Chapter XXIII

Decision Making Support Systems: Achievements, Challenges and Opportunities

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ABSTRACT

Previous chapters have described the state of the art in decision making support systems (DMSS). This chapter synthesizes the views of leading scientists concerning the achievements of DMSS and the future challenges and opportunities. According to the experts, DMSS will be technologically more integrated, offer broader and deeper support for decision making, and provide a much wider array of applications. In the process, new information and computer technologies will be necessitated, the decision makers’ jobs will change, and new organizational structures will emerge to meet the changes. The changes will not occur without displacements of old technologies and old work paradigms. In particular, there will be an evolution toward team-based decision making paradigms. Although the evolution can require significant investments, the organizational benefits from successful DMSS deployments can be significant and substantial. Researchers and practitioners are encouraged to collaborate in their effort to further enhance the theoretical and pragmatic developments of DMSS.
INTRODUCTION

In previous parts of the book, we learned about the foundations of decision making support systems (DMSS), the advanced technologies that are delivered by such systems, the organizational and management issues created by DMSS, and the range of DMSS applications. Decision making support systems involve various creative, behavioral, and analytic foundations that draw on a variety of disciplines. These foundations give rise to various architectures that deliver the fundamental support concepts to individual and group users. A variety of public and private sector applications have been presented. These applications include scheduling of railway services, urban transportation policy formulation, health care management, decision making in the pharmaceutical industry, banking management, and entertainment industry management. The reported and other applications draw on advanced information technologies (IT) to physically deliver support to the decision maker. The advanced IT presented includes intelligent agents, knowledge-based procedures, ripple down rules, narratives, and synthetic characters.

Once created, DMSS must be evaluated and managed. A variety of approaches have been suggested to measure DMSS effectiveness. There are economic-theory-based methodologies, quantitative and qualitative process and outcome measures, and the dashboard approach. These approaches suggest various organizational structures and practices for managing the design, development, and implementation effort. Most of these approaches suggest much more user involvement than had heretofore been practiced, and they also suggest a larger role for specialists outside of traditional information systems practitioners to carry out the technical design, development, and implementation tasks. Despite the technical progress, a key challenge persists—how to reduce DMSS implementation failures in organizations.

The suggested changes and developments discussed in various chapters of this book present unique challenges and opportunities for DMSS professionals. The issues discussed in this book revolve around integration of technologies and knowledge sharing and management. To gain further insights about DMSS achievements, challenges, and opportunities, we asked recognized leaders in the field for their views. This chapter presents those views and examines the implications for DMSS research and practice.

KEY QUESTIONS

The knowledge presented in this book suggested several key unresolved DMSS issues. These unresolved issues resulted in five key questions to be addressed. The suggested questions are listed in Figure 1. To provide perspective on the key issues, we asked 12 leading DMSS professionals to answer Figure 1’s questions.

The professionals were selected on the basis of their demonstrated accomplishments and reputation within the DMSS community. Figure 2 provides the profiles of these 12 experts, where anonymity is preserved for privacy and other reasons.
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