



A work system view of DSS in its fourth decade

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Abstract

The initially revolutionary DSS agenda is now ancient history. This paper argues that “decision support” provides a richer basis than “DSS” in both practice and research. Using a loan-processing example involving two banks, it shows how work system concepts might be applied to understand decision support in real world settings, and how decision support can come from many sources other than technical artifacts such as DSS. Shifting the focus from “DSS as artifact” to “decision support within a work system” reduces the chances of being misled by techno-hype, vendor sales pitches, and incomplete understanding of determinants of success in organizations.

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1. Introduction

Initially, DSS was revolutionary idea. It attempted to move beyond MIS (summarizing transaction and operational data for managers), which had attempted to advance beyond EDP (collection and processing of transaction data through computers and electronic media). Launched before PCs existed, the initial concept of DSS focused on using interactive computing in semi-structured decision making. The emphasis on semi-structured decision making seemed important (in academic politics if not in other ways) because that distinguished DSS from OR, especially from optimization models, which attempted to automate decision making, or so it seemed. The interactive use of computers

seemed important because it was unclear whether more than a small minority of managers would be willing or able to use computers directly in management work.

After 30 years, the original issues that led to the DSS movement have receded to ancient history. Computers are used interactively by managers, nonmanagers, and school children. Computerized data and models are used so commonly and for so many structured, semi-structured, and unstructured tasks that the non-use of computers in typical decision-oriented situations is sometimes a noteworthy exception. With today’s widespread adoption of PCs and the Internet, we should simply declare victory on the original DSS agenda that included interactive computing, application of computing to semi-structured problems, use of computers by managers, and the ability to analyze data and models. However, doing this would leave us with a question of whether DSS retains any useful meaning today. With or without the DSS label, researchers and

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practitioners will continue to do research about sense making and decision making in organizations and will continue to build tools and methods that support those activities. With or without the DSS label, important progress continues in developing tools and methods related to OLAP, data warehousing, data mining, model building, expert systems, neural networks, intelligent agents, group support systems, and communication capabilities for virtual teams. New umbrella terms have emerged, such as business intelligence and decision support applications, but behind the new details and capabilities are many of the same issues and risks that existed in the past. Regardless of whether the new DSS capabilities emphasize better data availability, data analysis, modeling, or communication and coordination, those capabilities have little or no impact until they are incorporated into work systems within organizations.

On the other hand, DSS does serve as an umbrella for convening groups of researchers interested in systematic and typically computer-based tools and systems related to sense making and decision making. The new SIGDSS within AIS is a prime example because it provides an institutional home base that supports what Keen [11] calls a self-defined community and what King [13, p. 293] calls an intellectual convocation.

But is that all? Could we do equally well if we called the umbrella BWT or XSS or any other three letter acronym? This paper summarizes why my ideas about DSS have moved from enthusiasm to disillusionment to abandonment during the 20+ years since I finished one of the first PhD theses in the area. Next, it reconsiders the notion of decision support from a different viewpoint by exploring how work system concepts might be used to understand decision support in real world settings. Approaching the general area of DSS from a work system viewpoint shifts the perspective and may provide new insights. Decision support is not about tools per se, but rather, about making better decisions within work systems in organizations. The common emphasis on features and benefits of DSS as artifacts rather than on how to improve decisional aspects of work systems in organizations may contribute to the frequently cited (e.g., Ref. [9]) and occasionally questioned (e.g., Ref. [10]) failure rates of data warehousing, CRM, and other technology-based innovations.

2. From enthusiasm to disillusionment to abandonment

I certainly was enthusiastic about the prospects for DSS in the 1970s when I started work that led to one of the first PhD theses, one of the first books, and a number of early articles about DSS. This section explains why my original enthusiasm eventually turned to disillusionment and abandonment of DSS in favor of a much more general focus.

2.1. Enthusiasm—DSS as a new field in the 1970s

I was lucky to work at MIT with Peter Keen and Michael Scott Morton, early DSS proponents who wrote the first book on DSS [12]. My work started with eight lengthy case studies of systems that might fit under the DSS heading. These findings led to a 1975 thesis based on an exploratory study of 56 such systems. This was to be a thesis on DSS, yet I called it “A Study of Computer Aided Decision Making in Organizations” and avoided mentioning the term DSS even once. I feared that if I used a tight definition I would never be able to find a single example that qualified as a DSS. I would be like a researcher on unicorns, able to theorize about what the unicorns should be and how they should look, but unable to validate any particular assertion about unicorns. On the other hand, if I made the definition too broad my committee would ask me whether the definition distinguished DSS from anything else.

I repressed these compunctions after submitting the thesis and wrote a book about DSS [1] and a number of articles. Although I tried to be clear about the wide range of systems included under the general heading of DSS, I always wondered whether DSS were truly different from other types of information systems. If they were different, what were the significant differences? If they were not truly different, what was the big deal?

2.2. Disillusionment—developing a DSS in the 1980s without using the term DSS

I spent most of the 1980s with Consilium, a manufacturing software firm whose semiconductor

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