: What is the output of a decision support system?

by Dan Power

Editor, DSSResources.com

Traditionally, one would answer the output of a DSS is "relevant information". Correct, but DSS designers and builders need to understand
exactly what information a manager needs and wants in a specific decision situation. So more exactly, the output of a computerized decision
support system may be quantitative results from models, analyses and displays of historical data, displays of facts in various formats, recommendations, and retrieved relevant
documents. DSS outputs are the direct result of the interaction of user inputs, stored or accessed data and documents
and analytical and retrieval processes in the computerized system. One hopes DSS outputs decrease uncertainty in a decision situation and positively impact decisions!

Outputs describe the information that comes from the programmed process in the DSS.
An output may be a map, a chart, a tabular data summary, a printed report or a data file.
DSS outputs include forms, objects and other representations for inputs and manipulation by a user and
representations that display results from queries, analyses and rules for users. Decision support information may be data points on a chart, text, stored or computer generated images and even sounds.
Decision support system output may be descriptive or prescriptive. Any DSS output must be "suitable for human interpretation". DSS outputs should inform the user of the system about the decision situation that is supported. According to Wikipedia, the English word
inform "comes (via French) from the Latin verb informare, to give form to, to form an idea of".

The evidence is substantial that the amount of information that is received impacts strategies for processing information and making choices, the time spent in decision making, and decision accuracy/quality. The relation between increasing information and improved decision making is not however linear. Rather the relation is an inverted U, that is decision making improves as more information is received, until an inflection point is reached where no impovement occurs and then more information creates an overload and decision making performance declines. Decision support systems should help manage information load.

Decision relevant information is the result of processing,
manipulating and organizing data in a way that adds to the knowledge of the person receiving it.
Decision relevant outputs must possess utility, value or some meaning for the DSS user. DSS

outputs
must be related to truth about a situation, to communicating relevant information, and to representing
complex relationships.

Managers and their support staffs need to consider what information and analyses are actually needed to support management and business decisions. Some managers need both detailed transaction data and summarized data. Most managers only want summarized data. Managers usually want lots of charts and graphs; a few only want tables of numbers. Many managers want information provided routinely or periodically and some want information available on-line and on demand. Managers want financial analyses and some managers want primarily "soft", non-financial or qualitative information.

In general, a computerized data-driven decision support system can provide summarized transaction information,
trend analyses,and performance monitoring. A model-driven DSS can provide projections and forecasts, sensitivity
and "what if?" results. Document-driven DSS outputs include relevant documents; knowledge-driven DSS provide
recommendations. Outputs of communications-driven DSS are interaction, collaboration and shared content.

A computerized DSS can help managers understand the status of operations, or monitor business results, review customer preference data or even investigate and analyze competitor actions. In all of these
situations, management information and analyses should have a number of characteristics. Information
must be both timely and current. These characteristics mean the information is up-to-date and available when managers want it. Also, information must be accurate, relevant and complete. Finally,
managers want information presented in a format that assists them in making decisions. In general, management information should be summarized and concise and any decision support system should have an
option for managers to obtain more detailed information about underlying data, models or rules.

Decision support systems need to provide current, timely information that is accurate, relevant and complete. A specific DSS must present appropriate information outputs in an appropriate format that
is easy to understand and manipulate. The information presented by a DSS may result from analysis of
transaction data or it may be the result of a decision model or it may have been gathered from

external
sources. DSS can present internal and external facts, informed opinions and forecasts to managers.

Managers
want the right information, at the right time, in the right format, and at the right cost to support their decision making.

As always your comments, questions and suggestions are welcomed.

References

Dan Power Blog, "Managing Information Load," November 29, 2007, URL http://www.b-eye-network.com/blogs/power/archives/2007/11/ .

Information, from Wikipedia, the free encyclopedia, URL http://en.wikipedia.org/wiki/Information, accessed 2/6/2008.

Power, D. J., Decision Support Systems: Concepts and Resources for Managers, Westport, CT: Greenwood/Quorum Books, 2002.

Author: Daniel Power
Last update: 2008-02-06 10:44