

# : *How useful is DSS case study research?*

by Daniel J. Power

Editor, DSSResources.COM

Decision Support Systems (DSS) encompass a broad array of software artifacts intended to support decision making. The broad purpose is the same for all DSS, but the narrower more specific uses and purposes vary. The targeted users of the systems also differ. More fundamentally the architecture, technologies and source of primary functionality can differ in significant ways. To better understand the wide range of systems categorized broadly as Decision Support Systems researchers can and should investigate exemplar systems and document them to demonstrate changes as DSS are built using new technologies and to document innovation and best practices.

Case studies are a form of qualitative descriptive research. An ongoing concern are the issues of validity, reliability, and generalizability. In most situations it is desirable to use several methods of data collection including observing people using the system, structured feedback from users, review of technical documentation, etc. Case studies based on multiple sources of information are often perceived as more valid and reliable. The specific DSS in a specific context is the "case" being studied and researchers need to exercise care to insure their investigation does not bias the data collection or the analysis. A researcher collecting data about the design, functioning and effectiveness of a specific Decision Support System may and often is biased toward the expanded use of computerized decision support.

Yin (1984) defines the case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context (cf., p. 23). Soy (1997) suggests steps for preparing a case study for technology artifacts based upon Stake (1995), Simons (1980), and Yin (1984).

Some decision support case studies are longitudinal involving repeated observation and data collection over time while others involve a cross-sectional snapshot of the system. Both approaches have advantage and can potentially provide differing insights and different types of evidence. Selecting a specific DSS to study is most often based upon opportunity, cooperation of the "owner" of the DSS, and interest of the researcher or research team.

A systematic, research case study is in many ways the most useful research method for understanding the what, how, why and how much benefit questions important in an applied scientific field like computerized decision support. Reporting the implementation of a novel DSS is also useful, but some third party validation is desirable.

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More case studies of Decision Support Systems in use are needed. More longitudinal case studies that report design, development, installation, use, and maintenance would also be useful. Case studies provide rich, detailed information. DSS case study research is not often theory driven, it is not hypothesis testing, and it does not result in generalizations, but it is useful. DSS case study research at its best leads to informed descriptions and interpretive theory development. Peskin (1993) notes good description provides a foundation for all research. He also states "Interpretation not only *engenders new concepts* but also *elaborates existing ones* (p. 24)."

Case study research is a legitimate tool for expanding our understanding of computerized decision support. **No** research methodology answers all of our questions conclusively. Qualitative DSS case study research brings an information systems researcher in direct contact with the technology artifact. The benefit to the researcher from that direct contact is enhanced by spending the time and effort to systematically collect data, organize and interpret the findings, and then share the case study with other researchers. Decision support researchers need to study *in situ* the systems they design, teach about, find interesting, and wonder about. Decision support systems are varied, complex, changing and consequential.

The value of a decision support case study depends upon many factors. Only some of them are controllable by the researchers. The following suggestions should increase the value of a DSS case study and help to expand our collective body of decision support knowledge:

- 1) Try to identify novel DSS implementations where permission to publish the findings is granted.
- 2) Identify installations/sites where you receive good cooperation from both users and technical staff.
- 3) Be systematic in gathering information, think about what you want to know and what has been reported in other DSS case studies.
- 4) Try to use the decision support system. If possible, do more than observe its use.
- 5) Identify multiple informants and information sources, including documentation.

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6) Take notes, lots of notes.

7) Follow up a site visit or online meeting/demonstration with emails to get more details and to confirm what you heard and observed.

8) Say thank you often. Maintain positive relationships so you can get feedback on the draft of the case study. Make sure managers recognize the value in documenting the DSS, its development and use.

More "good" case studies and more details about each specific case is useful, helpful, and a real contribution to understanding how computers, software and networks can improve decision making.

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