Creighton University

The Significance of Behavioral Science to the Practice of Management Accounting

MBA 299 - Independent Study and Research

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Accountants must recognize that they employ behavioral assumptions in designing and operating information systems; the behavioral assumptions employed have a direct bearing on the success or failure of an accounting system to achieve intended results.
FOREWORD

In the decade just ended, management accounting systems have become more scientific. The phenomenal growth of the computer industry has resulted in new quantitative techniques and more refined accounting procedures intended to provide management with more complete and timely information. At the same time, a less phenomenal but significant growth has taken place in the application of behavioral science research and theory to business organizations. Leading researchers in the fields of psychology, social psychology, and sociology have begun to direct their attention to the challenging issues of relating what has been learned about individual and small group behavior to the problems of large organizations. This new application of behavioral science research to organizations has resulted in a new area of study called Organization Theory.

A small, but significant part of the research concerned with organization theory has dealt with the impact of present management accounting tools and techniques in the management process. Research in this particular segment of organization theory has been stimulated by the increased recognition within the field of accounting that the information supplied by accounting systems must be useful to
and be used by managers if it is going to be worth the effort to prepare it. Researchers in the study of what has come to be called behavioral accounting recognize that the prime function of management accounting is to supply information which motivates managers at all levels to make decisions which contribute to the achievement of organization goals. The question is whether or not accountants themselves explicitly recognize the behavioral implications of accounting and, if so, whether or not they are correct in their assumptions about human behavior and motivation.

With this question in mind, the purpose of this paper will be twofold: (1) to substantiate the conclusion that a basic function of management accounting is behavioral and that the nature and scope of accounting systems are necessarily influenced by the various views of human behavior as assumed by the accountants who design and operate accounting systems; and (2) to establish that human behavior within an organization is a variable which must be recognized and understood by management accountants.
The accounting system within a business organization is the major formal source of information for the management decision-making process. History indicates that accounting at its inception and during its early development was exclusively management oriented. The first phase of the development of accounting was a long, evolutionary struggle to devise and perfect a tool of expression and measurement - proprietary double-entry bookkeeping. Such a double-entry bookkeeping system was definitely directed to the computation of proprietary profits and capital.\(^1\)

Early accounting practices were intended to provide business proprietors with information by which to render decisions and to provide a method of accounting for assets, liabilities, and the results of operations.\(^2\) Thus, it is clear that the early history of accounting represents the development of a methodology aimed at satisfying the internal needs of proprietary managers rather than any external requirements.

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The business environment which evolved over the last seventy-five years, however, had a significant effect upon the development of accounting. The growth of the corporate form of business with its absentee owners brought a profound change in accounting requirements. Prior to the corporate form of business, accounting information was collected and formulated solely for use by proprietary managers, and it served the dual function of providing operating data and financial data. Furthermore, accounting information was formulated at the discretion of business operators (or their accountants), who had little reason to be concerned with communicating accounting information to outsiders. However, with the growth of the publicly-owned, corporate form of business, professional managers, hired to operate a business for the benefit of its owners and the security of its creditors, were expected to report corporate results of operations in a fair and uniform manner, understandable and meaningful to investors and creditors.

This need for managers to account to absentee owners and creditors spawned a new profession, that of the independent Certified Public Accountant. These outside, independent accountants were charged with the responsibility of protecting the owners' and creditors' investments through formulation and enforcement of uniform and objective accounting principles and practices. As the corporate form of
business grew, it became necessary to assure outsiders that firms incorporated a form of social consciousness wherein the interests of third parties were protected. The burden of assuring this protection fell generally to the external or "public" accountants.³

Out of necessity, the accounting profession became primarily concerned with the audit function, the protection of assets, and with adherence to statutory requirements. The enactment of income tax laws in the second decade of this century not only required improved record keeping and created new emphasis on the determination of income, but also added the field of income taxation to the scope of accounting.⁴ In addition to the requirements created by tax laws, certain industries became regulated by governmental agencies formed to promote the public good. These agencies further defined external requirements even to the point of specifying the chart of accounts to be used by specific industries:

The (Federal Power) Commission may prescribe a system of accounts to be kept by such natural-gas companies and prescribe a system of accounts for each class. The Commission, after notice and opportunity for hearing, may determine by order the accounts in which particular outlays or receipts shall be entered, charged, or credited.⁵

³Ibid.
⁴Donald P. Perry, Public Accounting Practice and Accounting Education (Boston: Graduate School of Business Administration, Harvard University, 1955), p. 2.
⁵Natural Gas Act, Statutes at Large, LII Sec. 8, 821 (1934).
As the legal requirements became more complex and demanding, the role of public accountants within corporate organizations grew. Accountants hired by publicly-owned firms had to be knowledgeable in the area of public accounting requirements. Thus, many firms began to require their chief accountants to be certified in the practice of public accounting. All of this was a boon to the public accounting profession. Certified Public Accountants experienced an ever growing demand for their services and the profession prospered. "Public accounting" and "accounting" began to become synonymous.

With prosperity, increased responsibility, and a growing membership, the public accounting profession became the dominant influence in the formulation of accounting curricula in our colleges:

Many accounting courses offered in schools of business appear to have no orientation toward management accounting, and even those courses which logically should include a considerable flavor of management orientation are often presented with primary emphasis on "generally accepted accounting principles" and external reporting . . . .

The founding teachers were recruited almost entirely from public accounting offices; and curricula, course content, textbooks, methods of instruction, etc., all were oriented toward public accounting.  

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With public accountants controlling the classroom, accounting research, writing, and instruction began to exhibit a built-in bias toward the overemphasis of public accounting, with little or no status given to management accounting. "Historically the stewardship function has been by far the most important and not unnaturally this is the aspect with which most writers on accounting have been concerned." 7

In serving the needs of corporate outsiders, the best research and creative efforts of the accounting profession were denied to the insider, the corporate manager. Accounting became a highly technical profession responding more to legal statute and "accepted public practice" than to the information needs of corporate decision makers. The development of improved accounting information for managers was given little priority by the publicly-oriented internal accountants. Almost without exception, present day internal accounting systems are oriented toward the historical, stewardship aspects of external reporting. "Conventional accounting systems have tended to grow primarily in response to external forces." 8 For internal


purposes, managers have had to be content with the by-products of systems designed primarily to serve outsiders. "Accountants have been charged and, in some companies, with justification, with ignoring the need of operating information and concentrating on financial statements, external reporting, and income tax requirements." 9

However, the demand for information useful in the decision making process is getting a response - and not just from accountants. The accounting profession, in neglecting its most important client, management, has weakened its position as a part of the management team and has invited other disciplines to participate in the creation of management accounting information:

The position of the Accountant as the chief administrator of management information is being eroded away. The trend now is to assign the operation of the management information system based on computers and highly sophisticated systems and procedures to an organization outside of the controller's department. 10

The development of large-scale electronic computers has left its mark on many disciplines. Through the application of the newly-developed quantitative techniques of operations research to the problems of large business organizations, the increasingly complex world of corporate managers

10 Ibid.
is beginning to receive an element of rationality and systematization.¹¹

However, another development, less heralded than the computer but considered by many to be equally significant, has been unleashed and is enjoying an increasing influence on modern management practice. This movement is quite apart from the "quantitative explosion" and has its roots in the behavioral sciences. It is founded on a growing body of theory being postulated by leading researchers in the fields of psychology, social psychology, and sociology. These "behaviorists" have begun to direct their attention to the challenging issues of relating what they have learned about individual and group behavior patterns to the problems of large-scale organizations.¹²

This "qualitative" movement in the area of management science has challenged many of the heretofore accepted principles of management, and most certainly it will have its effects upon accounting just as the computer has. "... since management accounting is so closely related to the management function, it is not unreasonable to anticipate that accounting may also undergo substantial changes as the result of the impact of the behavioral sciences."¹³

¹²Ibid.
¹³Ibid.
The question is whether these changes will occur by default through the eventual advancement of other disciplines in the management information business (witness the growth of the "systems specialists") or by the deliberate effort on the part of accountants themselves to assume the lead in this area through implementation of new and creative techniques reflecting the findings of modern organization theory. Accountants are off to a slow start in this regard. They have not evidenced an awareness of the behavioral science movement. Criticism from within the profession was voiced as early as 1960. Writing on the psychological reactions of those who consume accounting output, Dr. Carl Thomas Devine, visiting professor at the University of Chicago, chastised accountants for failing to become aware of the findings of the behavioral science movement:

On balance it seems fair to conclude that accountants seem to have waded through their relationships to the intricate psychological network of human behavior with a heavy-handed crudely that is beyond belief. . . . failure to recognize that much of what passes as accounting theory is hopelessly entwined with unsupported behavior assumptions is unforgiveable. 14

As discussed above, the best talent of the accounting profession has in the recent past been diverted from developing the managerial aspects of accounting. However, by capitalizing on the growing body of knowledge flowing from

current behavioral science research, accountants have an opportunity to research and implement new techniques which mirror an understanding of modern organization theory.

"... It is only within approximately the last decade that accountants have become aware of the behavioral structure within which they function. This awareness has had many effects... it has been the catalyst for a burst of research activity sufficient to qualify as a genuine movement."\(^{15}\)

This research is essential. Any failure of accountants to recognize and react to the potential impact of the behavioral sciences on their practices could diminish the effectiveness of future accounting systems.

To date, the influence of modern organization theory on management practice has been far less extensive than the influence of quantitative methods. However, the potential effect of the behavioral sciences could be to revolutionize the theory and practice of management. If in time the behavioral science movement does significantly change the traditional theory of management, is it not correct to anticipate that management accounting as traditionally practiced may become obsolete? Furthermore, if management accounting as traditionally practiced has deficiencies in light of current organization theory, then perhaps the recent quantitative advancements as applied to accounting have been highly overvalued:

If the management accounting system of an enterprise has inherent characteristics which tend to produce undesired behavior and if the speed and efficiency of the system are greatly increased, is it not likely that the undesired consequences will also be greatly increased? If the answer to this question is affirmative, the introduction of more powerful quantitative techniques places an even greater obligation on accountants to become familiar with concepts from behavioral sciences and to attempt to operate their systems with these concepts in mind.16

The possible consequences of quantitative applications utilizing large-scale computer systems being dysfunctional are even more onerous in light of the nature of computer systems. As the traditional management accounting report function became more and more automated and systematized, it became absorbed in the mystique of the computer. As a result the accounting systems became increasingly more inflexible to modification.

Chapter II develops further the reasons behavioral science is so important to management accounting and its future development.

Simply stated, the management accounting function is charged with the responsibility of collecting and disseminating information concerning the events affecting a business organization. Charles Horngren offers a more thorough definition which breaks this function into its component parts:

1. External reporting to stockholders, government and other outside parties.

2. Internal reporting to managers for use in planning and controlling current operations.

3. Internal reporting to managers for use in making special decisions and in formulating long-range plans.17

In order to fulfill the above reporting requirements, Horngren neatly summarizes the accountant's task into three facets:

1. **Scorekeeping** - The accumulation of data.

2. **Attention Directing** - The reporting and interpreting of information which helps managers to focus on operating problems, imperfections, inefficiencies, and opportunities.

3. **Problem Solving** - Concise quantification of the relative merits of possible courses of action, often with recommendations as to best procedure.18

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Horngren's analysis emphasizes the attention directing and problem solving task. He associates any potential improvement in management accounting systems with the ability of accountants to improve their "attention directing" and "problem solving" abilities. As for the "scorekeeping" function, he assumes it is a given and little can be done to improve it: "Scorekeeping is essential for cost accumulation; but attention directing is the key to augmenting management appreciation of the accounting function."19 Horngren, like most accounting text authors, ignores the importance of the selection process accountants employ in creating the base for their information systems.

Perhaps the contents of the data base is ignored because the scorekeeping function has often been considered to be rather structured, immersed in principles and past practice. However, as pointed out in Chapter I, such structuring of accounting practices is primarily due to the overwhelming influence of public accountants on the management accounting function, not on the internal information requirements of management. But the scorekeeping function should be

under constant scrutiny by accountants. Changing circumstances may cause information correctly judged as insignificant in the past, to suddenly have great importance to the current decisions facing management. Allowing the so-called scorekeeping or information selection process to stagnate may weaken an otherwise sophisticated data handling system. Even the most creative system for analyzing, comparing and reporting management information would accomplish nothing if the information collected as input to the system is not significant.

In meeting management information requirements, accountants are not limited by law or convention in the design and operation of internal accounting systems; for internal purposes they are free to record or not to record a specific event affecting the firm.20

In reality, an internal management accountant must elect to record certain events and transactions while rejecting others. It is inconceivable that any workable information system could provide information relative to all, or even a substantial portion, of the changes affecting a

20 This statement is true even for firms regulated by federal agencies such as the Federal Power Commission and Interstate Commerce Commission. Such regulated firms must employ uniform systems of accounts and provide adequate audit trials to assure compliance to regulatory requirements (see supra, pp. 3-4 and n. 5, p. 3). However, nothing prevents these regulated firms from utilizing "memo" internal accounting systems to record and classify transactions for planning and control purposes.
large business organization. Many events - particularly those outside the firm - are simply not available for input; they are not perceivable by those designing and operating the information systems. Take for example the events leading up to a costly work stoppage or other labor dispute. The events causing such occurrences as labor disputes may seem obvious from an after-the-fact analysis, but preventive measures were not taken simply because these events were either not recorded or were not properly interpreted.

Even if accountants were capable of perceiving all events which would affect the firm's operations, they still would not be able to record them all or properly interpret their probable effect. If they tried, their systems would clog and become unmanageable. In addition, the recording of many events would be self-defeating. The cost to gather and process certain items of information would greatly exceed the value of the benefits that they would provide.

Thus, in the real world, documenting and recording the changes affecting a firm (scorekeeping) must involve a selection process, explicit or implicit, which permits the
gathering and processing of only the most critical of the known information relating to the changes affecting a firm. A screening process must take place wherein certain known events are recorded and others are simply rejected as being too insignificant. Although Horngren largely ignores the importance of the selection process, it is a basic variable and is paramount to the end objective of accounting - information for decisions.

It is apparent that only a limited set of data (Caplan regards these as observations about changes) can be selected for input into an information system. This selection process is invariably performed by accountants. Furthermore, accountants not only make decisions regarding what alternative information is most critical, but they also heavily influence how selected data should be compared and analyzed.

Thus, whether or not they explicitly recognize the fact, accountants, depending on the information they collect and how they use it, can have varying degrees of influence on the decisions of operating managers.

"The simple realization that accounting figures are both a cause and an effect of human behavior is, by itself,

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relatively trivial. A more important realization is that accountants can deliberately design their systems so as to influence behavior. It is evident that accountants are more and more reflecting the attitude that their responsibility extends beyond simple measurement and aggregation to include the perception and use of accountant's information by someone else."

This is a significant departure from the traditional, Horngren-style analysis of management accounting. Influencing or motivating managers to take a particular course of action has not been considered a function of management accounting.

In discussing the function of management accounting the word "motivation" is being used more frequently. Until recently most accounting authors spoke in generalities about "accurate reports offering timely information useful in the decision making process." However, this is changing. In a 1969-70, 1970-71 report of the committee on Managerial Accounting the behavioral or motivational aspects of management accounting were implicitly recognized. In the report consideration was given to the "information choice problem." This problem was analyzed using a simple illustration of the relationships between a decision maker (manager), information


evaluator (accountant) and a given information system. The defined objective of the accountant in this model was as follows:

We (The Committee) will assume that the objective of the information evaluator is to choose an optimal information system, which can be defined as one which generates signals (i.e., information leading to an optimal resolution of a decision maker's problems).  

It seems obvious that accountants must formulate information systems based on desired "signals" or "motivators." However, to know which signals to produce requires some knowledge or assumptions about the decision maker's particular model of the decision making process. The accountant cannot create an effective information system in a vacuum. He must understand the managers decision model. He must be able to predict how a manager will react to alternative information. The committee clearly acknowledges this need for accountants to employ a model to test alternative information systems:

. . . . the accountant cannot evaluate the net benefits from a modification in the information system without predicting how the D.M. (Decision Maker) will react to the new signals . . . . As a general rule, the analysis would be based on the accountant's subjective (italics mine) probabilities about the D.M.'s reactions to new information, which adds an additional degree of complexity to the problem.  

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24 Ibid., p. 317.

25 Ibid., p. 319.
The term "subjective probabilities" when referring to forecasting the managers reaction to information is not discussed further by the committee. In the next paragraph the subject is dismissed: "We are not interested at this stage in the specific techniques which can be used to assess changes in the information system . . . .".

The 1969-70, 1970-71 committee on Managerial Accounting implicitly recognizes the need for accountants to employ behavioral assumptions in the structuring of accounting information models. However, the committee failed to explicitly emphasize the important relationship between the behavioral assumptions employed by the accountant and the ultimate success of the information system.

It should be clear that behavioral assumptions, however diverse and changing, play a key role in the formulation by accountants of internal accounting systems. From the initial determination of which costs and revenues should be measured and controlled to the development of performance indices accountants must logically be attempting to influence the decisions of managers.

An example of this attempt by accountants to influence

\[\text{Ibid.}\]
management decisions can be cited from personal experience. For a year and a half I worked for a food processing company as controller reporting to the vice president of administration. At the time I joined the organization the company had just completed its third year "in the red." Sales had declined and the operation was in need of a turnaround. A new president had just been hired.

The new president failed to provide the leadership needed to get the management team working together. Production blamed high cost on idle plant capacity due to declining sales; and sales blamed its declining sales on the low quality of products produced. The president leaned one way and then the other way, but never saw through the problem.

In this environment a sort of desperation strategy evolved on the part of accounting. A new cost accounting system was designed and implemented. A wealth of new reports and analyses were created. These included sales margin analysis, optimum sales mix calculations, market elasticity analysis, break-even analysis, inventory turnover analysis, minimum warehousing and routing cost models, etc.
All of this effort was aimed at getting top management to take action to get the company on a new course. Sixty hour weeks were spent analyzing data and testing models to optimize the sales mix and minimize costs.

This atmosphere of urgency, made obvious by the poor operating results, caused the accounting managers (administrative V.P., data processing manager and myself) to (1) determine what was wrong and (2) report findings through the organization in the hope of stimulating corrective action. Unquestionably we as accountants felt we knew the problems needing attention, e.g., decreasing share of markets, failure to develop a branded product, retention of low volume and low margin products, uncompetitive distribution system, excess plant capacity, etc. Applying pressure on production and sales management through reports to the president was intended to push management to take positive action to improve the overall operations.

Our efforts failed and a 75 year old company was liquidated. The reasons for the failure are not germane. The point to be made is that a crisis environment augmented what is normally a more subtle effort on the part of management accountants to motivate managers to specific courses of action.
Everything we did was aimed at getting someone to take a specific action. It was certainly not an objective, structured and unbiased system of reports.

By 1971 research into the behavioral aspects of management accounting had a great deal of momentum. For the first time the American Accounting Association appointed a committee to research the possible implications of current behavioral science research on accounting curriculum. Specifically this committee, chaired by Edwin H. Caplan, had the following objective: "To search out, evaluate, and recommend those topics in the behavioral science area appropriate for accounting students. The committee should give consideration to methods of including certain of this material in accounting problems and courses." 27

The creation of this committee by the AAA evidenced a growing concern by the profession of the potential behavioral implications of accounting. This committee makes a strong statement explicitly recognizing the behavioral implications of management accounting:

Unless accounting reports have the potential to influence decisions and actions, it is difficult to justify the cost

of their preparation . . . To state the matter concisely, the principal purpose of accounting reports is to influence action i.e. behavior. Additionally, it can be hypothesized that the very process of accumulating information, as well as the behavior of those who do the accumulating, will affect the behavior of others. In short, by its very nature, accounting is a behavioral process.28

Clearly the accounting profession has come to grips with the very fundamental fact that the purpose of management accounting is to directly influence the decision making process.

Although recent proclamations have been made concerning the behavioral aspects of accounting most accounting practitioners still do not have a conscious awareness of the motivational aspects of accounting. They view accounting as a traditional "objective" application of uniform, established techniques and practices. The idea of "influencing" or "motivating" is anathema to traditional accounting thought. Perhaps this reaction stems from the fact that until recently no one has analyzed what goes on in the accountants mind when he selects, records, and disseminates information. The process is documented (Horngren), but the actual criteria (behavioral assumptions) employed by the accountant are not considered. Could this be an oversight due to a lack of understanding of or interest in human behavioral theory? Have accountants created a set of techniques and practices without ever analyzing the

28Ibid., p. 247
behavioral assumptions underlying those techniques and practices? If so, is it not possible that traditional accounting practices reflect on incorrect views of human behavior? Since the behavioral assumptions underlying traditional accounting practices are not documented, the answer to this question must be sought through an analysis of the effectiveness of management accounting practices. Chapter III will deal with this problem.
Chapter II developed the behavioral aspect of management accounting. Prime consideration was given not to the quantitative or analytical system of recording and interpreting transactions, but to the potential influence management accounting can have on decisions, i.e., to how it can motivate or steer managers to certain courses of action. From this point of view management accounting's fundamental purpose can be defined in terms of motivating managers to make organizationally desirable decisions. Specifically this chapter will deal with the question of whether or not management accountants are effectively motivating people to achieve agreed upon organizational objectives.

Obviously, the answer to this question lies not in an evaluation of the accountants' professional skills in applying generally accepted methods and practices. After all it is these "generally accepted methods and practices" which this paper is indirectly attempting to question. Rather, the answer must be obtained through an analysis of the results achieved. Simply stated, management accountants in employing a certain practice must intend to exert
a positive influence on the decision makers. It is irrational for an organizational participant (accountant or other) to deliberately seek to have a negative effect on the achievement of agreed upon and mutually pursued goals. Logically then, accountants can only view their role in the organization as one of influencing (motivating) managers to make decisions which will contribute to the achievement of the organization's goals. If the actual result achieved consistently differs from the intended result, then it would seem reasonable to conclude that in this instance accountants are not effective. Their attempts to motivate managers to choose a specific course of action has backfired.

In seeking to determine the effectiveness of management accounting practices the author can draw on limited personal experience for examples of management accounting practices and the subsequent results achieved.

While working for two summers as a laborer in a large (2000 employees) meat packing plant, I was first able to observe the effect of accounting indices on line management. The situation about to be described involved a hog processing operation which was segmented into the kill, cut, trim and finishing (canning, smoking, etc.) departments.
My first assignment was to work with a crew whose job it was to move three wheel meat carts full of graded hams up to a scale for weighing. As the carts filled up it was our job to pull the cart away from the conveyor and immediately replace it with an empty cart. It was the responsibility of the floor foremen to assure that the loaded meat carts were pulled from the line for weighing and that the grading lines were kept supplied with empty carts.

The processing floors were designed to kill, cut, trim, etc., approximately 600 average weight hogs per hour. This speed was never exceeded, but periodically the average weight of the hogs would be increased. When this was done the meat carts would fill faster and empty carts to replace them would be in short supply. If carts were not available (and often they were not) the meat would eventually slide off the over filled carts and onto the floor. The government inspector would then shut down the entire production floor. Immediately, white frocked, hard hat, production managers would converge on the scene. The result was predictable: the floor foreman in charge of moving meat carts would be assailed for not having empty carts ready for the line.
During my second week of pushing 1500 lb. carts up the steel ramp leading to the scale, the floor foreman called me aside and informed me that I was being given a special assignment: I was to "hustle empty carts from other departments." The job was simple: just walk through the plant and when you see an empty unguarded cart, just lean on it and guide it back to the cutting floor. Initially, I was relieved because the job meant pushing empty carts instead of full carts.

In a short time I discovered that my foreman had not originated the idea of hustling other departments' carts; several other departments had been doing the same thing. The combined efforts of the cart hustlers were obviously disruptive to the overall intended design of the production process. Especially disruptive was the practice of going to another department after shift hours and stealing their entire supply of empty carts, without which the next days production could not commence. For this I was paid time and one half!

It is difficult to single out and describe this one particular practice and draw conclusions. The overall operation of this plant was fantastically inefficient for many
reasons - one of them being the plant's age, 95 years. However, in retrospect it is obvious that the line foremen were making dysfunctional decisions and that the pressure from higher management motivated these decisions. Further more, this pressure from above was triggered by the need for the hog cut operation to satisfy a performance index. Obviously, little else mattered. Each day each department manager received a report comparing his performance with that of the other department managers. I did not know the specifics of these reports which came from the accounting department. I only knew that I spent a summer indirectly disrupting the production process. Obviously, this was not the intended result and just as obviously someone up the line misjudged lower management's reaction to the pressure created by performance reports.

Upon graduating from college I accepted a job as a "cost accountant" at a Ford Motor Company auto assembly plant. The position reported to the plant controller who was responsible for various daily, weekly and monthly reports to all levels of management. Daily and weekly reports measured the relative performance of foremen in each department by shift. The basic intent of the reports was to create
a spirit of competition among the foremen.

On the whole the formal management information system seemed to work well. With little interpretation the reports highlighted problem areas needing attention. However, in seeking explanations for below standard performance line managers invariably blamed others for their problems. Not surprisingly line managers often seemed much more interested in placing blame than in taking any steps toward cooperative corrective action. In extreme cases indications could be found that day shift foremen faced with a bad performance report for the next day would take steps to sabotage the performance of his night shift counterpart. This could discretely be done by misplacing part stocks, tool supplies, or even by sabotaging the assembly lines.

While such dysfunctional occurrences were not common and were hard to prove, it was generally admitted that they did happen. Certainly the disruptive actions sometimes taken by line managers were not all irrational. These production managers were attempting to lessen the pressure from higher management. The media for transferring this pressure down to line foremen was the daily performance reports generated by the cost accountants. Reporting a foreman's bad perfor-
mance to his peers as well as higher management levels was intended to motivate the foreman to better his own perform-
ance, not lessen the performance of others. It is not likely that these occasional dysfunctional actions were ever asso-
ciated with the reporting system. Furthermore, the basic behavioral assumptions underlying the design of the system were probably never explicitly formulated. The system put pressure on problem areas, but at times the resulting actions were obviously not those predicted or assumed by the system's designers.

The cost analysis department also was involved in a rather simple budgeting process. Weekly, each production foreman would prepare a budget listing the materials and supplies he needed for the week (hand tools, drill bits, sand paper, welding supplies, tape, etc.). It was the job of the cost analysts to compute the total cost by item of each foreman's budget. The budgets were then reviewed by the plant controller, who would approve the budgets subject to a substantial percentage reduction. The analysts then had to reduce each foreman's budget by the given percentage. Having little knowledge of the importance to each foreman of particular supplies, the budget cuts were arbitrary. This process
went on each week, and the continued ability of the foremen to get along, sometimes, on as little as one half of the supplies they requested, led one to conclude that the foremen simply were padding their budgets. But even if they did, they could not predict the percentage cut in the total cost of their budget, nor could they predict how each cost analyst would spread the cut among the items requested.

The ability of the foremen to get along with the arbitrary budget cuts puzzled me for several months, until a foreman took me into his confidence (a rare experience for a cost analyst). I was trying to find out if it would be helpful for me to contact him each week to find out which items he really had to have and which items could be safely cut. Instead of answering the question he took me over to his supply locker, unlocked it and revealed a stock of diverse supplies. He explained that each week after supplies were requisitioned (via reduced budget requests) he and several other foremen would each make up lists of their total supplies. The lists would be circulated and during the week they would trade needed items.

A crude but functioning barter system had evolved! In a given week two dollars worth of new drill bits (possibly
requisitioned by a paint department foreman who had no use for them) might be worth ten dollars worth of sand paper. Simple supply and demand determined trading value. Instead of requesting the supplies they each really needed, foremen would request those items which they thought would have the highest "trading value." Thus, in this instance the cost and budgeting system in use by the accountants was not achieving the intended results. The barter system negated concern for dollar costs. However, it was not without merit. Since it was based solely on supply and demand, those items in shortest supply (regardless of cost) would automatically be requisitioned by the foremen.

Although the barter system seemed to be working, it certainly was not the intended result of the budgeting process. The controller sincerely thought he was forcing the foremen to toe the line and expend their supplies efficiently. Instead, he completely lost control over the budgeting process. There was no way to determine which foremen were efficient with supplies and which ones were taking them home. The whole indirect supply budget was a farce. The controller and others had obviously not correctly calculated the behavioral response of the foremen to budget cuts. Because of this all intended control was lost. Much time and
money would have to be spent if the foremen were to ever be convinced that their supplies budget was a useful tool for planning and controlling expenses.

One other noteworthy example of a dysfunctional action caused by a miscalculation of human behavior by the Ford assembly plant controller involved a Xerox copier. In the interest of efficiency the controller became nearly obsessed with limiting the use of Xerox copying.

At the onset of a strike which shut down production the controller unplugged the Xerox machine. He simply banned any use of the Xerox, allowing only a cheaper Bruning process which would not copy certain documents. In order to get their jobs done those who absolutely needed a Xerox machine made alternative arrangements. They asked the purchasing agent (who did not report to the controller) to arrange for copy service outside the plant. This was done, apparently with some discretion because it went on for seven weeks without the controller's knowledge. Once again the predicted result was not achieved.

The above examples of accountants failing to accurately predict the actions taken by managers and workers as a result of a system or directive have been taken from very limited
personal experience. However, some effort has been made by researchers in the field of accounting to document incidences of dysfunctional aspects of accounting systems.

An article by Drs. L. S. Rosen and R. E. Schneck of the University of Alberta documents some of the "inefficient behaviors" caused by present accounting systems. Rosen and Schneck blame the "inefficient behaviors" on unanticipated negative consequences of accounting systems:

... in a simultaneous process many aspects of accounting systems result in or "cause" behavior which is highly rational and efficient, but other aspects result in or "cause" behaviors which are inefficient. These inefficient behaviors are the unanticipated negative consequences of present accounting systems.

In their research Rosen and Schneck observed many instances of inefficient behavior brought on by erroneous assumptions about individuals' responses to simple performance indices. In a certain department of the Canadian government they cited a case where employees' performances were judged on the number of cases they completed and the size of the errors they found in submissions by concerned parties. As a result employees bickered over who was to investigate the most suspicious possibilities. Investigation of cases

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30 Ibid.
not fitting into these two categories were delayed for months because they were not particularly worth while for the investigators. Thus the public was poorly served.  

In a second case also involving the Canadian government the director of an agency was judged on how well he kept within the budget, and only secondarily on what he accomplished for the agency. Money budgeted for his agency in future years was based on current and past years actual expenditures. The director knew it was difficult to procure additional budget amounts, particularly if the agencies actual expenditures were under budget for the current year. Therefore, to keep his budget appropriation amount high he often had to spend money extensively in the last few months of the fiscal year. He would acquire unnecessary items in one year while important projects could not be undertaken in other years. Overall for the amount of dollars allocated over a period of time, the prime objectives of the agency were not receiving a proportionate degree of the agency's efforts. In the opinion of the researchers the budgetary control system and the manner in which it was used were at fault.  

In a large manufacturing company, Rosen and Schneck

32 Ibid., p. 12.
found a case where branch managers were evaluated on their ability to wisely purchase equipment. To evaluate the equipment purchases, the home office required the branch managers to submit reports of subsequent lifetime expenditures associated with each new piece of equipment. Through these reports it was assumed that the relative ability of each branch manager to make good equipment purchases could be measured. However, the system failed to provide such a measurement. Branch managers circumvented the intended control by incorrectly coding expenses associated with new equipment purchases so that the expenses would be charged to old equipment. Because of this practice, the home office always had the impression that the branch managers made the correct decision when they ordered equipment.  

The cases noted above point out discrepancies between the intended results and the actual results of actions taken by management accountants. However, these cases cannot be looked at in isolation. Each was an outgrowth of some deliberately designed accounting system of controls. Certainly it is not reasonable to conclude that the entire accounting system behind each of these cases is without merit. But these

\[33\text{ Ibid.}, \text{ pp. 12-13.}\]
isolated examples of negative or at least unpredicted behavior by the information users warrants further analysis. Did they occur because of irrational actions by managers or because the accounting system of motivators steered them to dysfunctional actions? Certainly there is no support for concluding that the managers in these cases all acted irrationally. Many involved group decisions. There is a case, however, for concluding that the accounting control systems moved managers to make rational decisions which were not intended by the system's designers. Furthermore, these cases involve actions continued over a period of time, not just a one time occurrence.
CHAPTER IV

Chapter III discussed definite instances in organizations of significant discrepancies between the actual results produced by accounting systems (in terms of action taken by managers) and the results intended by the system's designers. These discrepancies were analyzed with a view toward determining if a possible cause of the discrepancies stemmed from mistaken behavioral assumptions employed by accountants in the design of control systems. The objective of this chapter will be to discuss some of the current research being conducted at the Institute of Social Research of the University of Michigan under the direction of Professor Rensis Likert.

Professor Likert contends that the root cause of dysfunctional behavior in a business organization is the failure of accounting systems to measure a substantial and important asset - the human organization and resources. Because of this omission by accountants, Likert believes that all levels of management are handicapped by the inadequate and at times inaccurate information now available to them. He believes that the lack of a continuing measure of the value of human resources in a firm leads to wrong decisions on such questions as
what system of management is most productive?
what strategies of cost control yield the lowest cost?
what system of managerial compensation yields motivation and behavior most nearly in the best interest of the entire organization?

In turn, because of wrong conclusions regarding managers' answers to the above questions, management systems have evolved which are at times unpredictably dysfunctional.\

Likert maintains that the human assets of a business must be explicitly recognized and measured before dysfunctional human behavior in organizations can be eliminated. Present accounting systems according to Likert are "end-result" oriented. They attempt to measure both the performance of the organization during a period and its condition at a point in time, both by measuring end results alone. End-result oriented accounting systems center on after-the-fact data which gives no measurements revealing the causes of prospective undesired shifts in human performance.

To be complete, an accounting system, according to Likert, must measure and record changes in three classes of variables:

1. **Causal variables** - those independent variables which can be altered or changed by the organization or

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management (structure, policies, leadership strategies, etc.)

2. **Intervening variables** - those variables reflecting the internal state or health of the organization (Loyalties, attitudes, motives, performance goals, abilities of organization members to interact, etc.)

3. **End result variables** - those commonly measured variables reflecting the achievements of the organization (costs, productivity, earnings, etc.)

Most accounting systems fail to record or measure changes in either the causal or intervening variables. Yet according to Likert the value of a firm's human resources can be measured only through the "causal" and the "intervening" variables:

These variables (causal and intervening), and apparently no other variables but these, correctly reflect the current status of the firm's human organization. End result variables measured at any one point in time or measurements of the trends in these variables do not and cannot yield a correct estimate of the current condition of the human organization.

Without a continuing measure of the human condition of an organization, the value of human resources is ignored and dysfunctions in behavior occur.

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36 Ibid., pp. 27-28.
37 Ibid., p. 104.
Likert supports his contention that this serious imbalance of measurement of variables has many negative behavioral consequences for the firm. For example, if only accounting data, such as expenses, revenues, income, output, etc., are employed as indices for measuring management performance or success it is possible that in the short run harmful decisions by managers can result in improvements in performance as measured by these end result indices. In the long run, however, this improvement may have been achieved at the expense of deteriorating or even liquidating the human resources of the organization. This outcome is possible because under present accounting practice no record is kept of this liquidation of human assets. In the meantime, however, the traditional end-result measurements indicate that the organization is in excellent condition. This situation according to Likert indirectly encourages the deterioration of the human organization. By focusing on and rewarding only the end result measures of performance, a firm's human assets can be used up and destroyed with short term success.\(^{38}\)

A second dysfunctional management practice resulting from a firm's failure to explicitly recognize the value of the

\(^{38}\)Ibid., pp. 101-115.
human organization involves compensation systems. Likert contends that many firms reward managers for "fictitious earnings." Salesmen, department managers, profit center managers, etc., who are "pressure artists" may be able to achieve good end-results in the short run while running off the firms most able personnel, needed for long range success. They are able to use accounting systems and data as a tool of punitive control and a means of strong hierarchial pressure, both causing adverse motivational effects:

Compensation systems which reward managers handsomely for fictitious earnings are those which ignore the value of the human organization, do not measure the causal and intervening variables, and pay managers sizable bonuses for achieving specified levels of earnings as a percentage of sales or of return on invested capital. So long as such compensation plans ignore shifts in the causal and intervening variables, they enable a manager who is a "pressure artist" to achieve high earnings over a few years, while destroying the loyalties, favorable attitudes, cooperative motivations, etc., among the supervisory and non-supervisory members of the organization.39

Overall, Likert believes that through continued quantitative measurement of a firm's human resources, most dysfunctional behavior in organizations could be eliminated. He believes that by developing human asset accounting based upon the findings and methodology of social - psychological research, it is possible to value and measure the state of and trends

39Ibid., pp. 113-114.
in the human organization. Corrective actions will be based on valid measurements that reflect the trust, loyalty, communication, motivation, etc., of the people making up the organization.

Probably the most important improvement in fiscal management will be the profound changes which measurements of the human dimensions of an enterprise will bring in the generally accepted concepts of how a corporation or department should be managed to be financially most successful. The cold hard facts of accurate measurement will wipe out many of the erroneous concepts which are widely held today but which are based on incomplete accounting and short run financial analysis of only a portion of the firm's assets.40

Likert contends that eventually a balance sheet value will be placed on the human organization. He further contends that when this is done we will find that the value placed must relate to behavior. It will be necessary to identify the behavioral patterns which contribute toward company goals as "positive" factors and those which are detrimental to company goals as "negative" factors. To do this the accountant's observation of behavior patterns will have to be based on his own correct assumptions of human behavior.41

Although less direct than Caplan, Likert too concludes that it is of prime importance for accountants to have an awareness and understanding of behavioral theory as it relates to accounting. According to Likert in order to

40 Ibid., p. 154.
41 Ibid.
judge a participant's worth to the organization the accountant must be able to recognize favorable behavioral patterns. Caplan would argue a step further and insist that the accountants must not only know it when they see it, they must also attempt to generate favorable behavior by steering managers toward positive decisions.
CHAPTER V (Conclusion)

The preceding chapters have attempted to demonstrate the significance of behavioral science relative to management accounting. With this point established two questions remain: (1) what behavioral assumptions underlie traditional management accounting, and (2) are they correct?

The behavioral assumptions underlying present management accounting practices have not been formally defined. Determination of these assumptions must be sought outside of the realm of present proclamations by the accounting profession. There is no formal statement in accounting literature regarding the behavioral assumptions underlying traditional management accounting techniques and practices.

At best it can be stated that behavioral assumptions should be a variable and not a given. Certainly not all organization members will have identical reactions to a given set of circumstances. Furthermore, a pattern of behavior documented in one organization may indicate one set of behavioral assumptions, yet reaction to the same circumstances within another organization may indicate a different set of behavioral assumptions.

In seeking to arrive at correct assumptions about
organization behavior, it would be advisable to broaden the search beyond the organization itself. Indeed, the search for behavioral assumptions underlying management accounting practices would logically not be limited to a study of accounting practices, but would encompass the whole of organization theory.

Dr. James A. Lee, professor of management, Ohio University, takes an anthropologist's view in seeking to explain the evolution of organization theory. In determining the behavioral assumptions accepted by managers in general, Dr. Lee theorizes that a management style is dictated not by explicit behavioral assumptions by managers, but rather by the existence of implicit cultural factors which affect peoples' view of human behavior (in or out of organizations).

In seeking to analyze why business organizations have generally rejected the organization theories put forth by modern behaviorists (an assumption he makes), Dr. Lee does not indict their theories as invalid; rather, he believes that management theory cannot be postulated in a vacuum. It must be consistent with existing cultural, social, and economic norms accepted by society. As a culture undergoes change, so too will management theory; and the process cannot be accelerated beyond the rate of change taking place

If Dr. Lee's analysis is valid then behavioral theory as practiced in large organizations is simply an outgrowth of external cultural influences. As the external forces change the organization adapts.

As a minimum it seems reasonable to assume that the management accountant's view of human behavior underlying his information system would have to conform to the view of human behavior assumed by top management. Management accountants must know their organization. They must comprehend the particular management philosophy of top management, and attempt to develop information systems tempered by the behavioral assumptions accepted by the organization's dominant members.

It is beyond the scope of this paper to identify the behavioral assumptions underlying present management accounting practices or to postulate what those assumptions should be. Instead the objective has been to demonstrate that management accountants in putting together reports for analysis necessarily employ some set of assumptions about human behavior in a business environment. The design and scope of an accounting information system must be based on some model which assumes that the reaction of managers to a given set
of circumstances is predictable. If this assumption is not granted, then the design of an accounting information system would depend entirely on trial and error. In practice the reverse is sometimes the case; a system which fails to attain the predicted results is perpetuated because in the designer's mind the behavioral assumptions used in the model validate the system regardless of empirical results.

Accountants must recognize the behavioral implications of management accounting and in turn they must keep abreast of present and future behavioral research. Unless they do, continued improvement of management accounting techniques and practices may be diminished.


Perry, Donald P. Public Accounting Practice and Accounting Education. Boston: Graduate School of Business Administration, Harvard University, 1955.


