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## EXPERT SYSTEMS FOR ORGANIZATIONAL DESIGN: A DEMONSTRATION

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### ABSTRACT

This demonstration project uses a prototype expert system developed on a MAC IIsi using the HyperX software package under a hypercard environment to illustrate deployment of the business analysis and design framework for organizational evaluation.

### INTRODUCTION

The improvement of quality is no longer considered some soft heritage of the spoiling seventies. It is crucial for the survival and competitiveness of the firm. The field of organization design has become an increasing popular avenue that managers consult for specific solutions and guidance for business improvements. The discipline of organization design evolved over the past century both as a field of academic study and as an applied organization development technology.

#### The Sociotechnical Systems Framework

Based on Sociotechnical System Theory a comprehensive practical framework has been developed. The framework identifies seven key factors - each of which is composed of few variables-and examines the cause-and-effect relationship among them as well as their effect on organizational performance. The factors include Business Results, Business Situation, Business Strategy, Business Design, Organizational Culture, Change Strategy and the Management of Change.

Guiding the managers in the process of the continuous reformulation of the business design seems to be the crucial challenge. Using the Sociotechnical Systems framework we have developed a prototype expert system for the manager. The purpose of this system is to allow managers, planners and/or consultants to examine an organization in terms of its total business practices. Through an interactive dialogue the system user can respond to a series of grouped questions that could result in a set of recommendations and suggestions for organizational change.

### Prototype Expert System

The prototype system has several parts. Beginning with an assessment of the Business Results; proceeding to the Business Situation; examining the Business Strategy and Business Design; given these examinations the Business Culture is reviewed and recommendations for Change are generated.

The system is designed for users with knowledge of their industry. Ideally the system should be consulted by several persons familiar with the target company. The system is intended to stimulate creative interactions among the participants. This system would probably be accompanied by some form of group development and assessment of the organization.

The initial system has been created on a MAC IIsi system using the HyperX expert system development shell. HyperX is designed to work under a Hypercard environment. Once the rules were entered this environment facilitated tailoring of the expert system to present a user interface that is easily understood by the manager and provides sufficient explanatory power for the systems use and its rationale for recommendations.

### OPERATION OF THE PROTOTYPE

Upon entering the Sociotechnical expert system the user is greeted with a title card for the Business Review and Design Tool. From this card the user can return to the HyperX title card, begin a consultation or enter the help facility.

The help facility provides an explanation about the five categories (eg. the Business Results). By selecting a category the components (e.g. Financial Assessment, Customer Expectations, etc.) are presented. Explanations of use and interrogation are given for each of these components.

The consultation takes the user through a series of question and answer cards (e.g. Are you meeting Customer Expectations?). If a user wants more information on a question they can request this from the system. Following the answers to the questions the responses are analyzed and a conclusion card is presented with a set of recommendations for the user. A Smart card option is also provided to show the user the activity or rationale for the conclusions.