Incorporating intelligent agents and a model management system into an Internet-based decision support system to support optimization methodology implementation

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Abstract

There has been a recent proliferation of research suggesting the Internet-based decision support system (I-DSS) to facilitate transactions between providers and consumers of decision technologies. Although the system seems promising, the previous research effort has focused only on deriving many individual optimization technologies to be served via Internet. However, any systematic (strategic) approach to construct the overall I-DSS framework has not been considered yet, which provides the motivation to this research. This research considers an I-DSS where intelligent agents and a unified model management system are incorporated to support optimization methodology implementation on Internet for managerial decision optimization. In the analysis, the framework for evaluating existing I-DSS is proposed. The framework can then be utilized to derive a new I-DSS model. The derived model is characterized as a broker-mediated system with a model management sub-system incorporated. In the model, some intelligent broker agents are involved to help for various activities including information gathering, automatic registration, and system management, and a unified model management system is also involved for creating and editing of a model, querying and updating of a model base, executing models, and generating reports.