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**Rapanos, John Michael**

**"TOP-DOWN" MANAGEMENT INFORMATION SYSTEMS PLANNING**

*Pace University*

D.P.S. 1985

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PREVIEW

Submitted in partial fulfillment of the requirements for  
the degree of Doctor of Professional Studies in the  
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"TOP-DOWN" MANAGEMENT INFORMATION SYSTEMS PLANNING

JOHN M. RAPANOS

1985

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## "TOP-DOWN" MANAGEMENT INFORMATION SYSTEMS PLANNING

### ABSTRACT

The purpose of this research study was to test the claims made by various practitioners and researchers that "top-down" MIS planning is an effective approach for developing Management Information Systems.

The first part of this project involved a pilot study whose objective was to develop a set of characteristics to describe the concept of "top-down" MIS planning. Ten MIS experts were sent a questionnaire to elicit their opinion concerning the descriptive value of a preliminary set of propositions developed from an extensive review of the MIS planning literature. In addition, these experts were asked to suggest any further propositions the researcher may have overlooked in his preliminary model. A total of six experts responded to the questionnaire and their responses resulted in identification of seven propositions to describe the concept of "top-down" MIS planning.

The second part of this research project involved a survey of 250 top MIS executives from large U.S. industrial organizations. These top MIS executives were administered a questionnaire to gather information concerning the MIS planning practices found in their organizations. A total of 139 Top MIS Executives responded to the questionnaire. The executive responses were factor analyzed to cluster the questionnaire items into some meaningful underlying dimensions. The research propositions identified by the Pilot Study were then associated with the extracted factors. A mean of item means by factor was calculated and used as the criterion measure to assess the degree to which the reported MIS practices found in the sample organizations reflected the practices described by the research propositions.

The results of this study suggested that large business organizations have planning environments that are capable of supporting the effective adoption of a "top-down" approach to MIS planning. However, these organizations lack effective adoption of "top-down" MIS planning in two critical areas. These include: 1) significant top-management involvement in the MIS planning process, and 2) a corporate information architecture which supports a firm-wide (top-down) perspective.

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## PREFACE

Management Information Systems has grown significantly both as a field of study and concern for modern business organizations. Much has been written and discussed concerning the most effective approaches to designing and developing these systems. Yet, we continue to encounter failure of these systems to meet the expectations of business executives. Briefly stated, the significance of this study is that it tests the claims made by some researchers and practitioners that a "top-down" planning approach to the development of Management Information Systems is an effective method for developing such systems. It seems very important for business executives to know whether or not various planning approaches have successful track records before they go ahead and commit significant resources (both money and people) to MIS development efforts based upon a philosophy of development that has not been proven in the real world. If a particular philosophy of MIS development lacks an adequate track record then business executives, it seems, must assess whether their organizations are prepared to become pioneers in using a particular MIS planning approach and to commit significant management time to ensure that the adopted approach is effectively implemented.

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## CHAPTER I

### INTRODUCTION

#### THE PROBLEM

##### Statement of the Problem

The problem is to evaluate the extent to which "top-down" Management Information Systems (MIS) planning has been effectively adopted in large business organizations.

##### Specific Problems

The first problem is to identify the characteristics of a "top-down" approach to MIS planning.

The second problem is to assess the extent to which the characteristics of "top-down" MIS planning have been effectively adopted in large business organizations.

##### Definition of Terms

Top-down MIS Planning - refers to a MIS planning approach in which "the information needs of management are first specified within an overall model of the organization; the system is then designed to meet those needs" (Ein-Dor and Segev, 1978, p. 45).

Management Information Systems (MIS) - "A MIS is a system that aids management in making, carrying out, and controlling decisions" (Kanter, 1972, p. 1). For the purposes of this study, the system is defined as being computer-based. Morton (1983) suggests three categories of management systems:

- Data Support: Information is provided regardless of use or user.
- Decision Support: The system focuses on a specific class of decisions.
- Executive Support: The system focuses on a manager's or group of managers' concerns over a range of important areas.

#### Delimitations

The subjects for this research will be the top MIS executives in the Fortune 250 industrial corporations. Consequently, the results of this study may not represent the dynamics found in small business organizations.

This research study assesses effective adoption of "top-down" MIS planning from a "theoretical" perspective using criteria established by a panel of MIS experts. It does not purport to test the "actual" effectiveness of business organizations in developing MIS systems.

### BASIC ASSUMPTIONS

It is assumed that the top MIS executive in an organization plays an integral part in the MIS planning process and is cognizant of the contributory relationship of his objectives to the attainment of overall corporate goals. Suchman (1967, pp. 51-56) discusses this relationship among corporate objectives.

### RESEARCH PROPOSITIONS

The following propositions were identified by the researcher through: 1) an extensive review of the MIS planning literature, and 2) a survey of experts in the MIS field.

#### Proposition 1

In organizations that have effectively adopted "top-down" MIS planning, high levels of top-management support and involvement exist.

#### Proposition 2

In organizations that have effectively adopted "top-down" MIS planning, top-management is the body that identifies the critical decision areas that will be supported by the "top-down" MIS plan.

Proposition 3

In organizations that have effectively adopted "top-down" MIS planning, there is high probability that an inventory of current computer-based systems exists.

Proposition 4

In organizations that have effectively adopted "top-down" MIS planning, there is high probability that a master development plan exists.

Proposition 5

In organizations that have effectively adopted "top-down" MIS planning, formal top-management directed business planning practices exist.

Proposition 6

"Top-down" MIS planning will lead to the development of management information systems and subsystems which are appropriately integrated.

Proposition 7

"Top-down" MIS planning will lead to the availability of information systems which support the organization's most critical information needs as identified by top-management.

### THE NEED FOR THE STUDY

The use of computer systems in industry has traditionally focused on the efficient handling of clerical functions. This focus has been rapidly changing as non-technical users have begun to use computer-based technology to enhance management decision processes. "In a recent survey of 81 user managers in six major corporations, Dr. John Rockart of the MIT Center for Information Systems Research reported that over 90% of the installed computer applications in those companies were transaction-processing systems. On the other hand, Rockart also reported the trend toward management information systems, noting that the development backlog showed that only 60.6% of new systems requests were for transaction-processing, the remaining 39.4% being for online inquiry/analysis systems was more than four times the present installed base of such applications" (Gruber and Synnott, 1981, p. 5).

A review of the literature suggests that early attempts at developing effective approaches to MIS applications yielded somewhat disappointing results. One author suggests that this situation occurred because "traditionally, management information systems have not really been designed at all. They have been spun-off as by-products of the process of automating or improving existing systems within a company" (Zani, 1970, p. 95).

These poor results and management's increased awareness of the potential implications of information systems for improving organizational performance have contributed to significant emphasis on developing and implementing effective planning methodologies to guide the overall MIS effort. M. H. Schwartz (1970, p. 28) suggests that "designing and executing a large scale management information system is a costly and difficult undertaking - far more costly and difficult than early proponents recognized - in reward for which is offered a number of highly desirable potential opportunities for the improvement of management and organizational performance. These costs and benefit magnitudes and the complicated relationships among planning objectives demand that MIS management establish a highly systematic and analytic approach for short-range and long-range planning."

There appears to be evidence that MIS executives are, in fact, paying more attention than ever to the issue of effective MIS planning. W. R. Synnott (June 14, 1982, p. 30), Senior Vice-President of Information Services at the First National Bank of Boston, indicates that "one of the hot buttons of interest to MIS managers today is the linking of corporate strategy and systems planning. In a recent survey of the Society of Management Information Systems (SMIS) membership, MIS long-range planning and

integration was noted as the number one issue of importance by respondees."

Synnott (June 28, 1982, p. 17) further suggests that MIS executives have learned to do a good job of efficiently managing resources, but "they have not concentrated as hard at being truly effective - with such effectiveness occurring only through the strong linking of corporate strategy and systems planning resulting from close communication between corporate and user management, and MIS management."

Given the importance of developing linkages between corporate and MIS planning processes to develop truly effective MIS applications, one would suspect that corporate and MIS executives have made significant progress toward implementing planning methodologies which facilitate this linkage. Charles R. Litecky (1981, p. 36) notes that "approximately twenty-five years ago, consultants at a big eight accounting firm and a major industrial corporation teamed up to implement the first business computer installation. Now after twenty five years of such computer implementation it is still common to find that MIS planning is not integrated with, nor in support of, corporate strategy. Sufficient experience with computers has accumulated to integrate computer planning with corporate strategy but many organizations fail to do so."

Supporting this view that the alignment of systems planning and corporate planning is not being done very well, "A. T. Kearney Inc., a nationwide management consulting firm, recently surveyed 40 of the most successful companies in the U. S. and found that 70 percent of the firms questioned had both a business plan and a systems plan. But, significantly, only 19 percent of the firms integrated the two plans. If only one in five are actually integrating corporate and systems plans, we aren't doing too well with planning integration" (Synnott, June 14, 1982, p. 30).

Robert V. Head (1979, preface), Assistant for ADP Technology at the U. S. Department of Agriculture, also notes that "surveys indicate that almost all large organizations with data processing budgets in the tens of millions of dollars annually are now committed to some form of information systems planning, but there is wide diversity in the effectiveness and quality of these plans."

William M. Zani (1970, p. 95) suggests that a primary reason for organizations failing to implement effective MIS planning approaches is the lack of senior management perspective and direction in the planning and design process. He observes that "no tool has ever aroused so much hope at its creation as MIS, and no tool proved so disappointing in use. I trace this disappointment to the