BUDGETARY CONTROL:
A Behavioral Approach*

43-64

Andrew C. Stedry

Massachusetts Institute of Technology
School of Industrial Management


Not to be cited or quoted prior to publication.
The Origins of Budgetary Control

It is perhaps an understatement to say that a substantial proportion of managerial effort expended in a large organization is devoted to the collection, organization, internal transmission, and publication of data. It is almost as safe to say that the ability of the organization to find and manipulate large masses of data far exceeds its ability to make optimal, or even reasonable, use of it. The impact of a particular agglomeration of data on the decision-making processes, change processes, or motivational processes within an organization is a largely unknown and uninvestigated phenomenon.

The collection and organization of data within commercial and industrial organizations has largely been the province of accountants. Accountants have developed a substantial amount of expertise in the collection of certain kinds of data. These data are not only limited to the financial sphere; they are further limited by accounting convention to financial history rather than a broader notion of future usefulness. While over the years there has been intense argument within the accounting profession concerning such questions as what "value" and "profit" really are, the arguments have been so restricted in range by some underlying basic assumptions (they have on occasion been termed axioms) that to an outsider they may appear to resemble the arguments of medieval theologians on the subject of "how many angels can dance on the head of a pin?" Once one is thoroughly convinced that angels exist, one can sensibly argue about their properties.

Having once arrived at a definition - or, where controversy exists, arbitrarily chosen from a set of acceptable definitions - the accountant has exhibited an almost unbelievable capability for developing systems to effect the classification
of data into defined categories and to verify the codification. The accountant classifies with the same fervor as the archaeologist - all "finds" must belong to some culture and all transactions to some account - and only when all possibility of classification within the existing structure has been exhausted is the structure likely to be expanded. It is possible that this "closed system" approach in accounting - that every last transaction must be accounted for - is as much responsible for the frequent entry of computers into organizations through accounting departments as the more obvious sharing by computers and accountants of the data-processing role. The need, at least in conventional computer programs, for knowing precisely where every piece of data fed into the machine will reside is amazingly similar to the a priori statement of all alternatives required in the design of an accounting system. An encounter between either system and an element of data for which it is not programmed requires an adjustment of the system by an external agent.¹/

We have emphasized the highly programmed approach observable in accounting system design to draw a contrast between the way in which data are typically collected and the way in which they are likely to be used. An example in the large may be presented through examination of the "statement of financial position" and "report of earnings"²/ included in the annual report of a

¹/ We do not refer here to programs written in computer languages such as IPL which can indeed rewrite themselves to handle a class of new inputs. See, for example, A. Newell and H. A. Simon, "The Logic Theory Machine: A Complex Information Processing System, IRE Transactions on Information Theory, Vol. IT-2, No. 3, 1956, pp. 61-79.

²/ The replacement of the balance sheet and "profit and loss statement" by these terms provides the reader with an example of a recent change in what is considered desirable accounting practice whose import may be differentially assessed by members and non-members of the profession.
corporation to its stockholders. The statement of the Certified Public Accountant included in the annual report to shareholders reads in part "the accompanying ... [statements] represent fairly the financial position of [The X Company] ... and the results of operations for the year ... and were prepared in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year." According to a priori definitions (which, incidentally, a relatively small proportion of stockholders appear to have even a minimal knowledge) the transactions of the corporation have been appropriately codified. Yet, what is the impact of these data? How small do earnings have to be before a successful (or costly if unsuccessful) proxy fight can be waged by an "out" group? How great a leverage can be risked before the company can no longer borrow money on advantageous terms? These questions, of vital interest to corporate management, have not been asked by accountants. To a limited extent, they have been asked by students of finance who frequently have little knowledge of the detailed processes through which the numbers are contrived. Furthermore, when asked, these questions have been investigated in the aggregate, leaving the individual corporate management largely in the dark as to how its stockholders would behave.

The public accountant (and it is largely he who has been responsible for the construction of accounting principles) has traditionally considered himself the custodian of the interests of stockholders, a predisposition ill-suited to the investigation of the impact of data on that particular group of recipients. The current proliferation of "picture book" annual reports may represent the independent assessment by corporate managers of the irrelevance, for most stockholder decisions, of the last few pages which contain assessments in conformity with generally accepted accounting principles. The focus in the development of
financial accounting has been upon representation and description rather than
the impact of accounting reports or resultant action.

The accounting profession has turned, in recent years and apparently with
some reluctance,\(^1\) to collecting data whose purpose is to aid managers in their
operating (non-financial) functions. The result has been the emergence of
accounting sub-fields, cost accounting and budgeting. In order to understand
adequately the form that these two techniques have assumed in practice requires
an excursion into the methodology of financial accounting.

As was previously suggested, the basic element of accounting is the
transaction. The transaction is, as defined by E. L. Kohler,\(^2\)

An event \((1)\) or condition \((2)\) the recognition of which gives
rise to an entry in accounting records. Expressed in money amounts,
a transaction is made up of one or more positive elements, or debts \((d)\)
and one or more negative elements, or credits \((c)\) such that
\[ d_1 + d_2 + d_3 + \ldots = c_1 + c_2 + c_3 + \ldots \]

The valuation which results from a sequence of transactions is also of interest

\(^1\) The status implications of the recent (1959) change of name of the
National Association of Cost Accountants through elimination of the "Cost" may
be instructive. The distinction is analogous to the status afforded the theoreti-
cal physicist at the expense of the experimentalist or, more generally, the
lower status usually attributed to individuals in almost any society who are
close enough to its reality to "get their hands dirty."

\(^2\) A Dictionary for Accountants, Englewood Cliffs, New Jersey: Prentice-Hall,
here. As definition of the cost basis of accounting, Kohler gives:\footnote{ibid., pp. 143-144.}

The valuation basis followed in recording and reporting expenditures. It rests on the assumption that cost or depreciated cost is a valid and workable quantitative measure of economic activity, both for decisions of management and for the conclusions and opinions of those who rely on reports prepared from accounting records. It embraces the following conventions:

1. Cost is (a) net cash outlay; (b) where assets or services are acquired with capital stock, it is the market value of the stock; (c) if there is not such market value, the fair market value of the asset or service acquired; or (d) if the asset or service has no fair market value, then the depreciated cost of the acquired asset or the best estimate thereof in the hands of the seller.

The emphasis on the market value and exchange has survived as a mainstay of evaluation in financial accounting. While some obvious exceptions are to be noted - e.g., accounting for depreciation requires some convention which does not include the sale of a machine in order to ascertain its accounting value - financial accounting principles preserve an attachment to the (often fictional) free will characteristic of the external transaction. Cost accounting, on the other hand, has been designed to deal with the valuation of goods as they pass from one subentity to another within the overall entity. The intent of cost accounting has, in general, been to assess the cost of particular items of production or specific production processes (and departments), or both. Data generated by the cost accounting system usually enter the financial accounting statements in only one way - the apportionment of certain cost between ending inventory balance and the cost of goods sold during the period. In spite of this, and the fact that virtually all cost accounting entries are based on transfers
of commodities which are divorced from the free market mechanism (in fact, cost accounting might be defined as the recording of internal transfers) the transaction-dependent methodology of financial accounting has prevailed. The cost of a produced item is arrived at by allocating the prices paid in external transactions to the item. Although the rationale for using historical costs in accounting derives from the stewardship concept inherent in financial accounting—historical costs are the most difficult to falsify or unknowingly misrepresent—the carryover in methodology is almost complete. Even though one can find devices—e.g., LIFO (last-in, first-out) inventory costing—which attempts to attribute to an item some estimate of its current cost of production, the cost applied must be that which was paid for the input item at some time or another in the past, however recent.

The above remarks might be construed to apply only to so-called "actual costing." In sophisticated cost accounting schemes, approximations or estimates called "standard cost" are used in place of historical costs. The clerical and conceptual difficulties inherent in attributing to one unit of product a slightly greater cost than another because, for example, the operator on the first earned a few cents more per hour as a result of greater seniority apparently provided the impetus to the development of standard costing. A "standard" labor (or material) rate which was an average of the rates normally allocated to the item could be used to reduce both clerical labor and the temporal fluctuations of cost for a unit of product.\(^1\) In many firms clerical cost reduction remains

the only rationale for the use of standard costs. The mechanism opened up new vistas, however. It is necessary to determine the difference between standard and actual cost in order to provide financial statements with their "true" (transaction-derived) costs. This adjustment figure became a datum—known as the "variance"—which, once available, became an invitation for its own use for another purpose.

Analysis of variance (not to be confused with the usage in statistics) became a tool for investigation of relative efficiency. The standard cost per unit (usually derived as an average of past costs) could be compared with the same unit's current transaction-derived cost. Should current costs exceed standard (past) costs an "unfavorable variance" is noted. An implicit goal is introduced, namely to produce at a cost level which does not exceed previously determined coverages.

Only a short step was required to proceed from variance analysis to the standard format of budgetary control.¹/ Forecasts, obtained largely through extrapolation of transaction-derived data, could presumably be made for all phases of an operation. As the complexity of organizations increases, some filtering process for the allocation of managerial attention and effort is

¹/We wish to draw a distinction here between governmental and most forms of private budgeting. In governmental and certain types of non-profit institutions budgetary control may be construed as referring to the limiting of expenditures to a predetermined amount. Legal sanctions for exceeding the budget limitation usually exist in public institutions. While the problems of reclassification of expenditures from one account to another when the funds in the former are exhausted—to say nothing of the treatment of these limitations as lower as well as upper bounds encouraged by the budget-setting processes used—are most interesting, they are of only peripheral interest here. In private organizations the exceeding of a budget may be met with some penalty but is rarely considered a criminal offense.
perceived as desirable. The amalgam has evolved as the principle of "management by exception" whose essence is the assumption that if things are going as well or better than they had before, no action is presumed necessary.¹ Action would be taken in those areas where some deterioration was observed. Budgets (primarily forecasts) of organizational activity are made; observations on current activities are made; "corrective action" is taken when cost performance exceeds budgeted (forecasted) performance.²

This grossly oversimplified progression of events has been presented in an attempt to portray, schematically, at least, the origins of extant budget control theory and practice as a direct outgrowth of the principles of financial accounting rather than the specific needs of complex organizations. For example, "management by exception," almost invariably a component of the budget control schemes described in the standard literature, is a technique of management in which supervisory effort is directed toward areas where the operation is "not going according to plan," a euphemism for drawing managerial attention to areas in which the budget is not being met, where the budgets are extrapolations of past costs, the procedure can be questioned on both economic and psychological grounds. If the management by exception mechanism were to provide an economic

¹/While this principle does not necessarily imply that an "exception" is performance at a level less than that previously attained, practice appears to have usually equated past costs, forecasts and budgets. See B. H. Sord and G. A. Welsch, Business Budgeting, New York: Controllership Foundation, Inc., 1958.

²/The so-called "flexible budgeting" techniques which provide for different budgets at different output levels do not constitute an exception to the general statement that most budgets are extrapolations of past costs. This "flexibility" refers merely to the introduction of output as an independent variable in the process of obtaining budgets by extrapolating from historical costs.
allocation of managerial effort it would be necessary that the activity which
is performing above budgeted cost (and thus receives special managerial attention)
would have its cost reduced at least as much by a given input of managerial effort
as one which is operating below budgeted cost (which receives only routine atten-
tion). There is no evidence that this condition is always, or even frequently, met. Another apparent underlying assumption would appear to be that levels
which have been previously attained are attainable while those which have not
are (at least) less attainable. While this assumption may be valid, at least
probabilistically in a great number of cases, it too is untenable as an infallible
behavioral description. The marginal return to entrepreneurial effort would be
the relevant factor for economic analysis and, although one might expect relative
returns to vary somewhat with position vis a vis previous performance, the
assumption of a perfect correlation seems unjustified. As to the psychological
validity of the technique, the deleterious motivational effect of a system which
only investigates poor performance (failure) with attendant distribution of
negative reinforcement\(^1\) is probably one of the few points on which one might
find reasonable agreement among psychologists of the various schools of thought.
In brief, budgetary control mechanisms represent a tool-oriented outgrowth of
available methodology and principles in accounting practice which when tested
in light of existing knowledge in other fields, do not seem to be capable of
accomplishing what is claimed they will.

---

\(^1\) Even if this only involves the "explanation" of the noted exception, an
implicit penalty is present. It seems incredibly naive to assume that the
direction of managerial attention to all of the failures and none of the successes
of an individual's performance can produce other than a discouraging environment
no matter how the budgets are set or how little action is taken.
To accomplish the stated purposes of budgetary control in the large - i.e., to attain organization goals - one must turn to the known or theorized behavior of organizations in an attempt to decide what forms of quantitative controls are necessary or desirable. It may be necessary either to revise the scope of accounting practice in order to provide data for the control systems recommended or - if this expansion of scope is resisted by the profession - to devise auxiliary data collection and dissemination systems which will take conventional accounting schemes even further from the position they once held in the main stream of organizational endeavor.

A Characterization of Organizational Processes

We shall attempt to set down a skeletal model of organizational process\(^1\) which, although incomplete, can serve as a framework for a discussion of the function of budgeting in an organization. For this purpose we find it advantageous to separate organizational process into distinct but interrelated subprocesses: planning, forecasting, control, operation, and reporting.\(^2\)

The operation may be defined as the entire collection of events taking place in a period of time which is considered "the present." This "current period" is of arbitrary length; depending upon the characteristics of a

\(^1\) The inspiration for this description is, in large part, obtained from the decision-making process postulated by H. A. Simon in Models of Man, New York: John Wiley & Sons, 1957 (particularly Chapter 14) incorporating the "satisficing" principle which he introduces there. The alterations made by the present author represent a considerable departure from the theory and clarity of exposition of this work, which the reader is urged to consult.

\(^2\) I am indebted to A. Charmes and W. W. Cooper for this particular set of categories. The errors of interpretation and exposition are, of course, those of the present author.
particular operation, a day, a month, a year or even a decade may be appropriately considered "present."¹ The operation in question may be the entire activity of a firm during a year or an hour's activity of a lathe operator. For either, one may envision a forecast, a plan, a control and a report. The scope of the other processes will be assumed to correspond to that of the operation selected.

The reporting process is defined as the communication of information relating to the conduct of the operation to other actors within (or in some cases, outside of) the organization. What is reported is necessarily an image of the operation; were the reporting process described mathematically it might be termed a mapping of certain elements of the operation space onto the reporting space. The detail with which the reporting occurs may be perceived as the richness of the image — i.e., the number of elements in the operation which are "mapped" onto the report. Accuracy of reporting may be viewed as lack of distortion of the elements of the operation as represented in the image of the operation. Usefulness of the reporting, however, cannot be defined without reference to the use to which the reported data will be put.² We should take a moment to clarify this point as to the purpose of reporting. The ubiquitous equating of detail and accuracy with usefulness (or for that matter, the assumption that one need only to look

¹While it may be useful for some purposes to define a state of affairs at a particular instant in time, we do not find a period of infinitesimal length to be particularly useful. Analogous to the "stock" and "flow" differentiation, we may wish to know the stock at a particular instant but flows (changes in stocks) during a finite period of time. While the concept of an instantaneous rate of change (of stocks) may be useful for certain analytical purposes it has not been demonstrated that, in an organizational context, an operational measure of such a rate is obtainable other than as an interpolation of measurements taken at finite intervals.

at the operation to devise a reporting process) tends to obscure the reporting function. The characterization of utility may be enhanced by reference to a geographical mapping analogy. A good aerial photograph of a geographical area is a detailed and accurate representation (report) of the view of the terrain. Highly useful for certain purposes - e.g., selecting a site for a forest-fire observation tower - it is of limited usefulness to a motorist attempting to negotiate the territory by highway. A motorist who possessed one of these accurate reports would gladly trade this representation for a road map at the nearest service station. This latter report of the terrain would be quite lacking in detail and highly distorted. Towns which are quite irregular in shape would be shown as circles and highways shown at many times their proper width. The colors would be entirely fictional and the dimensions will be distorted so that the terrain will appear as part of a flat, rather than pear-shaped world. Conventional reporting schemes, with their emphasis on accuracy and detail have often provided us with artists' conceptions of aerial photographs where a good road map was required.

The planning process is assumed to include setting of the goals for the outcome of a particular operation. If the operation considered is one hour of lathe operator activity the plan could be simply the number of pieces scheduled to be turned out in the hour. (This does not include, however, the transmission of a quota to the lathe operator which is part of the control process to be treated later). Looking at the organization as a totality, planning would include such things as the setting of profit goals, market share goals and "public image" goals. These "organizational aspirations" are assumed to be formulated in advance of the preparation of strategies for realizing them by a high-level
policy committee - a ruling coalition.¹/ The next step in the process is perceived as the formulation of a tentative plan. Although, in practice, this plan may differ somewhat from the most recently reported operation, we assume, for simplicity that this initial plan is an extrapolation of the current modus operandi with possible changes in certain parameters but no basic (structural) changes. The plan incorporates, in the main, variables endogenous to the organization.

A forecast is then made for the operation in our hypothetical organization on the basis of this initial plan and estimates of exogenous variables. If this forecast is satisfactory - if the results of the forecasted operation would meet or exceed the organization goals - the initial plan will be accepted.²/

If not, search ensues for alternative strategies; forecasts based on alternatives are evaluated vis-a-vis the organization goals. When a strategy-based forecast is found to be satisfactory, the strategy is accepted. Plans in more detail (perhaps with recourse to additional forecasting) can then be constructed.

However, search effort may not yield an alternative whose forecasted result will meet organizational aspirations before (1) the cost of further search may be viewed as prohibitive or (2) and "interrupt" occurs - a most frequently en-


countered example is a "deadline" - which precludes further search. The first of these is often ill-defined, with search in the immediate neighborhood of the initial plan relatively inexpensive, increasing with the distance from this original plan. The decision to curtail search is considered part of the planning process.

Should search cease prior to the discovery of a satisfactory alternative, two possible courses of action present themselves. The first, long a well-known characteristic of individual behavior, may be translated into organizational terms as the lowering, by the ruling coalition, of organizational aspirations. The initial set of goals is revised downward to conform to the results of the operation as predicted or forecasted on the basis of the best strategy devised.

The second alternative requires action to be taken which affects the control process. We define this process as incorporating all of the communication of goals from higher to lower echelons in the organization, the evaluation of performance vis a vis the communicated goals and the action taken in response to performance. It thus embraces the actions taken within the organization to effect motivation to carry out organizational goals - hiring, firing, promotion and salary scales - within existing organizational units.1/ We can conceive of the transmission of organizational goals as control whether or not these goals result from a planning process in which a satisfactory strategy (as described above) is found or not. An alternative to the finding of a satisfactory strategy

1/The decision to construct entirely new organizational units would seem to be more properly included in planning except insofar as the selection of personnel to staff the new unit affects motivational elements in the existing structure. The design of the new structure must, of course, take into account the incorporation of control.
at any organizational planning level is the communication of goals to subordinate organizations which require the latter to devise adequate strategies during the operation period even though those strategies do not present themselves a priori. The result may be a statement from the sub-organization "ruling coalition" that they can conform to these goals only if they cut out certain services they are now performing or if they buy a dozen new machines. These newly presented alternatives may be entirely satisfactory. Or, it is possible that these goals will lead to further search effort within the planning body of the sub-organization.\footnote{We have, in fact, a body of organization theory which has as a central tenet the occurrence of search only when previously arrived at plans are considered unsatisfactory. See J. G. March and H. A. Simon, Organizations, New York: John Wiley & Sons, 1958; and R. M. Cyert and J. G. March, A Behavioral Theory of the Firm, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963.}

Undesirable outcomes such as giving "lip service" to the goals while remaining uncommitted to them or searching frantically but not insightfully have been observed in some, but by no means all, organizations.

To summarize the organizational process as depicted here, we first recognize the existence of an organizational hierarchy. Then, we assume that at each level in the hierarchy: (1) goals are formulated for the organization (or sub-organization); (2) forecasts of the outcome of alternative strategies are made; (3) search ensues for the selection of a strategy whose forecast provides satisfactory goal attainment; (4) a plan is decided upon; (5) goals are selected and communicated to sub-organizations in a manner designed to best achieve the organization's goals; and (6) reports of the resulting operation are obtained in order to aid in subsequent forecasting, planning and control. The subject
of the entire process is the operation (i.e., behavior). Items (1), (3), and (4) we have defined as planning. Forecasting is contained in (2), control in (5) and reporting in (6).

Our focus is on the control process and specifically on budget control which we shall consider that segment of control which relates to the formal communication of quantitative goals (i.e., control budgets) and the relationship of these goals to the environment in which they are received.

Is the Concept of Control Obsolete?

The normal operation of the control process is thus perceived as requiring the communication of goals downward in the organizational hierarchy. Sufficient evidence has been accumulated to support the contention that attainment of organization goals is unlikely either in a suitable organizational environment without direction\(^1\) or with elaborate goal communication devices in an unreceptive organizational climate.\(^2\) More generally we are hypothesizing the necessity of control systems so designed that working toward attainment of


\[^2\] Of particular interest is C. Argyris, *The Impact of Budgets on People*, New York: Controllership Foundation, Inc., 1952. He reports a situation in which the goal communication structure is viewed with fear and hostility but his recommendations - i.e., to eliminate the goal communication devices - would seem to be throwing out the baby instead of the bathwater. Weschler, et. al., op. cit., have provided us with what is possibly an extreme example but they report, in a comparison of permissively and restrictively led groups that the permissive leader "utilized the services of a high morale group and of satisfied people in the performance of tasks which his superiors did not consider of highest importance to the laboratory." (p. 6)
organizational objectives is at least compatible with working toward individual aims and desires. Alternatively a control environment which is so designed that the attainment of individual aims is accomplished through "beating the system" is bound to prove unsatisfactory for both the individual and the organization.

We would be remiss if we did not, at this point, note the existence of a body of modern managerial theory whose major premise is the negation of the need for planning and control as we have described it. The proponents of this theory view the formal organizational hierarchy as limiting organizational effectiveness. One, at least, would go so far as to say that the formulation of rational organizational goals and the attempt to obtain the commitment of individuals within the organization to those goals of themselves inhibit organizational effectiveness. The essence of this theory would seem to stem from a belief that the only viable organizational form is one which is designed so as to allow individual self-realization of its members. With this basic premise we are in complete agreement; it is difficult to envision the raison d'etre of an organization if not to satisfy the individual motivations and desires of its members. We rely, in our own treatment, quite heavily on

---

earlier theorizing in the organizational field which defines the limits of cooperation in organizational activity to the extent that the inducements to cooperate exceed the contributions to the endeavor.  

The point of disagreement would seem rather to emerge as a question of whether the attainment of organizational goals is necessary for the fulfillment of individual goals and, if so, who is to define them. One need only examine the history of the labor movement in the United States to assess the extent to which it has appeared necessary for the organization to impose constraints on its members in order to obtain satisfactions - material and otherwise - for them. Similarly our society has continually elected to impose upon itself constraints on the "self-realization" of its individual members as defined by them. The weight of evidence supports the contention that individuals, given their free choice, will surrender some of their autonomy in the attempt to attain individual satisfactions. They have given their elected officials both the power to set goals for the political unit as a whole and, in varying amounts, the resources necessary to achieve conformity to them.

The problem of dealing with the industrial organization - typically a corporation - is more subtle. The directors of the industrial corporation are not elected by a popular vote of all of its members but are elected by one type

---

of organizational contributor - the group of stockholders.\(^1\) Legally, at least the directors are charged with maximizing stockholder welfare. Another class of contributors - the organization's employees - are protected against certain injustices by law. However, the law only extends its protection in most instances to unionized employees (in some cases managers are specifically excluded) and even here the emphasis is on the establishment of minimum standards of conduct. There is no legal requirement that a corporation (or its directors) maximize the welfare of its non-owner members. Let us assume, for the moment, however, an industrial organization whose purpose is to maximize the welfare of its employee members. In order to provide the means of providing both the material and non-material rewards of belonging to an organization, it could still be necessary to "get out the widgets." In order to provide security and an environment in which individual self-realization and interpersonal trust\(^2\) exist one must provide for organizational maintenance which in turn requires maintaining a competitive position in the market place. In fact, it would be very difficult to define organizational aims as providing both a means of livelihood for its adherents and facilities constituting a "fertile field" for accomplishment and self-actualization without providing for income, maintenance, and growth in much the same fashion as one does assuming the existence of an "entrepreneur" who desires a return on his investment.

---

\(^1\)This one factor - the non-elective feature of corporate leadership - is frequently looked upon as cause for defining as arbitrary any "power" a corporate official should have over the rights of an employee. I have observed little in contemporary corporate practice, however, to compete with the entirely punitive and behaviorally naive characteristics of much of the local law enforcement which this society imposes on itself through its elected representation.

\(^2\)Desiderata frequently mentioned by proponents of the modern management theories under discussion.
The essential points of conflict of interest between owner and employee seem to resolve themselves into: (1) the interest of the employee is limited, at most, to the period during which he or his family draw compensation from the firm while the owner's interest is essentially perpetual; and (2) any distribution of earnings to stockholders, ruling out future financing of the enterprise through stock flotation, might instead be utilized to increase employee welfare. To the first of these points we again note the existence of organizations such as labor unions whose members elect leaders who set goals which include maintenance of the organization beyond the period of its current members' benefit. Alternatively, one can state that any organization which is continually assimilating younger members must also continually extend its time horizon if it is to consider the welfare of its most recently acquired adherents. The correspondence between perpetuity in the sense of a stockholder's estate motive and the perpetuity (almost by default) required for the member welfare motive is not perfect. However, it does not seem that, given the limitations of current planning tools and horizons, the difference between perpetuity and, say, forty years would result in drastically different organization goals. As to the second of these points, we merely need to examine how small the proportion of corporate revenues which is distributed to stockholders really is. The amount of wages paid to the employees of corporate enterprises is roughly ten times the amount of distribution to shareholders. While shareholders also accumulate capital gains with organizational growth, this growth also contributes to the rewards, tangible and otherwise, of employees.¹

¹The employee's status within the organization and in his community is likely to be enhanced by company growth. The evidence from business failure inevitably supports the contention that an organization's ability to maintain itself is directly related to its size. Whatever an organization does provide for its employees, its growth seems to increase its likelihood of continuing to be able to provide it.
That the relatively small amount of distribution (or expected future distribution) of corporate revenues to shareholders may appear to play a disproportionately large role in corporate decision making it is unclear just what changes in those decisions would be made if dividends were to be distributed among employees. Alternatively, one might ask how much the rewards for employee organizational membership - and particularly intangible rewards - would differ if one were to substitute the employees for the entrepreneur as the beneficiary of corporate profits.

To recapitulate, the process of setting organizational goals and obtaining conformity to them through the mechanism of a control system need not be interpreted as "placing organization goals above individual self-realization." It is rather a recognition that, if self-realization of individuals is to be attained, coordinated effort rather than anarchy is required. If current control systems fail both in the attainment of organization goals and in the attainment of self-realization on the part of individuals, the control systems should be redesigned. To seek solution through their elimination in favor of the un-coordinated self-realization activities of thousands of employees of an organization lacking the vantage point of an organizational totality and thus following thousands of different paths in their search seems unrealistic. The evidence that any large organization, including a democratic society, can function without some form of control and direction is non-existent. Until such evidence is found, the construction of methods of goal communication in the attempt to obtain desired outcomes seems a legitimate area for investigation.
The Functions of Budgetary Control

We have stated our definition of control to include the communication of goals, whether or not set with the participation of the recipients, from higher to lower levels in an organization. In a large organization where units are separated by physical distance and what might be termed organizational distance, both the complexity of the goals and the need for structure dictate some form of goal communication. A document in the communication structure has usually been called a "budget" where its purpose has been the communication of goals in financial terms. We shall extend the notion of a budget to include nonfinancial but quantitative data (e.g., a production budget in units) but specify a "control budget." The purpose of this specification is to distinguish goal communication from planning and forecasting budgets whose purpose is dissimilar.

We shall state that the goals communicated through the budgetary mechanism should be those which produce the desired effects rather than those which describe them. Thus, while a budgetary plan might involve the expenditure of ten million

1/ Occasioned by the complexity of operations, the need for staff organizations, etc. In essence, this concept embraces an assumption that in a large and complex organization decisions are not made by one man depending entirely upon his own faculties but rather on the extension of his faculties represented by his advisors.

2/ The need for the introduction of formal mechanisms when an organization emerges from the level of complexity in which "genius management" can be successful into a scope where accounting and budgeting are necessary is epitomized by the rescue of General Motors by Alfred P. Sloan, Jr., from the management of William C. Durant. Under Durant's regime, no reports were rendered, the division managers had almost complete autonomy in the financial sphere and although decisions were frequently made centrally for several levels in the organization, no systematic communication of overall goals was in evidence. Sloan introduced a system of communication of overall goals while steadfastly refusing to meddle in internal operations of the divisions giving the divisions (apparently) more real freedom to make decisions than they had previously enjoyed. See E. Dale, The Great Organizers, McGraw-Hill Book Co., Inc., 1960.
dollars, the control budget might specify nine million dollars in the expectation that this will produce an actual expenditure of ten. The purpose of the plan in this case is to assure the availability of the expenditure expected. If the control budget figure were ten million and the forecasted expenditure with this budget would be eleven million then the plan would be unfulfilled and, perhaps, the funds unavailable.

In a laboratory situation where budgets were manipulated, it was found that budgets which were good predictions of performance produced considerably lower performance than budgets which were sufficiently high that they were attained considerably less than half of the time. In fact, it was shown that a budget which could be attained with a frequency approaching certainty produced extremely poor performance. Intuitively, if a budget is to be attained with a high degree of reliability - e.g., a 95% point on a probability distribution - it cannot be terribly ambitious. Indeed it must be less ambitious than a median performance which, by definition, can be attained 50% of the time. Unless one assumes that the impetus to exceed the budget is quite high (in which case one is probably forced to assume the existence of a superimposed utility system) the tendency to perform at the budgeted level rather than exceed it should be apparent.

Providing for any reasonable amount of noise in a performance system (random variation of actual performance about an expected value) a goal which is designed to be attainable most of the time must be arbitrarily low. Setting such goals


2/Something like this would be required if the management by exception principle were followed in order to confine the "exceptions" to the desired small proportion of areas to which managerial effort would be allocated.
would seem to establish the level of performance associated with attainment of external reward (or non-punishment) at a level far removed from what is attainable in the situation. Furthermore, the system can be self-perpetuating. Unambitious goals resulting in unambitious performance provide forecasts of the attainable (where these are extrapolations of past performance\(^1\)) which are similarly unambitious.

It has been suggested that the need for goals, and in particular ambitious goals, is associated with a naive theory of management which maintains that the employee is lazy and will not work unless pushed.\(^2\) Rather, we reply, in our thinking, upon some of the most recent theorizing in the psychology of behavior. H. A. Simon\(^3\) has provided a concept of "satisficing" which postulates that an individual will continue to behave in a pattern as long as he perceives this pattern to be satisfactory; only when he perceives that this pattern is not satisfactory will he search for alternative behaviors. Thus a goal which is designed to precipitate search behavior must change the perception of satisfactory performance rather than reinforce it.

More recently, Miller, Galanter and Pribram\(^4\) have contributed a noteworthy synthesis of contemporary and historical psychological thought in a theory of behavior based upon the execution of plans where they define a plan as "any

---
\(^1\) Sord and Welsch, op. cit., provide ample evidence that in current budgeting practice, forecasts and budgets used for control are generally undifferentiated in terms of the data used in their preparation; a large proportion of the firms in their study did not even recognize a difference between forecasting and budgeting.

\(^2\) See, for example, Argyris, opera cit. and McGregor, op. cit.


hierarchical process in the organism that can control the order in which a sequence of operations is to be performed.\footnote{They study the relationship of plans and images where the latter is "all the accumulated, organized knowledge that the organism has about itself and the world."} Although we may do them some injustice by quoting the following passage which is somewhat removed from the mainstream of their treatment, it is of particular relevance to our problem, having renounced the dynamic\footnote{property of plans, they discuss the role of dynamicism alteration of plans:}.

Thus we accept the notion that dynamic changes in the Image - especially in the evaluative aspects of the Image - exert close control over the Plans we try to execute. Altering the planner's Image is a major dynamic mechanism for altering his Plan, and thus for altering his behavior. Social psychologists who have considered the problems of persuasion have generally agreed that the best techniques involve some change in the audience's concepts or values.

Taking the liberty of translating their statement into our framework, we conceive of goals communicated downward as altering the image and thus altering the plans formed at the lower level. Alternatively, goals which do not alter the image are not likely to produce altered plans or a search for alternative plans.

\footnote{Ibid, p. 16.}
\footnote{Ibid, p. 17.}
\footnote{which in psychological parlance refers to the existence of goals, tensions, and drives. They would place goals formulated by the organism in the image, which corresponds most closely to our notion of a report but would include as well the perception of the control process of the superior organization as seen from below. Goals communicated downward will thus become part of the image directly. They would consider the process of self-goal formation as a separate plan to change the image.}
\footnote{Ibid, p. 69.}
We also find support in their formulation for our contention that plans and goals should be differentiated. They make clear that goals are part of the image or perceived environment while plans are strategies for action. A control budget which communicates goals can only change the image. Even were it to stipulate a plan of action for the recipient it only becomes a plan when the recipient organism (or organization) accepts it as his own. A budgetary plan, which may be defined as a document containing strategies for conducting the operation expressed in quantitative terms, can only be prepared for an organization or sub-organization by itself. Similarly a budget forecast can only become part of the image but cannot be the plan of the organization unless it decides to execute the forecast rather than some alternative set of quantitative stipulations.

The success of a budgetary control system, then may be measured in terms of its ability to induce the formulation of plans at lower levels in the hierarchy which contribute to organizational goals. Based upon the Miller, Galanter and Pribram behavioral model as it might be applied to an organization, control and forecast budgets do not, of themselves, constitute plans for the lower level organization even if they are called, or are in the form of, plans that may be executed.

Conclusion

We have presented, in the most general terms, the place of formal goal communication documents - control budgets - in the organizational process. We have stated what they are not - plans or forecasts - but have given only the most general notions of what they should be. This generality is in sharp contrast to the detail which one associates with most of the treatments in the
standard literature. We find no particular interest to be served by such detailed instructions until more is known about the fundamentals upon which they might be based.

Further research is necessary into the responses of individuals and groups to goals and the environment in which these goals are presented. The evidence that exists in the psychological literature has been gathered largely in the attempt to study how individuals set goals for themselves (aspiration levels) rather than how individuals respond to those goals or non self-generated goals.\footnote{See, for example, K. Lewin, Tamara Dembo, L. Festinger and Pauline S. Sears, "Level of Aspiration" in J. McV. Hunt (ed.), Personality and the Behavior Disorders, New York: Ronald Press, Co., 1954.}

Although exceptions exist,\footnote{S. Siegel and L. E. Fouraker, Bargaining and Group Decision Making: Experiments in Bilateral Monopoly, New York: McGraw-Hill Book Company, 1960; and Stedry, op. cit.} the effects on individual response of varying goal difficulty or presentation environment remains a largely unstudied problem. Recent unpublished research of the author indicates that giving foremen in a manufacturing plant more difficult goals than those to which they are accustomed results in greater week-to-week variations in performance than had previously occurred. Performance changes - either improvement or decay of performance - were, on the average, not significantly different from a control group operating under normal goal levels. The group with more difficult goals, however, had much more disparate performances, with approximately one-third of the group showing performance improvement greater than anyone in the normal-goal group, and another third showing decay greater than any observed in the normal-goal group. Subsequent analysis of the data revealed a strong negative correlation
between age and performance improvement among those with difficult goals but not elsewhere. While subject to many interpretations, the results certainly suggest the evaluation of the effect of individual characteristics on response to goal difficulty if one is utilizing goals or budgets in an attempt to effect performance improvement. A budget, in order to be successful in producing desirable alteration of performance, may well need to be designed taking into account not only the "objective" characteristics of the job to be done but the individual characteristics of the prospective doer. While this approach seems to have aroused some strong comment when applied to budgetary control\(^1\) special selection of men for difficult tasks in part on the basis of their tolerance for stress is a common enough phenomenon in other areas.

In the absence of sufficient evidence, our recommendations to the practicing manager or budget officer must be disappointing. That a budget based upon essentially unaltered extrapolations of past performance can control, if at all, only against a decay in performance from previously attained levels is probably a useful recognition. We have attempted to show that a budget containing goals "attainable" with the high frequency usually expected not only must be arbitrarily unambitious but essentially punative inasmuch as attention is focussed on the relatively few situations in which goals supposedly recognized as attainable by everyone concerned have not been attained. A budget containing ambitious goals as desirable attainments, perhaps with explicit rewards for attainment, and without

---

\(^1\) See, for example, the discussion of "phony" goals in S. W. Becker and D. Green, Jr., "Budgeting and Employee Behavior," *Journal of Business*, October, 1962.
the assumption that these goals "should" be met at all times is an untried solution, at least according to the published literature. Such a budget, or one which contains both "desirable" attainments and "minimum" levels, might well be better than current theory and practice. It is difficult to conceive that it could be worse.