

## : *Who uses computerized decision support?*

by Dan Power

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Many people use computerized decision support for work and in recent years to aid in personal decision making. Identifying the targeted or intended users for computerized decision support helps differentiate the specific system. Knowing who does or will use a capability provides useful information about how the content and design of the application might or should differ. This discussion provides examples of job titles and occupations of targeted users for decision support, business intelligence and analytic systems.

Let's go back in time to the "first" DSS developed by Michael S. Scott Morton (1971). That system was designed to support the market planning manager, the production manager and the marketing manager of a consumer product division of a large multi-business firm. "Every month they developed both a production plan and a sales plan for the following twelve months (p. 43)."

In 1978, Keen and Scott Morton described six diverse DSS: a DSS to help investment managers (Gerrity, 1971) with a stock portfolio, a DSS used by the president of a small manufacturing company to evaluate an acquisition prospect, an interactive DSS used by product planners for capacity planning, a model-driven DSS used by a brand marketing manager for making marketing allocations (using J.D.C. Little's BRANDAID), a DSS (IBM's Geodata Analysis and Display System called GADS) used by police officers and commanders in teams of four to redesign police beats, and also GADS used by school officials to explore and define alternative school district boundaries.

Holsapple and Whinston (1996) identify many management users of DSS. For example, the management staff of the distribution department at Monsanto used a DSS for ship-scheduling decisions, a DSS helped managers with vehicle fleet-planning decisions, cargo planners used a DSS for scheduling ship unloading in Rotterdam, plant supervisors at Dairyman's Cooperative used a PC-based DSS to optimize daily production planning, maintenance planners at American Airlines used a DSS, and analysts and executives in the U.S. Coast Guard used a document-driven DSS to help make procurement decisions.

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Turban and Aronson (1998) also identify DSS used by staff for special studies. Staff at Group Health Cooperative used a data warehouse and statistical analysis tools to generate periodic reports and for monitoring key performance indicators and staff at Siemens Solar Industries constructed a simulation model DSS of a "cleanroom" to explore alternative design options.

DSSResources.com has 46 case studies that identify many users including managers, staff, customers, the general public, and workers in business, government and not-for-profit organizations. Job titles of users include: engineers, loan officers, salesmen, fire department commanders, examiners in the Pennsylvania Department of Labor and Industry, business and financial analysts, and emergency management professionals.

A web search identifies even more uses and users. Medical doctors using a web-based clinical decision support system. According to <http://www.openclinical.org/dss.html>, Clinical Decision Support Systems are "active knowledge systems which use two or more items of patient data to generate case-specific advice" (cf., Wyatt, J. & Spiegelhalter, D., 1991). Other Web documents focus on DSS for trainee lawyers and mediators, a DSS for crop rotation targeted to farmers and agricultural policy makers, and an example from Scotland of judges using a Sentencing Information System. The first international Workshop on Judicial Decision Support Systems was held in Melbourne, Australia in 1997 (cf., <http://www.globalcourts.com/text/jdss.html>).

The U.S. Marine Corps (USMC) needed an application that allowed Marine Command staff to import, manipulate, and analyze terrain data relative to their operations. Road maintenance supervisors evaluated a Maintenance Decision Support System (MDSS) during the winter of 2003 in Central Iowa. DSS are used for air traffic monitoring. Also, a decision support system is used by staff to facilitate manpower planning for the U.S. Marines. Military analysts use a Financial Data Mart at the Military Sealift Command at the Navy Yard in Washington, D.C. This list can probably go on for many pages. The last system I'll mention is TIAA-CREF's decision support system for more than 160 billion US dollars of daily equity investment. This on-line system supports portfolio managers of the world's largest pension fund with over 250 billion USD in assets.

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Eric Siegel (Taylor blog) identified seven innovative uses of predictive analytics including: 1) improving text mining, 2) predicting ad quality, 3) sending targeted follow-up emails, 4) analyzing satisfaction surveys to drive the operational decisions, 5) using reliability modeling to predict when things will need repair and then scheduling proactive maintenance, 6) predicting the success of startups, and 7) detecting anomalies for fraud detection so followup decisions can be made.

Fico.com cites many uses of predictive analytics by companies. The company website claims "Predictive analytics is widely used to solve real-world problems in business, government, economics and even science—from meteorology to genetics." Managers and staff implement and use analytics and especially predictive analytics in credit scoring, underwriting, collecting past due accounts, increasing customer retention and up-selling, and fraud detection.

So who uses computerized decision support including analytics and business intelligence systems? Managers, knowledge workers and staff specialists in a wide variety of professions, occupations, industries and disciplines. Decision support users include internal and external stakeholders of an organization. Ultimately, anyone who makes decisions and has access to a computer is a potential user of a computer-based decision aiding applications.

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### Author's note

My email had a number of interrelated questions related to "who uses DSS?" Afria King asked "What are some DSS products related to business administration?" I replied "Most DSS are targeted for use by managers." Janine Engledoe wrote "What are the different applications of DSS?" Lynn Oelke asked "What are the major DSS products specifically used by Health Care Administrators?" Emily Bell wondered about the "cost associated with different DSS?" Nastaran Razavi asked me to "please specify some commonly used DSS software". Wong Soon Chen sent me an essay question "'Managers need computerized decision support and supporting technologies to do their job better.' Justify the above statement with relevant facts and figures." Finally, Road Runner writes "Find information on the use of computers to support

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decisions versus TPS. Each group member collects an application in a different industry (e.g., banking, insurance, food services, etc.). The group then summarizes the findings, points out similarities and differences of the applications."

Some weeks I receive multiple emails about who uses decision support. Some emails I answer quickly, but I usually wait a few months to answer "examination" type questions in an Ask Dan! column. Even then I sometimes change the focus or combine questions. What do the above questions have in common? The questions suggest that there are different DSS for people performing different jobs. Also, they suggest the costs and functionality of DSS differ. I agree.

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