

: What is the relationship between DSS and Expert Systems?

This response was written in reply to Pat Nathan. Pat writes "Hi Dan, What do you think of DSS and Expert Systems?" Pat's other questions are quoted below with my replies.

I think both DSS and Expert systems can help managers. Expert Systems research provides one source of technologies for building Decision Support Systems -- I call them Knowledge-Driven DSS. Integration of Artificial Intelligence and Expert System technologies may occur in some other types of DSS.

"What are the differences between the two?"

DSS is a broad category that includes Data-Driven DSS, Model-Driven, Communication-Driven, Document-Driven and Knowledge-Driven DSS. The later category are built using Expert Systems tools.

"Would the evolution of DSS end up in Expert Systems?"

NO, I don't think so. -- BUT Knowledge-Driven DSS or Suggestion DSS will become more common and more powerful. The tools are getting better.

A good reference on integrating DSS and Expert Systems is El-Najdawi, M. K., and Anthony C. Stylianou, "Expert Support Systems: Integrating AI Technologies", Communications of the ACM, New York: Association for Computing Machinery, December 1993.

El-Najdawi and Stylianou feel both DSS and Expert Systems "can be used to facilitate and improve the quality of decision making by reducing information overload and by augmenting the cognitive limitations and rationality bounds of decision makers." They concluded "A small number of systems have adopted the idea of DSS/ES integration."

A major contribution is that El-Najdawi and Stylianou identify several forms of integration that have been discussed in the literature. The major approaches to integration are:

- * Expert System integration into various DSS components,
- * Expert System integration as a separate component of the DSS,
- * DSS models and data access as a component of an Expert System.

The above response is based upon Power, D., What is the relationship between DSS and Expert Systems? DSS News, Vol. 1, No. 6, July 17, 2000.

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