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A DSS classic is an early and lasting example of using technology to support decision making. Decision support system (DSS) classic examples fall in 5 broad categories, communications, data, document, knowledge and model-driven systems. Each of these categories include DSS with diverse purposes, varying targeted users and a variety of enabling technologies. Examining classic examples can help clarify the variety of DSSs that have been built and used in organizations in the past 40 years. Ten example DSS related to business decision-making are briefly described: AAIMS, Advanced Scout, CATD, DELTA, Flagstar LIVE, GADS, GroupSystems, OPM, PMS and PROJECTOR.

AAIMS, An Analytical Information Management System, was implemented by American Airlines in the mid 1970s. It was developed in APL and was used for data analysis. AAIMS included a database and functions for data retrieval, manipulation and report generation. The database included sales, price and employee data. Klass and Weiss developed the system internally at American Airlines. The system was used for ad hoc reporting and to create a report of corporate performance indicators [cf., Alter, 1980; Klass, 1977; and Taplin, 1973].

Advanced Scout was developed by IBM and the software used data mining to help National Basketball Association (NBA) coaches and league officials organize and interpret data collected at every game. In the 1995-96 season, sixteen of 29 teams used the DSS. A coach can quickly review countless statistics: shots attempted, shots blocked, assists made, personal fouls. But Advanced Scout can also detect patterns in these statistics that a coach may not have identified. Patterns found through data mining are linked to the video of the game. This lets a coach look at just those video clips that make up the interesting pattern [Bhandari et al, 1997].

CATD or Computer Aided Train Dispatching was developed by the Southern Railway Co. from 1975 to 1982. It was initially built as a mini-computer based simulator and was installed and tested on the North Alabama track system in January 1980. The system was placed in production for that system on September 15, 1980. Gradually additional track systems were converted to CATD. The system provides decision support to aid train dispatchers in centralized traffic control. The system is linked to an automatic on station reporting signal and recordkeeping system. The system significantly reduced delays and reduced train meetings in the system [cf., Sauder, 1983].

DELTA, Diesel-Electric Locomotive Troubleshooting Aid, helped maintenance personnel to identify and correct malfunctions in diesel electric locomotives by applying diagnostic strategies for locomotive maintenance. The system can lead the user through a repair procedure. It was a

rule-based system developed in a general-purpose representation language written in LISP. DELTA accesses its rules through both forward and backward chaining and uses certainty factors to handle uncertain rule premises. Although the system was prototyped in LISP, it was later reimplemented in FORTH for installation on microprocessor-based systems. The General Electric Company developed this system at their research and development center in Schenectady, New York. Current status unknown, but it was field tested [cf., Waterman 1985].

Flagstar Bank, FSB (Nasdaq:FLGS) won the 1997 Computerworld Smithsonian Award for it's use of information technology in the Finance, Insurance, and Real Estate category. Flagstar Banks Lenders' Interactive Video Exchange (LIVE) merged Intel ProShare conferencing systems with automated underwriting technologies to allow the home buyer and loan underwriter to meet face to face and get loans approved quickly, regardless of where the loan originated. Usually this process takes weeks and the prospective home owner has no contact with the person who actually makes the decision.

GADS was an interactive system also known as Geodata Analysis and Display System. The goal in developing GADS was to enable nonprogrammers to solve unstructured problems more effectively by applying their job-specific experience and their own heuristics. It had a strong graphic display and "user-friendly" characteristics that enabled non-computer users to access, display, and analyze data that have geographic content and meaning. The system was used initially by police officers to analyze data on "calls for service". By 1982 17 specific DSS had been developed using GADS [cf., Sprague and Carlson, 1982].

In early 1987, IBM combined efforts with the University of Arizona to implement a group decision support system (GDSS) called GroupSystems. GroupSystems was the result of a research and prototype development project by the MIS department at the University of Arizona. GroupSystems utilized a set of flexible software tools within a local area network to facilitate problem-solving techniques including brainstorming, idea organization, alternative generation, and alternative selection. The GroupSystems hardware, software and methodologies are combined in specially developed group facilities called decision support centers (DSC). These rooms were 26 feet by 30 feet and contained 11 PCs connected by a LAN to a large screen projector. The PC workstations were placed in a U-shape around the screen [cf., McGoff, Hunt, Vogel and Nunamaker, 1990].

OPM, On-line Portfolio Management System, was described in a case study written by Alter (1980, pp. 23-45) based on research done by Ginzberg. "OPM had four purposes: investment decision making, account reviews, administration and client relations, and training (p.29)". OPM included 8 functions: directory, scan, groups, table, histogram, scatter, summary and issue.

PMS, Portfolio Management System, was developed by T. P. Gerrity and it was implemented in four

banks beginning in 1974. The purpose of the DSS was to help manage security portfolios and manage risk and return. The DSS included commands like STATUS to display the contents of a portfolio; TABLE to display portfolio values; and SCATTER and HIST to display scatter plots and histograms [cf., Keen and Scott-Morton, 1978].

PROJECTOR was developed in 1970 by C. L. Meador and D. N. Ness to support financial planning. The system included forecasting and optimization models. It was used in 1974 by a New England manufacturing company to investigate the acquisition of a new subsidiary [cf., Meador and Ness, 1974].

Alter (1980) explained 8 major case examples, Connoisseur Foods, Great Eastern Bank OPM, Gotaas-Larse Shipping Corporate Planning System, Equitable Life Computer-Assisted Underwriting System, a media decision support system, Great Northern Bank budgeting, planning and control system, Cost of Living Council DSS, and AAIMS, an analytical information system.

What DSS type is each classic example? Based on available descriptions, AAIMS, Advanced Scout, OPM and PMS are data-driven DSS. GADS is a data-driven, spatial DSS. CATD and PROJECTOR are model-driven DSS. DELTA is a knowledge-driven DSS. Flagstar LIVE is a communications-driven DSS with a document management capability. GroupSystems is a model-driven, group DSS. Do you agree?

Please suggest other examples of classic DSS. What are the best early DSS in the published literature?

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