

: What are the "hot" DSS research topics?

Academic research in the U.S. often seems as susceptible to trends and "hot" topics as other segments of our culture. For the past 10 years Decision Support has not been a "hot" topic in information systems research. Rather the focus of research narrowed and shifted. Related technologies like data warehousing and data mining captured the interest of the more technically inclined researchers and Strategic Information Systems, e-commerce and e-business, the Internet and ERP were the focus of more behaviorally and organizationally-oriented information systems researchers.

The research needs and questions associated with decision support have not diminished; rather they have grown in importance. Some people seem to think that the technology issues associated with DSS were solved by integrated spreadsheets and simple query tools, they are wrong. Some think that managers are more informed now and have better computing skills and hence there are no behavioral or organizational issues related to design, development and implementation of DSS -- Get a powerful project champion and use rapid prototyping and you'll build an effective DSS. That view is wrong.

Decision Support research may not seem "sexy" or "trendy", but it remains important. Perhaps we need to package it as Knowledge Management research or Supply Chain Integration, but many how, when, what, who, where and why questions related to decision support remain unanswered or in dispute.

Swanson & Ramiller (1993) provided a good inventory of IS research themes that included some DSS topics. Their overview remains a good starting point for finding "hot" DSS topics.

In terms of Communications-Driven DSS, Swanson & Ramiller suggest contrasting the processes and outcomes of computer-supported and conventional interaction. We can do much more to examine the effects of various conditions on the use of and outcomes of using Communications-Driven DSS technologies, especially the Internet and Web technologies. There remains a need to apply psychological and sociological theory to investigating and designing Communications-Driven DSS technologies. Researchers still need to explore causal variables like the nature of the leadership or moderator role, anonymity, goal ambiguity, and capabilities of the technology. Managers are now sophisticated enough to know that their responses are not really anonymous. So perceptions of privacy may be more important than claims of anonymity in influencing decision participant behavior. We still have much to learn about dependent variables like the content and patterning of communication and group member attitudes and perceptions associated with Web-based DSS.

Fifty years of research by Management Scientists have led some to conclude that we know all we need to know about Model-Driven DSS. Such a conclusion neglects the increased complexity in our companies and in the world and the increased expectations for visual models and simulations. Model-Driven DSS should be a "sexy" topic. We have much more to learn about the management of models and we need new model components to advance the state of the art. Model management in distributed computing environments is now a requirement and not just a possibility. The behavioral issues associated with model-driven DSS have often been avoided by relying on specialists and intermediaries to use complex models for analyses. Models still need to be distributed more widely in organizations and they need to be packaged as model-driven DSS used by managers and staff. Our understanding of how that diffusion of technology can happen is based more on personal experience than empirical research.

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Knowledge-Driven DSS (KDSS) and management expert systems applications seem more practical today than 10 years ago. We can conduct field studies of emergency management personnel or medical doctors using handheld computers with Knowledge-Driven DSS. Did the number of questioned or inaccurate prescriptions decrease significantly when an MD used a handheld-based KDSS to write prescriptions? What is the best method and approach, what overall architecture works and how should we measure performance when a manager uses a KDSS? How do we reconcile the knowledge of multiple experts? We can study distributed KDSS.

Providing data doesn't mean one has created a Data-Driven DSS. Providing a query capability doesn't necessarily mean managers will have the information they want when they want it. Many years ago, Gordon Davis said that we want management information systems that are "decision impelling". Too many DSS and especially Data-Driven DSS fail that test. We have many issues that can be investigated. For example, how can we improve the effectiveness of database modeling and database design for DSS. The "best practices" for transaction systems are not generally appropriate for building a decision support data store. We have unresolved policy issues on error removal, data quality, privacy and data distribution. Management practice hasn't really changed to make effective use of DSS and especially Data-Driven DSS. We don't want to overload managers with data and yet we expect "fact-based" decision making. We aren't certain about the "how to" or "who should" questions when DSS designers need to identify critical success factors for monitoring or controlling company performance.

Document-Driven DSS are a reasonably new frontier to many, but they have been used for more than 25 years (cf., Swanson and Culnan, 1978). What has changed is that document-driven DSS are now more accessible, more powerful and less expensive to develop and deploy. We still have many of the same questions to answer that we were struggling with 25 years ago.

There are certainly major issues related to the DSS development process, DSS user interface design, DSS performance evaluation, DSS security and control, interorganizational DSS and diffusion of these technologies that should be discussed.

References

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Swanson, E.B. & Ramiller, N.C. "Information Systems Research Thematics: Submissions to a New Journal, 1987-1992," *Information Systems Research*, 4(4), 1993, pp. 299-330.

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