effectiveness

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ABSTRACT

The primary emphasis in this presentation is to take a top-down view of a decision support system (DSS) and to see how the mere existence of DSS causes improvement in management effectiveness. The areas covered include development of information needs, requirement of consistency in using information, discipline in decision making, and the integration of decisions toward goals.

The improved effectiveness from these areas is inherent in the information requirements that are set up during the development of a DSS. Can there be any doubt that improved information consistency and discipline in decision making improves management effectiveness? In other words, no matter the computational advantages and the efficiency of computers to manipulate and display numbers, a DSS automatically results in the identification of issues, begs for the resolution of those issues, and thus produces more consistent and integrated decisions in the choices of action plans and programs for the achievement of corporate goals.
MANAGEMENT EFFECTIVENESS THROUGH DSS

For my presentation I have selected what I believe to be some of the more critical areas that will improve management effectiveness through decision support systems (DSS). These areas are identified by viewing the decision process and the DSS as a totality for the organization rather than as a single functional decision area. Looking at the decision process in this way brings to light many of the attributes of a DSS that are not present or not nearly as effective before a DSS is implemented. The focal points for DSS effectiveness from this viewpoint are

1. Development of information needs for decision making
2. Consistency in using information by more managers
3. Discipline in decision making through a well-constructed process
4. Integration of decisions toward corporate goals

As I review each of these focal points I'll present an example of how a Nationwide DSS application improved management effectiveness, and I'll wind up with a few conclusions.

Development of Information Needs

First, DSS improves management effectiveness by focusing attention on the development of information for making decisions. You could say with a great deal of confidence that to manage effectively is to manage with adequate information. Here's where computers, computer software, and the design of a DSS provide the basis for improved management effectiveness.

Useful information, when it can be made available at an acceptable cost, will be used. In strategic or long-range planning before the availability of a computer support system, much of the desired information could not realistically be obtained. Nor was it practical to develop many alternative action plans as the basis for evaluating the potential effects bottom line.

With the what if and goal-seeking capability of a DSS, alternatives can be discussed, information can be obtained, and choices can be made in less time than it would take to do the traditional one-plan-only planning.

Can there be any doubt that effectiveness is enhanced when management can get definitive answers to their what-if questions before making decisions on what goals should be established? Our experience is that the answers change opinions, and final decisions change a high percentage of the time.

In one of our operating units, when the usual projections had been done manually and goals established by intuition and judgment, the five-year plan called for a compound growth of 11%. When the computer support system was established, the possible growth trend could be developed in different ways more quickly than one projected case could be developed before. Now the manager could look at

1. compound growth
2. linearly accelerated compound growth
3. linear interpolation

and determine the most realistic goal based on the most realistic growth trends. With the additional information the growth rate was adjusted by year to a new goal that was higher than it was before. This improved management effectiveness by providing valuable information previously not available.

Consistency in Using Information

Now let's look at the advantages a DSS brings to management decision making in terms of consistency in use of information.

One of the most frustrating problems of management in reviewing results, in reviewing proposed projects, and in evaluating performance is to have two different figures from two sources for the same item. Much of this is due to different definitions of certain terms and different databases developed to answer the same question or to provide the same information.

A DSS by the very nature of its construction must

1. have one definition for a specific term
2. have the same database from which to get information
3. follow the same sequence of using input
4. produce output in a standard form

All of these DSS characteristics cause management to look at definitions, use of data, input requirements, and how output is best provided to be useful to management.

In many instances, initial problems are created because different management groups have historically used different definitions and many times have developed their own databases to provide their own functional reports.

At Nationwide, when we started developing the strategic planning model, we developed a set of terms and equations to be used for strategic planning. The overall design used a diagram and set of insurance equations for which each functional office provided input. The result was that we resolved several differences of opinion on definitions that had lingered for years. For instance, the equation for earned premium for
strategic planning was uniformly used company-wide for the first time.

**Discipline in Decision Making**

Next let's consider discipline. This factor in many ways is similar to the effectiveness improvement caused by forcing greater consistency. Discipline has an additional dimension, however, in that it is self-imposed on the decision maker, whereas consistency is caused by the influence of others or by a group as a whole.

Managers vary a great deal in the discipline they bring to most aspects of their jobs. But, decision making may be the least disciplined if there is no special structure or framework established to provide the discipline of orderly consideration of all important facts. Again, it is hard to refute the improvement in management effectiveness when orderliness and a structure for reviewing all important information are brought into the picture, and that is what DSS does.

For example, our Marketing Office for years annually distributed what was called the marketing direction. This document provided the rest of management with the outlook for the next three to five years. It became the basis for the planning and administrative decisions of other offices. The marketing direction included such items as premium goals by product, mix of business, sales manpower, turnover in the agency, and training requirements for new agents.

Before a DSS was developed the markets research and product managers extrapolated and adjusted one plan to come up with the marketing direction based on the pertinent facts they had. When the DSS for developing the marketing direction was initiated as part of strategic planning, each variable was identified and historic information developed. It turned out that the information input to produce the marketing direction was better organized and the basic decisions were focused on arriving at agreement on the parameters that were manageable. These included any loss of policies in force, the new sales of agents with varying lengths of service, and desired growth rates relative to the market.

Some significant improvements were made in the decision process used to arrive at the marketing direction.

1. Information requirements were developed on all elements of the equation and projected for reasonableness before the decisions were made on premium goals.
2. The process for developing and getting agreement on the direction was more logical and systematic.
3. A more defensible explanation of the goals was established because each of the elements was covered as interrelated parts of the whole. Therefore, understanding and acceptance by other functions was improved.

This caused a discipline in decision making that had not existed in the past. The end-product goals in any given year might not be very different but the understanding and discipline involved in the process of deciding on the goals must definitely enhance the management effectiveness. This would not have happened without the DSS.

**Integration of Decisions**

Last, let's cover integration of decision making. I guess better integration of decision making is a natural outgrowth of better information, more consistency in use of information, and better discipline in the decision process. But why does DSS cause better integration?

The main reason is that the whole system is designed to achieve a specific objective. The attention to detail and the focus of the DSS on providing information for a specific decision or series of decisions causes an integration of the parts into a meaningful whole. This is not to say manual or other systems don't do this, it is just to point out that DSS improves on the integration of information for decision making.

There are innumerable examples of how a DSS eliminates small errors. Each error on its own is a small thing, but this gets back to consistency of definitions. Once a DSS is in place for the business' information hierarchy there are no longer inconsistencies in aggregations, and to get consistent aggregations there must be better integration of decisions. The parts of an organization are no longer independent parts; they are a subset of the total DSS, which includes overall goals, plans, definitions, parameters, equations, and so on. The end result is a better integration of the various parts of the organization in making those decisions that contribute to achievement of the corporate goals.

**Illustrations**

A little more can be shown, in the way of example and illustrations, of the enhancements that a DSS can make toward the effectiveness of management.

I have mentioned our strategic planning activities mostly in the previous examples. These improvements come primarily in an area where there was not much activity in the past. This in many ways made improvements easier to introduce because nothing was being replaced.

In our operational planning, however, this was not the case. Budgeting and annual planning had been around for years and in many ways were a security blanket that managers did not want to give up.

The point of mentioning this difference is that the same forces for improvement are evident in the latter situation. When an old tool or friendly (mostly manual) system is replaced, the potential exists for improvement in management effectiveness. When the DSS becomes available the improvements are so obvious that the enhancements to management effectiveness are forced or readily accepted by the demand for the system.

We consider that we have now developed both a supply push (the strategic planning DSS) and a demand pull (the operational planning DSS). There are a few smaller projects that have been completed where the demand pull comes into play.

1. We developed a reporting system for our commercial underwriting information in about 30 days;
2. We developed a marketing growth model to test market options in about two days;
3. We are constantly adding modules to our financial evaluation model on demand (many times with a few days notice).

Each of the DSS applications have the elements for management effectiveness enhancement through DSS.

CONCLUSION

The value of DSS to enhancement of management effectiveness comes about through the dynamics of the total organization. When decisions are viewed from the perspective of the total organization there are many ways that individual management decisions are forced or motivated toward better development of information needs, consistency in using the information, discipline in following a well-structured decision process, and integration of decisions toward better individual contributions to the achievement of the corporate goals.

DSS can take a lot of credit for enhancement of management effectiveness, not only because the system is so much more effective, but also because it allows the natural motivation and dynamics of decision making to be more obvious, understandable, and acceptable.