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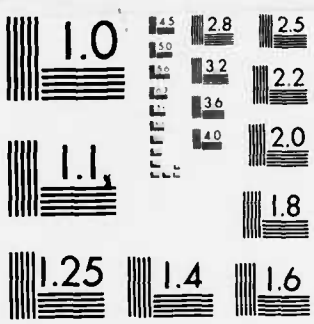

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Organizations As Information Processing Systems

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Technical Report Series

Department of Management
Texas A&M University

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The Nature and Use of Formal Control Systems for Management Control and Strategy Implementation

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Management control research from organization theory, accounting and business policy is reviewed, and a two-stage qualitative study of management control systems (MCS's) is reported. The study identified four MCS components--budget, policies and procedures, performance appraisal system, and statistical reports --that were used at the middle management level in business organizations. Each MCS component played a role during the control cycle of target setting, monitoring, and corrective feedback. The findings were used to propose two

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models--one model links the MCS to business-level strategy implementation, and the other model defines primary and secondary roles for MCS components in the management control process.

THE NATURE AND USE OF FORMAL CONTROL SYSTEMS FOR MANAGEMENT CONTROL AND STRATEGY IMPLEMENTATION

How do managers control organizations? When managers develop new organizational goals and strategies, how do they evaluate the organizations subsequent behavior and performance? How do they know whether plans are utilized and goals are achieved? These questions lie at the heart of management control. Managers need a way to assess whether top level decisions are incorporated into departmental activities, and to determine whether strategies are influencing organizational performance (Christenson, et al, 1982).

As recently as 10 years ago, organization scholars and management theorists could not answer these questions about organizational control. In the scholarly literature, control was conceptualized and studied as influence--the amount of influence employees had over organization activities (Tannenbaum, 1968). This research led to the control graph, which dealt with employee participation more than with management techniques for directing or controlling the organization. Management theorists deemed control an essential management function, but control theory consisted mostly of common sense principles such as, "Control should be kept simple" and "Controls should measure only meaningful events" (Koontz, 1959; Sihler, 1971). These principles have some prescriptive value for managers, but they do not provide a theoretical paradigm of control based on the organization's needs or contingencies.

In the last few years, concepts and models in the organization control literature have come a long way (Kerr and Slocum, 1981). For one thing, control issues seem to differ by hierarchical level (Anthoney and Deardon, 1980; Daft, 1983). Top managers are concerned with institutional control, mid-level managers with managerial control, and lower-level managers and

supervisors with operational control. In addition, concepts like market control, bureaucratic control, output control, and behavior control provide new tools for understanding and modeling organization control processes (Ouchi and Maguire, 1975; Ouchi, 1979). Yet another development is new research into organization control from the fields of accounting and business policy. Organizational control represents a point of convergence between these fields and organization and management theory.

The purpose of this paper is to report exploratory research findings about one poorly understood aspect of organization control--the nature and use of formal management control systems. Our goal was to define the scope and characteristics of formal control systems that are actually used by managers, and to define the role of formal systems in the organizational control and strategy implementation process. The research was undertaken to begin to answer the question of how middle and upper-middle managers control major organizational departments in order for business strategy to be implemented. The next section briefly reviews control concepts from the fields of organization theory, accounting, and business policy. Then we define more precisely the theoretical focus of the study, which is followed by a description of the research and the proposed models of strategy implementation and formal control system design.

Research Background

Organizational control includes the activities used to achieve desired organizational goals and outcomes. Control activities include planning, motivation of employees, and coordination across departments (Barrett and Fraiser, 1977). More specifically, organizational control can be conceptualized as a three stage cycle: (1) planning a target or standard of performance, (2) monitoring or measuring activities designed to reach that

target, and (3) implementing corrections if targets or standards are not being achieved (Dunbar, 1981; Todd, 1977; Ouchi, 1977; Giglioni and Bedeian, 1974; Lorange and Scott Morton, 1974). The idea that control is used to achieve organizational goals and outcomes, and that the control process consists of a three stage cycle is shared across the fields of organization theory, accounting, and business policy. Beyond the general control definition, however, the conceptual and research base from each discipline offers a distinct contribution to our understanding of management control.

Organization Theory

Control is a basic element of any organization. The very act of organizing implies control (Tannenbaum, 1968, Child, 1972). Organizing brings people together in an ordered arrangement to achieve desired outcomes. Control activites are part of the basic structure and design of any organization. A number of specific control concepts have been advanced that describe mechanisms for achieving desired organization control.

1. Market control. Market control uses the price mechanism and market competition to evaluate effectiveness and productivity (Ouchi, 1979; Williamson, 1975). A dollar price is an efficient form of control because managers can calculate costs and profits to evaluate performance. Control information is summarized in price-related figures (Ouchi, 1979). Competition is essential to market control to ensure that prices reflect the true value of outputs, hence profits represent an accurate assessment of performance. Market control is often used to control strategic business units and profit centers because they are financially self-contained.

2. Technology. Technology is the tools and techniques used to transform organizational inputs into outputs (Perrow, 1967). The form of technology influences the control needs of the organization (Reeves and Woodward, 1970), but technology itself is an important form of control (Kerr

and Slocum, 981). Performance programs can be built into the machine system and individual tasks (Kerr and Slocum, 1981). As the technology becomes more mechanized and automated, it exercises more control over employees (Woodward, 1965).

3. Socialization, training, and internal culture. Another important control device is the attitude and orientation of employees. Extensive professional training and expertise is associated with internalized behavior and norms so that fewer organization controls are required (Kerr and Slocum, 1981). Individuals can be selected with the proper orientation, or they can be trained into the norms and values of the organization. Group norms and internal culture are also important sources of control. Individuals respond to the expectations of fellow employees, especially in cohesive groups (Kerr and Slocum, 1981). Ouchi (1979) defined the use of values, commitment, shared norms and beliefs as clan control. Clan control is a powerful but selective control mechanism that tends to be used under conditions of uncertainty and when work activities are difficult to measure.

4. Bureaucratic structure. Bureaucratic control contains two parts: (1) the division of labor and (2) impersonal mechanisms of control. Division of labor includes the allocation and standardization of tasks through specialization and differentiation of structure. Specialization can occur down to specific roles that prescribe the expected behaviors for each organizational position. The division of labor is typically associated with increasing organizational size (Blau and Schoenherr, 1971). By dividing tasks in a systematic way, the attention of subunits is directed toward a limited set of problems and activities (Child, 1972; Reimann and Nagandhi, 1975). Impersonal mechanisms are the formalized rules and procedures of the organization. Impersonal mechanisms are designed to reflect the goals and plans of the organization, and at the same time act as a substitute for

personal supervision. Formalization enables the organization to have fewer administrators and larger spans of control (Blau and Schoenherr, 1971; Pugh, et. al., 1968).

5. Leadership and personal surveillance. Personal surveillance is another basic component of organizational control. Personal surveillance includes the observation of employees by supervisors. Ouchi (1977) called this behavioral control because control information comes from the personal evaluation of employee behavior rather than from outputs. Personal control can range from the charismatic leadership described by Weber (1947), to supervisor role definition, initiation of structure, and administration of rewards and punishment to subordinates (Kerr and Slocum, 1981). Personal control is executed through the human participants within the organization, and is the opposite of the formal, impersonal control mechanisms associated with bureauracy. Personal and impersonal forms of control complement one another to direct and correct the behavior of employees.

6. Formal control systems. Formal control systems are the formal planning, data gathering and transmission systems that provide management with information about organizational activities. Khandwalla (1973a, 1973b, 1974) acquired chief executive perceptions of the use of sophisticated control systems within firms, and he found that profitable firms made greater use of these controls than unprofitable firms. Ouchi (1977) evaluated output controls, which included the use of files and written records of employee output. The exact nature of management control systems has not been defined in this literature, but the operational budget is usually assumed to be part of the formal control system within organizations (Barrett and Fraiser, 1977), and non-financial data also are probably part of management control systems (Lorange and Scott Morton, 1974).

Accounting

Research in accounting seems to proceed from the inside of the organization out. Research attention is focused on accounting and budget systems to determine how these systems relate to the rest of the organization. Basic concepts from the accounting literature are summarized as follows.

1. Levels of control. One of the significant ideas is that control issues depend upon hierarchical level. Drawing upon the three organizational levels defined by Parsons (1960), Anthoney, (1965; Anthoney and Deardon, 1980) proposed that organizations need three forms of control--operational, managerial and strategic. Operational control occurs at the bottom of the organization and is the process of ensuring that specific tasks are carried out efficiently. Management control occurs at the middle management level, and is the process by which middle managers ensure that the departmental activities carry out organizational strategy. At the top of the organization, control is exercised through strategic planning, which is the process of deciding goals and selecting strategies to attain those goals. Market control (Ouchi, 1979) for example, is often used by top management to evaluate performance of the entire organization. Some of the control systems identified by Khandwalla (1972), including operational auditing, statistical quality control, and inventory control, would be considered operational controls.

2. Financial control systems and organizational context. An important research question has been about use of budgets as a control device within organizations. Bruns and Waterhouse (1975) pioneered this idea when they discovered that the formal regulation of employees through specialization, standardization, and rules and procedures was related to the budget-related behavior of managers, and that the appropriate organization structure

enhanced the effectiveness of budgetary control. Other studies have compared budgets to other organizational characteristics. Hayes (1976) found that traditional management accounting systems are less useful in non-routine departments such as research and development. Other research has found that budget utilization is related to environment and technology (Merchant, 1983; Waterhouse and Tiessen, 1979; Birnberg, Turopolec, and Young, 1983; Flamholtz, 1983). The general finding from this research is that traditional budgets and accounting systems should be integrated into a functional whole with organizational structure, technology, and environment (Otley and Berry, 1980).

3. Control system package. Other recent work has approached the concept of control systems as a coordinated, integrated package (Anthoney and Deardon 1980; Guizberg, 1980; Otley, 1980). Rather than concentrate exclusively on budget and accounting systems, other types of control information may be necessary. Flamholtz (1983) proposed a core control system with three parts: A formal planning system that would set goals and standards; an accounting information system to measure performance against those standards; and an evaluation and reward system to provide corrective feedback. The correct configuration for the control system package has yet to be identified, but this is the important next step in accounting research (Macintosh, 1984).

Business Policy

Most policy research pertains to the formulation of strategies to reflect environmental needs and organizational strengths (Hofer and Schendel, 1978). Control becomes important when new strategies have to be implemented. Organizational control is a way of evaluating whether the strategy is implemented and improves organizational performance. The role of management control in strategy implementation is defined by two issues.

1. Level of strategy. Strategy formulation can occur at two levels--corporate and business. Corporate level strategy is concerned with the combination of business units and product lines that make up a coherent portfolio. Business level strategy is concerned with a single business or product line (Leontiades, 1980). Implementation of corporate level strategy involves the acquisition or divestment of businesses, which is often a market transaction. Implementation of business level strategy presents a more difficult control problem because departmental activities and behavior of employees must be changed, and scarce resources may be reallocated.

2. Implementation tools. Managers of business units have a number of tools at their disposal through which to implement strategy. These tools include structural reorganization, leadership style, including symbolic and informational roles, and organizational control systems (Pearce and Robinson, 1982; Hrebiniak and Joyce, 1984). Within the control system tool kit, financial data, especially budgets, are important (Schutle, 1980). Internal auditing and financial records also provide indicators of some types of performance (Khandwalla, 1972; Pearce and Robinson, 1982). Galbraith and Nathanson (1978) and Stonich (1981) identified compensation as another control device. Salary provides a way to sanction behavior not consistent with strategic plans. One survey of four companies identified several devices, including the annual budget, incentive compensation, direct managerial contact, monthly operating reports, that could be used to evaluate and influence corporate performance (Lorsch and Allen, 1973).

Theoretical Focus

Several threads in the previous literature provide a basis of the research undertaken here. First, we will focus on formal management control systems used in organizations. This is an interesting and relatively unstudied aspect of organization design. Control systems are a subcomponent

of bureaucratic structure, and represent impersonal mechanisms of control that have not been extensively studied in organization theory. Second, we will focus on control at the middle management level, which Anthoney (1965) called management control. Control at this level is used to accomplish organizational objectives through activities of major departments.

The combination of formal control systems and a middle management perspective represent something of an unknown quantity. Market control and bureaucratic control for example, explain how top managers can control the entire firm. At the bottom, operational level in organizations, control can be accomplished through personal leadership and surveillance or through output data and records (Ouchi, 1975). Moreover, the organization's technology, e.g., assembly line, may serve to standardize and regularize employee behavior (Reeves and Woodward, 1970; Perrow, 1978).

Middle managers are responsible for major departments and functions. Market control will not work because departmental outputs cannot be readily priced by the marketplace. Behavior control is tenuous because middle managers may be located two or three management levels above first level activities, and behavior control is difficult to transmit through the hierarchy (Ouchi, 1978). Middle managers are in the murky middle ground of the organization where control processes are not defined or well understood. The use of management information and control systems may be one answer for how middle managers direct and control major departments in line with overall organizational goals.

Third, we focus on management level control because that is where business level strategy is implemented. If an organization's strategy is coherent series of decisions to achieve goals, how does the strategy translate into activities of major departments and facilitate coordination across departments? Formal management control systems may be an important

mechanism through which business strategy influences departmental activity, hence they may be an essential link in the strategy implementation process.

Fourth, control is a dynamic process. Control involves target setting, monitoring of activities, and action steps to correct deficiencies. Control also involves the provision of rewards and incentives to managers, and the coordination of activities to accomplish goals. Thus we will link control systems to the ongoing control cycle. Our study will be specifically directed at learning how formal management control systems are used at the middle managment level to execute each step in the control cycle.

Finally, we will focus on management control systems actually used by managers to determine whether these systems fit into a core control package. We propose to ground the study in the real world of organizations by asking middle managers which control systems they personally use, and to determine whether the control systems complement one another to implement strategy and facilitate the control cycle. The operational base of this study will be what managers actually do with respect to formal control systems.

Research Method

The qualitative technique used to learn about formal management control systems is what Mintzberg (1979) called direct research. We went directly into organizations to see management control systems first hand and to ask managers how they used these systems. The study was not designed to test hypotheses. We were simply trying to learn. Descriptions of MCS's in the literature tended to be based on abstract theory rather than on empirical documentation of the range and type of management control systems used by middle managers, so a direct research procedure seemed the correct way to start. Our observations were collected in two research stages. The first stage was completely open-ended. This stage was used to define what formal

management control systems consisted of, and to gather ideas about how managers used them. The second state involved systematic interviews with department managers. Once management control systems were defined, the second stage enabled us to gather more systematic data about the scope and role of control systems across a larger number of departments and organizations.

First Stage

Sample. The first stage required us to visit companies and ask middle and upper-middle level managers about their management control systems. We sought diverse companies to learn about the breadth and scope of management control system design. The nine companies in the stage one sample included a major bank, a national finance company, a heavy machinery manufacturing plant, a telephone company, an advertising agency, a textile manufacturer, a hugh pulp producer, the chemical division of a large conglomerate, and a department store chain.

The initial contact with each company was with the controller, who in many companies is responsible for both financial reporting systems and data processing activities. Financial and computer based reports were expected to make up at least part of the management control system used by middle management. The controllers were interviewed, and they arranged interviews with two or three managers of major departments. These managers were chosen at the controller's discretion based upon our inquiries about management control systems. The total number of interviews with controllers and managers responsible for major departments was 31, and included 3-4 interviews per firm.

Interviews. All interviews during the first stage had the same purpose--to identify what these companies had as management control systems and how managers used them. The controller was asked: "Could you show us

the management control systems available to managers in this company?" The controller would provide us with examples, and we could examine MCS scope and content, and ask additional questions. The line managers were asked: "What control systems do you use to understand the performance of departments under your responsibility?" "May we see these systems?" "How and when do you use each one?" "How is the performance of your department evaluated by your boss?"

Our method reflected the direct research characteristics described by Mintzberg (1979). We learned about these systems face-to-face. We looked, saw, measured, and discussed. Mail-out questionnaires and other indirect methods would have been almost useless for defining and understanding management controls. From these 31 exploratory interviews, we build up a basic definition of management control systems for the nine companies in the sample.

Second Stage

After compiling observations from the interviews in the first nine companies, the second research stage was used to document management controls in a systematic way for a larger sample of managers. At this point we had defined management control systems and had several ideas about how they might be used in the strategy implementation process. The sample for this stage included the managers responsible for 86 departments in 20 additional companies. The companies represented diverse industries, and virtually every type of functional department was included. These data were gathered by structured personal interviews with department heads. In this stage we did not include controllers. Our focus was on middle and upper-middle managers in charge of major departments and how control systems were used by those managers. The interviews enabled us to obtain exact measurements of the size and scope of each control system. The interview

questions also explicitly asked about how each control system was used with respect to the control cycle--set targets, measure or monitor, or take corrective action. Other questions pertained to whether these control systems were used to reward individual performance, or to coordinate activities across departments.

Research Findings

The Nature of Mangement Control

Initial interviews with controllers and upper level managers in stage one identified six components or subsystems that comprised the management control paradigm in nine corporations. The management control system had somewhat different form and scope in each organization, but there were clear similarities across corporations with respect to the appearance and use of these six subsystems. Two of these subsystems were used primarily for strategy formulation at the senior management level, and four subsystems comprised the management control system used by mid-level managers to implement strategy and evaluate performance. The six subsystems are as follows.

1. Strategic plan. The strategic plan typically consisted of an in-depth research analysis of the organization's position in the industry and included perceived opportunities in the environment and organization strengths. This report might contain a few financial figures, such as projected profit opportunities, but was in written form and qualitative for the most part. The plan discussed products, competition, economic trends, ideas for exploiting new business opportunities, and other factors relevant to strategic decisions by top management.

2. Long-range plan. The long-range plan typically consisted of a five-year projection based on financial data. This report was often number based and broken down to the detail of departmental expenditures. These figures were projected up to five years in the future. Projected profit and loss statements and balance sheets typically were included. This plan was the financial and numeric counterpart to the strategic plan, which was non-financial and qualitative. Both plans were detailed and voluminous.

3. Annual operating budget. The operating budget consisted of estimated profit, expenses, assets, and related financial figures for the coming year. Budget expenses typically fell into three categories--salaries, non-capital equipment and other operating expenses. Budget reports were issued monthly or quarterly and included comparisons with budget targets and expenditure figures for the same period during the preceding year. Budget reports typically were developed for all cost centers, including small departments.

4. Periodic statistical reports. The statistical reports were composed of statistical data, such as personnel complements, number of new customer contracts, volume of orders received, delinquent account ratios, and other statistics relevant to the department or business. Four to six separate reports might be used in a given department. The specific content of these reports differed for each department, but the presence of statistical reports existed in almost every firm. Most statistical data were non-financial, and statistical reports were issued periodically, such as weekly, monthly or quarterly.

5. Performance appraisal. The performance appraisal system was the formal method of evaluating and recording the performance of managers and employees. It typically included standardized

forms that provided ratings scales and blank spaces for writing in individual goals for the next year. The appraisal system required an annual meeting between subordinate and manager to complete the forms and review performance, although more frequent meetings, sometimes informal, were not unusual. Management by objectives (MBO) was often part of the performance appraisal system.

6. Policies and procedures. These materials included all policies and standard operating procedures for the department and organization. Managers had general policy guidelines available in written form as well as rules and procedures to provide guidance for specific activities, such as dismissing an employee or handling a grievance. These materials also included job descriptions and other specifications for how managers were supposed to handle situations that would arise.

The managers in our stage one sample described each of these six control subsystems as a distinct entity. Policies and procedures usually sat on a shelf and were used as a reference. The budget report typically arrived monthly and was kept in a desk drawer. Performance appraisals were kept in a personnel file. The strategic plan and long-range plan were not located in the office of department managers, but managers were aware of these reports and had access to them. The periodic statistical reports did not come in a single bound volume. Each report might pertain to a different aspect of departmental activities, but the managers conceptualized these reports as a distinct control subsystem.

Table 1 summarizes the six reports and our interpretation of their use. The strategic plan and long-range plan were part of the formulation stage of the strategic management process. These reports contained the information and forecasts used by senior managers to make decisions with

respect to organizational goals and the strategies for achieving those goals. The four management control subsystems--budget, statistical reports, policies and procedures, performance appraisal system--reflect the implementation stage of the strategic management process. The firm's resources were allocated through the budget. Policies, procedures and performance appraisals could be used to guide human resources and technical activities. Statistical reports monitor various quantifiable outcomes. These four subsystems comprised the MCS package through which upper management enacted and monitored the strategy implementation and control process.

Table 1 About Here

Another aspect of the MCS components in Table 1 is that they originate in different departments. These reports converge on middle managers from different sources. Strategic plans were developed by a small, specialized strategic planning staff group. The five-year plan and the operating budget were the responsibility of the controller's office. The statistical reports were typically handled through an M.I.S. department since most of the data were computer based. Performance appraisal systems were designed and maintained by the personnel department, and policies and procedures were the responsibility of either a subgroup in personnel or a separate systems and procedures group.

The management control package was not a coordinated whole under the egis of one department. Vertical linkage did exist between the strategic plan, long-range plan, and budget, but we did not detect any formal effort in these organizations to coordinate information laterally across the four MCS components of budget, statistical reports, policies and procedures, and performance appraisal system. Each source department was concerned only with the content of the report for which it was responsible.

Scope of Management Control Systems

Our initial exploratory interviews helped us define the package of four management control system components and learn something about their source and use. Our stage two survey of 86 departments in 20 corporations provided evidence about the presence and use of these four control systems in a larger sample of organizations.

Table 2 indicates the percentage of department managers that reported having each of the four subsystems as a means of management control. Our criteria for deciding the system's presence was whether the middle manager actually received and used reports from the system. The most widely used management control device was the budget. About 94 percent of our sample used the budget in the control process. Almost 92 percent of the major departments also used statistical reports of some form to incorporate non-financial data in the control process. Policies and standard operating procedures were used in 85 percent of the departments. The performance appraisal system was the least prevalent control subsystem. Only about three quarters (75.6 percent) of the departments had a formal, written performance appraisal system.

Table 2 About Here

Table 2 also indicates the average size in pages of typical reports and the planning and measurement cycles. Budget reports averaged almost 9 pages, while statistical reports were much longer at almost 48 pages. The budget report was typically a single report per month, while the 48 pages of statistical reports were spread over five or six reports covering selected departmental acitvities. Policies and procedures averaged about 1500 pages, which is extensive. Managers typically had four or five policy and procedure books for reference. The performance appraisal was shorter than other reports. It averaged less than three pages, which included

instructions as well as the forms to be completed during the personal interview.

The typical planning cycle for budgets, statistical reports and peformance appraisals was one year, that is, targets were established on an annual basis. The budget and statistical reports reported actual performance monthly, and performance appraisals were reviewed annually. Policies and procedures were standing directives and did not have planning or measurement cycles.

MCS Utilization

The three stages in the organizational control cycle are target setting, measuring and monitoring, and taking corrective action to overcome a performance deficiency. From a strategic perspective, control may also entail management rewards and coordination across departments to facilitate business level outcomes. The research question for this part of the study was to identify how each component in the MCS mapped onto the control cycle. This question was operationalized in the second stage of the research by asking managers the extent to which they used the budget, the statistical reports, and the performance evaluation system to (1) help think ahead and plan specific activities for the department, (2) measure and monitor current departmental activities, (3) help people in the department do things correctly, (4) make promotion and salary decisions, and (5) coordinate departmental activities with other parts of the organization. Policies and procedures were not included in this question because they were static and do not follow a cycle of planning, measuring, and feedback.

The findings about middle management's use of the MCS components are in Figure 1. The budget was used primarily for planning and thinking ahead, while statistical reports were used primarily for measuring and monitoring departmental activities. Each of the three control subsystems were used in

both the planning and monitoring stages of the control cycle, but managers relied more on the budget for planning and on statistical reports for monitoring. Policy books often suggest that budgets are used to monitor activities and evaluate managers (Steiner, Miner and Gray, 1982; Pearce and Robinson, 1982) but the Figure 1 data indicate that middle managers use budgets first as a planning device followed by use as a monitoring device.

The explanation is that the budget is used for the allocation of resources. Managers told us that the budget process enabled them to know what resources they had for the next year. Once they knew their budget allocations, they did not need to refer to the budget reports very often. Statistical reports, by contrast, were tailored to specific departmental activites and provided continuous information on output performance (production, absenteeism, scrap, etc.). Thus the two reports seemed to specialize on different control activities--planning vs. measuring.

Figure 1 About Here

The reported use of control systems to "do things correctly" within departments is something of a puzzle. None of the three control subsystems was rated very high on that control function in Figure 1. One reason may be that policies and procedures (not in Figure 1) played that role. Another reason, as illustrated in the fourth column of Figure 1, is that the performance appraisal system was used to make promotion and salary decisions. Performance appraisals may have been instrumental for correcting behavior of managers, although corrections would not always be timely since reviews were once a year. But awareness of appraisals may be sufficient so that more corrective influence was conveyed through performance appraisal systems than through budgets and statistical reports.

The final function of MCS's in Figure 1 was to coordinate activities across departments. The managers reported very little use of the MCS for

coordination. This finding is also a puzzle because we assumed that budget activities would reflect interdepartmental considerations. What may happen is that control systems may coordinate unobtrusively (Perrrow, 1976). The middle managers we interviewed did not consciously use their budgets, statistical reports, or performance appraisals to coordinate with other departments. However, interdepartmental issues may have been evaluated during strategy formulation and included in the original budget allocations and output targets set at the beginning of the year. Coordination decisions may have been made by top managers and the controller, based on competing demands from major departments. Department managers thus were only aware of their own needs and allocations rather than interdepartmental coordination.

To briefly summarize, the findings to this point suggest that the management control subsystems were characterized by some division of labor. The budget was used primarily in the planning and target setting stage of control, and statistical reports were used primarily for measuring and monitoring, although the budget and statistical reports did overlap in their functions. The performance appraisal and perhaps policies and procedures were used in the feedback and corrective action stages of control. Coordination across departments does not seem to be a managerial use of these control subsystems, although some coordination may take place during strategy formulation and initial budget allocations.

Additional insight into the division of labor among MCS components is provided in Table 3, which reports manager responses about policies and procedures. Written procedures were perceived to cover 54.9 percent of work activities and must be followed 53.9 percent of the time to do a good job. These percentages are not especially high, but indicate that SOP's had a definite role in doing things correctly. Moreover, when asked about SOP deviations versus evaluating performance, preventing deviations scored

higher (7.1 vs. 6.1), which reinforces the role of policies and procedures as giving direction.

Table 3 About Here

Budget vs Statistical Reports

The remaining data provide a closer look at budget and statistical reports because both systems entailed monthly reports at the departmental level. Each manager was asked the basis of comparison used in each report. We asked them to show us which of three comparisons--comparison of actual performance to targets, to previous performance (previous month or year-to-date), or to the performance of other units--were contained in budget and statistical reports. The finding in Figure 2 is that 98 percent of budget data were compared to planned targets, which is consistent with the emphasis on planning and target setting associated with the budget in Figure 1. Budget figures were hardly used at all to compare across departments, and were compared to some extent to past performance. The budget focus is on how current expenditures relate to planned expenditures.

Figure 2 About Here

Statistical data, by contrast, were compared most frequently (81 percent) to past performance. They were also compared to performance targets, and were much more likely than the budget to be used to compare across departments. The emphasis on comparison to past performance and across units is consistent with the measuring and monitoring function of statistical reports suggested in Figure 1. Departmental outcomes could be evaluated best by looking at a combination of indicators that include previous output, the output of other units, and targeted outputs.

The final data pertaining to the division of labor between budgets and statistical reports are in Figure 3. Managers were asked to show us the two

key items (actual numbers) they preferred to use on each report to evaluate departmental performance. Each response was classified by whether the key item measured an input to the department (e.g., number of people), an output of the department (e.g., number of phones installed), or departmental efficiency (e.g., number of phones installed per person per day).

The managerial responses in Figure 3 reinforce the same definite pattern. The budget key indicators most often measured input items, which would provide information relevant to planning and resource allocation. Key indicators on statistical reports frequently measured outputs, which is consistent with the use of statistical reports for measuring and monitoring department activities. Figure 3 reinforces the division of labor between the budget and statistical reports suggested by the previous analyses. Budgets were important for planning and resource allocation; statistical reports were important for measuring and evaluating output performance. Policies and procedures and the performance appraisal system tended to be used for the corrective action stage of the control process.

Figure 3 About Here

Discussion

The purpose of this research was to probe into the nature of formal management controls to understand middle management control and to learn how business strategies could be implemented and evaluated for major departments within organizations. The research has not provided definitive answers, yet it does provide a basis for preliminary suggestions about how the implementation and control process is accomplished. The findings are summarized in five inferences.

1. *The business level control process in most organizations utilizes six control components.* The strategic plan and long-range plan were used by

top managers for strategy formulation. The budget, statistical reports, performance appraisal system and policies and procedures were used by middle managers for departmental control and strategy implementation. We now know what the MCS looks like at middle and upper-middle management levels. Although few models and scant knowledge about MCS characteristics were available in the literature, the managers in our study clearly defined the MCS's available to them. In the initial interviews, middle managers identified each of the four implementation subsystems as helping them manage and control the departments under their supervision. These organizations had other control systems, such as capital budgeting and inventory control, but these other systems were not as important to middle management for control of their departments and functional activities.

2. *The four formal control systems used by department managers complement one another to help managers execute the control cycle, but the formal systems are not designed as a package.* The budget dealt with resource allocation. Its primary use was during the planning and target setting stage of the control cycle. Statistical reports pertained to the volume of outputs from the department, and outputs were compared to previous performance and to other departments. Performance appraisal systems were used to reward lower managers. While performance appraisals were used to determine salaries and promotions, we think it also helped managers enact corrections in the control cycle. Finally, policies and procedures were used to help departmental employees do things correctly. The role of policies and procedures was limited because they are a standing body of knowledge and are not renewed on an annual cycle. New policies and procedures would be developed only as new situations arise for which managers need specific guidance.

The concept of a coordinated control package or a core control system

(Flamholtz, 1983) was not supported, on two counts. First, control system elements were not discrete; one was not used exclusively for planning, nor one for measuring, nor one for correction. Although a division of labor was evident, the systems overlapped and served two or three functions. Second, budget and accounting information served more as a planning aid than as the measuring device envisioned in the core control system. Budgets reduce uncertainty for managers about resource inputs for the next year. Once plans are laid, managers turn to other systems, especially statistical reports, to monitor performance.

3. *The first two stages in the control cycle--target setting and measuring--receive primary emphasis in formal management control systems.* Formal control system elements place more emphasis on planning and measurement--the control of inputs and outputs--than on corrective action or coordination. Although the management control system components did complement one another, they apparently did not perform all these stages of the control cycle to the same extent.

One explanation for the lesser emphasis on feedback and corrective action is that these activities require other control devices, especially personal involvement. Budgets and statistical reports contain universal, impersonal information. They report numbers and provide clues about overall departmental performance. These indicators are not personalized, nor are statistics tailored to the unique problems confronting each manager. Corrective action and coordination across departments would involve many exceptions and problems that could be difficult to interpret. Thompson (1967) and Van de Ven, Delbecq and Koenig (1976) argued that rules and procedures could be used for simple tasks, but if coordination was difficult and departmental tasks uncertain, then face-to-face and other complex forms of coordination were required. In this respect, efforts of middle mangers

to change the behavior of lower level managers would rely on networking and personal communications, which would be transmitted outside the formal control systems. Corrective influence would occur through discussions and meetings, and would include evaluation of unusual circumstances not reported in routine control reports. Thus we infer that an informal, personal, face-to-face control process complements and enriches the formal, impersonal management control systems observed in this study. The personal control mechanism is based on leadership and direct involvement along the management hierarchy, and provides a mechanism through which to accomplish feedback and corrective action.

4. *Management control systems are both financial and non-financial.* Financial information (ROI, profits, earnings per share) may be dominant at the business or corporate level where financial performance is paramount, but it is not dominant at the middle management level. The budget relied on financial figures, and budgets were used to plan and allocate resources into departments. The other three control systems were based on non-financial data, although occasional figures were expressed in dollar amounts. Statistical reports, performance appraisal systems, and policies/procedures provided a rich variety of technical, personal, and output data that enabled managers to understand and guide activities within their responsibility centers. In terms of control system scope, financial data made up a modest proportion of total control information at the department level, which is in contrast to the emphasis on monetary information described in the accounting and strategy implementation literatures.

5. *Management control relies heavily on control of both department inputs and department outputs.* Budgets and statistical reports were important control systems. Budgets focused on inputs and statistical

reports on outputs. This finding is somewhat in contrast to Ouchi's assertion (Ouchi and Maguire, 1975) that control within organizations is either behavioral control of output control. The difference in findings between Ouchi and ourselves reflects the management level under study. Ouchi's research focused on the control relationship between managers and their subordinates. In that relationship, resource inputs are already given, so mechanisms for evaluating and influencing subordinates are written records of output or personal surveillance.

Middle and upper-middle managers are responsible for entire departments, however, so personal surveillance is not a primary control alternative. Managers may be several levels above lowerlevel employees, and may not possess the technical expertise to monitor behavior. Therefore, the four management control subsystems identified in this study are used at this level in the hierarchy. The budget provides a means to control the allocation of resources, both human and physical, into the department based upon the priority of departmental activities for accomplishing organizational strategy. Statistical reports provide an indicator of output. Statistical reports at the middle management level are analogous to output control described by Ouchi (1977; Ouchi and Maguire, 1975). For middle managers, output reports are aggregated into department and responsibility center totals. The performance appraisal systems and policies and procedures provide additional control alternatives to personal surveillance. The performance appraisal system provides a means to plan and evaluate outcomes of immediate subordinates, while the development of policies and rules can direct behavior several levels below the department heads.

Toward a Model of Management Control

The method of direct research (Mintzberg, 1979) was used to identify and define management control systems and to learn how these systems were used by middle management. The findings provide the basis for explaining how organizations resolve two control questions: (1) how is business strategy linked to departmental plans and activities, and (2) how does the formal MCS enable middle managers to enact each stage of the control cycle for their responsibility centers? The following discussion proposes two models that suggest how management control systems help organizations resolve these issues.

Linking Strategy Formulation to Departmental Activities Through the MCS

Each department in an organization is part of a transformation process that involves raw material inputs, actions by employees that change those inputs, and outputs that go to other departments or orgnaizations. Inputs include people, equipment and material. The transformation process includes the technology, knowledge and work activities used to change input materials. Outputs are the finished product of the department (Perrow, 1967; Daft and Macintosh, 1981; Van de Ven and Delbecq, 1976). Each organization has several departmental technologies and transformation processes.

One role of management control systems is to implement organizational strategy downward to the department level. The transformation activities within departments should reflect business level strategic choices. The management control systems accomplish strategy implementation by directing and controlling resource inputs, influencing the transformation process, and monitoring departmental outputs. An ideal model describing how business strategy and departmental activities tie together is in Figure 4.

Figure 4 illustrates that the strategic plan is formulated at the organizational level and is used to formulate a long-range financial plan

for the next 5 years. These two plans at the organization level provide baseline information, targets and goals that determine short-range (one-year or less) plans and activities that are encompassed by the formal management control subsystems.

Figure 4 About Here

Organization strategy can be directly implemented in two ways. First, by allocating resources to departments based on top management's strategic priorities. If strategy is to increase the number of new products, or to achieve greater market penetration, or to improve quality control, it can be partially implemented by allocating necessary resources to the key department through the budget. Second, top managers can ask for departmental outputs that reflect strategic priorities (increased new products, greater market penetration, etc.). The outputs can be monitored through statistical reports. Both the input and output side of department activities can be controlled to reflect business strategy.

Control of the transformation process is somewhat more complicated. A few budget or statistical indicators may reflect efficiency criteria and therefore provide one method for evaluating the transformation process. The performance appraisal system and standard operating procedures are auxiliary control devices for the transformation process. The performance appraisal system focuses on the human resource component, and helps keep employees' activities aligned with departmental and organizational goals through salary rewards and sanctions. Policies and rules prescribe correct behaviors for both technical activities and human resource management. Rules and procedures provide a source of knowledge based on previous organization experience that can influence and direct activities within departments.

The key to using the MCS for the implementation and evaluation of organizational strategy is linkage. Upper managers and department level

managers must discuss and be aware of the relationship between organizational strategies and departmental activities. The strategic and five-year plans must be communicated to managers during the process of formulating budgets, developing performance appraisal systems, and compiling statistical reports, so these control subsystems do indeed implement strategic plans and organization goals. Managers who use formal systems to control departmental activities must be informed of company strategic plans and their department's strategic role, so input and output targets and monitoring devices can guide departmental work. If the vertical linkage between strategy formulation and management control systems illustrated in Figure 4 is attained, then departmental activities will be coordinated with organizational goals, and business stragegy can be implemented at the department level.

Using the MCS to Enact the Management Control Cycle

The second issue in this research is how middle and upper-middle level managers can use management control systems to direct and evaluate departmental activities. The answer pertains to the division of labor among management control system components. The control system package provides each manager with a set of control tools to manage each stage in the control cycle.

Table 4 illustrates the relationships between each stage in the management control cycle and each management control subsystem. The planning and target setting stage is accomplished through the budget. The budget lets each manager know the resources available for the coming year and reduces uncertainty with respect to what can be accomplished. Statistical reporting and the performance appraisal systems are also used for planning to some extent, but they are not resource based and play a secondary planning role.

Measuring and monitoring of departmental outcomes is accomplished through statistical reports. Statistical reports can be tailored to the specific output of the department, and provide excellent data on a weekly or monthly basis about how the department is performing. The budget and performance appraisal systems provide additional data on performance. The budget report pertains to expenditure performance and the performance appraisal provides annual data on the performance of individual employees. The statistical reports, however, are the critical devices for measuring and monitoring departmental outcomes.

Table 4 About Here

The stage of feedback and corrective action is partially accomplished through the performance appraisal system and policies and procedures. Our interpretation from the study is that an additional and important means to bring performance into line with targets is personal leadership conveyed through the management hierarchy. Change is implemented through face-to-face discussion and personal communications. The management control systems are excellent for communicating plans and activities which can be quantified and reported through formal,impersonal systems. Corrective action to overcome failures, however, is an exception. The failure may involve unique circumstances not reported in the formalized data. Managers will have to discuss these issues and develop alternatives for corrective action. We believe the primary vehicle for these actions will be the management hierarchy. The peformance appraisal system gives management a specific lever to ensure that managers comply with corrective action steps, and standard operating procedures prescribe correct behavior for a variety of situations. These control subsystems by themselves, however, would not always be effective or timely with respect to needed corrective action. Formal control systems are augmented by personal management control

processes.

Conclusion

This paper began by asking the question: "How do managers control organizations?" Although previous research provided a partial answer for control at the top and bottom levels of the organization, the literature did not provide an answer to the control question for managers at middle organization levels. Middle managers are responsible for major departments and functions. The research reported in this paper was undertaken to provide a more complete answer to the question of strategy implementation and control at the department level. The research found that middle managers use four management control systems--budget, statistical reports, performance appraisals, and policies and procedures--to control their departments. These four subsystems provide mechanisms through which the department manager can enact each stage of the control cycle.

The findings both reinforce and build upon previous work. The assumption that MCS's provide an explicit tool for strategy implementation was supported (Hrebiniak and Joyce, 1984; Pearce and Robinson, 1982). At the top of the organization, managers develop a strategic plan and a five-year profit plan for the business. These plans provide information into the management control subsystems, which act as short-term planning and monitoring devices. For example, the budget can be used to allocate resources based on strategic priorities, and statistical reports indicate whether departmental outcomes reflect strategic priorities.

The management control system also relates to bureaucratic control. The MCS is an impersonal (Reimann and Neghandi, 1975) means of control that uses output control (Ouchi, 1977), and also regulates inputs. The impersonal MCS was complemented by personal control through leadership and

the management hierarchy (Kerr and Slocum, 1981), which is used to implement corrections to meet targets. The control process at the department level is thus accomplished through a mix of personal and impersonal mechanisms, although only the impersonal side was studied here.

Our research also provides evidence that the MCS consists of a package of sorts, although the package was not explicitly designed and coordinated by the organization (Flamholtz, 1983; Otley, 1980). Each MCS component had a different source, but they did complement one another by application to different parts of the control process. The package controls both inputs and outputs, and contains both financial and non-financial data. Indeed, non-financial data may be more prominant in formal management control than previously realized (Anthoney and Deardon, 1980).

The final conclusion from this study is the need for additional research. The goal of this project was to identify formal management control systems, to learn how they were used in organizations, and to use these data to develop preliminary models of the management control and strategy implementation process. But new research questions have been raised. For example, are certain types of business strategies more appropriately implemented through the management control systems indentified here? Would a coordinated control system package from a single source be more effective? How does organizational context influence management control system design? The design and use of budgets, statistical reports, performance appraisals, and policies and procedures may be influenced by the type of stragegy, by rate of change in the environment, by competitive issues in the industry, or by the nature of th organization's technology. All of these factors may influence control outcomes for planning, measuring, or correcting departmental activities. The research reported in this paper is only a start; it has presented an initial glimpse into the process of

middle management control. Additional research will help us develop a better understanding of strategy implementation, and to answer more detailed questions about formal MCS design applications.

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Table 1

Management Control System Characteristics

Management Control Subsystem	Role in Business Strategy	User	Source (Department)
1. Strategic Plan	Formulation	Senior Management	Strategic Planning
2. Long-Range Plan		Controller	Controller
1. Budget	Implementation	Middle (Department) Managers	Controller
2. Statistical Reports			M.I.S. and Data Processing
3. Policies/Procedures			Systems and Procedures
4. Performance Appraisal			Personnel

Table 2

Management Control System Frequency Size and Cycles (N=86)

Management Control Subsystem	Departments Using (%)	Average Pages	Typical Planning Cycle	Typical Measurement Period
Budget	94.1	8.9	Yearly	Monthly
Statistical Reports	91.8	47.9	Yearly	Monthly
Policies/Procedures	84.9	1,528	None	None
Performance Appraisal	75.6	2.77	Yearly	Yearly

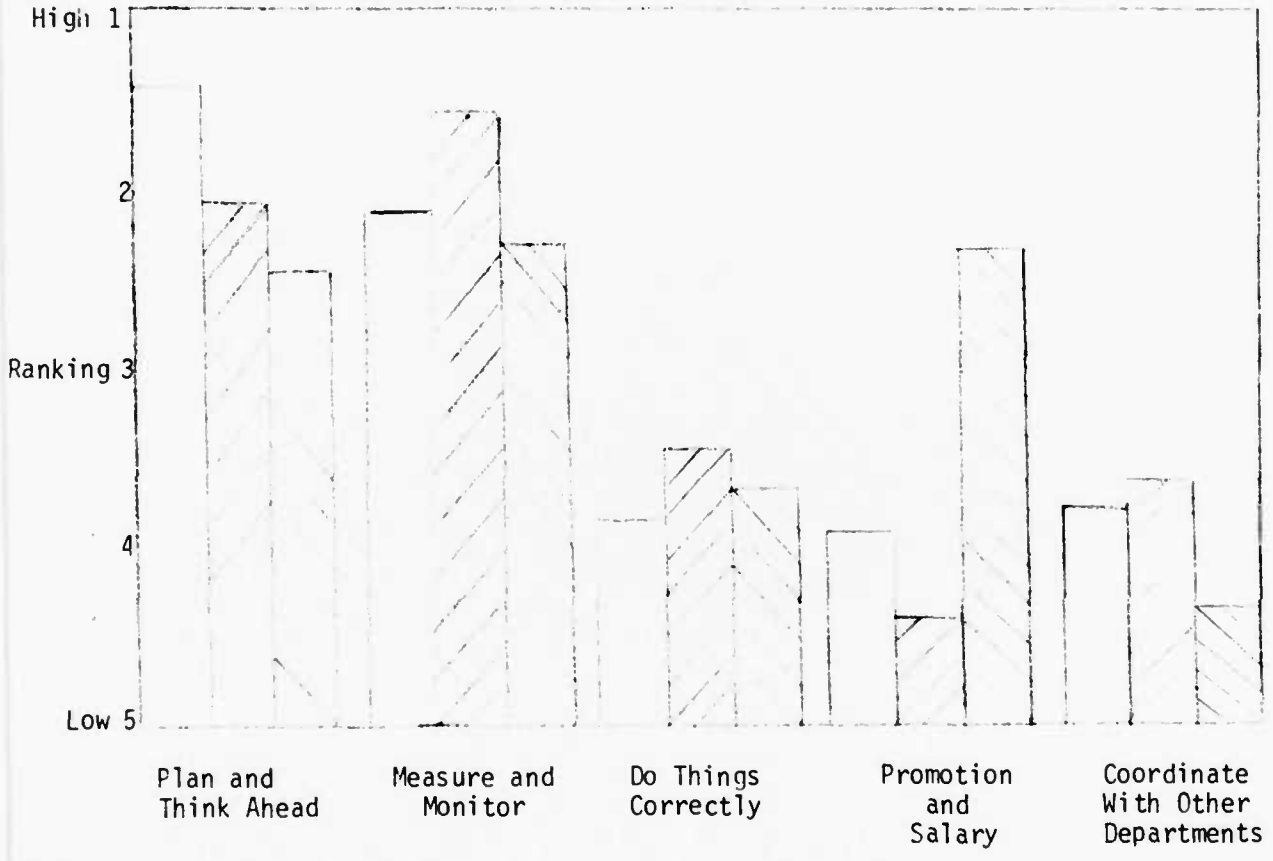

Figure 1. Average managerial ranking of management control subsystem use for five control functions (N=86).

Budget

Statistical Reports

Performance Appraisal

Table 3

Use of Policies and Procedures

Percentage of work activities covered by SOP's:	54.9
Percentage of time must follow SOP's closely to do a good job:	53.5
Deviation from SOP's will get people in trouble (1=disagree; 9=agree)	7.1
Adherence to SOP's used to evaluate people's performance (1=disagree; 9=agree)	6.1

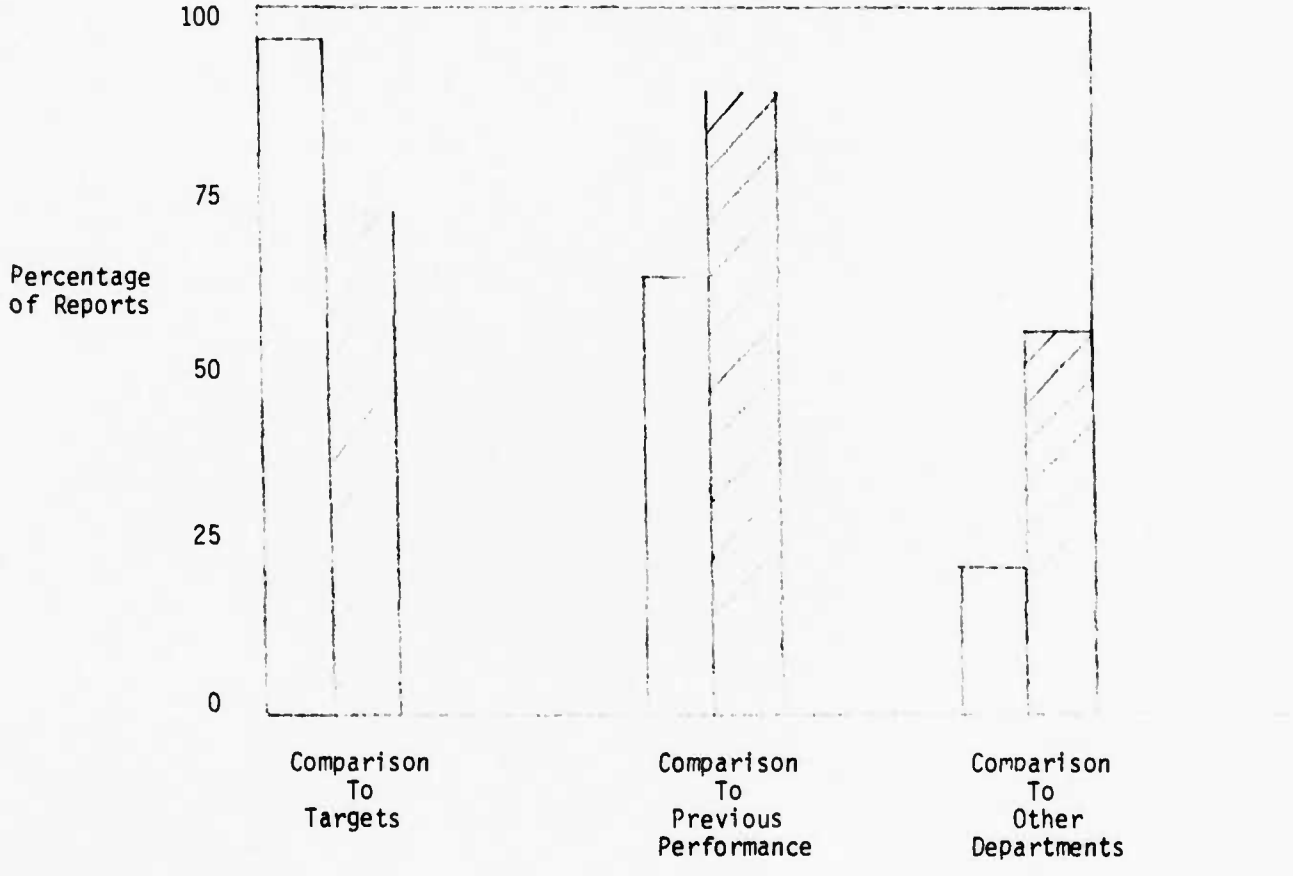

Figure 2. Basis for comparison used in budgets and statistical reports (N=86).

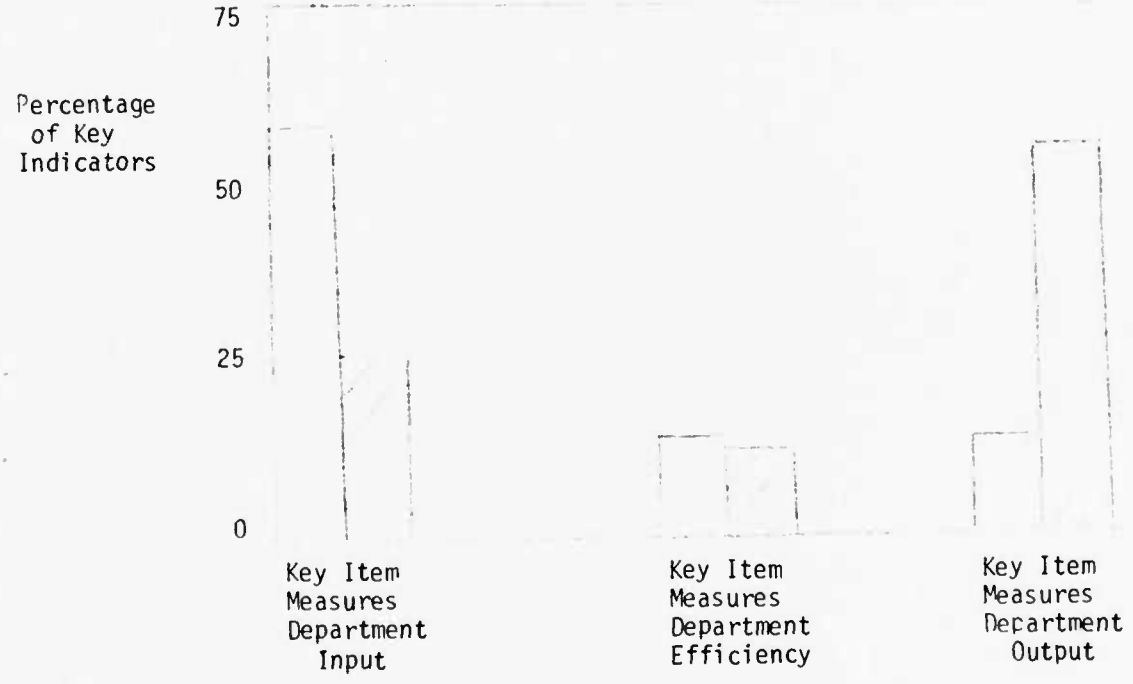

Figure 3. What are the key indicators used from the report? (N=86)

Budget

Statistical Reports

Table 4

Relationship of Management Control Cycle to MCS and Personal Control

Management Control Cycle	Budget	Statistical Reports	Performance Appraisals	Policies/ Procedures	Non-MCS: Personal Influence and Leadership
1. Planning and Target Setting	Primary	Secondary	Secondary	-	Secondary
2. Measuring and Monitoring	Secondary	Primary	Secondary	-	-
3. Feedback and Correction	-	-	Secondary	Secondary	Primary

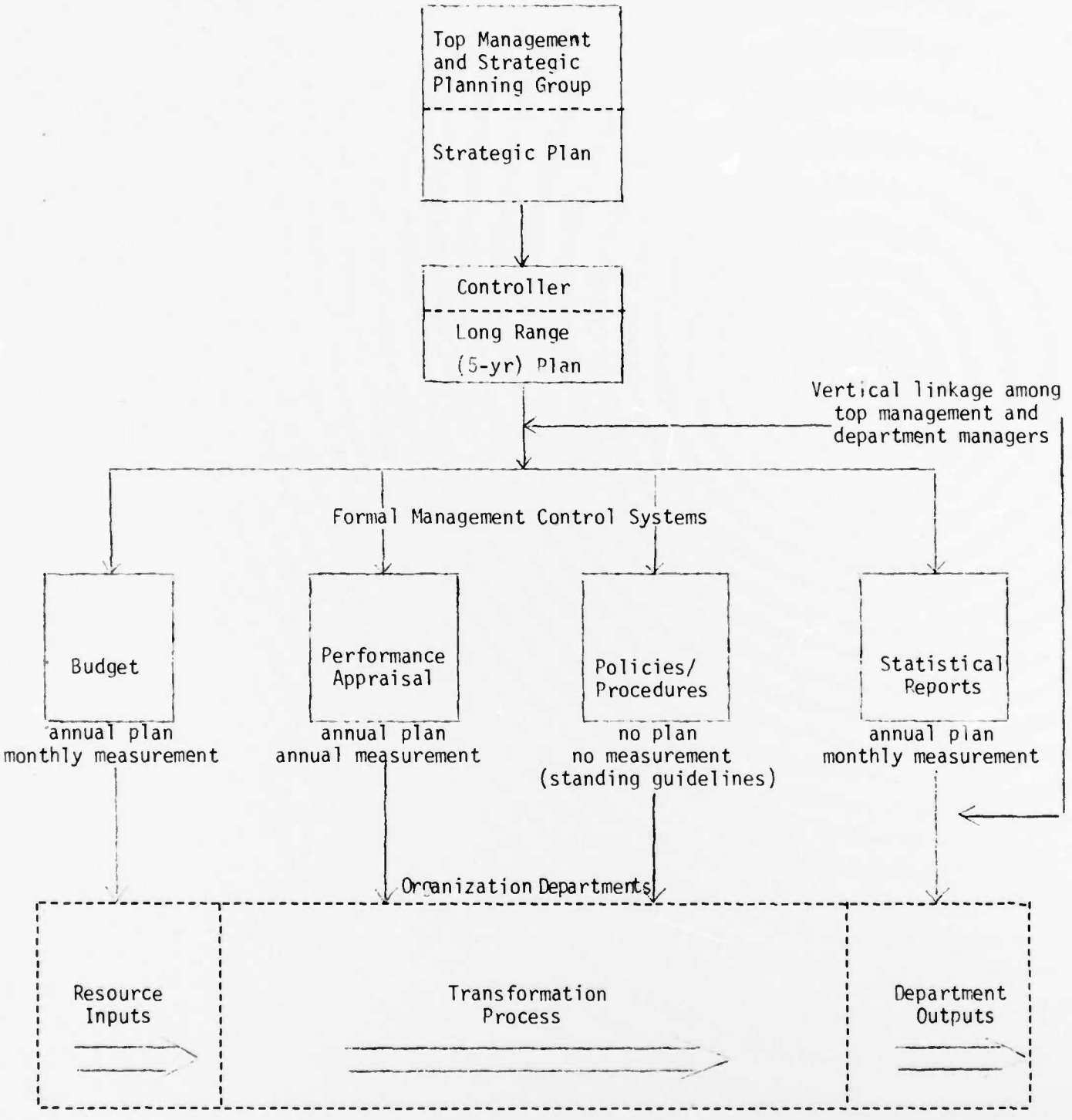

Figure 4. Model of vertical linkage among control systems for strategy implementation.

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