Editorial Preface

Management and Organizational Issues for Decision Making Support Systems

Guest Editors:

Manuel Mora, U. Autonoma de Aguascalientes, México
Guisseppi Forgionne, University of Maryland Baltimore County, USA
Jatinder N. D. Gupta, University of Alabama in Huntsville, USA

Decision making support systems (DMSSs) are specialized computer-based information systems that have emerged in the last 30 years to support all phases of the decision making process, from intelligence through the design, choice, implementation and learning phases. DMSSs have evolved from classic decision support systems, executive information systems and expert systems, intelligent systems, Web-DSS, data warehouse and data mining-based systems, knowledge management systems, and enterprise information and decision portals systems. These systems offer organizational and individual benefits, such as improved organizational performance, improved decision quality, improved communication, enhanced mental models, amplified analytical skills of decision makers, and reduced decision times.

Despite the high availability of emergent information technology architectures and complex information systems, successful DMSSs have not been fully deployed immediately in organizations. Management and organizational barriers in addition to technological issues, must be overcome in order to have successful implementation of DMSSs. For this reason, we encourage the DMSS scientific and practitioner community to propose research articles dealing with the management and organizational issues relevant for successful DMSS design, development, and diffusion within organizations.

This special issue’s mission is to present the state-of-the-art core theory and application of management and organizational issues relevant to successful implementations of decision making support systems (DMSSs) in organizations. In turn, the main aims are: (a) to generate a compendium of quality theoretical and applied papers on management and organizational issues in DMSSs; (b) to help disperse scarce knowledge about effective methods and strategies for successfully designing, developing, implementing, and evaluating DMSSs, and (c) to create an awareness among academicians and practitioners about the relevance of DMSSs in the current complex and dy-
namic management environment.

The call for papers for this special issue resulted in the submission of papers covering various aspects related to its mission. Each submission was subjected to a double-blind peer-review process. The selection criteria were: (a) overall research quality as indicated by relevance, literature review, research methodology, and data collection and analysis procedures; (b) appropriateness, as measured by the degree of fit to the aims of the special issue; and (c) originality, as measured by the novelty and innovativeness of the research problem. As a result of this rigorous review process and the space limitations of the journal, four papers are presented in this special issue.

The first paper of this special issue by Pliskin and Friedman presents a case study indicating that new DMSSs can be generated from the existing normal databases available in a large organization like the second largest health maintenance organization in Israel that pioneered the development of computer support for clinical records. This case study demonstrates that it is possible to discover patterns of sub-optimal treatment without having to invest time and money in additional data-collection procedures. Such value-added utilization of patient data can effectively support the implementation and evaluation of decisions concerning disease-management programs. Lessons learned have implications for such initiatives as data warehousing, data mining, and online analytical processing.

In the second paper, Wells and Hess explore and suggest explanations of the decision making support process provided in the complex, heterogeneous decision environment of DW-DSS, with a focus on the decision makers’ perceptions. A case study of a Fortune 500 company that is utilizing a Customer Relationship Management (CRM) application, an instance of a DW-DSS, was conducted to explore these issues. The authors indicate that, while many organizations claim to have developed systems that support this customer-centric strategy, there has been little research on the functionality and decision support provided by these systems. For this multi-billion dollar CRM sector, Wells and Hess suggest an extension of the body of research on decision making support systems. The authors investigated how DW-DSS provides decision support to individual decision makers by: 1) documenting the decision making support provided in a large-scale DW-DSS application, 2) explaining these decision making scenarios in the context of a well-known DSS-decision performance model, and 3) identifying the specific DW-DSS characteristics that may influence decision performance. The case study results show that the decision making support provided by these systems is limited and that an extended version of the DSS-decision performance model may better describe the factors that influence individual decision making performance. These results, consequently, offer theoretical and practical guides for further DMSS implementations.

The third paper by Sikder and Gangopadhyay reports that the development of collaborative spatial decision support systems presents a host of challenges, ranging from technical to societal and institutional. In particular, resource managers and environmental planners often need to understand the effect of the distributed and uncoordinated land management practices of individual decision-makers, which in the long run causes significant environmental impact. Such environmental planning contexts require the utilization of collaborative decision making tools where complex interacting agents with conflicting goals need to work without any prior idea of their counterparts. With these technical complexities added to the organizational and managerial barriers, the successful development and implemen-
tation of a Spatial DMSS becomes a complex endeavor. The authors identify research issues on the design and implementation of a Web based collaborative spatial decision making in the specific context of distributed environmental planning. They demonstrate a Web-based spatial decision support system called GEO-ELCA (Exploratory Land Use Change Assessment) for typical decision making tasks by urban or municipal planning agencies where resource managers or stakeholders of different interest groups can express their options for future land use changes and assess the resulting hydrological impacts in a collaborative environment. Technical and managerial lessons learned from the development and implementation are reported. These findings increase the theoretical and practical knowledge of DMSS implementation.

In the next paper, Setzekorn, Sugumaran, and Patnayakuni pursue the research objective of empirically studying, from a qualitative and quantitative perspective, a set of narratives of actual information technology (IT) implementation resistance instances. From the study, they suggest potential explanations to the research question: how do DMSSs differ from other classes of information systems with regard to factors of implementation resistance? The authors indicate that effective decision making within and across organizations is of strategic importance as the global business environment becomes more complex. Thus, business processes and their related Computer Based Information Systems (CBIS) must support integrated decision making. While Decision Support Systems (DSS), Executive Information Systems (EIS), and Knowledge-Based Systems (KBS) have been independently used to support problem solving and decision making activities, they are still not widely implemented and accepted by a broad spectrum of organizations. Identifying the reasons for the lack of widespread use, as well as finding effective ways to integrate these technologies, would enable organizations to better design and implement these support systems. Using 41 narratives, the authors compare Decision making support systems (DMSS) resistance factors with those of other computer-based information systems to better understand these factors and their impact on DMSS implementation. With these findings, the authors thereby inductively develop a theory regarding the nature of DMSS implementation resistance and formulate prescriptive advice regarding the development of competitive capability in DMSS implementation.

The fifth paper

The final paper

We believe that the six papers presented in this special issue contribute significantly to its mission and aims. However, this special issue could not have been completed without the invaluable collaboration of the reviewers and contributors to the special issue. We express our gratitude to, and gratefully acknowledge the contributions of these talented professionals. Also, we thank the IGP managing editor, Ms. Jan Travers, and the IRMJ Editor-in-Chief, Dr. Mehdi Khosrow-Pour for their valuable assistance with the project.