

A Cybernetic Framework for Decision Support Systems with an Application to
Shop Scheduling

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Thesis Summary

Several criticisms have been offered on the research and practice of DSS in recent years. The organizational nature of decision making has been largely ignored, the assumption that DSSs are organization specific has meant that researchers have not sufficiently built on past research, and the user-specific orientation has meant that DSSs have reinforced poor managerial practices rather than improved effectiveness. The underlying motivation in these criticisms appears to be that issues in DSS have arisen largely from empirical observation and not from any theories.

In this research study an attempt is made to use the conceptual framework of Management Cybernetics to develop a DSS design framework. The literature on DSS is reviewed to determine the important issues in DSS. Next, important design frameworks are examined and their adequacy questioned. Management Cybernetics is then used to determine the requirements of Decision Support Systems and these are translated into a DSS design framework. The framework is illustrated by an actual implementation. The study concludes that it is possible to arrive at a DSS design framework based on a set of independent principles and concepts and that management cybernetics does provide such a set of principles and concepts.